

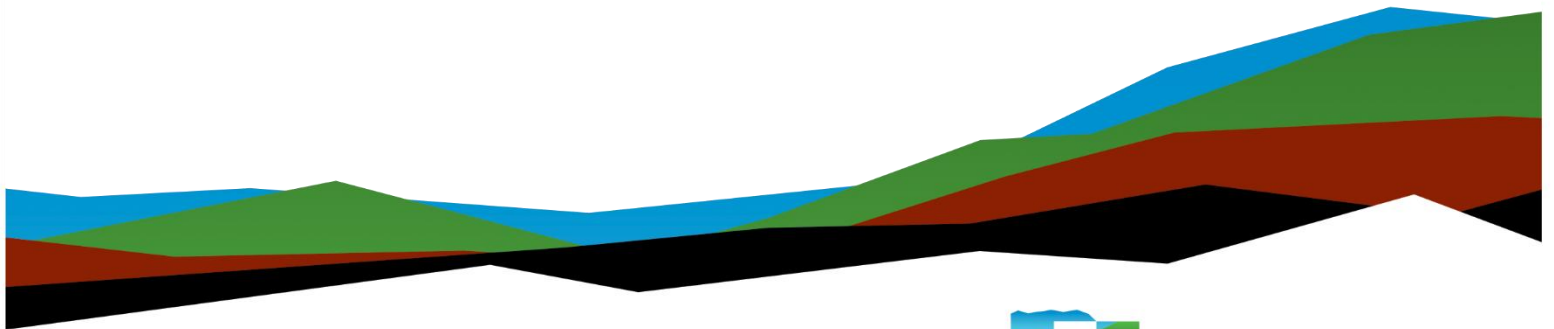
Future Redevelopment Project

Geotechnical Engineering Services Report San Bernardino, California

November 13, 2025 | Terracon Project No. CB255142

Prepared for:

IMEG Consultants Corporation
300 N. Lake Avenue, 14th Floor
Pasadena, CA



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November 13, 2025

IMEG Consultants Corporation
300 N. Lake Avenue, 14th Floor
Pasadena, CA

Attn: Mr. Richard Godina
P: (909) 942-5554
E: Richard.J.Godina@imegcorp.com

Re: Report of Geotechnical Engineering Services
Future Redevelopment Project
303 W. Fifth Street
San Bernardino, California
Terracon Project No. CB255142

Dear Mr. Godina:

We have completed the scope of services for the Geotechnical Engineering Services of the above referenced project in general accordance with Terracon Proposal No. PCB255142 dated October 3, 2025. This report expands on the prior geotechnical feasibility report for this site, dated February 6, 2025, Terracon Project No. CB245136, prepared for San Bernardino County Projects & Facilities Management. The feasibility investigation did not address unknown elements of the project, including foundation design, pavement design and infiltration; these items are addressed in this comprehensive report. The County indicated that the existing building will be re-used, and a new building is not proposed.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

A handwritten signature in blue ink, appearing to read "Octavio Flores".

Octavio Flores, G.I.T.
Senior Staff Geologist

A handwritten signature in blue ink, appearing to read "Joshua R. Morgan".

Joshua R. Morgan, P.E.
Geotechnical Regional Manager



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Attachments

Exploration and Testing Procedures Site Location and Exploration Plans Exploration and Laboratory Results Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  Terracon logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering Services performed for the existing structure and adjacent project areas located at 303 W. Fifth Street in San Bernardino, California. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic Site Class and parameters per 2025 California Building Code (CBC)
- Site preparation and earthwork, including utilities and backfill
- Foundation design and construction
- Pavement section recommendations
- Liquefaction settlement analysis
- Infiltration testing

The geotechnical engineering Scope of Services for this project included the advancement of test borings, cone penetration testing, infiltration testing, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site, boring, percolation test, and cone penetration test locations are shown on the [Site Location](#) and [Exploration Plan](#), respectively. The results of the laboratory testing performed on soil samples obtained from the site during our current field exploration are included on the boring logs and/or as separate graphs in the [Exploration Results](#) section. The results of the laboratory testing performed on soil samples obtained from the site during our previous field exploration are included on the boring logs and/or as separate graphs in the [Supporting Information](#) section

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Project Description	The site boundary and a brief project description were provided by the County by email on September 25, 2024. The County also indicated the soils information would be used for Design-Build Entities for proposing on the possible rehabilitation of the existing structure and potential development of the rest of the site. A geotechnical feasibility investigation was conducted by Terracon. The type of rehabilitation or development of the site were not available at that time. In October of 2025, the County indicated that the existing structure would be re-used and requested additional geotechnical design information consisting of: ■ Infiltration testing ■ Pavement design ■ Utility trenching and bedding ■ Updates to address the 2025 California Building Code ■ Foundation recommendations for perimeter (garden) walls The site is part of a block bounded by West 5th Street, North Arrowhead Avenue, West 4th St., and North D Street. The size of the parcel associated with the future redevelopment of the building is approximately 1.24 acres.
Building Construction	We understand that the existing structure may require seismic upgrades, but no replacement or additions to the structure are proposed. The existing building is pedestalled over a ground level parking lot that is asphalt concrete covered and has a 12 feet height clearance.
Finished Floor Elevation	We have assumed the proposed finished grade of the existing paved parking lot and the relatively undisturbed earthen area west of it to be similar to that of the existing structure and existing grades.
Maximum Loads (Assumed)	We assume that the proposed perimeter walls will have the following loads: ■ Walls: 2 kips per linear foot (klf)
Grading/Slopes	We assume the proposed grade elevations will follow the existing site elevations with minimum grading required. Slopes are not planned.
Below-Grade Structures	None anticipated

Item	Description
Free-Standing Retaining Walls	None anticipated
Building Code	2025 California Building Code, ASCE 7-22

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 303 W. Fifth Street, in San Bernardino, California. The site is approximately 1.24 acres. It consists of the following parcels: ■ APN 013510127 (0.98 acres): Existing two story reinforced concrete building with ground level parking lot on the first level. Additionally, an asphalt concrete paved parking lot. ■ APN 013510128 (0.13 acres): Empty dirt lot with overgrown dry shrubs ■ APN 013510108 (0.13 acres): Empty dirt lot with overgrown dry shrubs The approximate coordinates of the center of the site are: 34.10806° N, 117.29020° W (See Site Location)
Existing Improvements	The project site has an existing two story reinforced concrete building pedestalled over an existing parking lot paved with asphalt concrete. Additionally, there are two vacant asphalt paved and dirt lots adjacent west of the existing building.
Current Ground Cover	Asphalt concrete with limited landscaping, and a dirt lot with weeds.

Geotechnical Characterization

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and potential construction. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the [Exploration and Laboratory Results](#) and [Supporting Information](#).

The subsurface materials encountered in the borings generally consist of silty sand, sand, and silt with varying amounts of silt, sand, and gravel interbedded with layers of clay with varying amounts of sand and silt. Granular materials varied from loose to very dense and fine-grained materials from stiff to hard. Undocumented fill soils were encountered in our borings B-1, B-2, and B-5 to a depth from approximately 4 to 8 feet and was identified by the evidence of various debris observed in the cuttings. Fill may be present in other areas of the proposed development. The stated fill depths should not be considered exact due to the similarity of lithology, color, and densities of the graded materials and native soils.

The soil behavior types from the cone penetration testing soundings generally consisted of silty sand, sand, and silt with varying amounts of silt and sand interbedded with layers of clay with varying amounts of sand and silt. Cone penetration soundings CPT-1, CPT-2, CPT-3, and CPT-5, encountered refusal at depths approximately ranging between 12½ to 31½ feet. CPT-5 was relocated a few feet and CPT-5A was advanced to a depth of 100 feet. The shear wave velocity profile was measured in CPT-4 at 10 foot intervals for subgrade classification purposes. The CPT soundings and shear wave velocity results can be found in the [Supporting Information](#).

Groundwater

The borings were advanced using a hollow-stem auger drilling technique that allows short-term groundwater observations to be made while drilling. Groundwater was not encountered within the 51½-foot depth (bgs) of borings at the time of our field exploration.

According to data collected from the Department of Water Resources Water Data Library for the State of California from well number 01S04W03N006S, located approximately 0.25 mile northwest of the site, the highest groundwater level recorded between 2005

and 2010 was 88 feet bgs.¹ Groundwater contour mapping by Matti and Carson (1991)² indicates a shallowest groundwater depth on the order of 10 feet bgs between 1973 and 1983.

Groundwater conditions may be different at the time of construction. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

Laboratory Results

Laboratory tests were conducted on selected soil samples and the test results are presented in the [Exploration and Laboratory Results](#) and [Supporting Information](#) section and on the boring logs.

Atterberg limit test results indicate that the near-surface fine grained soils generally have low plasticity. Collapse/swell testing indicated negligible collapse potential for the sample collected from boring B-1 at 5 feet bgs and confined with a typical footing pressure of 2,000 psf. Direct shear testing indicated onsite soils within the upper 5 feet have friction angles ranging between 25.8 and 33.4 with corresponding cohesion ranging between 60 and 210 psf, respectively. R-value testing indicates that near surface soils have an R-value of 15.

Seismic Characterization

Seismic Site Class

The 2025 California Building Code (CBC) Seismic Design Parameters have been generated using the ASCE Hazards Report Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-22, and 2025 CBC.

A shear wave velocity profile for the site subgrade was developed based on shear wave measurements in CPT-4 that extended to a depth of 100 feet bgs. The average shear

¹ Groundwater elevation was obtained from the Water Data Library for the State of California Well Name 01S04W03N006S

² Matti, J.C. and Carson, S.E., 1991, Liquefaction Susceptibility in the San Bernardino Valley and Vicinity, Southern California – A Regional Evaluation, US Geological Survey Bulletin 1898.

wave velocity, determined per ASCE 7-22, 20.4.1, is 948 feet/second (289 meter/second) and corresponds to Site Class 'D'. However, based on the potential for liquefaction of site subgrade, a Site Class 'F' is assigned for the site.

The 2025 CBC requires that a site response analysis be performed for Site Class F conditions. However, an exception to this requirement states: "For structures that have fundamental periods of vibration equal to, or less than 0.5 second, site response analysis is not required. Rather, for the purposes of determining spectral accelerations only, a site class is permitted to be determined in accordance with Section 20.2 [ASCE 7-22] and the corresponding response spectrum determined from Section 11.4". The structural engineer should verify the applicability of this exception.

The spectral response accelerations presented below were determined for Site Class D using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2025 CBC.

Description	Value
2025 California Building Code Site Classification (CBC)¹	F²
Site Latitude (°N)	34.1080
Site Longitude (°W)	117.2902
S_s Spectral Acceleration for a 0.2-Second Period	2.66
S_1 Spectral Acceleration for a 1-Second Period	1.07
S_{Ds} Design spectral response acceleration parameter at short periods	1.72
S_{D1} Design spectral response acceleration parameter at period of 1 second	1.91

1. Seismic site classification in general accordance with the *2025 California Building Code*.
2. Site classification is designated as site class F due to the liquefaction potential estimated at the site. In accordance with the ASCE 7-22 section 20.3.1, for structures that have fundamental periods of vibration equal to or less than 0.5 s, site response analysis is not required to determine spectral accelerations for liquefiable soils. The values presented above are for Site Class D seismic site class assuming this exception is valid.

A site response analysis study may generate less conservative coefficients and acceleration values which may reduce construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site response analysis study is desired.

Faulting and Estimated Ground Motions

The site is located in southern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As determined using the USGS Earthquake Hazard Toolbox disaggregation of seismic hazard, the San Jacinto fault is the closest fault seismic source to the site with a characteristic magnitude of 8.01 at a geologic map distance of approximately 3 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-22) standard, the design peak ground acceleration (PGA_M) for the project site is 0.89g. Based on the USGS Earthquake Hazard Toolbox, the project site seismicity for the 2% chance of exceedance hazard in 50 years is defined by a modal magnitude of 7.91.

The site is not located within an Alquist-Priolo Earthquake Fault Zone for fault rupture hazard based on our review of the State Fault Hazard Maps.³

Liquefaction

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The County of San Bernardino Geologic Hazard Overlays includes the site in a zone of 'high' liquefaction susceptibility.

The subsurface materials encountered generally consist of silty sand, sand, and silt with varying amounts of silt, sand, and gravel interbedded with layers of clay with varying amounts of sand and silt. Historical shallow groundwater is documented at 10 feet bgs in the vicinity of the site. Therefore, due to the anticipated subsurface soil characteristics, the potential for liquefaction to occur at the site is considered moderate to high.

We performed a liquefaction evaluation using data from soundings CPT-4 and CPT-5a. To estimate the potential for liquefaction and estimate the associated settlement and,

³ California Geological Survey. <https://maps.conservation.ca.gov/cgs/informationwarehouse>.

subsurface soil and groundwater data were obtained from the boring and CPT data. A Peak Ground Acceleration (PGA_M) of 0.89g and the disaggregated modal magnitude of 7.91 were utilized as input data in the liquefaction analysis program. A historical high groundwater depth of 10 feet below existing site grade was used in the analysis.

The analysis results show the potential total liquefaction-induced settlement at the site ranges from approximately 1¼ to 3 inches. The maximum differential seismic settlement could be on the order of one-half of the total seismic settlement over a distance of 40 feet. Additional exploration and liquefaction studies should be considered for final design as well as considerations and mitigation measures for other effects from liquefaction occurring, such as the potential for sand boils.

Corrosivity

The results of laboratory sulfides, soluble sulfate, chlorides, electrical resistivity, redox potential, total salts, and pH testing are presented in our appendix within the [Supporting Information](#) section. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Boring	Sample Depth (feet)	Soil Description	Soluble Sulfate (%)	Soluble Chloride (%)	Electrical Resistivity (Ω -cm)	pH
B-3	1 - 5	Silty Sand	0.006	0.001	3,100	7.55

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Design Manual. Concrete should be designed in accordance with the exposure class S0 provisions of the ACI Design Manual, Section 318, Chapter 19.

Stormwater Management

Two (2) in-situ percolation tests were performed to approximate depths of 0 to 5 feet and 5 to 10 feet bgs. A 2-inch-thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a pre-soak period. Testing began after the pre-soak period. At the beginning of the test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

Test Location	Boring Depth (feet) ¹	Test Depth Range (feet) ¹	Percolation Rate (in./hr.)	Average Correlated Infiltration Rate (in./hr.) ²
P-1	5	0 to 5	18	0.60
P-2	10	0 to 10	7	0.22

1. Below existing ground surface.
2. If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used. Correlation was based on the Porchet method

Based on our test results, the correlated infiltration rate was generally found to be less than 0.3 in/hr in P-2. **Therefore, infiltration onsite does not appear to be feasible from a geotechnical standpoint at a depth of 10 feet bgs due to the correlated infiltration rate.**

The percolation tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the stormwater infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials. A safety factor should be applied to these measured rates.

With time, the bottoms of infiltration systems tend to plug with organics, sediments, and other debris. Long term maintenance will likely be required to remove these deleterious materials to help reduce decreases in actual percolation rates.

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in fines and gravel content. The design elevation and size of the proposed infiltration system should account for this expected variability in infiltration rates.

Infiltration testing should be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located a minimum of 10 feet from any existing or proposed foundation system.

Utility Survey

Utility Mapping

An investigation was performed in accordance with a Subsurface Utility Engineering (SUE) scope of work as described in American Society of Civil Engineers (ASCE) 38-22 "Standard Guideline for Investigating and Documenting Existing Utilities". The standard is often used for public, civil projects and provides important guidelines for utility investigations. The site map attached to this report illustrates the utilities that were identified within the designated survey area and can be found in [Supporting Information](#).

The standard is summarized below.

- Quality Level D (QLD): Review plans and notes, public records, maps, databases, and verbal communication to identify possible subsurface utilities.
- Quality Level C (QLC): Survey above-ground utility features (man-holes, drainage grates, etc.).
- Quality Level B (QLB): Perform geophysical survey methods to scan for utilities in the project area. Use existing above-ground utility features to characterize utilities.
- Quality Level A (QLA): **(not included in scope of work)** Perform minimally intrusive excavation methods at selected locations of marked utilities.

Geotechnical Overview

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

Foundations should bear on engineered fill extending to a minimum depth of 2 feet below the bottom of foundations, or 3 feet below existing grades, whichever is greater. Grading for the proposed footings should incorporate the limits of the footings plus a lateral distance of 2 feet beyond the outside edge of perimeter footings, where space is available.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the [Exploration and Laboratory Results](#) and [Supporting Information](#) section), engineering analyses, and our current understanding of the proposed project.

The [General Comments](#) section provides an understanding of the report limitations.

Earthwork

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

An on-site, pre-job meeting with the owner, the contractor and the Geotechnical Engineer should occur prior to all grading-related operations. Observation, testing, documentation, and reporting of the grading operation should be performed by the Geotechnical Engineer of Record. A final compaction report should be issued by the Geotechnical Engineer of Record at the completion of the grading operation. Interim reports may be issued according to project requirements. Operations undertaken at the site without the Geotechnical Engineer present may result in exclusions of affected areas from compaction reports for the project.

Grading of the subject site should be performed, at a minimum, in accordance with these recommendations and with applicable portions of the current version of CBC. The following recommendations are presented for your assistance in establishing proper grading criteria.

Site Preparation

Strip and remove existing vegetation, debris, and other deleterious materials from proposed structure and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill, and provide for a relatively uniform thickness of fill beneath proposed building structures.

We recommend stripping topsoil to depths that expose soils with less than 3 percent organics and no roots having a diameter greater than 1/8 inch. While the depth of the unsuitable soils should be expected to vary, the thickness of the top soil layer may be estimated to range between 6 and 12 inches for construction budgeting purposes. The thickness of the top soil layer was not determined during our field exploration. Therefore, the actual depth of stripping should be verified by engineering observations made during the grading operations at the project. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

Stripped materials consisting of vegetation and organic materials should be wasted from the site, or used to revegetate landscaped areas or exposed slopes after completion of grading operations. If it is necessary to dispose of organic materials on site, they should be placed in non-structural areas, and in fill sections not exceeding 5 feet in height.

Evidence of utilities such as manhole covers or utility markings was observed onsite. Although no evidence underground facilities such as septic tanks, cesspools, or basements was observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills, utilities, or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

The proposed perimeter walls and may be supported by a shallow foundation bearing on engineered fill extending to a minimum depth of 2 feet below the bottom of foundations, or 3 feet below existing site grade, whichever is greater. Grading for the proposed walls should incorporate the limits of the structures plus a lateral distance of 2 feet beyond the outside edge of perimeter footings, where space is available.

Subgrade soils beneath pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 12 inches. In the event the demolition activities result in disturbance of deeper soils, the subgrade preparation and compaction should extend to the depth of undisturbed soils. The moisture content and compaction of subgrade soils should be maintained until pavement construction.

Support of pavements and garden walls on or above existing fill materials is discussed in this report. However, even with the recommended construction testing services, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill, but can be reduced by performing additional testing and evaluation.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 12 inches, moisture conditioned, and compacted per the compaction requirements in this report.

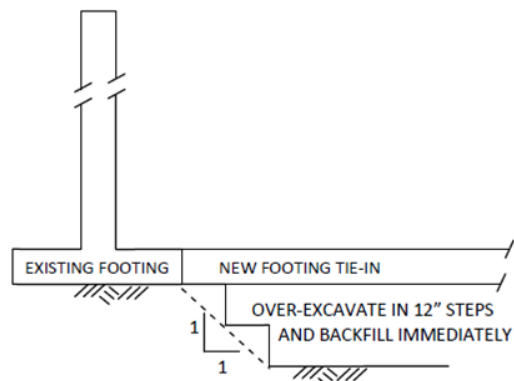
Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying. Cohesionless soils may become hard to compact and consideration should be given to mixing sands and gravels with import soils to improve compaction.

Excavation

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment.

The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

If new foundations are constructed adjacent to the existing foundations, there is a risk that the bearing material could become undermined and/or overstressed due to overlapping stresses. Provisions should be made during construction to prevent undermining or disturbing the soils supporting the existing foundations. Excavations should not extend below an imaginary 1H:1V inclined plane projecting below the bottom edge of any adjacent existing foundations as shown in the figure to the right.



Maintaining a sufficient clear distance between new and existing foundations will reduce the potential for increased bearing stresses and additional foundation settlement. Connections between the existing building and the new addition should allow for some differential movement.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Material and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 3 inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site soils or approved imported materials may be used as fill material for the following:

- general site grading
- foundation areas
- exterior slab areas
- foundation backfill
- pavement areas

Imported Fill Materials: Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris.

Gradation	Percent Finer by Weight (ASTM C 136)
3"	100
No. 4 Sieve	50-100
No. 200 Sieve	10-40(max)
■ Liquid Limit.....	30 (max)
■ Plasticity Index.....	15 (max)
■ Maximum Expansion Index*	20 (max)

*ASTM D4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Cobbles or Rock fragments generated from excavations may be incorporated into the fill soils; however, they should be no larger 3-inches maximum dimension and they must be embedded within a compacted fill soil matrix. Point to point contact of the rock fragments should be avoided. Additionally, consideration should be given to a placement depth below finish grade that will avoid conflict with foundation and utility excavations.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Engineered fill should meet the following compaction requirements:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils or low-volume change imported fill:			
Beneath foundations:	90%	0%	+3%
Fill greater than 5 feet in depth:	95%	0%	+3%
Utility trenches ¹ :	90%	0%	+3%
Beneath pavements:	95%	0%	+3%
Miscellaneous backfill:	90%	0%	+3%
Bottom of excavation receiving fill:	90%	0%	+3%
Aggregate base (beneath pavements):	95%	0%	+3%

1. Upper 12 inches should be compacted to 95% within structural areas.

Utility Trench Backfill

It is anticipated that the on-site soils and fill materials will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 should be used for bedding and shading of utilities, unless allowed or specified otherwise by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill

discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of building foundation walls.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure. Trees and shrubbery should be kept away from the exterior of the building a distance at least equal to their expected mature height.

We recommend construction activities minimize soil compaction at the bottom of infiltration systems. Soil compaction damages soil structure, reduces infiltration rates, limits root growth and plant survivability, and destroys soil organisms. For these reasons site planning, design, and execution, where appropriate, should restrict compaction to infiltration areas.

Exterior Slab Design and Construction

Exterior slabs-on-grade, exterior architectural features, and utilities founded on, or in backfill may experience some movement due to the volume change of the backfill. To reduce the potential for damage caused by movement, we recommend:

- minimizing moisture increases in the backfill;
- controlling moisture-density during placement of backfill;

- using designs which allow vertical movement between the exterior features and adjoining structural elements;
- placing effective control joints on relatively close centers.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompact prior to floor slab and pavement construction.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

On-site silt soils may pump and unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance. The use of remotely operated equipment, such as a backhoe, would be beneficial to perform cuts and reduce subgrade disturbance.

Should unstable subgrade conditions develop stabilization measures will need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime, fly ash, kiln dust or cement could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

Construction Observation and Testing

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the structure areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill. This testing frequency criteria may be adjusted during construction as specified by the geotechnical engineer of record.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer’s evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

We anticipate that the proposed perimeter (garden) walls be supported on spread footings.

If the site has been prepared in accordance with the requirements noted in [Earthwork](#), the following design parameters are applicable for shallow foundations.

Shallow Foundation Design Recommendations

Item	Description
Foundation System	Perimeter walls
Maximum Net Allowable Bearing Pressure ¹	1,500 psf

Item	Description
Required Bearing Stratum²	Engineered fill extending to a minimum of 2 feet below the bottom of foundations, 3 feet below existing grade, whichever is greater.
Ultimate Passive Resistance³	375 pcf
Ultimate Coefficient of Sliding Friction⁴	0.35
Minimum Embedment Below Finished Grade⁶	18 inches
Minimum Dimensions	Walls: 18 inches wide
Estimated Total Settlement from Structural Loads⁵	Less than 1 inch
Estimated Differential Settlement^{2,7}	About 1/2 of total settlement

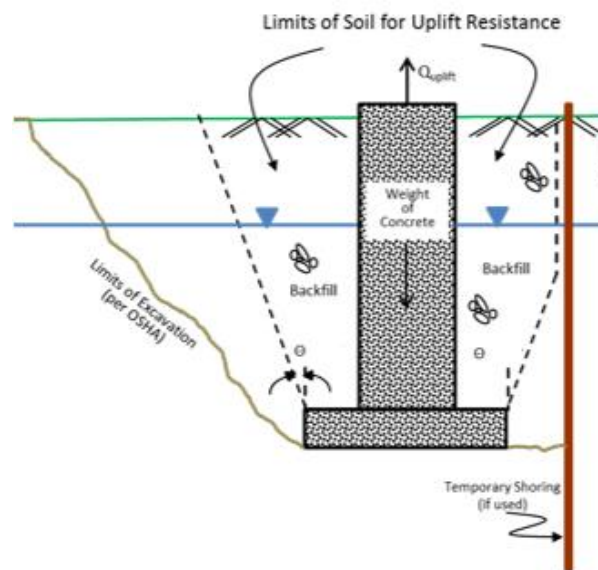
1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. These bearing pressures can be increased by 1/3 for transient loads unless those loads have been factored to account for transient conditions.
2. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in [Earthwork](#).
3. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed, and compacted structural fill be placed against the vertical footing face. Assumes no hydrostatic pressure.
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions. A factor of safety of 1.5 is recommended.
5. Portions of the perimeter wall may be underlain by engineered fill overlying undocumented fill. The settlement of the undocumented fill areas may exceed this estimate unless the fill is completely removed and replaced with engineered fill.
6. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure
7. Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 35 feet.

Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings. The allowable foundation bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of foundation concrete below grade may be neglected in dead load computations.

Foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendation will be required.

Design Parameters – Overturning and Uplift Loads

Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils. As illustrated on the subsequent figure, the effective weight of the soil prism defined by diagonal planes extending up from the top of the perimeter of the foundation to the ground surface at an angle, θ , of 20 degrees from the vertical can be included in uplift resistance. The maximum allowable uplift capacity should be taken as a sum of the effective weight of soil plus the dead weight of the foundation, divided by an appropriate factor of safety. A maximum total unit weight of 120 pcf should be used for the backfill.



Foundations subject to overturning loads should be sized to maintain the entire foundation area in contact with the bearing surface during the load event. This condition requires that the load eccentricity be maintained in the central third of the foundation (e.g., $e < b/6$), and may require foundation widening or additional foundation weight beyond that provided by proportioning for uplift alone.

Foundation Construction Considerations

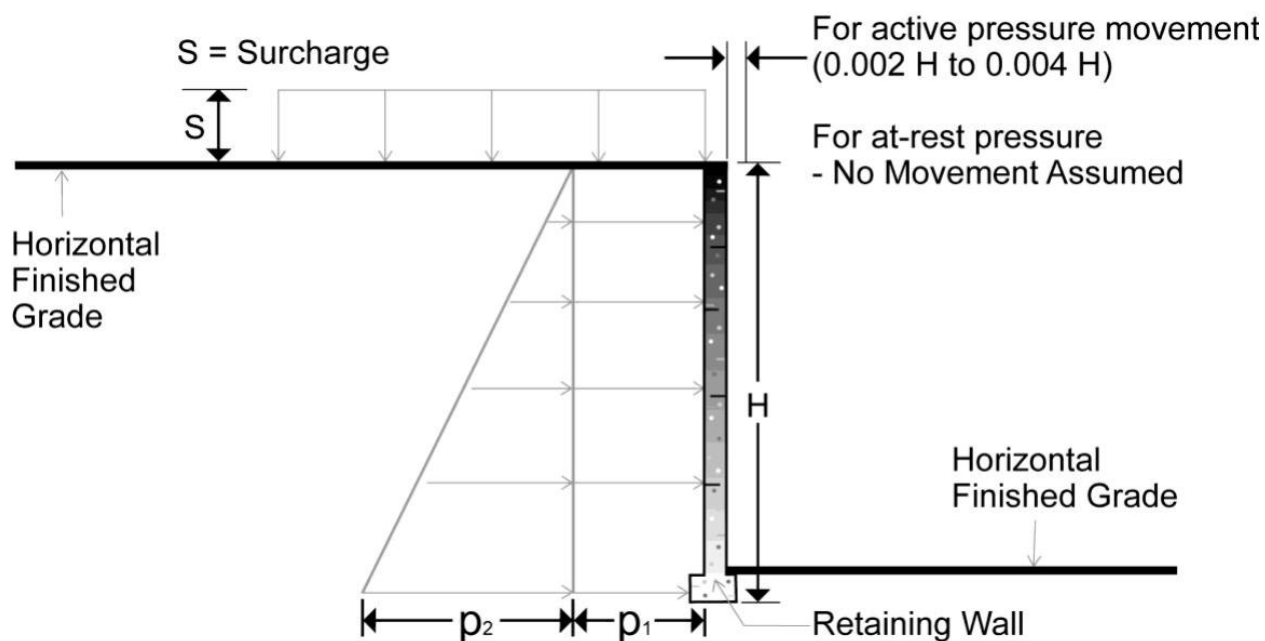
As noted in [Earthwork](#), the footing excavations should be evaluated under the observation of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon

after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Lateral Earth Pressures

Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



For on-site soils or import materials that are compacted as recommended in this report, we recommend the following preliminary lateral earth pressure parameters

ITEM ^{1,2}	EFFECTIVE FLUID PRESSURE ⁵ (UNSATURATED) ⁶
Active (K_a)	42 psf/ft
Passive (K_p)	375 psf/ft
At-Rest (K_0)	63 psf/ft
Surcharge Loads ^{3,4}	$0.33 \times (S)$ psf
Coefficient of Friction**	0.35

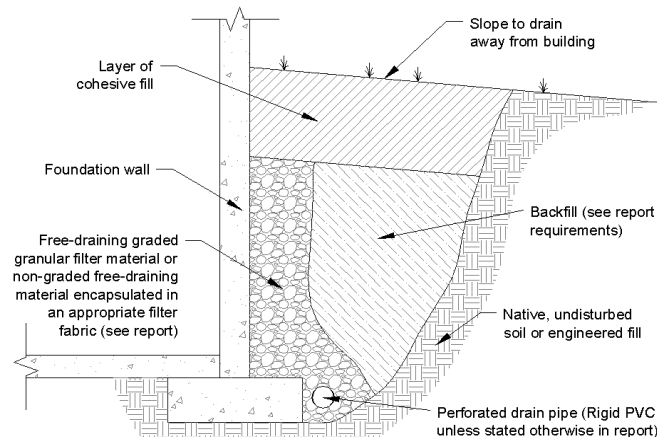
1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure conditions, wall movement in a range of 0.005H to 0.01H (H is the height of the wall) is required to fully mobilize passive earth pressures. If this scale of wall movement is not expected, a reduction factor of 50% may be used for passive earth pressure condition design.
2. Uniform, horizontal backfill, compacted to at least 90 percent of the ASTM D1557 maximum dry density, rendering a maximum unit weight of 125 pcf.
3. Uniform surcharge, where S is surcharge pressure. The project structural engineer should provide any surcharge loading.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in Retaining Wall Drainage below. Terracon should be contacted if drainage systems will not be installed behind retaining walls or if the walls will be located below groundwater.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Backfill placed against structures should consist of granular soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

Pavements

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Design Parameters

Design of asphalt concrete (AC) pavements is based on the gravel-equivalent method outlined in the Caltrans "Highway Design Manual" (Caltrans, 2020).

A design R-Value of 15 was used to calculate the asphalt concrete pavement thickness sections and the Portland cement concrete pavement sections. R-value testing should be completed prior to pavement construction to verify the design R-value.

The structural sections are predicated upon proper compaction of the utility trench backfills and the subgrade soils as prescribed by in **Earthwork**, with the upper 12 inches of subgrade soils and all aggregate base material brought to a minimum relative compaction of 95 percent in accordance with ASTM D 1557 prior to paving. The aggregate base should meet Caltrans requirements for Class 2 aggregate base (AB).

The pavement designs were based upon the results of preliminary sampling and testing and should be verified by additional sampling and testing during construction when the actual subgrade soils are exposed.

Pavement Section Thicknesses

The following table provides our opinion of minimum thickness for PCC and AC pavement sections:

Pavement Type	Recommended Pavement Section Thickness ¹	
	Light (Automobile) Parking Traffic Index (TI) = 4.5	On-site Driveways and Delivery Areas TI = 6.0
PCC Pavement ^{2, 3}	5 inches PCC	6 inches PCC
	4 inches Class 2 AB	4 inches Class 2 AB
AC Pavement ³	4 inches AC	4 inches AC
	5 inches Class 2 AB	9½ inches Class 2 AB

1. The individual and total material thickness values presented herein represent minimum thickness values, not averages.
2. Minimum flexural strength of 600 psi
3. All materials should meet the Caltrans Standard Specifications for Highway Construction.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles.

A minimum 4-inch thick base course layer is recommended to help reduce potential for slab curl, shrinkage cracking, and subgrade pumping through joints. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. Joints should be sealed to prevent entry of foreign material and doweled where necessary for load transfer. PCC pavement details for joint spacing, joint reinforcement, and joint sealing should be prepared in accordance with ACI 330 and ACI 325.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its “green” state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of

pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. Islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils are particular areas of concern. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the stormwater collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.

- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. The findings and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of its profession completing similar studies and practicing under similar conditions in the geographic vicinity and at the time these services have been performed. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for feasibility purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Attachments

Exploration and Testing Procedures

Field Exploration

Current Study		
Boring Designation	Approximate Boring Depth or Refusal (feet)	Location
B-5	6½	Asphalt Parking Lot
P-1 and P-2	5 and 10	Dirt Lot

February 2025 Study		
Boring Designation	Approximate Boring Depth or Refusal (feet)	Location
B-1 and B-2	21½ to 51½	Asphalt Parking Lot
B-3 and B-4	21½ to 51½	Dirt Lot
CPT-1 through CPT-3	12 to 20½	Within Existing Building Structure
CPT-4	100	Asphalt Parking Lot
CPT-5 and CPT-5a	20 to 100	Dirt Lot

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted drill rig using continuous flight hollow stem augers. Generally, four samples were generally obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was also used for sampling soils at the project site. Ring-lined, split-barrel sampling procedures are similar to standard split spoon sampling procedure. We observed and

recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Cone Penetrometer Testing: We performed five (5) cone penetrometer tests (CPT) to depths ranging from approximately 12½ feet to 100 feet bgs. Refusals due to dense materials were encountered in CPT-1, CPT-2, CPT-3, and CPT-5. The digital data recorded includes tip resistance, friction resistance, and probe inclination angle and was recorded about every 2 centimeters while advancing through the ground at a rate between 1½ and 2½ centimeters per second. Additionally, seismic cone measurements were obtained at intervals of approximately 10 feet in CPT-4 and utilized for shear wave velocity determination. No soil samples were gathered through the CPT subsurface investigation technique. CPT testing was conducted in general accordance with ASTM D5778 "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils."

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Dry Unit Weight
- Atterberg Limits
- Fines Content (Percent Passing #200 Sieve)
- One-dimensional Consolidation
- Direct Shear
- Corrosion Suite
- R-Value

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

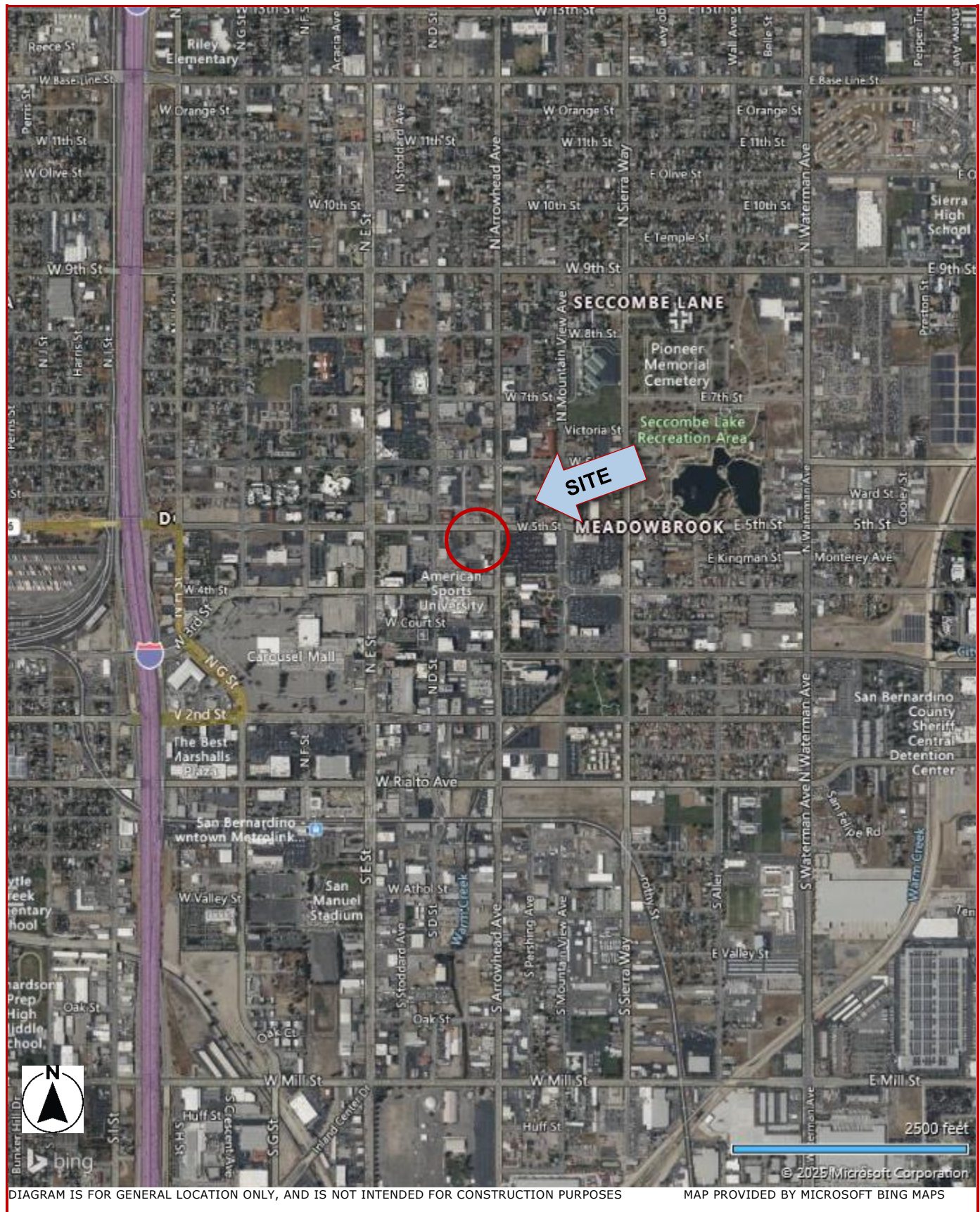
Geotechnical Engineering Services Report

Future Redevelopment Project | San Bernardino, California

November 13, 2025 | Terracon Project No. CB255142



Site Location



Exploration Plan



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Exploration and Laboratory Results

Contents:

Boring Logs (B-5, P-1, and P-2)
R-Value

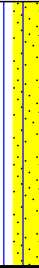
Note: All attachments are one page unless noted above.

Boring Log No. B-5

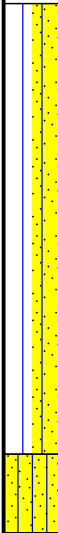
Graphic Log	Location: See Exploration Plan Latitude: 34.1081° Longitude: -117.2907°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	R-Value	Water Content (%)	Dry Unit Weight (pcf)	Percent Fines
	Depth (Ft.)	Elevation: 1046 (Ft.) +/-							
	0.2' ASPHALT , 2-inch thickness	1045.8							
	0.5' AGGREGATE BASE COURSE , 4-inch thickness	1045.5							
	FILL - SANDY SILT (ML) , trace clay, dark brown								
	very stiff				10-10-12	15	8.9	121	
	brown, stiff	5			2-4-6		19.8	94	
	6.5	1039.5							
	Boring Terminated at 6.5 Feet								

Notes Elevation Reference: Elevation measured using Google Earth Pro	Water Level Observations Groundwater not encountered	Drill Rig Mobile B-61
	Advancement Method 8-inch Hollow Stem Auger	Hammer Type Automatic
	Abandonment Method Boring backfilled with Auger Cuttings Surface capped with asphalt	Driller CalPac
		Logged by CR
		Boring Started 10-28-2025
		Boring Completed 10-28-2025

Boring Log No. P-1

Graphic Log	Location: See Exploration Plan Latitude: 34.1082° Longitude: -117.2908° Depth (Ft.) Elevation: 1045 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	R-Value	Water Content (%)	Dry Unit Weight (pcf)	Percent Fines
	SILT WITH SAND (ML) , trace clay, dark brown stiff 5.01040	5			3-4-7		13.5		76
	Boring Terminated at 5 Feet								
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations. Notes Elevation Reference: Elevation measured using Google Earth Pro		Water Level Observations Groundwater not encountered		Drill Rig Mobile B-61 Hammer Type Automatic Driller CalPac Logged by CR Boring Started 10-28-2025 Boring Completed 10-28-2025					
		Advancement Method 8-inch Hollow Stem Auger Abandonment Method Boring backfilled with Auger Cuttings Surface capped with asphalt							

Boring Log No. P-2

Graphic Log	Location: See Exploration Plan Latitude: 34.1082° Longitude: -117.2909°		Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	R-Value	Water Content (%)	Dry Unit Weight (pcf)	Percent Fines
	Depth (Ft.)	Elevation: 1045 (Ft.) +/-								
	<u>SILT WITH SAND (ML)</u> , trace clay, dark brown		5							
	stiff	3-4-7				9.6		79		
	very stiff	7-8-15				11.1		103		
	8.5	1036.5								
	<u>SILTY SAND (SM)</u> , brown, medium dense									
	10.0	1035	10			5-11-14		8.0	107	49
Boring Terminated at 10 Feet										
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations. Notes Elevation Reference: Elevation measured using Google Earth Pro			Water Level Observations Groundwater not encountered Drill Rig Mobile B-61 Hammer Type Automatic Driller CalPac Logged by CR Boring Started 10-28-2025 Boring Completed 10-28-2025							
			Advancement Method 8-inch Hollow Stem Auger Abandonment Method Boring backfilled with Auger Cuttings Surface capped with asphalt							

Job No. CB255142
Date. 11/5/2025

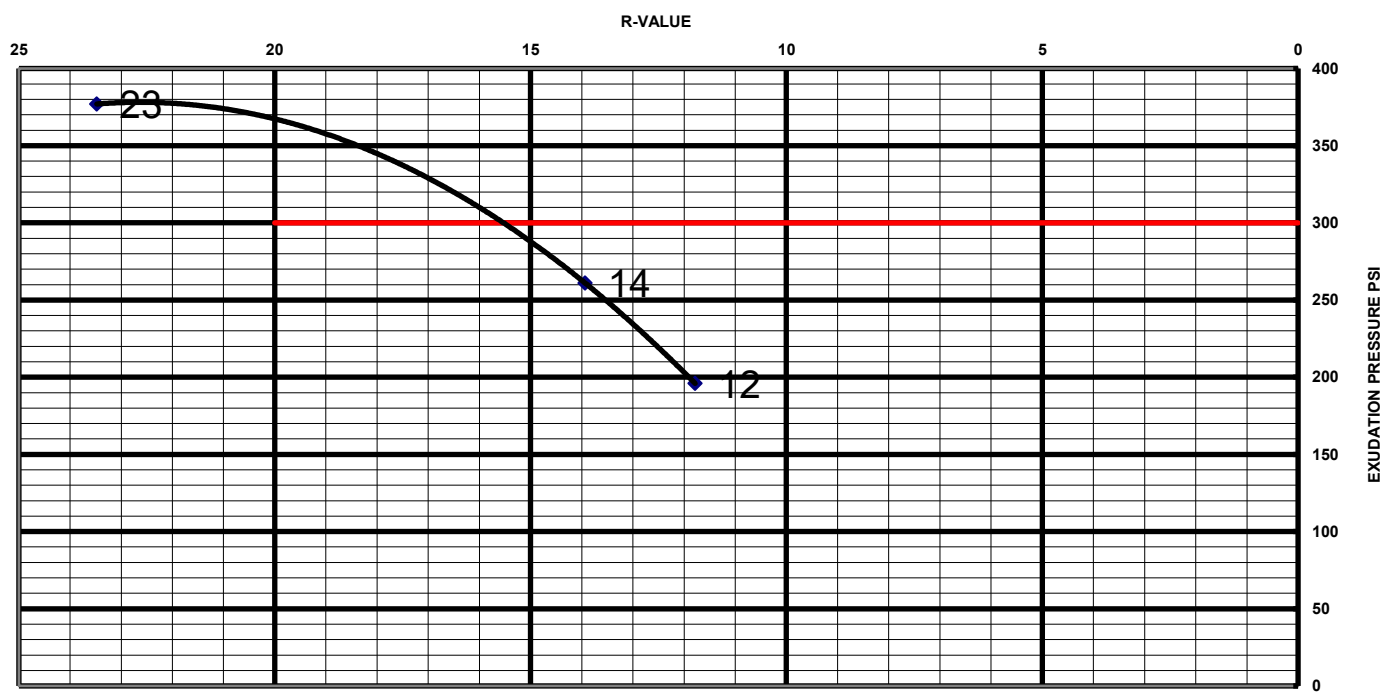
**LABORATORY RECORD OF TESTS MADE ON
BASE, SUBBASE, AND BASEMENT SOILS**

CLIENT: IMEG Consultants Corporation
PROJECT Future Redevelopment Project
LOCATION:
R-VALUE # : B-5
T.I. :

COMPACTOR AIR PRESSURE P.S.I.
INITIAL MOISTURE %
WATER ADDED, ML
WATER ADDED %
MOISTURE AT COMPACTION %
HEIGHT OF BRIQUETTE
WET WEIGHT OF BRIQUETTE
DENSITY LB. PER CU.FT.
STABILOMETER PH AT 1000 LBS.
2000 LBS.
DISPLACEMENT
R-VALUE
EXUDATION PRESSURE
THICK. INDICATED BY STAB.
EXPANSION PRESSURE
THICK. INDICATED BY E.P.

A	B	C	D
100	150	225	
12.2	12.2	12.2	
15	0	-10	
1.5	0.0	-1.0	
13.7	12.2	11.2	
2.51	2.51	2.48	
1113	1111	1109	
118.2	119.5	121.9	
51	49	41	
126	122	101	
5.05	4.81	4.76	
12	14	23	
196	261	377	
0.00	0.00	0.00	
0	0	2	
0.00	0.00	0.07	

EXUDATION CHART



R-Value: 15

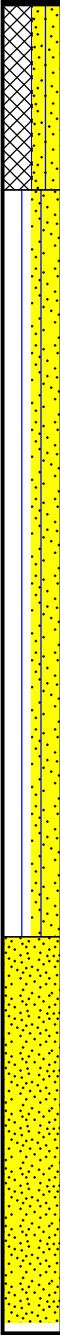
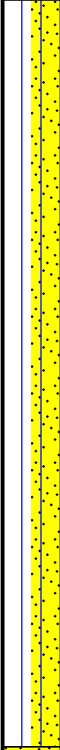
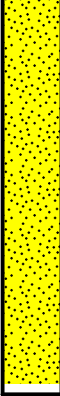
Supporting Information

Contents:

Boring Logs (B-1 through B-4)
CPT Soundings (CPT-1 through CPT-5)
Atterberg Limit
Consolidation/Swell
Direct Shear
Corrosivity
Liquefaction Analysis (46 Pages)
Site Map with Geophysical Interpretation
General Notes
Unified Soil Classification System

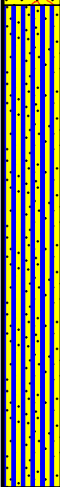
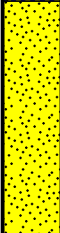
Note: All attachments are one page unless noted above.

Boring Log No. B-1

Graphic Log	Location: See Exploration Plan Latitude: 34.1081° Longitude: -117.2905° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
								LL-PL-PI	
	0.2^ ASPHALT , 2-inch thickness FILL - SILTY SAND (SM) , dark brown, red brick debris								
	medium dense				4-7-10	13.2	110		
	4.0 SILT WITH SAND (ML) , dark brown	5							
	very stiff				7-9-11	25.1	89	41-26-15	71
	olive gray								
					8-10-11	16.5	107		
		10			6-10-14	17.2	110		
	19.5 POORLY GRADED SAND (SP) , gray	15							
	dense				4-5-7 N=12				
		20			15-15-15 N=30	4.0			5.4
		25			15-12-29 N=41				

Notes	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.	Water Level Observations Groundwater not encountered	Drill Rig SIMCO 2800
		Advancement Method 8" HSA	Hammer Type Automatic
		Abandonment Method Boring backfilled with cement-bentonite grout upon completion.	Driller 2R Drilling
			Logged by GA
			Boring Started 12-13-2024
			Boring Completed 12-13-2024

Boring Log No. B-1

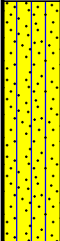
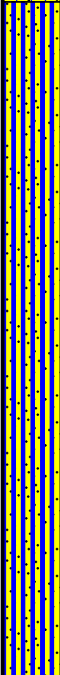
Graphic Log	Location: See Exploration Plan Latitude: 34.1081° Longitude: -117.2905° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
								LL-PL-PI	
	POORLY GRADED SAND (SP) , gray (<i>continued</i>)								
	29.0								
	WELL GRADED SAND WITH GRAVEL (SW) , gray	30							
			X		11-16-14 N=30				
	SANDY SILT (ML) , olive gray very stiff	35							
			X		8-11-14 N=25				
	POORLY GRADED SAND (SP) , trace gravel, yellowish tan dense	40							
			X		6-7-11 N=18	21.5			63.2
	POORLY GRADED SAND (SP) , trace gravel, yellowish tan	45							
			X		6-16-33 N=49				
	SILTY CLAY (CL-ML) , bluish gray very stiff	50							
			X		14-9-8 N=17				
	Boring Terminated at 51.5 Feet	51.5							

Notes	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.	Water Level Observations Groundwater not encountered	Drill Rig SIMCO 2800
		Advancement Method 8" HSA	Hammer Type Automatic
		Abandonment Method Boring backfilled with cement-bentonite grout upon completion.	Driller 2R Drilling
			Logged by GA
			Boring Started 12-13-2024
			Boring Completed 12-13-2024

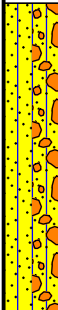
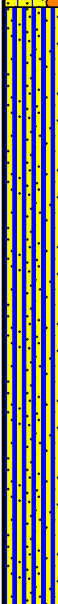
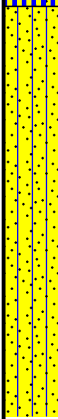
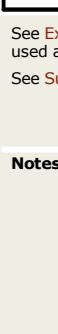
Boring Log No. B-2

Graphic Log	Location: See Exploration Plan Latitude: 34.1079° Longitude: -117.2905°	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
								LL-PL-PI	
	Depth (Ft.)								
	0.2' ASPHALT , 2-inch thickness								
	0.5' AGGREGATE BASE COURSE , 4-inch thickness								
	FILL - SILTY SAND (SM) , trace gravel, dark brown, red brick and glass debris								
	medium dense				8-18-19	12.5	114		
	loose	5			7-5-6	21.8	94		
	8.0 medium dense				8-12-12	14.4	112		
	SILTY SAND (SM) , olive gray				6-11-13	15.2	109		
	medium dense	10							
	14.0								
	SANDY SILT (ML) , with clay, olive gray								
	stiff	15			4-3-8 N=11				
	19.0 stiff								
	SANDY LEAN CLAY (CL) , olive								
		20			3-6-5 N=11				
	21.0								
	Boring Terminated at 21 Feet								
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.			Water Level Observations Groundwater not encountered				Drill Rig SIMCO 2800 Hammer Type Automatic Driller 2R Drilling Logged by GA		
Notes			Advancement Method 8" HSA Abandonment Method Boring backfilled with auger cuttings upon completion.				Boring Started 12-13-2024 Boring Completed 12-13-2024		

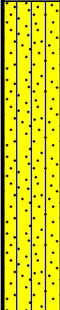
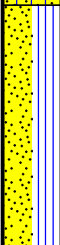
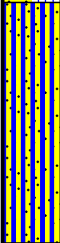
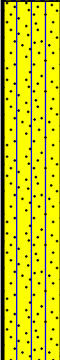
Boring Log No. B-3

Graphic Log	Location: See Exploration Plan Latitude: 34.1080° Longitude: -117.2909° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
								LL-PL-PI	
	SILTY SAND (SM) , trace gravel, tan	5							
	loose				5-6-7	2.2	99		
	dark brown	10							
	SANDY SILT (ML) , dark brown, very stiff				5-9-15	16.0	94		
					12-22-24	7.8	115		
	with calcium nodules, stiff	15			6-7-7 N=14				
	olive								
	very stiff				5-8-10 N=18				
		20							
	WELL GRADED SAND (SW) , trace gravel, brownish gray, dense				14-15-23 N=38				
	Boring Terminated at 21 Feet								
See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.			Water Level Observations Groundwater not encountered			Drill Rig SIMCO 2800 Hammer Type Automatic Driller 2R Drilling Logged by GA Boring Started 12-13-2024 Boring Completed 12-13-2024			
Notes			Advancement Method 8" HSA Abandonment Method Boring backfilled with auger cuttings upon completion.						

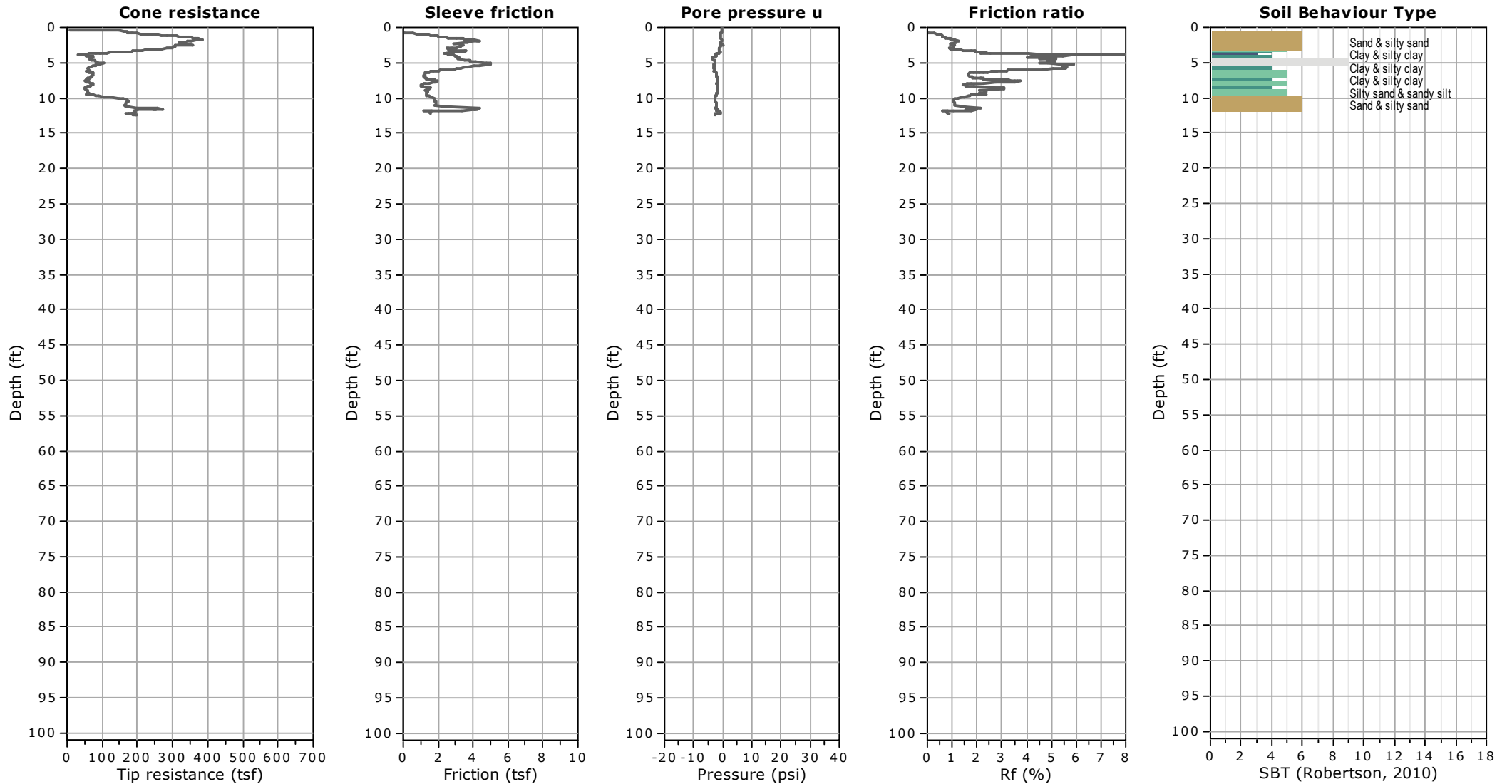
Boring Log No. B-4

Graphic Log	Location: See Exploration Plan	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
	Latitude: 34.1079° Longitude: -117.2909°							LL-PL-PI	
	<u>SILTY SAND WITH GRAVEL (SM)</u> , tan	5			5-12-13	3.5	105		
	medium dense olive gray								
	<u>SANDY SILT (ML)</u> , olive	10			8-14-16	14.0	93		74.5
	very stiff								
	<u>SILTY SAND (SM)</u> , trace gravel, brownish gray	20			4-5-11 N=16				14.8
	medium dense								
	<u>SILTY SAND (SM)</u> , trace gravel, brownish gray	25			18-18-32 N=50				
	dense								
Notes	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.	Water Level Observations Groundwater not encountered						Drill Rig SIMCO 2800 Hammer Type Automatic Driller 2R Drilling Logged by GA	
		Advancement Method 8" HSA Abandonment Method Boring backfilled with cement-bentonite grout upon completion.						Boring Started 12-13-2024 Boring Completed 12-13-2024	

Boring Log No. B-4

Graphic Log	Location: See Exploration Plan Latitude: 34.1079° Longitude: -117.2909° Depth (Ft.)	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits	Percent Fines
								LL-PL-PI	
	SILTY SAND (SM) , trace gravel, brownish gray (<i>continued</i>) very dense	30			15-34-50/5"				
	34.0								
	POORLY GRADED SAND WITH SILT (SP-SM) , olive and tan dense	35			15-24-26 N=50				
	39.0								
	SANDY SILT (ML) , olive hard	40			12-16-15 N=31				
	44.0								
	SILTY SAND (SM) , olive gray dense bluish gray	45			14-21-29 N=50				
	51.5	50			4-15-15 N=30				
	Boring Terminated at 51.5 Feet								

Notes	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any). See Supporting Information for explanation of symbols and abbreviations.	Water Level Observations Groundwater not encountered	Drill Rig SIMCO 2800 Hammer Type Automatic Driller 2R Drilling Logged by GA
		Advancement Method 8" HSA Abandonment Method Boring backfilled with cement-bentonite grout upon completion.	Boring Started 12-13-2024 Boring Completed 12-13-2024

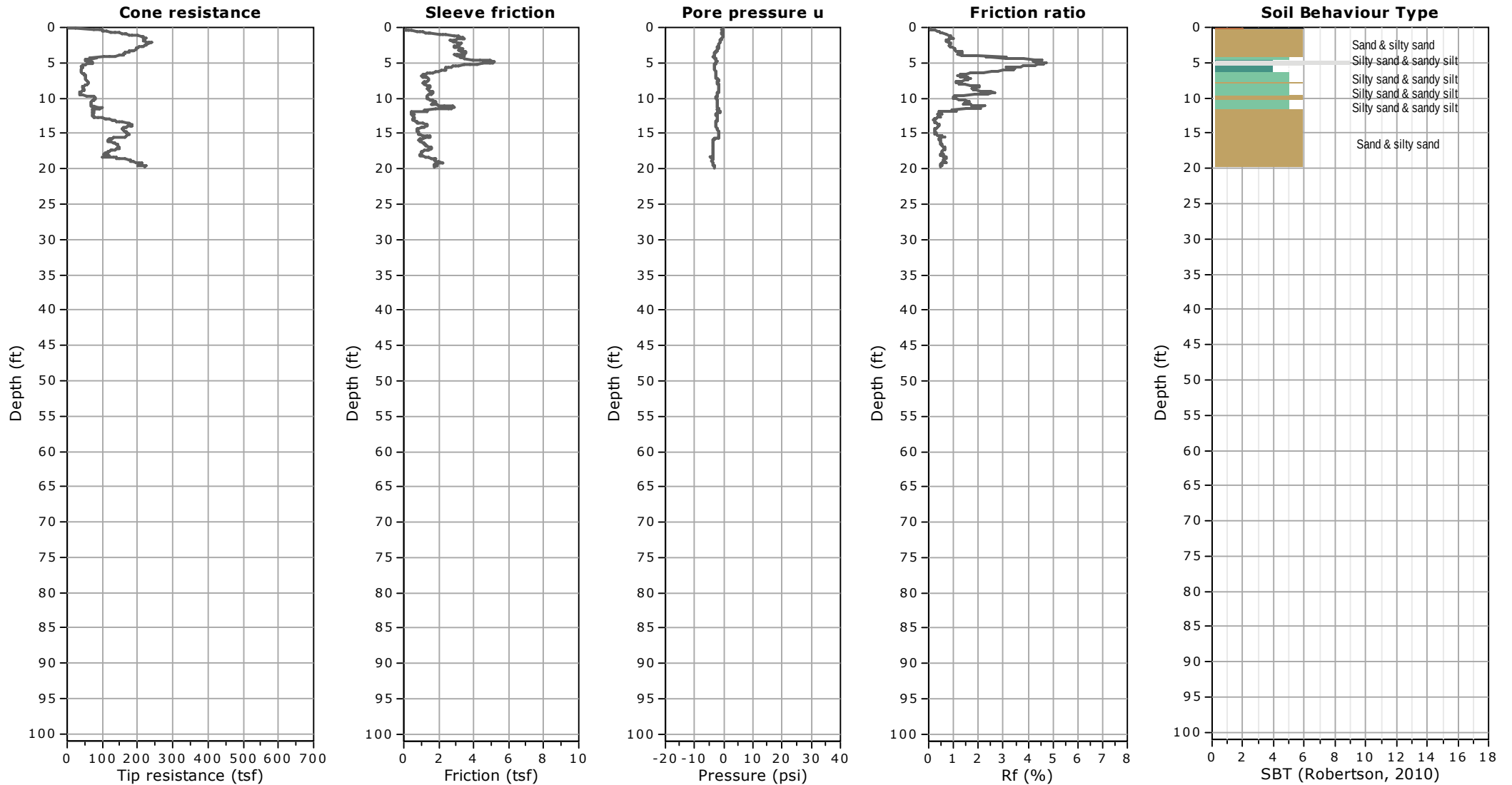




Project: Terracon Consultants / SBC 5th St.
Location: 303 W. 5th St, San Bernadino, CA

CPT-2

Total depth: 19.83 ft, Date: 1/13/2025



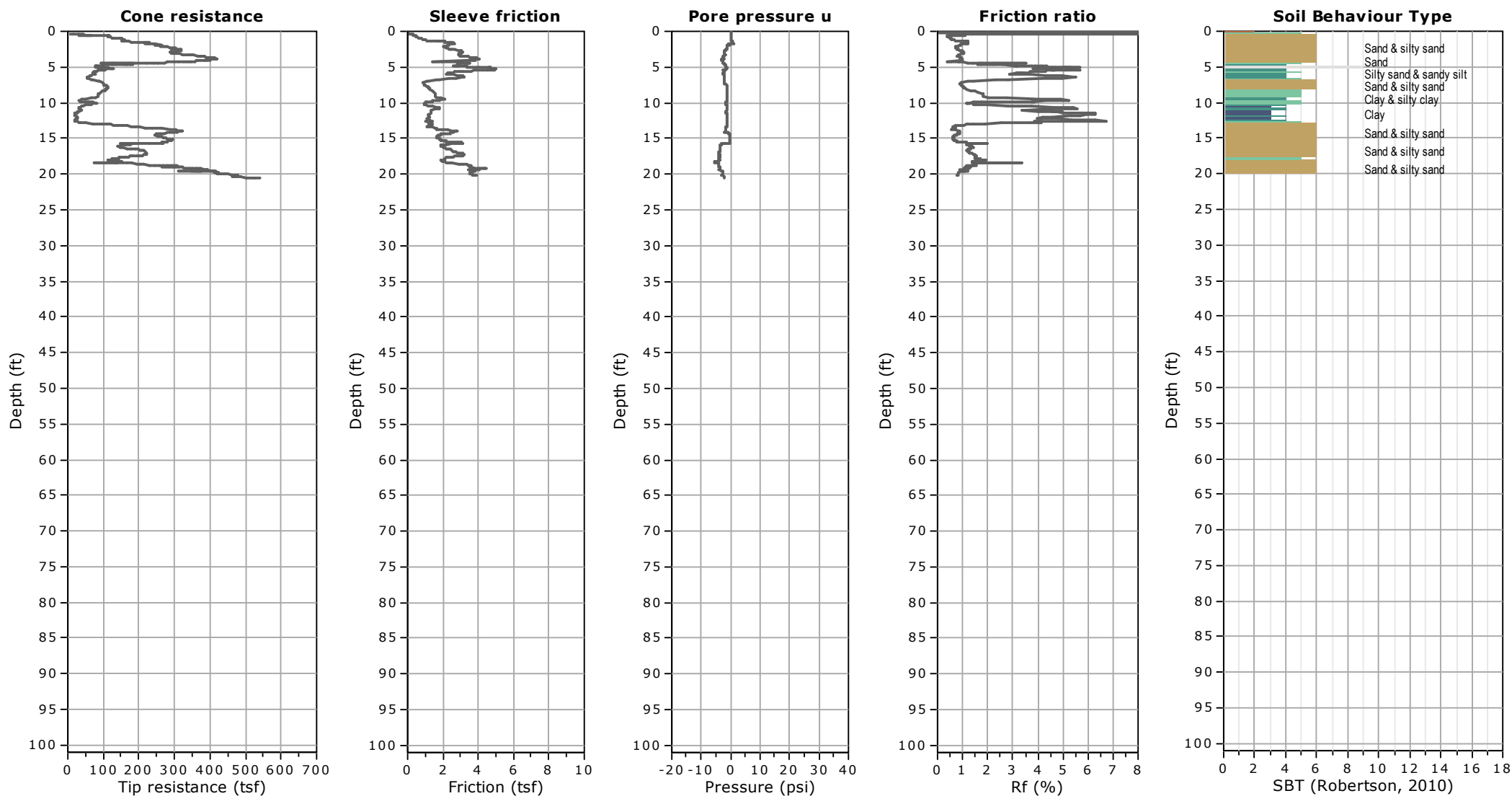


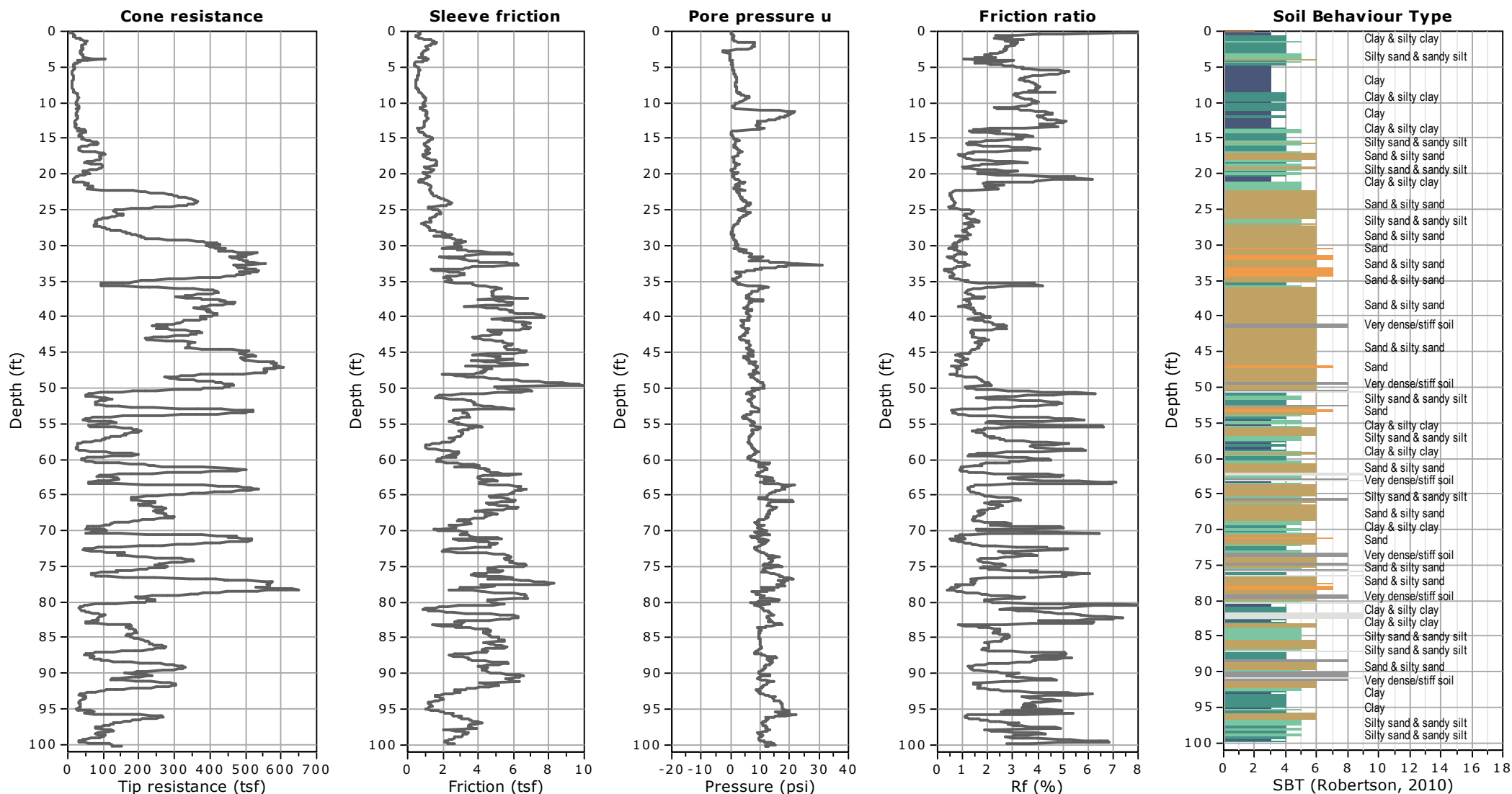
Project: Terracon Consultants / SBC 5th St.

Location: 303 W. 5th St, San Bernadino, CA

CPT-3

Total depth: 20.51 ft, Date: 1/13/2025





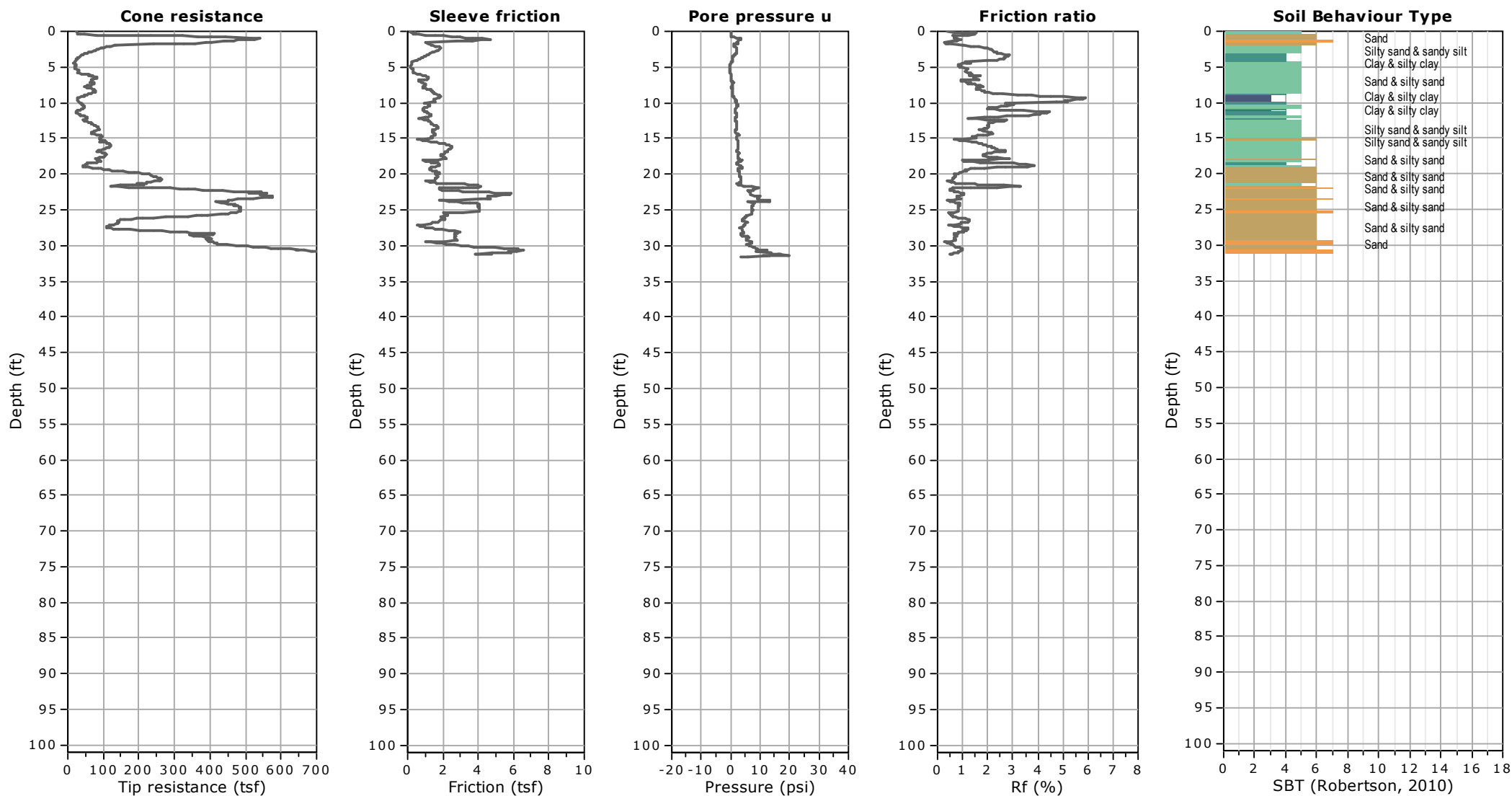


Project: Terracon Consultants / SBC 5th St.

Location: 303 W. 5th St, San Bernadino, CA

CPT-5

Total depth: 31.63 ft, Date: 1/13/2025



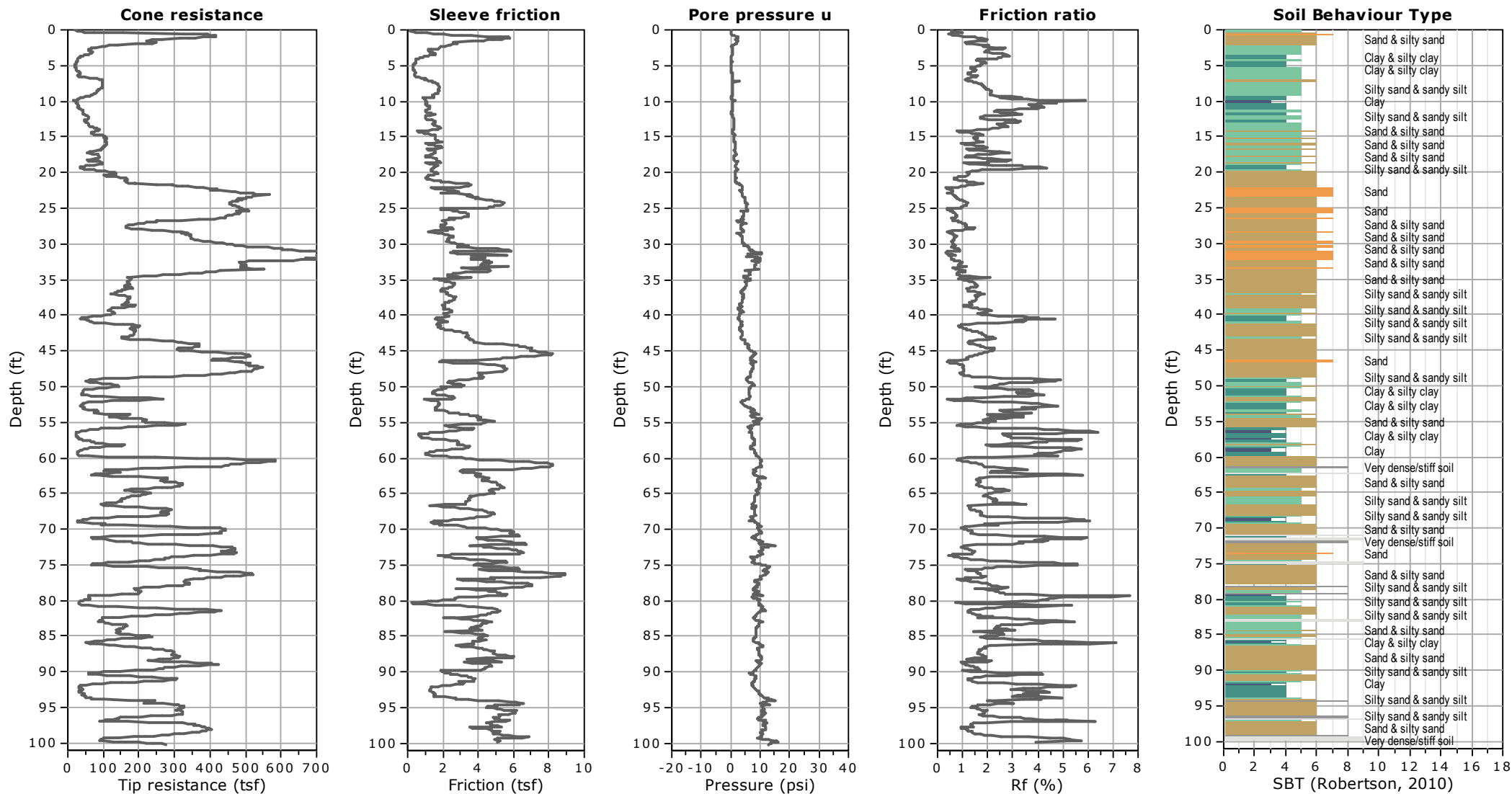


Project: Terracon Consultants / SBC 5th St.

Location: 303 W. 5th St, San Bernadino, CA

CPT-5A

Total depth: 100.13 ft, Date: 1/13/2025



Terracon Consultants
SBC 5th St.
San Bernadino, CA

CPT Shear Wave Measurements

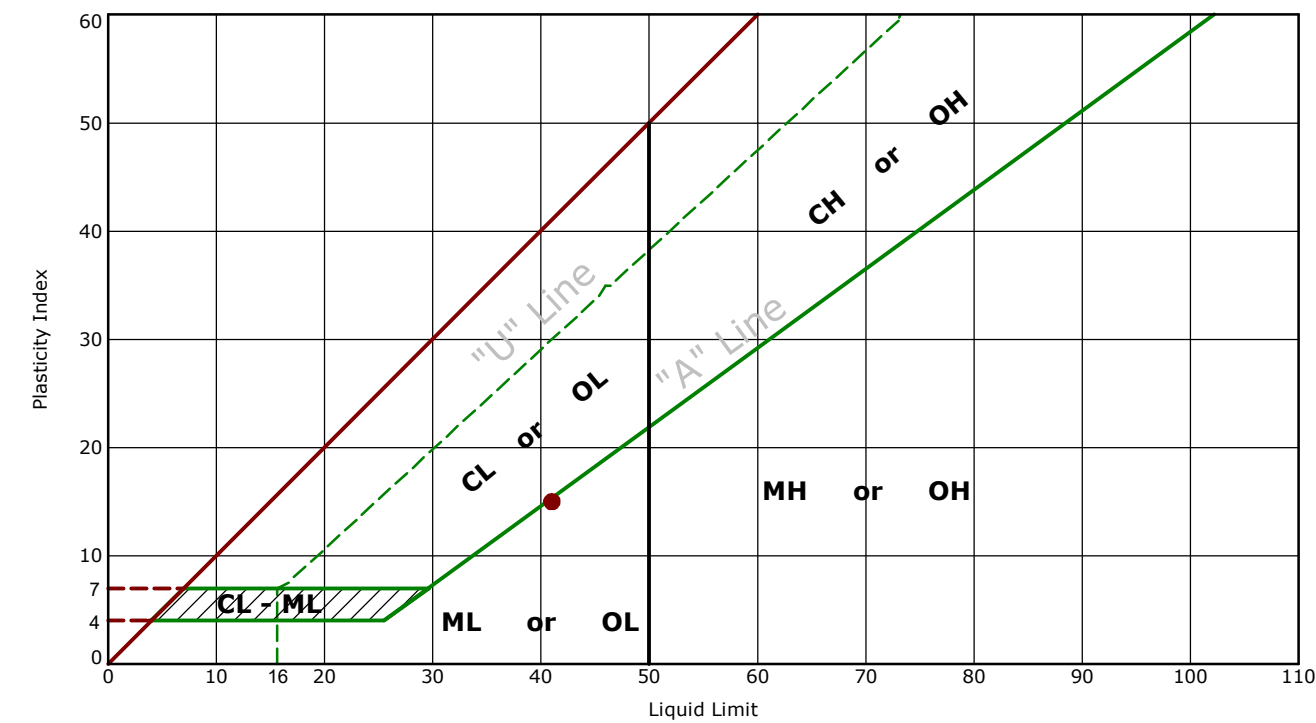
Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-4	10.01	9.01	9.23	14.44	639	
	19.98	18.98	19.09	28.24	676	714
	29.99	28.99	29.06	39.82	730	861
	39.99	38.99	39.04	48.28	809	1180
	50.00	49.00	49.04	57.50	853	1085
	60.01	59.01	59.04	69.16	854	858
	70.01	69.01	69.04	77.30	893	1228
	79.99	78.99	79.02	86.70	911	1061
	89.99	88.99	89.01	95.48	932	1139
	100.00	99.00	99.02	105.66	937	983

Shear Wave Source Offset - 2 ft

S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

Atterberg Limit Results

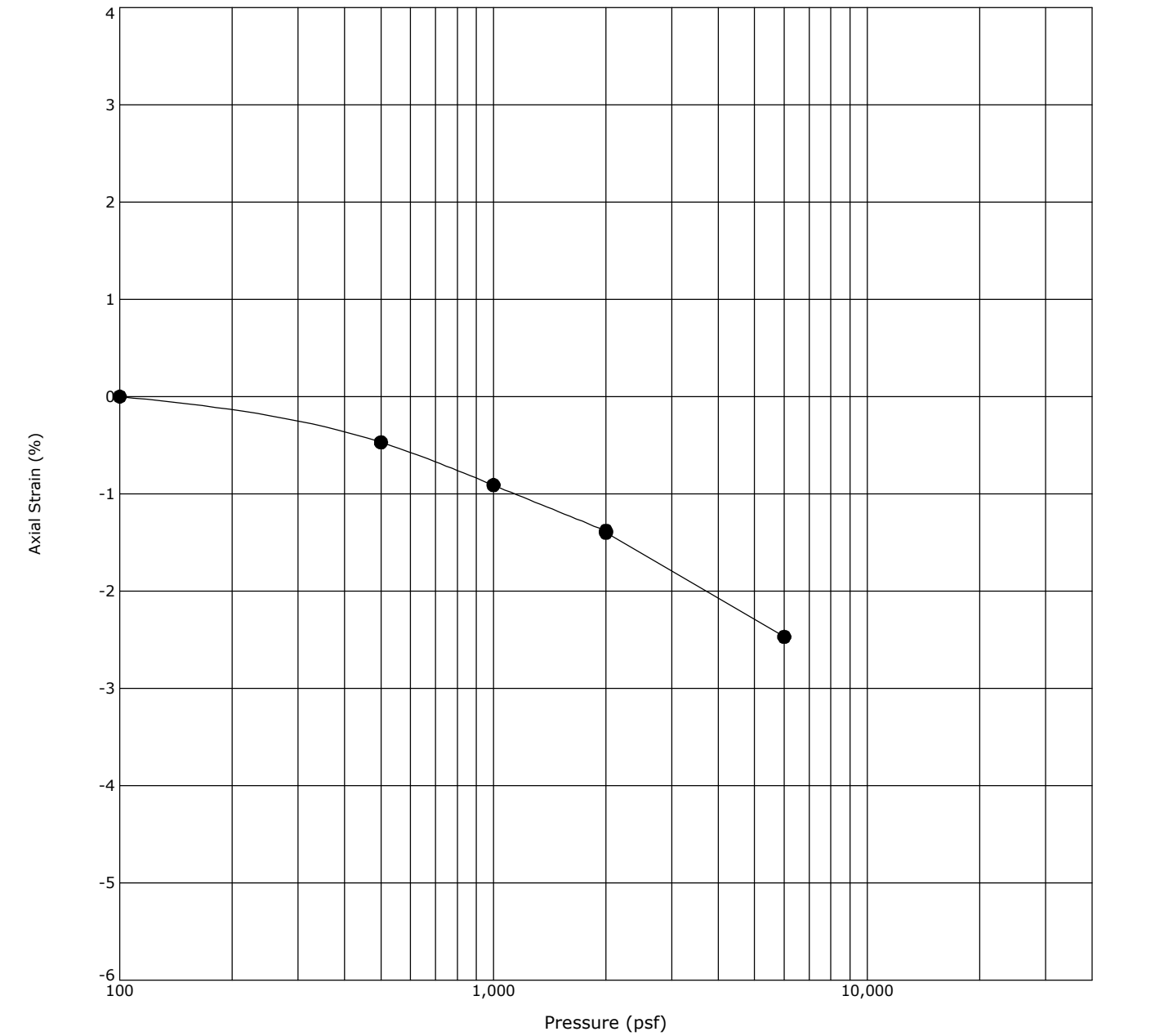
ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	5 - 6.5	41	26	15	71.0	ML	SILT with SAND

One-Dimensional Swell or Collapse

ASTM D4546

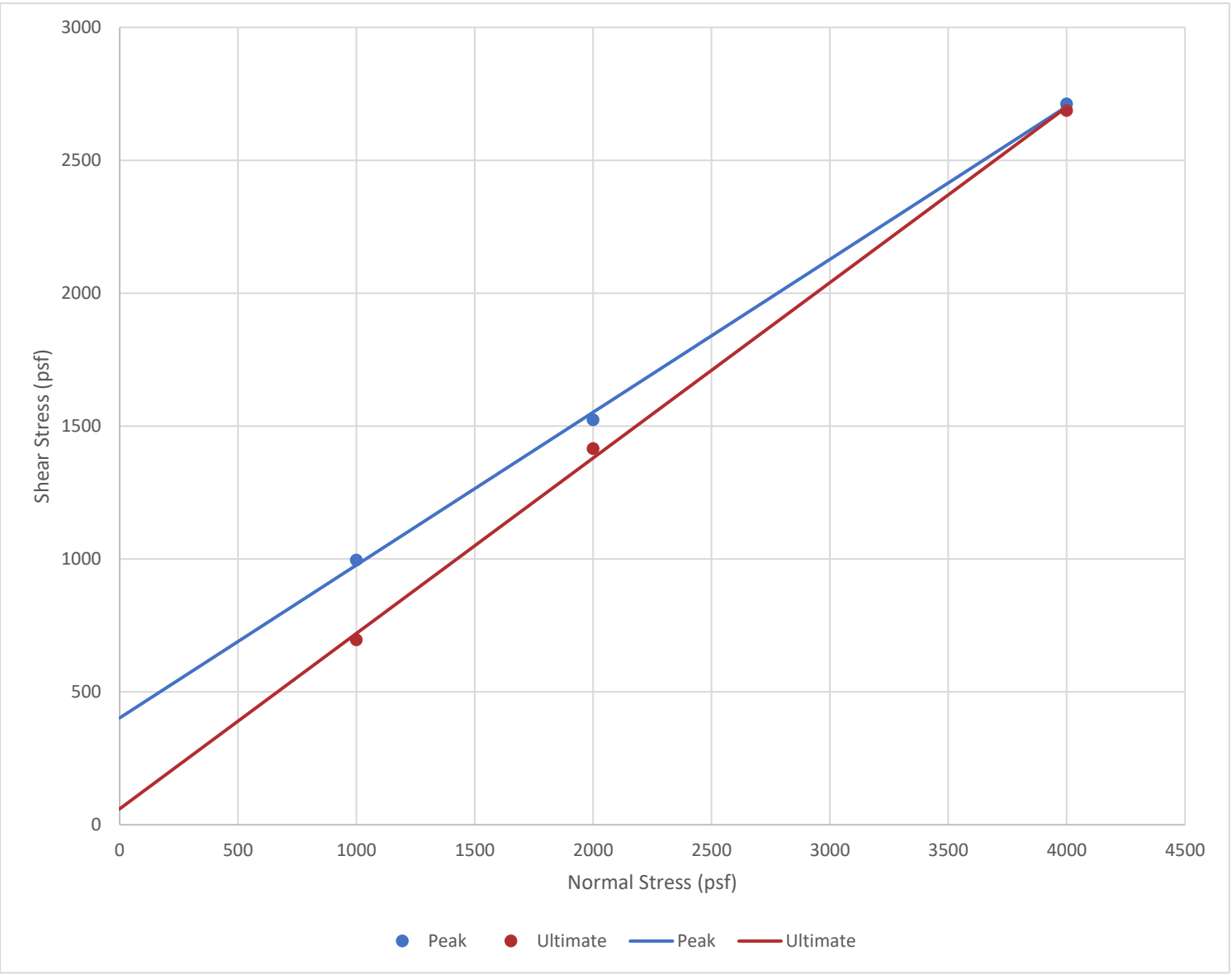


Boring ID		Depth (Ft)	Description	USCS	γ _d (pcf)	WC (%)
●	B-1	5 - 6.5	SILT with SAND	ML	13	89.3
Notes: Water added at 2,000 psf						

Direct Shear Test
ASTM D3080

Boring ID	Depth	Description	USCS	γ_d (pcf)	W(%)
B-1	2.5-4'	Silty Sand	SM	110	13.2

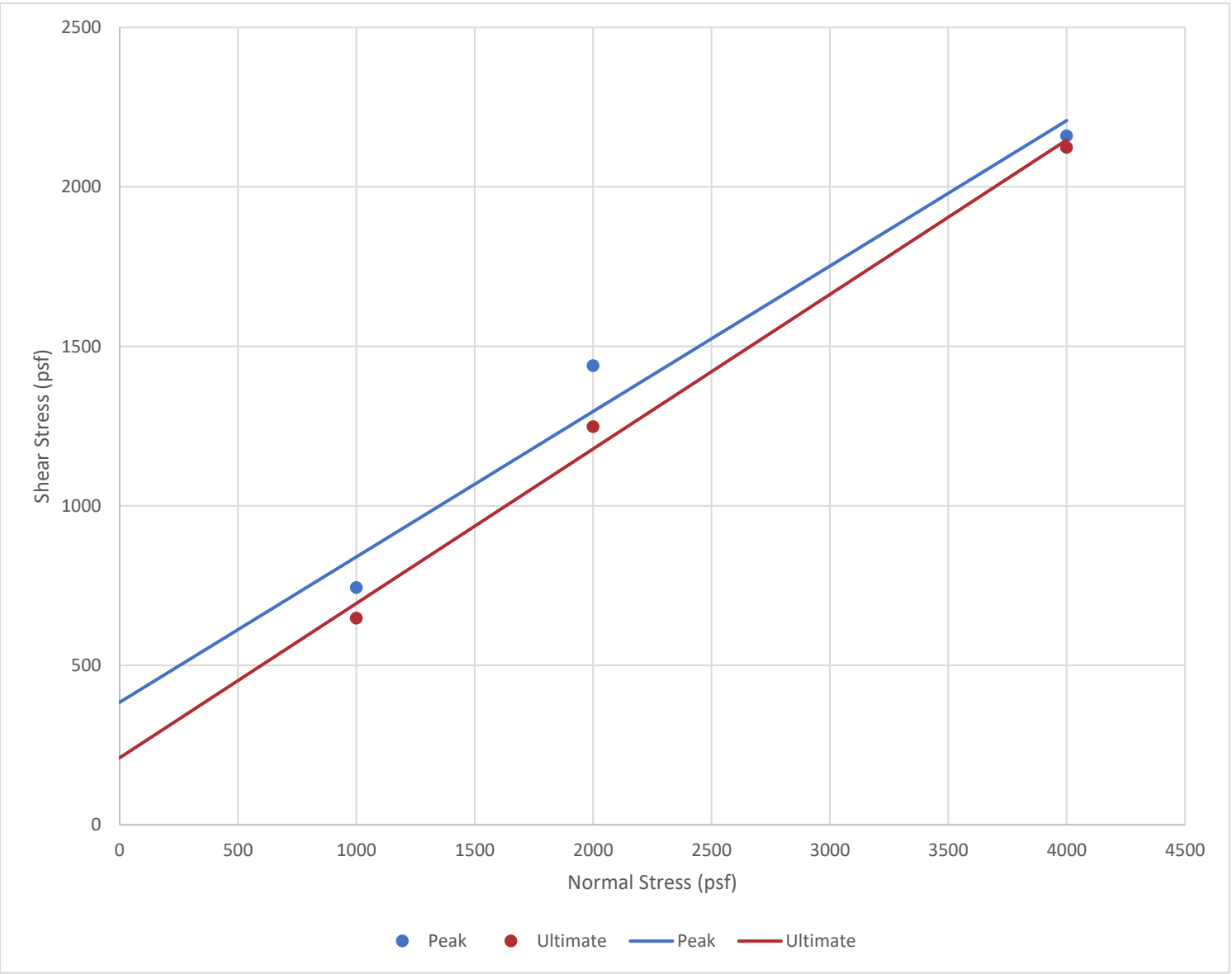
Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)	Peak		Ultimate	
			ϕ°	C (psf)	ϕ°	C (psf)
1000	996	696	29.9	402	33.4	60
2000	1524	1416				
4000	2712	2688				



Direct Shear Test
ASTM D3080

Boring ID	Depth	Description	USCS	γ_d (pcf)	W(%)
B-4	5-6.5'	Silty Sand	SM	88	9.0

Normal Stress (psf)	Peak Shear Stress (psf)	Ultimate Shear Stress (psf)	Peak		Ultimate	
			ϕ°	C (psf)	ϕ°	C (psf)
1000	744	648	24.5	384	25.8	210
2000	1440	1248				
4000	2160	2124				



902 Industrial Way
Lodi, California 95240
(209) 367-3701



Client

San Bernardino County

Project

SBC - 5th St Design Build (10.10.1699)

Sample Submitted By: Terracon (CB) **Date Received:** 1/15/2025 **Project Number:** CB245136

Results of Corrosion Analysis

Sample Type	Bulk
Sample Location	B3
Sample Depth (ft.)	1.0 - 5.0
pH Analysis, ASTM G 51	7.55
Water Soluble Sulfate (SO4), ASTM D516 (%)	0.006
Sulfides, AWWA 4500-S ²⁻ D, (ppm)	<0.001
Chlorides, AWWA 4500-CL ⁻ E, (%)	0.001
Red-Ox, ASTM G 200, (mV)	+154
Total Salts, AWWA 2520 B, (mg/kg)	355.5
Saturated Minimum Resistivity, ASTM G 57, (ohm-cm)	3,100

Reviewed By: Paula Arends
Paula Arends
Laboratory Manager

The tests were performed in general accordance with applicable ASTM and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

LIQUEFACTION ANALYSIS REPORT

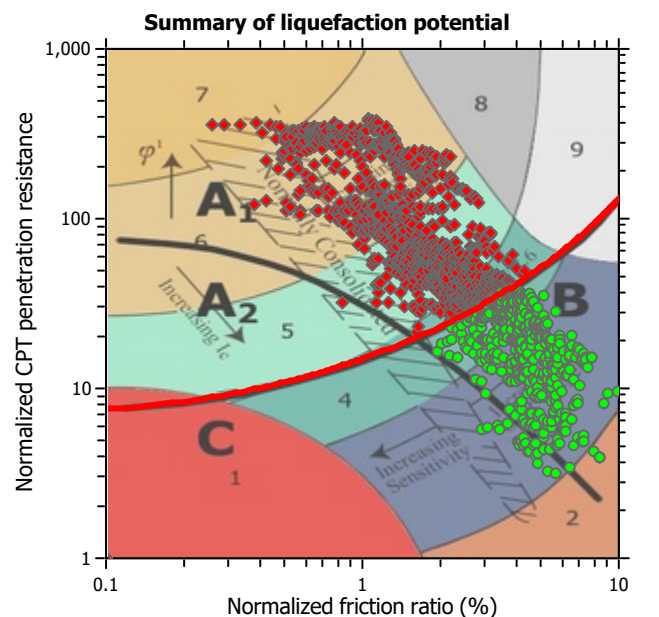
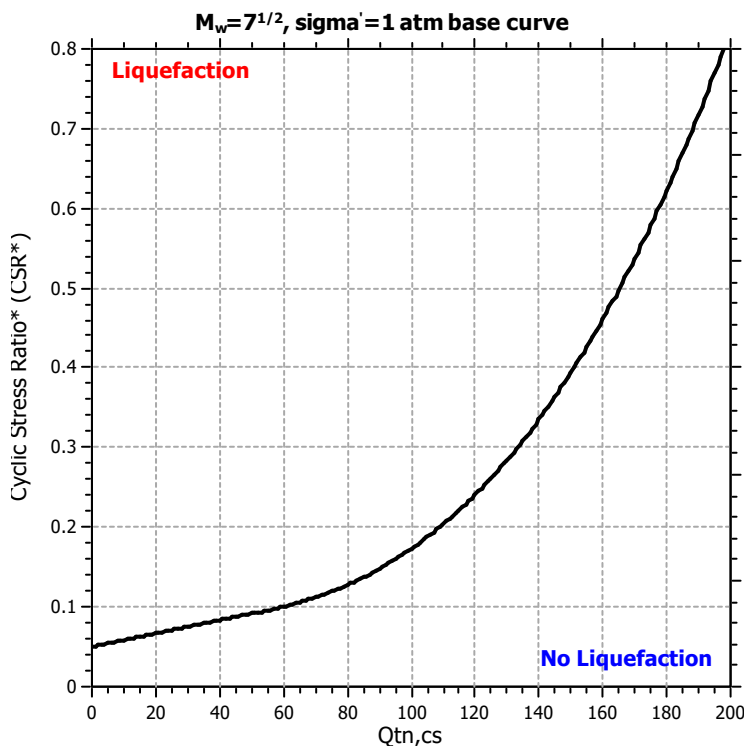
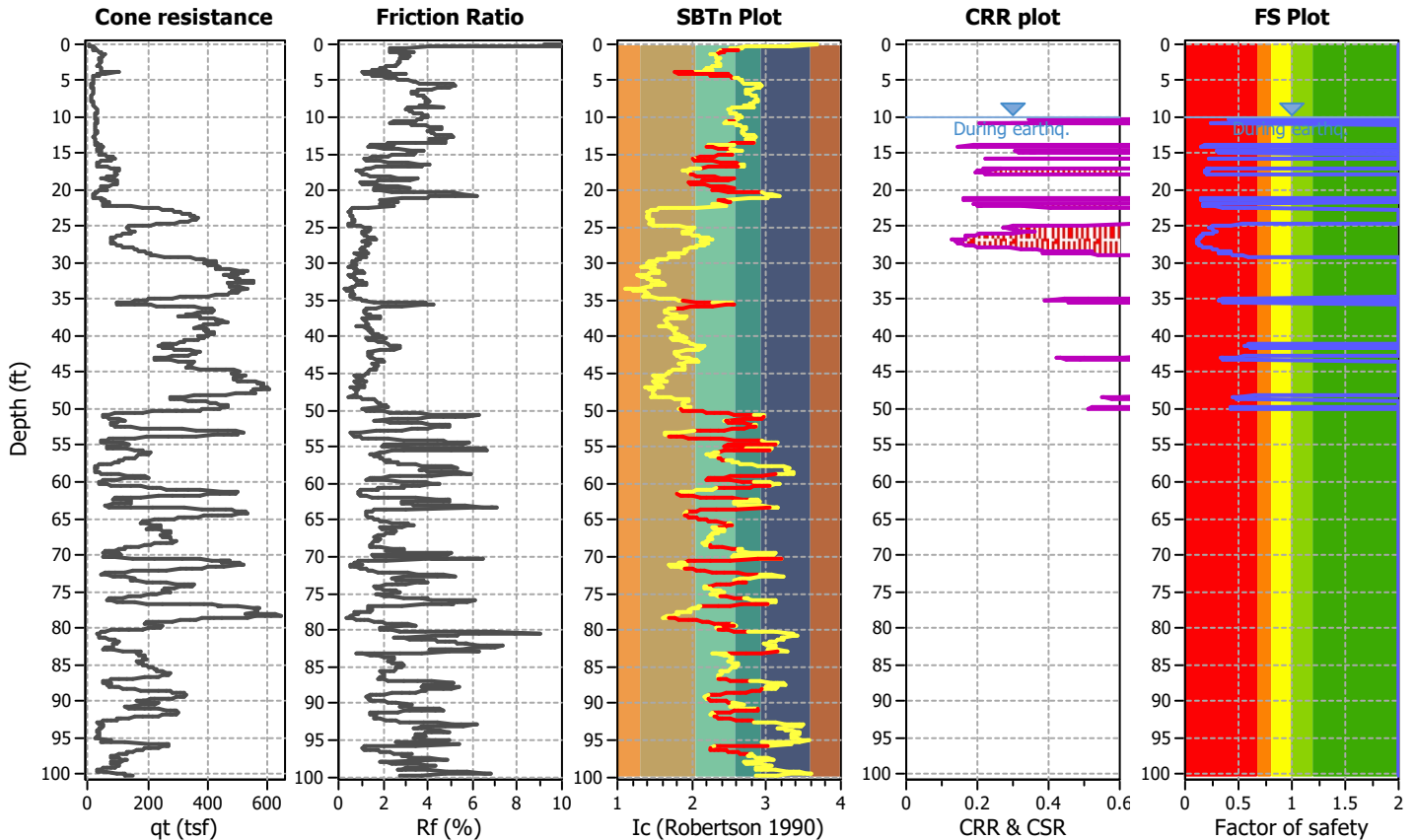
Project title : CB255142

Location : SB County 5th St.

CPT file : CPT-4

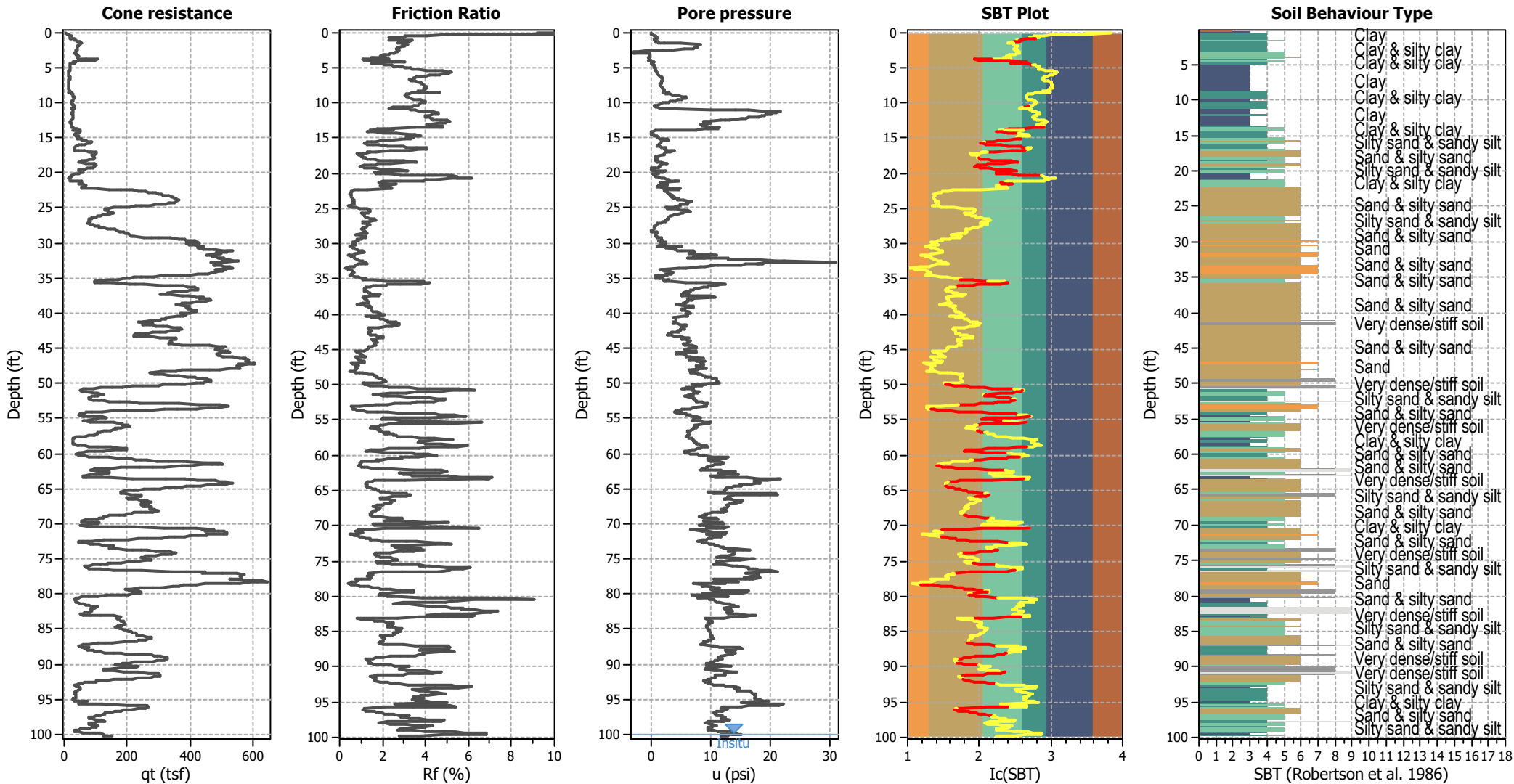
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	100.00 ft	Use fill:	No	Clay like behavior	
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	Yes
Earthquake magnitude M_w :	7.91	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	Limit depth:	50.00 ft
Peak ground acceleration:	0.89	Unit weight calculation:	Based on SBT	K_g applied:	Yes	MSF method:	Method based



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



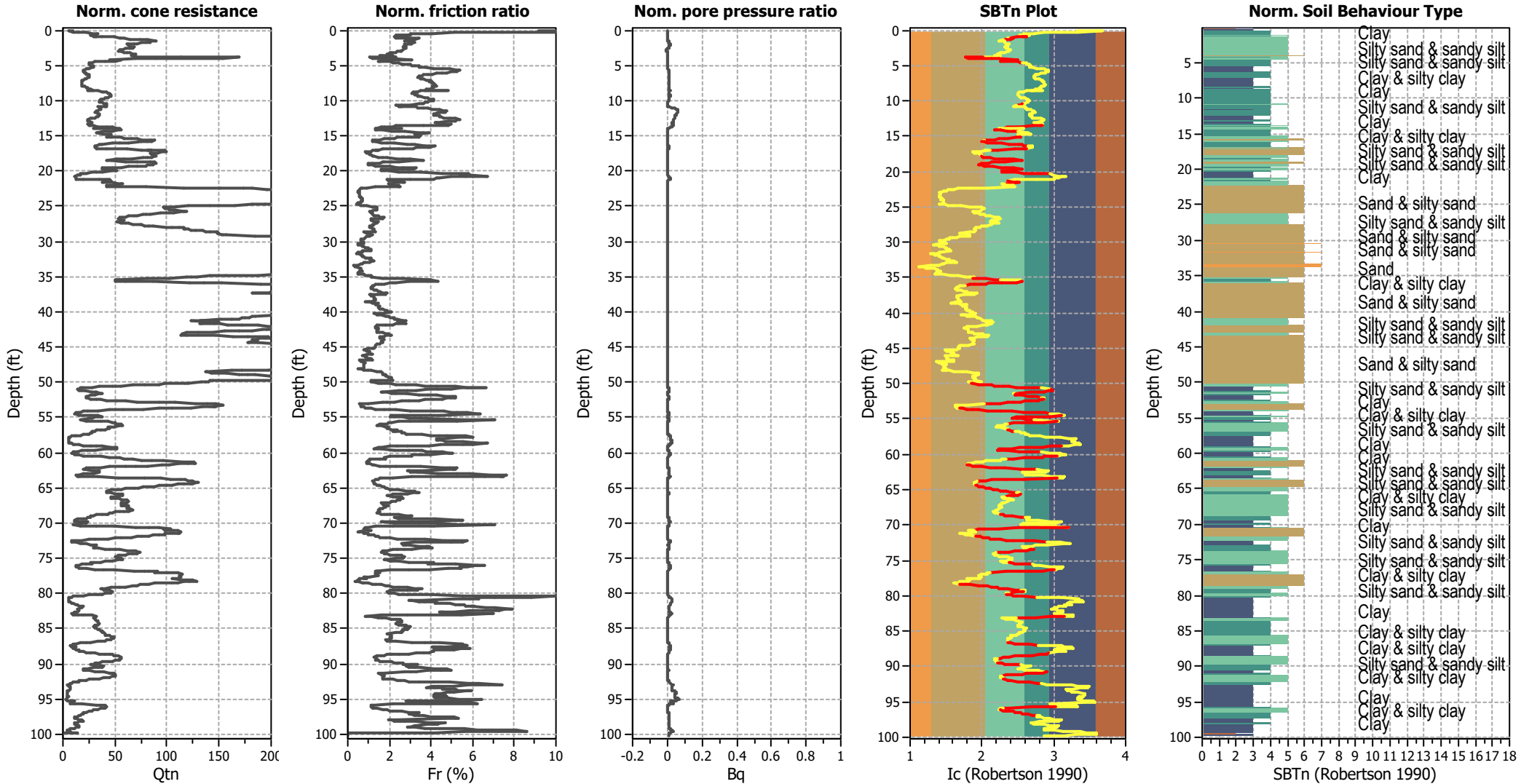
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



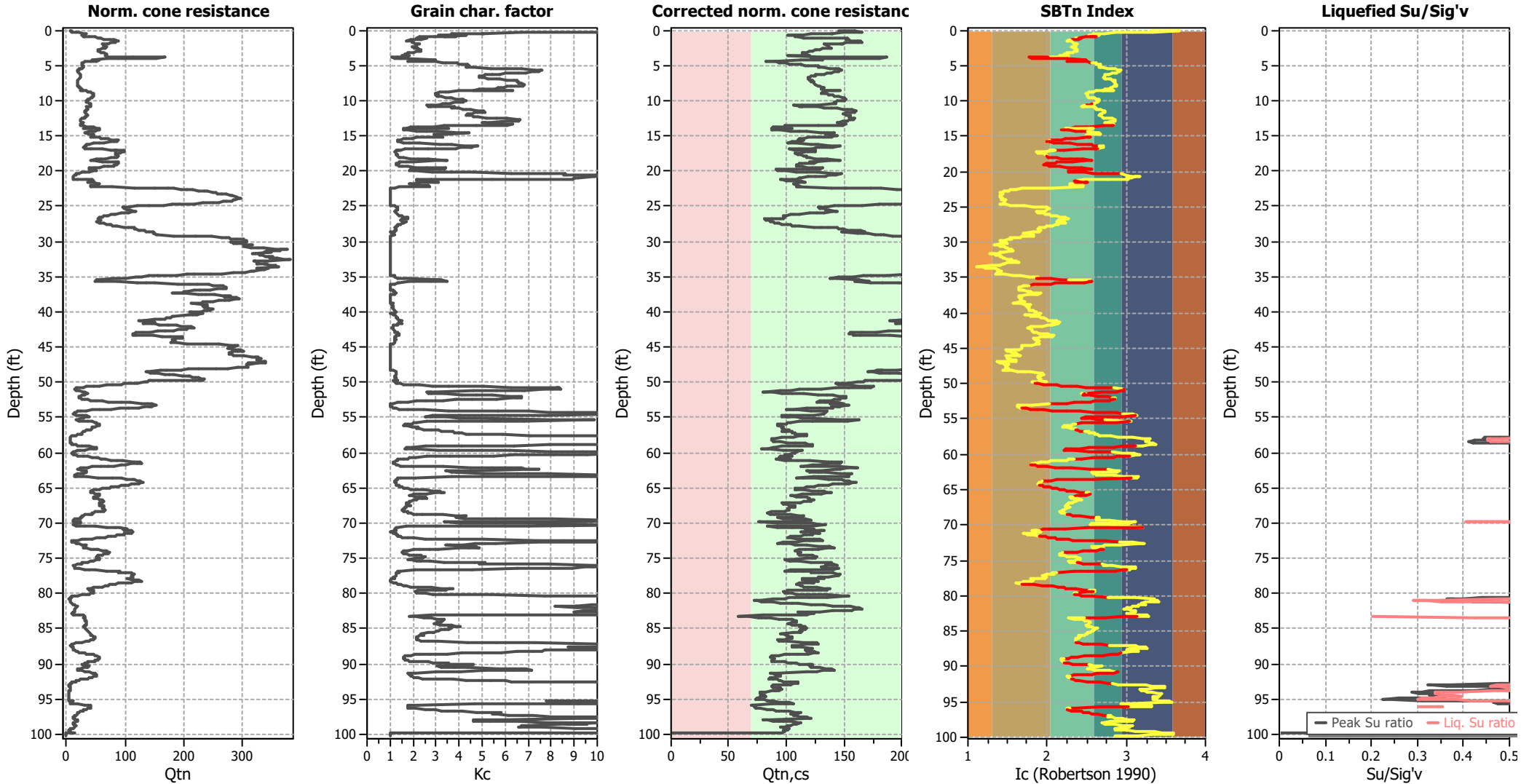
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBTn legend

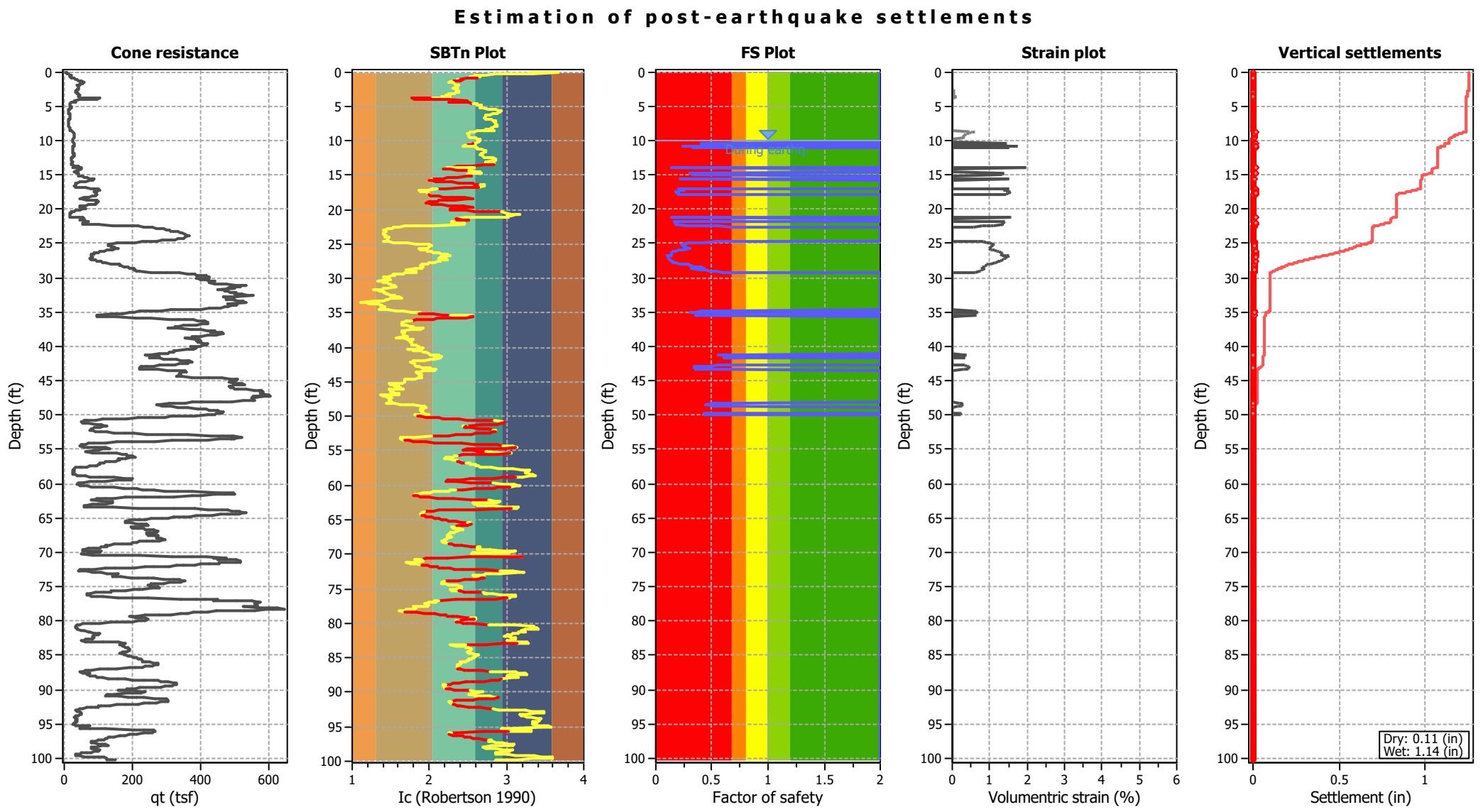
1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _o applied:	Yes
Earthquake magnitude M _w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft



Abbreviations

q_c: Total cone resistance (cone resistance q_c corrected for pore water effects)

I_c: Soil Behaviour Type Index

FS: Calculated Factor of Safety against liquefaction

Volumetric strain: Post-liquefaction volumetric strain

:: Post-earthquake settlement of dry sands ::

Depth (ft)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
0.07	3.32	9.20	15.83	145.60	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.14	3.67	5.59	28.41	158.91	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.21	3.34	10.20	16.28	166.09	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.27	3.09	15.80	10.34	163.50	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.33	2.87	22.28	6.72	149.69	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.40	2.73	28.03	4.99	139.81	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.46	2.73	27.88	5.03	140.29	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.53	2.59	32.92	3.67	120.93	33	490	0.86	0.006	0.00	19.28	0.00	0.000
0.61	2.66	26.59	4.30	114.27	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.67	2.52	32.34	3.12	100.92	26	441	0.86	0.010	0.01	19.28	0.01	0.000
0.72	2.66	26.14	4.30	112.44	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.82	2.56	31.74	3.38	107.39	28	452	0.86	0.013	0.01	19.28	0.01	0.000
0.87	2.61	29.44	3.87	113.96	0	0	0.86	0.000	0.00	0.00	0.00	0.000
0.95	2.49	38.20	2.94	112.22	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.00	2.38	48.84	2.26	110.54	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.06	2.35	53.87	2.15	115.57	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.12	2.39	56.02	2.32	129.96	32	647	0.86	0.010	0.01	19.28	0.01	0.000
1.18	2.44	59.18	2.59	153.52	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.26	2.40	64.36	2.37	152.26	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.33	2.33	73.56	2.06	151.38	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.40	2.29	81.46	1.90	154.45	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.44	2.24	89.67	1.73	155.33	0	0	0.86	0.000	0.00	0.00	0.00	0.000
1.53	2.31	81.91	1.97	161.64	38	858	0.86	0.009	0.00	19.28	0.00	0.000
1.60	2.32	82.67	1.98	164.06	39	869	0.86	0.009	0.00	19.28	0.00	0.000
1.64	2.32	83.31	1.99	166.10	39	878	0.86	0.009	0.00	19.28	0.00	0.000
1.71	2.32	79.99	2.02	161.57	38	850	0.86	0.011	0.00	19.28	0.01	0.000
1.78	2.32	75.22	2.02	151.63	36	799	0.86	0.013	0.01	19.28	0.01	0.000
1.84	2.34	71.91	2.07	148.69	36	776	0.86	0.014	0.01	19.28	0.01	0.000
1.94	2.36	68.30	2.19	149.35	36	762	0.86	0.016	0.01	19.28	0.01	0.000
1.98	2.39	63.56	2.30	146.32	36	731	0.86	0.018	0.01	19.28	0.01	0.000
2.04	2.36	61.40	2.17	133.23	32	682	0.86	0.022	0.01	19.28	0.01	0.000
2.12	2.35	63.69	2.12	135.10	32	698	0.86	0.022	0.01	19.28	0.01	0.000
2.17	2.36	62.95	2.18	136.99	33	700	0.86	0.022	0.01	19.28	0.01	0.000
2.25	2.35	63.81	2.15	137.06	33	704	0.86	0.023	0.01	19.28	0.01	0.000
2.32	2.35	64.67	2.12	136.92	33	708	0.86	0.024	0.01	19.28	0.01	0.000
2.37	2.33	66.38	2.06	136.46	33	713	0.86	0.025	0.01	19.28	0.01	0.000
2.43	2.32	68.65	1.99	136.30	32	722	0.86	0.025	0.01	19.28	0.02	0.000
2.50	2.33	67.16	2.06	138.63	33	724	0.86	0.026	0.01	19.28	0.02	0.000
2.56	2.35	64.96	2.12	137.76	33	712	0.86	0.028	0.02	19.28	0.02	0.000
2.65	2.36	60.32	2.19	132.22	32	674	0.86	0.034	0.02	19.28	0.02	0.000
2.71	2.38	57.39	2.26	129.49	32	652	0.86	0.039	0.02	19.28	0.02	0.000
2.76	2.38	55.93	2.27	127.06	31	638	0.86	0.043	0.03	19.28	0.03	0.000
2.84	2.39	54.06	2.32	125.17	31	624	0.86	0.049	0.03	19.28	0.03	0.001
2.90	2.36	55.92	2.20	122.96	30	626	0.86	0.050	0.03	19.28	0.03	0.000
2.96	2.39	53.33	2.31	123.28	30	615	0.86	0.056	0.03	19.28	0.04	0.000
3.05	2.35	55.96	2.14	119.71	29	616	0.86	0.058	0.04	19.28	0.04	0.001
3.10	2.33	58.27	2.02	117.89	28	620	0.86	0.059	0.04	19.28	0.04	0.001
3.16	2.28	61.84	1.86	115.17	27	624	0.86	0.060	0.04	19.28	0.04	0.001

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
3.24	2.25	64.58	1.77	114.22	26	629	0.86	0.061	0.04	19.28	0.05	0.001
3.29	2.23	67.73	1.68	113.88	26	635	0.86	0.061	0.04	19.28	0.05	0.001
3.38	2.21	69.74	1.63	113.85	26	639	0.86	0.063	0.05	19.28	0.05	0.001
3.44	2.22	69.45	1.66	115.38	26	646	0.86	0.063	0.05	19.28	0.05	0.001
3.49	2.25	67.85	1.76	119.68	28	659	0.86	0.061	0.04	19.28	0.04	0.001
3.55	2.27	66.27	1.81	119.75	28	655	0.86	0.064	0.04	19.28	0.05	0.001
3.61	2.26	65.39	1.78	116.34	27	639	0.86	0.072	0.05	19.28	0.05	0.001
3.68	2.17	65.68	1.54	100.96	22	572	0.86	0.113	0.10	19.28	0.10	0.002
3.77	2.26	72.00	1.80	129.50	30	709	0.86	0.056	0.03	19.28	0.04	0.001
3.83	2.01	113.00	1.32	149.16	31	812	0.86	0.039	0.02	19.28	0.02	0.000
3.88	1.76	168.82	1.11	186.83	0	0	0.86	0.000	0.00	0.00	0.00	0.000
3.97	1.82	154.42	1.17	181.04	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.02	2.14	88.96	1.48	131.68	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.07	2.24	69.83	1.73	121.04	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.15	2.50	44.51	2.96	131.66	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.21	2.39	53.12	2.34	124.25	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.28	2.33	55.27	2.03	112.06	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.36	2.25	50.81	1.76	89.60	0	0	0.86	0.000	0.00	0.00	0.00	0.000
4.40	2.32	40.74	2.02	82.30	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.49	2.50	30.66	2.98	91.36	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.56	2.54	28.49	3.30	94.08	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.60	2.56	27.77	3.42	95.03	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.70	2.62	25.61	3.92	100.29	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.75	2.63	25.61	4.01	102.56	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.79	2.64	25.60	4.11	105.19	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.88	2.67	25.60	4.38	112.16	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.94	2.67	26.17	4.43	115.99	0	0	0.85	0.000	0.00	0.00	0.00	0.000
4.99	2.66	27.59	4.32	119.25	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.07	2.67	28.31	4.42	125.03	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.13	2.67	29.03	4.38	127.29	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.22	2.66	29.73	4.30	127.83	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.28	2.67	29.60	4.36	129.17	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.32	2.69	28.44	4.65	132.15	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.41	2.76	25.70	5.38	138.28	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.46	2.82	23.53	6.06	142.56	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.52	2.86	21.80	6.68	145.60	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.58	2.90	20.35	7.26	147.67	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.66	2.92	19.49	7.58	147.66	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.71	2.92	19.49	7.51	146.36	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.79	2.92	19.48	7.47	145.57	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.86	2.91	19.77	7.28	143.92	0	0	0.85	0.000	0.00	0.00	0.00	0.000
5.92	2.90	19.91	7.14	142.04	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.00	2.88	20.32	6.87	139.58	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.05	2.85	21.04	6.56	138.00	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.13	2.81	22.33	6.04	134.89	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.20	2.79	23.05	5.74	132.37	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.24	2.77	23.90	5.43	129.82	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.34	2.74	24.62	5.12	126.03	0	0	0.85	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
6.38	2.74	24.61	5.10	125.64	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.44	2.73	24.76	5.04	124.81	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.50	2.73	24.75	5.01	123.89	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.57	2.72	25.04	4.88	122.12	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.63	2.71	24.89	4.85	120.76	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.70	2.71	24.59	4.86	119.43	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.78	2.73	23.43	5.08	119.05	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.83	2.75	22.57	5.28	119.18	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.91	2.78	21.26	5.62	119.50	0	0	0.85	0.000	0.00	0.00	0.00	0.000
6.97	2.79	20.68	5.79	119.65	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.02	2.82	19.82	6.08	120.40	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.12	2.84	18.94	6.40	121.17	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.17	2.85	18.79	6.50	122.25	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.22	2.85	18.79	6.49	121.92	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.29	2.85	18.78	6.54	122.80	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.35	2.86	18.77	6.58	123.44	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.46	2.86	18.76	6.61	124.00	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.50	2.86	18.61	6.67	124.18	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.56	2.87	18.47	6.72	124.16	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.62	2.87	18.46	6.73	124.30	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.69	2.87	18.31	6.83	125.06	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.75	2.88	18.31	6.86	125.49	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.84	2.87	18.74	6.79	127.27	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.89	2.86	19.31	6.60	127.55	0	0	0.85	0.000	0.00	0.00	0.00	0.000
7.94	2.83	20.30	6.27	127.40	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.02	2.82	21.16	6.10	129.10	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.09	2.81	22.03	5.97	131.60	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.14	2.80	22.75	5.83	132.64	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.23	2.79	23.30	5.67	132.13	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.28	2.77	23.73	5.54	131.52	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.37	2.74	25.60	5.09	130.26	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.43	2.71	27.17	4.86	132.12	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.47	2.69	28.76	4.61	132.66	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.56	2.84	23.29	6.33	147.31	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.61	2.63	33.21	3.99	132.57	0	0	0.85	0.000	0.00	0.00	0.00	0.000
8.70	2.58	37.37	3.56	133.07	36	547	0.85	1.236	0.62	19.28	0.59	0.013
8.73	2.56	38.95	3.40	132.57	35	556	0.85	1.132	0.58	19.28	0.55	0.004
8.80	2.53	41.41	3.18	131.76	34	570	0.85	1.005	0.52	19.28	0.50	0.008
8.89	2.50	43.56	3.01	130.95	34	581	0.85	0.924	0.49	19.28	0.47	0.010
8.95	2.50	44.57	2.97	132.59	34	592	0.85	0.854	0.45	19.28	0.43	0.006
8.99	2.51	44.28	3.04	134.72	35	595	0.85	0.838	0.43	19.28	0.41	0.004
9.06	2.50	45.16	3.00	135.37	35	602	0.85	0.804	0.41	19.28	0.39	0.006
9.13	2.50	45.54	3.00	136.62	35	608	0.85	0.779	0.39	19.28	0.37	0.007
9.19	2.51	45.64	3.02	137.87	36	614	0.85	0.750	0.38	19.28	0.35	0.005
9.26	2.51	45.86	3.07	140.86	37	625	0.85	0.694	0.34	19.28	0.32	0.005
9.32	2.51	46.31	3.05	141.22	37	633	0.85	0.665	0.32	19.28	0.30	0.004
9.38	2.52	45.97	3.09	142.21	37	635	0.85	0.661	0.32	19.28	0.30	0.005
9.45	2.53	45.01	3.22	145.04	38	638	0.85	0.663	0.31	19.28	0.29	0.005

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	I _c	Q _{tn}	K _c	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
9.53	2.56	43.27	3.44	148.73	39	636	0.85	0.689	0.30	19.28	0.29	0.005
9.59	2.58	41.79	3.60	150.29	40	630	0.84	0.736	0.32	19.28	0.30	0.004
9.65	2.59	40.71	3.69	150.38	41	624	0.84	0.786	0.34	19.28	0.32	0.004
9.72	2.61	39.04	3.86	150.55	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.81	2.64	37.11	4.09	151.74	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.85	2.65	36.37	4.19	152.22	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.91	2.65	35.50	4.24	150.62	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.99	2.66	34.35	4.31	148.18	0	0	0.84	0.000	0.00	0.00	0.00	0.000

Total estimated settlement: 0.11**Abbreviations**

Q_{tn}: Equivalent clean sand normalized cone resistance
 K_c: Fines correction factor
 Q_{tn,cs}: Post-liquefaction volumetric strain
 G_{max}: Small strain shear modulus
 CSR: Soil cyclic stress ratio
 γ: Cyclic shear strain
 e_{vol(15)}: Volumetric strain after 15 cycles
 N_c: Equivalent number of cycles
 e_v: Volumetric strain
 Settle.: Calculated settlement

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	Q _{tn,cs}	FS	e _v (%)	DF	Settlement (in)	Depth (ft)	Q _{tn,cs}	FS	e _v (%)	DF	Settlement (in)
10.04	144.44	2.00	0.00	0.83	0.00	10.11	142.92	2.00	0.00	0.83	0.00
10.19	142.26	2.00	0.00	0.83	0.00	10.25	143.17	2.00	0.00	0.83	0.00
10.30	143.26	2.00	0.00	0.83	0.00	10.38	142.63	0.41	1.44	0.82	0.01
10.44	142.04	0.40	1.44	0.82	0.01	10.50	140.84	2.00	0.00	0.82	0.00
10.59	127.60	2.00	0.00	0.82	0.00	10.64	114.06	2.00	0.00	0.82	0.00
10.70	106.91	2.00	0.00	0.82	0.00	10.77	113.97	0.25	1.72	0.82	0.02
10.83	110.85	0.24	1.75	0.82	0.01	10.89	128.15	2.00	0.00	0.82	0.00
10.98	132.41	0.33	1.51	0.81	0.02	11.04	139.04	2.00	0.00	0.81	0.00
11.10	144.13	2.00	0.00	0.81	0.00	11.17	149.36	2.00	0.00	0.81	0.00
11.23	153.78	2.00	0.00	0.81	0.00	11.30	157.56	2.00	0.00	0.81	0.00
11.35	160.69	2.00	0.00	0.81	0.00	11.43	161.17	2.00	0.00	0.81	0.00
11.50	159.67	2.00	0.00	0.81	0.00	11.57	159.00	2.00	0.00	0.80	0.00
11.62	157.26	2.00	0.00	0.80	0.00	11.71	153.72	2.00	0.00	0.80	0.00
11.76	152.50	2.00	0.00	0.80	0.00	11.81	150.63	2.00	0.00	0.80	0.00
11.89	148.85	2.00	0.00	0.80	0.00	11.96	150.29	2.00	0.00	0.80	0.00
12.01	151.44	2.00	0.00	0.80	0.00	12.10	154.26	2.00	0.00	0.79	0.00
12.15	155.96	2.00	0.00	0.79	0.00	12.23	155.71	2.00	0.00	0.79	0.00
12.29	155.15	2.00	0.00	0.79	0.00	12.34	154.85	2.00	0.00	0.79	0.00
12.41	156.31	2.00	0.00	0.79	0.00	12.49	157.83	2.00	0.00	0.79	0.00
12.54	160.06	2.00	0.00	0.79	0.00	12.64	158.35	2.00	0.00	0.79	0.00
12.69	155.77	2.00	0.00	0.78	0.00	12.74	154.39	2.00	0.00	0.78	0.00
12.81	153.42	2.00	0.00	0.78	0.00	12.88	151.34	2.00	0.00	0.78	0.00
12.93	149.91	2.00	0.00	0.78	0.00	13.02	145.12	2.00	0.00	0.78	0.00
13.06	143.93	2.00	0.00	0.78	0.00	13.13	143.89	2.00	0.00	0.78	0.00
13.20	144.43	2.00	0.00	0.78	0.00	13.27	147.30	2.00	0.00	0.78	0.00
13.36	151.48	2.00	0.00	0.77	0.00	13.40	151.04	2.00	0.00	0.77	0.00
13.46	150.00	2.00	0.00	0.77	0.00	13.52	128.44	2.00	0.00	0.77	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
13.61	99.15	2.00	0.00	0.77	0.00	13.66	98.10	2.00	0.00	0.77	0.00
13.74	90.93	2.00	0.00	0.77	0.00	13.80	88.66	2.00	0.00	0.77	0.00
13.85	87.68	2.00	0.00	0.77	0.00	13.91	105.42	0.19	1.71	0.76	0.01
14.00	87.25	0.14	1.99	0.76	0.02	14.05	87.35	2.00	0.00	0.76	0.00
14.12	88.88	2.00	0.00	0.76	0.00	14.18	94.92	2.00	0.00	0.76	0.00
14.25	103.77	2.00	0.00	0.76	0.00	14.32	111.98	2.00	0.00	0.76	0.00
14.38	117.24	2.00	0.00	0.76	0.00	14.46	129.87	2.00	0.00	0.75	0.00
14.52	133.03	2.00	0.00	0.75	0.00	14.58	135.65	2.00	0.00	0.75	0.00
14.66	142.26	2.00	0.00	0.75	0.00	14.72	136.26	0.31	1.36	0.75	0.01
14.77	134.60	0.30	1.37	0.75	0.01	14.86	136.39	0.31	1.36	0.75	0.01
14.92	139.02	0.33	1.33	0.75	0.01	14.97	144.74	0.36	1.29	0.75	0.01
15.03	142.26	0.34	1.30	0.75	0.01	15.11	139.65	2.00	0.00	0.74	0.00
15.16	132.44	2.00	0.00	0.74	0.00	15.26	119.16	2.00	0.00	0.74	0.00
15.30	115.79	2.00	0.00	0.74	0.00	15.36	112.91	2.00	0.00	0.74	0.00
15.44	111.04	2.00	0.00	0.74	0.00	15.49	110.38	2.00	0.00	0.74	0.00
15.58	113.71	2.00	0.00	0.74	0.00	15.64	115.14	2.00	0.00	0.73	0.00
15.69	115.52	0.22	1.52	0.73	0.01	15.79	112.44	2.00	0.00	0.73	0.00
15.84	109.07	2.00	0.00	0.73	0.00	15.89	105.35	2.00	0.00	0.73	0.00
15.97	100.70	2.00	0.00	0.73	0.00	16.03	102.60	2.00	0.00	0.73	0.00
16.08	108.71	2.00	0.00	0.73	0.00	16.17	121.07	2.00	0.00	0.73	0.00
16.22	124.78	2.00	0.00	0.73	0.00	16.28	127.64	2.00	0.00	0.72	0.00
16.36	137.85	2.00	0.00	0.72	0.00	16.42	146.82	2.00	0.00	0.72	0.00
16.48	146.25	2.00	0.00	0.72	0.00	16.54	140.60	2.00	0.00	0.72	0.00
16.61	137.44	2.00	0.00	0.72	0.00	16.67	126.63	2.00	0.00	0.72	0.00
16.76	122.84	2.00	0.00	0.72	0.00	16.81	111.32	2.00	0.00	0.72	0.00
16.88	102.78	2.00	0.00	0.71	0.00	16.94	107.42	2.00	0.00	0.71	0.00
17.00	114.56	2.00	0.00	0.71	0.00	17.07	113.13	0.20	1.50	0.71	0.01
17.13	125.82	0.25	1.37	0.71	0.01	17.19	125.58	0.25	1.37	0.71	0.01
17.27	118.75	0.22	1.44	0.71	0.01	17.33	116.66	0.21	1.45	0.71	0.01
17.39	112.96	0.20	1.49	0.71	0.01	17.47	109.39	0.19	1.53	0.70	0.01
17.52	107.93	0.18	1.54	0.70	0.01	17.61	110.04	0.19	1.52	0.70	0.02
17.67	110.31	0.19	1.51	0.70	0.01	17.72	113.15	0.20	1.48	0.70	0.01
17.80	115.72	0.21	1.45	0.70	0.01	17.86	116.77	2.00	0.00	0.70	0.00
17.92	117.42	2.00	0.00	0.70	0.00	18.00	117.50	2.00	0.00	0.69	0.00
18.06	118.23	2.00	0.00	0.69	0.00	18.12	119.92	2.00	0.00	0.69	0.00
18.21	125.56	2.00	0.00	0.69	0.00	18.25	130.06	2.00	0.00	0.69	0.00
18.31	135.39	2.00	0.00	0.69	0.00	18.39	146.46	2.00	0.00	0.69	0.00
18.45	145.82	2.00	0.00	0.69	0.00	18.51	137.90	2.00	0.00	0.69	0.00
18.59	123.45	2.00	0.00	0.68	0.00	18.65	120.67	2.00	0.00	0.68	0.00
18.70	124.01	2.00	0.00	0.68	0.00	18.77	126.11	2.00	0.00	0.68	0.00
18.84	123.62	2.00	0.00	0.68	0.00	18.91	116.06	2.00	0.00	0.68	0.00
18.97	111.20	2.00	0.00	0.68	0.00	19.03	110.43	2.00	0.00	0.68	0.00
19.11	109.43	2.00	0.00	0.68	0.00	19.18	108.90	2.00	0.00	0.67	0.00
19.23	109.33	2.00	0.00	0.67	0.00	19.29	109.32	2.00	0.00	0.67	0.00
19.39	113.42	2.00	0.00	0.67	0.00	19.44	117.82	2.00	0.00	0.67	0.00
19.50	122.57	2.00	0.00	0.67	0.00	19.58	131.82	2.00	0.00	0.67	0.00
19.63	128.99	2.00	0.00	0.67	0.00	19.69	120.18	2.00	0.00	0.67	0.00
19.78	93.18	2.00	0.00	0.66	0.00	19.83	90.94	2.00	0.00	0.66	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
19.89	92.83	2.00	0.00	0.66	0.00	19.97	96.16	2.00	0.00	0.66	0.00
20.03	99.59	2.00	0.00	0.66	0.00	20.11	109.01	2.00	0.00	0.66	0.00
20.18	117.44	2.00	0.00	0.66	0.00	20.23	126.67	2.00	0.00	0.66	0.00
20.29	140.23	2.00	0.00	0.66	0.00	20.37	147.76	2.00	0.00	0.65	0.00
20.42	147.49	2.00	0.00	0.65	0.00	20.48	142.80	2.00	0.00	0.65	0.00
20.55	138.14	2.00	0.00	0.65	0.00	20.61	136.56	2.00	0.00	0.65	0.00
20.68	134.64	2.00	0.00	0.65	0.00	20.75	125.77	2.00	0.00	0.65	0.00
20.80	118.84	2.00	0.00	0.65	0.00	20.88	113.09	2.00	0.00	0.65	0.00
20.94	112.18	2.00	0.00	0.65	0.00	21.02	111.02	2.00	0.00	0.64	0.00
21.08	109.19	2.00	0.00	0.64	0.00	21.13	105.24	2.00	0.00	0.64	0.00
21.20	95.36	0.14	1.56	0.64	0.01	21.28	96.45	0.14	1.54	0.64	0.01
21.34	99.83	2.00	0.00	0.64	0.00	21.42	107.98	2.00	0.00	0.64	0.00
21.47	112.76	2.00	0.00	0.64	0.00	21.53	115.93	2.00	0.00	0.64	0.00
21.59	115.51	2.00	0.00	0.63	0.00	21.68	111.17	2.00	0.00	0.63	0.00
21.73	107.43	2.00	0.00	0.63	0.00	21.80	105.92	2.00	0.00	0.63	0.00
21.87	106.29	0.17	1.40	0.63	0.01	21.92	108.82	0.17	1.37	0.63	0.01
22.02	110.05	0.18	1.35	0.63	0.02	22.07	110.17	0.18	1.35	0.63	0.01
22.14	112.08	0.18	1.33	0.62	0.01	22.19	112.61	0.18	1.32	0.62	0.01
22.28	109.42	0.17	1.35	0.62	0.02	22.34	138.63	0.28	1.11	0.62	0.01
22.38	151.66	0.35	1.03	0.62	0.01	22.47	173.02	0.48	0.92	0.62	0.01
22.51	182.46	0.56	0.78	0.62	0.00	22.59	195.86	0.67	0.58	0.62	0.01
22.66	205.83	2.00	0.00	0.62	0.00	22.71	215.59	2.00	0.00	0.62	0.00
22.77	225.06	2.00	0.00	0.61	0.00	22.85	235.12	2.00	0.00	0.61	0.00
22.90	242.03	2.00	0.00	0.61	0.00	22.98	250.36	2.00	0.00	0.61	0.00
23.05	254.96	2.00	0.00	0.61	0.00	23.10	256.17	2.00	0.00	0.61	0.00
23.17	258.97	2.00	0.00	0.61	0.00	23.23	264.99	2.00	0.00	0.61	0.00
23.30	274.02	2.00	0.00	0.61	0.00	23.39	280.56	2.00	0.00	0.60	0.00
23.43	282.85	2.00	0.00	0.60	0.00	23.49	283.64	2.00	0.00	0.60	0.00
23.58	289.58	2.00	0.00	0.60	0.00	23.63	291.38	2.00	0.00	0.60	0.00
23.69	291.24	2.00	0.00	0.60	0.00	23.78	295.74	2.00	0.00	0.60	0.00
23.83	296.42	2.00	0.00	0.60	0.00	23.91	298.85	2.00	0.00	0.59	0.00
23.96	294.81	2.00	0.00	0.59	0.00	24.02	289.02	2.00	0.00	0.59	0.00
24.09	289.08	2.00	0.00	0.59	0.00	24.17	286.74	2.00	0.00	0.59	0.00
24.22	283.47	2.00	0.00	0.59	0.00	24.29	272.95	2.00	0.00	0.59	0.00
24.37	267.91	2.00	0.00	0.59	0.00	24.42	261.38	2.00	0.00	0.59	0.00
24.49	249.91	2.00	0.00	0.58	0.00	24.56	232.30	2.00	0.00	0.58	0.00
24.61	218.07	2.00	0.00	0.58	0.00	24.69	194.35	0.65	0.67	0.58	0.01
24.74	181.56	0.54	0.83	0.58	0.01	24.81	165.46	0.42	0.90	0.58	0.01
24.87	145.11	0.31	1.00	0.58	0.01	24.94	142.30	0.29	1.01	0.58	0.01
25.02	133.61	0.25	1.06	0.58	0.01	25.07	129.00	0.24	1.09	0.58	0.01
25.15	127.60	0.23	1.10	0.57	0.01	25.20	128.08	0.23	1.09	0.57	0.01
25.26	129.12	0.24	1.08	0.57	0.01	25.36	133.18	0.25	1.05	0.57	0.01
25.41	133.55	0.25	1.05	0.57	0.01	25.48	134.04	0.26	1.04	0.57	0.01
25.53	135.35	0.26	1.03	0.57	0.01	25.60	137.15	0.27	1.02	0.57	0.01
25.67	143.06	0.30	0.98	0.56	0.01	25.73	144.22	0.30	0.98	0.56	0.01
25.80	140.78	0.28	0.99	0.56	0.01	25.86	133.24	0.25	1.04	0.56	0.01
25.93	126.53	0.23	1.08	0.56	0.01	25.99	120.10	0.20	1.13	0.56	0.01
26.08	111.19	0.17	1.20	0.56	0.01	26.13	106.95	0.16	1.23	0.56	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.18	103.71	0.15	1.26	0.56	0.01	26.26	100.01	0.14	1.30	0.55	0.01
26.32	98.28	0.14	1.31	0.55	0.01	26.41	97.02	0.14	1.32	0.55	0.01
26.46	97.34	0.14	1.32	0.55	0.01	26.52	98.51	0.14	1.30	0.55	0.01
26.60	98.32	0.14	1.30	0.55	0.01	26.66	97.19	0.14	1.31	0.55	0.01
26.71	95.45	0.13	1.33	0.55	0.01	26.78	87.35	0.12	1.43	0.55	0.01
26.86	80.80	0.11	1.52	0.54	0.02	26.91	82.60	0.11	1.49	0.54	0.01
27.01	85.39	0.11	1.44	0.54	0.02	27.04	85.61	0.11	1.44	0.54	0.01
27.10	85.59	0.11	1.44	0.54	0.01	27.17	87.28	0.12	1.41	0.54	0.01
27.24	88.89	0.12	1.39	0.54	0.01	27.31	89.77	0.12	1.37	0.54	0.01
27.37	91.85	0.13	1.34	0.54	0.01	27.43	93.45	0.13	1.32	0.54	0.01
27.50	96.83	0.14	1.28	0.53	0.01	27.60	101.48	0.15	1.23	0.53	0.01
27.65	103.22	0.15	1.21	0.53	0.01	27.70	104.83	0.15	1.19	0.53	0.01
27.77	108.15	0.16	1.16	0.53	0.01	27.83	111.86	0.17	1.13	0.53	0.01
27.91	123.51	0.21	1.04	0.53	0.01	27.98	130.71	0.24	0.99	0.53	0.01
28.03	137.27	0.26	0.95	0.52	0.01	28.10	143.79	0.29	0.91	0.52	0.01
28.17	145.38	0.30	0.90	0.52	0.01	28.22	145.46	0.30	0.90	0.52	0.01
28.29	148.87	0.32	0.88	0.52	0.01	28.35	152.74	0.34	0.86	0.52	0.01
28.42	156.65	0.36	0.84	0.52	0.01	28.50	165.18	0.41	0.80	0.52	0.01
28.55	167.96	0.42	0.79	0.52	0.01	28.61	166.63	0.42	0.79	0.52	0.01
28.68	148.40	0.31	0.87	0.51	0.01	28.76	162.51	0.39	0.80	0.51	0.01
28.81	167.45	0.42	0.78	0.51	0.00	28.89	170.51	0.44	0.77	0.51	0.01
28.94	176.75	0.48	0.75	0.51	0.00	29.02	182.49	0.52	0.73	0.51	0.01
29.07	185.05	0.54	0.72	0.51	0.00	29.14	192.11	0.60	0.60	0.51	0.01
29.21	201.63	2.00	0.00	0.50	0.00	29.28	219.98	2.00	0.00	0.50	0.00
29.34	247.26	2.00	0.00	0.50	0.00	29.41	265.22	2.00	0.00	0.50	0.00
29.47	272.69	2.00	0.00	0.50	0.00	29.53	278.19	2.00	0.00	0.50	0.00
29.61	281.20	2.00	0.00	0.50	0.00	29.67	290.73	2.00	0.00	0.50	0.00
29.75	303.02	2.00	0.00	0.50	0.00	29.81	303.77	2.00	0.00	0.49	0.00
29.86	307.65	2.00	0.00	0.49	0.00	29.94	307.56	2.00	0.00	0.49	0.00
30.00	308.71	2.00	0.00	0.49	0.00	30.06	280.27	2.00	0.00	0.49	0.00
30.12	283.17	2.00	0.00	0.49	0.00	30.20	286.85	2.00	0.00	0.49	0.00
30.26	291.67	2.00	0.00	0.49	0.00	30.34	299.43	2.00	0.00	0.49	0.00
30.39	306.50	2.00	0.00	0.48	0.00	30.45	317.47	2.00	0.00	0.48	0.00
30.52	316.00	2.00	0.00	0.48	0.00	30.58	305.08	2.00	0.00	0.48	0.00
30.64	304.05	2.00	0.00	0.48	0.00	30.72	303.63	2.00	0.00	0.48	0.00
30.78	302.61	2.00	0.00	0.48	0.00	30.86	314.55	2.00	0.00	0.48	0.00
30.92	328.21	2.00	0.00	0.48	0.00	30.98	338.38	2.00	0.00	0.47	0.00
31.05	358.17	2.00	0.00	0.47	0.00	31.11	378.12	2.00	0.00	0.47	0.00
31.17	365.05	2.00	0.00	0.47	0.00	31.23	366.15	2.00	0.00	0.47	0.00
31.30	365.82	2.00	0.00	0.47	0.00	31.38	343.03	2.00	0.00	0.47	0.00
31.45	337.18	2.00	0.00	0.47	0.00	31.51	346.54	2.00	0.00	0.47	0.00
31.59	351.51	2.00	0.00	0.46	0.00	31.63	317.42	2.00	0.00	0.46	0.00
31.70	323.51	2.00	0.00	0.46	0.00	31.77	327.36	2.00	0.00	0.46	0.00
31.83	330.59	2.00	0.00	0.46	0.00	31.91	335.50	2.00	0.00	0.46	0.00
31.97	334.48	2.00	0.00	0.46	0.00	32.04	340.80	2.00	0.00	0.46	0.00
32.09	342.81	2.00	0.00	0.46	0.00	32.16	352.07	2.00	0.00	0.45	0.00
32.22	344.50	2.00	0.00	0.45	0.00	32.31	348.30	2.00	0.00	0.45	0.00
32.35	348.35	2.00	0.00	0.45	0.00	32.43	360.01	2.00	0.00	0.45	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
32.48	372.15	2.00	0.00	0.45	0.00	32.55	382.87	2.00	0.00	0.45	0.00
32.63	380.61	2.00	0.00	0.45	0.00	32.69	345.40	2.00	0.00	0.45	0.00
32.76	321.70	2.00	0.00	0.44	0.00	32.81	322.77	2.00	0.00	0.44	0.00
32.89	325.02	2.00	0.00	0.44	0.00	32.94	326.98	2.00	0.00	0.44	0.00
33.01	326.84	2.00	0.00	0.44	0.00	33.09	327.74	2.00	0.00	0.44	0.00
33.14	326.35	2.00	0.00	0.44	0.00	33.22	341.98	2.00	0.00	0.44	0.00
33.27	338.96	2.00	0.00	0.44	0.00	33.34	347.25	2.00	0.00	0.43	0.00
33.41	358.92	2.00	0.00	0.43	0.00	33.48	358.41	2.00	0.00	0.43	0.00
33.53	352.69	2.00	0.00	0.43	0.00	33.60	362.47	2.00	0.00	0.43	0.00
33.67	361.22	2.00	0.00	0.43	0.00	33.74	325.05	2.00	0.00	0.43	0.00
33.81	340.10	2.00	0.00	0.43	0.00	33.87	345.00	2.00	0.00	0.43	0.00
33.96	339.22	2.00	0.00	0.42	0.00	34.01	337.01	2.00	0.00	0.42	0.00
34.06	332.40	2.00	0.00	0.42	0.00	34.15	321.21	2.00	0.00	0.42	0.00
34.20	316.93	2.00	0.00	0.42	0.00	34.26	315.40	2.00	0.00	0.42	0.00
34.35	306.42	2.00	0.00	0.42	0.00	34.40	299.87	2.00	0.00	0.42	0.00
34.45	284.93	2.00	0.00	0.42	0.00	34.52	266.15	2.00	0.00	0.41	0.00
34.59	246.46	2.00	0.00	0.41	0.00	34.68	217.18	2.00	0.00	0.41	0.00
34.72	206.58	2.00	0.00	0.41	0.00	34.78	187.86	0.55	0.57	0.41	0.00
34.85	173.44	0.44	0.61	0.41	0.01	34.91	166.69	0.40	0.63	0.41	0.00
34.98	157.81	0.35	0.65	0.41	0.01	35.06	149.15	0.31	0.68	0.41	0.01
35.12	145.54	2.00	0.00	0.40	0.00	35.20	137.83	2.00	0.00	0.40	0.00
35.26	140.98	2.00	0.00	0.40	0.00	35.31	144.28	2.00	0.00	0.40	0.00
35.37	163.44	2.00	0.00	0.40	0.00	35.45	159.25	0.36	0.64	0.40	0.01
35.51	163.22	0.38	0.62	0.40	0.00	35.59	172.36	2.00	0.00	0.40	0.00
35.63	169.28	2.00	0.00	0.40	0.00	35.70	159.72	2.00	0.00	0.39	0.00
35.78	172.81	2.00	0.00	0.39	0.00	35.84	183.69	2.00	0.00	0.39	0.00
35.90	198.05	2.00	0.00	0.39	0.00	35.98	233.13	2.00	0.00	0.39	0.00
36.04	247.46	2.00	0.00	0.39	0.00	36.09	252.74	2.00	0.00	0.39	0.00
36.16	248.89	2.00	0.00	0.39	0.00	36.23	251.58	2.00	0.00	0.39	0.00
36.32	263.31	2.00	0.00	0.38	0.00	36.37	267.38	2.00	0.00	0.38	0.00
36.43	271.38	2.00	0.00	0.38	0.00	36.50	272.42	2.00	0.00	0.38	0.00
36.57	273.66	2.00	0.00	0.38	0.00	36.63	273.64	2.00	0.00	0.38	0.00
36.69	267.95	2.00	0.00	0.38	0.00	36.77	257.55	2.00	0.00	0.38	0.00
36.82	245.42	2.00	0.00	0.38	0.00	36.88	247.01	2.00	0.00	0.37	0.00
36.95	243.91	2.00	0.00	0.37	0.00	37.03	237.44	2.00	0.00	0.37	0.00
37.09	235.37	2.00	0.00	0.37	0.00	37.15	235.53	2.00	0.00	0.37	0.00
37.22	238.82	2.00	0.00	0.37	0.00	37.27	227.32	2.00	0.00	0.37	0.00
37.34	247.18	2.00	0.00	0.37	0.00	37.43	272.62	2.00	0.00	0.37	0.00
37.48	254.15	2.00	0.00	0.36	0.00	37.54	238.96	2.00	0.00	0.36	0.00
37.60	252.65	2.00	0.00	0.36	0.00	37.68	267.68	2.00	0.00	0.36	0.00
37.75	280.41	2.00	0.00	0.36	0.00	37.80	269.52	2.00	0.00	0.36	0.00
37.86	271.44	2.00	0.00	0.36	0.00	37.94	281.21	2.00	0.00	0.36	0.00
38.00	290.66	2.00	0.00	0.36	0.00	38.06	294.95	2.00	0.00	0.35	0.00
38.13	293.26	2.00	0.00	0.35	0.00	38.19	289.82	2.00	0.00	0.35	0.00
38.26	279.13	2.00	0.00	0.35	0.00	38.33	270.45	2.00	0.00	0.35	0.00
38.40	264.57	2.00	0.00	0.35	0.00	38.46	251.50	2.00	0.00	0.35	0.00
38.52	244.91	2.00	0.00	0.35	0.00	38.59	240.90	2.00	0.00	0.35	0.00
38.65	234.14	2.00	0.00	0.34	0.00	38.72	231.77	2.00	0.00	0.34	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
38.78	243.53	2.00	0.00	0.34	0.00	38.85	243.55	2.00	0.00	0.34	0.00
38.92	251.94	2.00	0.00	0.34	0.00	38.99	255.20	2.00	0.00	0.34	0.00
39.05	260.63	2.00	0.00	0.34	0.00	39.11	265.22	2.00	0.00	0.34	0.00
39.18	267.49	2.00	0.00	0.34	0.00	39.25	264.25	2.00	0.00	0.33	0.00
39.31	265.39	2.00	0.00	0.33	0.00	39.37	264.07	2.00	0.00	0.33	0.00
39.44	266.06	2.00	0.00	0.33	0.00	39.51	273.32	2.00	0.00	0.33	0.00
39.58	282.47	2.00	0.00	0.33	0.00	39.64	288.31	2.00	0.00	0.33	0.00
39.70	290.65	2.00	0.00	0.33	0.00	39.78	288.23	2.00	0.00	0.33	0.00
39.84	284.70	2.00	0.00	0.32	0.00	39.93	281.75	2.00	0.00	0.32	0.00
39.97	280.74	2.00	0.00	0.32	0.00	40.03	265.78	2.00	0.00	0.32	0.00
40.10	264.92	2.00	0.00	0.32	0.00	40.16	264.13	2.00	0.00	0.32	0.00
40.24	235.69	2.00	0.00	0.32	0.00	40.31	245.03	2.00	0.00	0.32	0.00
40.36	248.38	2.00	0.00	0.32	0.00	40.43	248.93	2.00	0.00	0.31	0.00
40.49	246.10	2.00	0.00	0.31	0.00	40.56	229.53	2.00	0.00	0.31	0.00
40.63	228.46	2.00	0.00	0.31	0.00	40.68	229.17	2.00	0.00	0.31	0.00
40.75	229.11	2.00	0.00	0.31	0.00	40.82	227.34	2.00	0.00	0.31	0.00
40.89	223.63	2.00	0.00	0.31	0.00	40.95	220.33	2.00	0.00	0.31	0.00
41.01	213.38	2.00	0.00	0.30	0.00	41.08	204.63	2.00	0.00	0.30	0.00
41.16	192.82	0.59	0.35	0.30	0.00	41.21	202.97	2.00	0.00	0.30	0.00
41.27	189.37	0.56	0.36	0.30	0.00	41.36	202.57	2.00	0.00	0.30	0.00
41.41	205.94	2.00	0.00	0.30	0.00	41.47	198.71	0.64	0.33	0.30	0.00
41.55	205.00	2.00	0.00	0.30	0.00	41.60	195.18	0.61	0.34	0.29	0.00
41.68	201.21	2.00	0.00	0.29	0.00	41.75	203.46	2.00	0.00	0.29	0.00
41.81	207.71	2.00	0.00	0.29	0.00	41.87	216.93	2.00	0.00	0.29	0.00
41.93	218.57	2.00	0.00	0.29	0.00	42.00	225.89	2.00	0.00	0.29	0.00
42.09	233.17	2.00	0.00	0.29	0.00	42.13	235.89	2.00	0.00	0.29	0.00
42.20	238.72	2.00	0.00	0.28	0.00	42.27	237.25	2.00	0.00	0.28	0.00
42.33	238.26	2.00	0.00	0.28	0.00	42.39	238.42	2.00	0.00	0.28	0.00
42.47	233.39	2.00	0.00	0.28	0.00	42.54	227.10	2.00	0.00	0.28	0.00
42.59	221.96	2.00	0.00	0.28	0.00	42.65	214.08	2.00	0.00	0.28	0.00
42.74	203.28	2.00	0.00	0.28	0.00	42.80	189.01	0.56	0.33	0.27	0.00
42.85	178.30	0.48	0.40	0.27	0.00	42.93	165.42	0.40	0.42	0.27	0.00
42.99	156.15	0.34	0.44	0.27	0.00	43.06	154.59	0.34	0.44	0.27	0.00
43.11	156.05	0.34	0.44	0.27	0.00	43.18	158.33	0.36	0.43	0.27	0.00
43.25	158.81	0.36	0.43	0.27	0.00	43.31	164.07	0.39	0.41	0.27	0.00
43.39	189.48	0.57	0.32	0.26	0.00	43.45	205.89	2.00	0.00	0.26	0.00
43.51	218.57	2.00	0.00	0.26	0.00	43.60	234.12	2.00	0.00	0.26	0.00
43.65	234.61	2.00	0.00	0.26	0.00	43.70	231.66	2.00	0.00	0.26	0.00
43.80	228.55	2.00	0.00	0.26	0.00	43.84	229.44	2.00	0.00	0.26	0.00
43.91	227.42	2.00	0.00	0.26	0.00	43.98	224.61	2.00	0.00	0.25	0.00
44.04	225.38	2.00	0.00	0.25	0.00	44.10	225.14	2.00	0.00	0.25	0.00
44.18	225.15	2.00	0.00	0.25	0.00	44.23	222.67	2.00	0.00	0.25	0.00
44.30	219.39	2.00	0.00	0.25	0.00	44.36	219.71	2.00	0.00	0.25	0.00
44.44	227.59	2.00	0.00	0.25	0.00	44.49	241.55	2.00	0.00	0.25	0.00
44.56	260.33	2.00	0.00	0.24	0.00	44.62	267.43	2.00	0.00	0.24	0.00
44.69	279.73	2.00	0.00	0.24	0.00	44.76	288.34	2.00	0.00	0.24	0.00
44.83	291.96	2.00	0.00	0.24	0.00	44.89	286.81	2.00	0.00	0.24	0.00
44.96	284.29	2.00	0.00	0.24	0.00	45.02	281.27	2.00	0.00	0.24	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.09	274.79	2.00	0.00	0.24	0.00	45.15	276.94	2.00	0.00	0.23	0.00
45.22	277.45	2.00	0.00	0.23	0.00	45.28	287.20	2.00	0.00	0.23	0.00
45.35	294.30	2.00	0.00	0.23	0.00	45.41	299.26	2.00	0.00	0.23	0.00
45.50	303.21	2.00	0.00	0.23	0.00	45.54	299.95	2.00	0.00	0.23	0.00
45.60	293.30	2.00	0.00	0.23	0.00	45.67	283.57	2.00	0.00	0.23	0.00
45.75	282.44	2.00	0.00	0.22	0.00	45.80	277.00	2.00	0.00	0.22	0.00
45.88	279.48	2.00	0.00	0.22	0.00	45.94	278.22	2.00	0.00	0.22	0.00
46.00	277.92	2.00	0.00	0.22	0.00	46.07	282.02	2.00	0.00	0.22	0.00
46.13	285.81	2.00	0.00	0.22	0.00	46.20	289.52	2.00	0.00	0.22	0.00
46.26	303.70	2.00	0.00	0.22	0.00	46.34	317.13	2.00	0.00	0.21	0.00
46.39	328.80	2.00	0.00	0.21	0.00	46.46	323.61	2.00	0.00	0.21	0.00
46.52	330.37	2.00	0.00	0.21	0.00	46.59	331.89	2.00	0.00	0.21	0.00
46.66	329.68	2.00	0.00	0.21	0.00	46.73	326.47	2.00	0.00	0.21	0.00
46.80	329.95	2.00	0.00	0.21	0.00	46.86	327.65	2.00	0.00	0.21	0.00
46.92	328.40	2.00	0.00	0.20	0.00	46.99	333.50	2.00	0.00	0.20	0.00
47.06	339.76	2.00	0.00	0.20	0.00	47.12	337.99	2.00	0.00	0.20	0.00
47.18	341.25	2.00	0.00	0.20	0.00	47.26	310.85	2.00	0.00	0.20	0.00
47.31	327.20	2.00	0.00	0.20	0.00	47.38	314.08	2.00	0.00	0.20	0.00
47.44	311.68	2.00	0.00	0.20	0.00	47.53	308.24	2.00	0.00	0.19	0.00
47.59	308.02	2.00	0.00	0.19	0.00	47.64	307.83	2.00	0.00	0.19	0.00
47.71	307.56	2.00	0.00	0.19	0.00	47.78	311.34	2.00	0.00	0.19	0.00
47.84	309.38	2.00	0.00	0.19	0.00	47.90	292.75	2.00	0.00	0.19	0.00
47.98	274.49	2.00	0.00	0.19	0.00	48.04	256.00	2.00	0.00	0.19	0.00
48.11	225.49	2.00	0.00	0.18	0.00	48.17	207.24	2.00	0.00	0.18	0.00
48.23	196.52	0.64	0.21	0.18	0.00	48.31	178.25	0.50	0.26	0.18	0.00
48.38	183.30	0.53	0.26	0.18	0.00	48.44	171.42	0.45	0.27	0.18	0.00
48.50	172.13	0.45	0.27	0.18	0.00	48.56	174.89	0.47	0.26	0.18	0.00
48.63	180.99	0.52	0.25	0.18	0.00	48.70	189.82	0.59	0.21	0.17	0.00
48.77	197.54	0.65	0.16	0.17	0.00	48.83	210.09	2.00	0.00	0.17	0.00
48.90	220.31	2.00	0.00	0.17	0.00	48.95	228.20	2.00	0.00	0.17	0.00
49.02	243.72	2.00	0.00	0.17	0.00	49.09	253.68	2.00	0.00	0.17	0.00
49.15	258.80	2.00	0.00	0.17	0.00	49.22	264.64	2.00	0.00	0.17	0.00
49.29	268.82	2.00	0.00	0.16	0.00	49.35	273.78	2.00	0.00	0.16	0.00
49.41	280.99	2.00	0.00	0.16	0.00	49.49	286.48	2.00	0.00	0.16	0.00
49.54	289.85	2.00	0.00	0.16	0.00	49.63	289.35	2.00	0.00	0.16	0.00
49.67	186.80	0.57	0.19	0.16	0.00	49.75	168.14	0.43	0.24	0.16	0.00
49.81	168.27	0.43	0.24	0.16	0.00	49.88	166.94	0.42	0.24	0.15	0.00
49.94	164.88	2.00	0.00	0.15	0.00	50.01	162.03	2.00	0.00	0.15	0.00
50.07	153.01	2.00	0.00	0.15	0.00	50.15	152.48	2.00	0.00	0.15	0.00
50.20	143.15	2.00	0.00	0.15	0.00	50.27	146.08	2.00	0.00	0.15	0.00
50.34	149.66	2.00	0.00	0.15	0.00	50.41	155.96	2.00	0.00	0.15	0.00
50.48	161.70	2.00	0.00	0.14	0.00	50.52	167.75	2.00	0.00	0.14	0.00
50.59	175.58	2.00	0.00	0.14	0.00	50.67	173.94	2.00	0.00	0.14	0.00
50.74	168.52	2.00	0.00	0.14	0.00	50.80	154.40	2.00	0.00	0.14	0.00
50.86	143.39	2.00	0.00	0.14	0.00	50.93	130.06	2.00	0.00	0.14	0.00
51.00	118.66	2.00	0.00	0.14	0.00	51.06	110.94	2.00	0.00	0.13	0.00
51.12	103.94	2.00	0.00	0.13	0.00	51.20	99.62	2.00	0.00	0.13	0.00
51.25	95.52	2.00	0.00	0.13	0.00	51.32	81.33	2.00	0.00	0.13	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
51.38	80.04	2.00	0.00	0.13	0.00	51.45	88.76	2.00	0.00	0.13	0.00
51.53	96.58	2.00	0.00	0.13	0.00	51.59	104.55	2.00	0.00	0.13	0.00
51.64	115.44	2.00	0.00	0.12	0.00	51.72	128.03	2.00	0.00	0.12	0.00
51.78	135.11	2.00	0.00	0.12	0.00	51.84	140.70	2.00	0.00	0.12	0.00
51.93	145.67	2.00	0.00	0.12	0.00	51.97	149.32	2.00	0.00	0.12	0.00
52.05	151.67	2.00	0.00	0.12	0.00	52.11	151.54	2.00	0.00	0.12	0.00
52.18	149.80	2.00	0.00	0.12	0.00	52.26	148.14	2.00	0.00	0.11	0.00
52.30	147.02	2.00	0.00	0.11	0.00	52.37	146.73	2.00	0.00	0.11	0.00
52.46	145.21	2.00	0.00	0.11	0.00	52.50	141.57	2.00	0.00	0.11	0.00
52.56	139.21	2.00	0.00	0.11	0.00	52.65	132.38	2.00	0.00	0.11	0.00
52.71	128.64	2.00	0.00	0.11	0.00	52.76	126.87	2.00	0.00	0.11	0.00
52.84	133.95	2.00	0.00	0.10	0.00	52.90	144.72	2.00	0.00	0.10	0.00
52.98	149.40	2.00	0.00	0.10	0.00	53.02	137.84	2.00	0.00	0.10	0.00
53.10	146.64	2.00	0.00	0.10	0.00	53.18	153.73	2.00	0.00	0.10	0.00
53.23	154.14	2.00	0.00	0.10	0.00	53.29	153.80	2.00	0.00	0.10	0.00
53.36	143.77	2.00	0.00	0.10	0.00	53.42	146.94	2.00	0.00	0.09	0.00
53.49	140.70	2.00	0.00	0.09	0.00	53.55	139.84	2.00	0.00	0.09	0.00
53.62	140.10	2.00	0.00	0.09	0.00	53.70	128.74	2.00	0.00	0.09	0.00
53.75	118.00	2.00	0.00	0.09	0.00	53.81	106.56	2.00	0.00	0.09	0.00
53.88	100.49	2.00	0.00	0.09	0.00	53.94	108.23	2.00	0.00	0.09	0.00
54.01	121.46	2.00	0.00	0.08	0.00	54.07	135.44	2.00	0.00	0.08	0.00
54.15	134.92	2.00	0.00	0.08	0.00	54.20	134.36	2.00	0.00	0.08	0.00
54.27	133.08	2.00	0.00	0.08	0.00	54.34	133.11	2.00	0.00	0.08	0.00
54.40	133.13	2.00	0.00	0.08	0.00	54.47	133.51	2.00	0.00	0.08	0.00
54.54	132.38	2.00	0.00	0.08	0.00	54.59	123.90	2.00	0.00	0.07	0.00
54.68	104.35	2.00	0.00	0.07	0.00	54.73	95.72	2.00	0.00	0.07	0.00
54.80	95.76	2.00	0.00	0.07	0.00	54.87	101.98	2.00	0.00	0.07	0.00
54.92	99.74	2.00	0.00	0.07	0.00	54.99	108.46	2.00	0.00	0.07	0.00
55.06	113.37	2.00	0.00	0.07	0.00	55.12	122.86	2.00	0.00	0.07	0.00
55.22	145.69	2.00	0.00	0.06	0.00	55.26	153.59	2.00	0.00	0.06	0.00
55.31	159.22	2.00	0.00	0.06	0.00	55.39	163.87	2.00	0.00	0.06	0.00
55.45	153.08	2.00	0.00	0.06	0.00	55.53	122.80	2.00	0.00	0.06	0.00
55.59	111.16	2.00	0.00	0.06	0.00	55.65	103.83	2.00	0.00	0.06	0.00
55.73	101.29	2.00	0.00	0.06	0.00	55.78	101.69	2.00	0.00	0.05	0.00
55.84	100.07	2.00	0.00	0.05	0.00	55.92	94.91	2.00	0.00	0.05	0.00
55.98	92.74	2.00	0.00	0.05	0.00	56.04	91.97	2.00	0.00	0.05	0.00
56.11	92.45	2.00	0.00	0.05	0.00	56.17	93.96	2.00	0.00	0.05	0.00
56.25	96.58	2.00	0.00	0.05	0.00	56.32	97.90	2.00	0.00	0.05	0.00
56.37	97.91	2.00	0.00	0.04	0.00	56.45	96.83	2.00	0.00	0.04	0.00
56.51	96.43	2.00	0.00	0.04	0.00	56.56	96.48	2.00	0.00	0.04	0.00
56.65	97.43	2.00	0.00	0.04	0.00	56.71	98.87	2.00	0.00	0.04	0.00
56.77	101.04	2.00	0.00	0.04	0.00	56.85	102.55	2.00	0.00	0.04	0.00
56.90	99.73	2.00	0.00	0.04	0.00	56.96	95.90	2.00	0.00	0.03	0.00
57.05	104.71	2.00	0.00	0.03	0.00	57.10	104.74	2.00	0.00	0.03	0.00
57.18	107.62	2.00	0.00	0.03	0.00	57.24	107.40	2.00	0.00	0.03	0.00
57.29	107.80	2.00	0.00	0.03	0.00	57.35	108.52	2.00	0.00	0.03	0.00
57.44	117.43	2.00	0.00	0.03	0.00	57.49	118.12	2.00	0.00	0.03	0.00
57.55	115.79	2.00	0.00	0.02	0.00	57.62	113.02	2.00	0.00	0.02	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.68	111.73	2.00	0.00	0.02	0.00	57.78	106.18	2.00	0.00	0.02	0.00
57.81	103.32	2.00	0.00	0.02	0.00	57.88	96.44	2.00	0.00	0.02	0.00
57.94	90.21	2.00	0.00	0.02	0.00	58.02	88.14	2.00	0.00	0.02	0.00
58.09	87.43	2.00	0.00	0.02	0.00	58.14	87.30	2.00	0.00	0.01	0.00
58.22	87.69	2.00	0.00	0.01	0.00	58.27	88.07	2.00	0.00	0.01	0.00
58.34	88.41	2.00	0.00	0.01	0.00	58.41	89.59	2.00	0.00	0.01	0.00
58.47	94.68	2.00	0.00	0.01	0.00	58.53	101.15	2.00	0.00	0.01	0.00
58.60	107.11	2.00	0.00	0.01	0.00	58.69	116.36	2.00	0.00	0.01	0.00
58.74	119.50	2.00	0.00	0.00	0.00	58.80	122.64	2.00	0.00	0.00	0.00
58.87	123.24	2.00	0.00	0.00	0.00	58.94	122.27	2.00	0.00	0.00	0.00
59.01	110.83	2.00	0.00	0.00	0.00	59.07	102.65	2.00	0.00	0.00	0.00
59.13	95.80	2.00	0.00	0.00	0.00	59.21	89.89	2.00	0.00	0.00	0.00
59.27	88.79	2.00	0.00	0.00	0.00	59.33	88.55	2.00	0.00	0.00	0.00
59.39	83.64	2.00	0.00	0.00	0.00	59.47	78.77	2.00	0.00	0.00	0.00
59.52	84.47	2.00	0.00	0.00	0.00	59.59	97.78	2.00	0.00	0.00	0.00
59.65	110.45	2.00	0.00	0.00	0.00	59.71	114.44	2.00	0.00	0.00	0.00
59.78	107.85	2.00	0.00	0.00	0.00	59.86	108.25	2.00	0.00	0.00	0.00
59.91	107.81	2.00	0.00	0.00	0.00	59.99	107.32	2.00	0.00	0.00	0.00
60.05	107.55	2.00	0.00	0.00	0.00	60.13	105.46	2.00	0.00	0.00	0.00
60.18	102.99	2.00	0.00	0.00	0.00	60.24	100.69	2.00	0.00	0.00	0.00
60.31	98.27	2.00	0.00	0.00	0.00	60.37	100.91	2.00	0.00	0.00	0.00
60.44	105.62	2.00	0.00	0.00	0.00	60.51	99.90	2.00	0.00	0.00	0.00
60.57	94.68	2.00	0.00	0.00	0.00	60.63	93.14	2.00	0.00	0.00	0.00
60.71	96.02	2.00	0.00	0.00	0.00	60.77	99.37	2.00	0.00	0.00	0.00
60.84	103.53	2.00	0.00	0.00	0.00	60.90	98.29	2.00	0.00	0.00	0.00
60.97	91.03	2.00	0.00	0.00	0.00	61.03	99.16	2.00	0.00	0.00	0.00
61.11	109.58	2.00	0.00	0.00	0.00	61.16	120.14	2.00	0.00	0.00	0.00
61.23	137.16	2.00	0.00	0.00	0.00	61.30	139.15	2.00	0.00	0.00	0.00
61.36	147.63	2.00	0.00	0.00	0.00	61.44	147.12	2.00	0.00	0.00	0.00
61.51	145.13	2.00	0.00	0.00	0.00	61.56	143.36	2.00	0.00	0.00	0.00
61.62	136.93	2.00	0.00	0.00	0.00	61.70	129.08	2.00	0.00	0.00	0.00
61.75	123.26	2.00	0.00	0.00	0.00	61.85	114.94	2.00	0.00	0.00	0.00
61.90	113.09	2.00	0.00	0.00	0.00	61.95	118.38	2.00	0.00	0.00	0.00
62.04	144.21	2.00	0.00	0.00	0.00	62.07	162.28	2.00	0.00	0.00	0.00
62.14	160.25	2.00	0.00	0.00	0.00	62.22	153.62	2.00	0.00	0.00	0.00
62.27	146.96	2.00	0.00	0.00	0.00	62.37	144.48	2.00	0.00	0.00	0.00
62.43	142.57	2.00	0.00	0.00	0.00	62.48	130.14	2.00	0.00	0.00	0.00
62.55	118.11	2.00	0.00	0.00	0.00	62.61	118.65	2.00	0.00	0.00	0.00
62.67	120.56	2.00	0.00	0.00	0.00	62.75	127.35	2.00	0.00	0.00	0.00
62.81	130.98	2.00	0.00	0.00	0.00	62.87	133.90	2.00	0.00	0.00	0.00
62.95	147.03	2.00	0.00	0.00	0.00	63.00	156.98	2.00	0.00	0.00	0.00
63.06	157.54	2.00	0.00	0.00	0.00	63.14	153.18	2.00	0.00	0.00	0.00
63.20	154.51	2.00	0.00	0.00	0.00	63.29	153.68	2.00	0.00	0.00	0.00
63.35	153.92	2.00	0.00	0.00	0.00	63.39	151.91	2.00	0.00	0.00	0.00
63.46	123.65	2.00	0.00	0.00	0.00	63.53	109.44	2.00	0.00	0.00	0.00
63.60	115.16	2.00	0.00	0.00	0.00	63.67	126.83	2.00	0.00	0.00	0.00
63.72	136.50	2.00	0.00	0.00	0.00	63.81	145.35	2.00	0.00	0.00	0.00
63.87	147.67	2.00	0.00	0.00	0.00	63.92	150.39	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.00	152.61	2.00	0.00	0.00	0.00	64.05	154.35	2.00	0.00	0.00	0.00
64.11	157.55	2.00	0.00	0.00	0.00	64.18	160.37	2.00	0.00	0.00	0.00
64.24	158.50	2.00	0.00	0.00	0.00	64.33	154.66	2.00	0.00	0.00	0.00
64.37	152.32	2.00	0.00	0.00	0.00	64.45	146.13	2.00	0.00	0.00	0.00
64.51	141.02	2.00	0.00	0.00	0.00	64.58	136.26	2.00	0.00	0.00	0.00
64.64	131.57	2.00	0.00	0.00	0.00	64.72	127.26	2.00	0.00	0.00	0.00
64.77	124.68	2.00	0.00	0.00	0.00	64.83	121.41	2.00	0.00	0.00	0.00
64.92	117.36	2.00	0.00	0.00	0.00	64.98	114.99	2.00	0.00	0.00	0.00
65.03	112.06	2.00	0.00	0.00	0.00	65.12	107.53	2.00	0.00	0.00	0.00
65.18	107.49	2.00	0.00	0.00	0.00	65.22	108.31	2.00	0.00	0.00	0.00
65.32	114.78	2.00	0.00	0.00	0.00	65.37	122.23	2.00	0.00	0.00	0.00
65.42	127.80	2.00	0.00	0.00	0.00	65.49	133.13	2.00	0.00	0.00	0.00
65.56	135.35	2.00	0.00	0.00	0.00	65.66	137.45	2.00	0.00	0.00	0.00
65.69	138.90	2.00	0.00	0.00	0.00	65.76	135.51	2.00	0.00	0.00	0.00
65.82	129.84	2.00	0.00	0.00	0.00	65.89	121.90	2.00	0.00	0.00	0.00
65.95	114.05	2.00	0.00	0.00	0.00	66.02	108.42	2.00	0.00	0.00	0.00
66.08	104.36	2.00	0.00	0.00	0.00	66.15	104.64	2.00	0.00	0.00	0.00
66.22	108.30	2.00	0.00	0.00	0.00	66.28	112.06	2.00	0.00	0.00	0.00
66.34	117.16	2.00	0.00	0.00	0.00	66.42	120.12	2.00	0.00	0.00	0.00
66.48	119.04	2.00	0.00	0.00	0.00	66.56	119.12	2.00	0.00	0.00	0.00
66.61	120.67	2.00	0.00	0.00	0.00	66.68	123.55	2.00	0.00	0.00	0.00
66.75	123.02	2.00	0.00	0.00	0.00	66.82	121.03	2.00	0.00	0.00	0.00
66.88	118.29	2.00	0.00	0.00	0.00	66.95	115.24	2.00	0.00	0.00	0.00
67.02	112.91	2.00	0.00	0.00	0.00	67.07	110.98	2.00	0.00	0.00	0.00
67.15	102.52	2.00	0.00	0.00	0.00	67.19	95.72	2.00	0.00	0.00	0.00
67.28	97.75	2.00	0.00	0.00	0.00	67.34	99.51	2.00	0.00	0.00	0.00
67.41	101.00	2.00	0.00	0.00	0.00	67.48	103.03	2.00	0.00	0.00	0.00
67.53	105.67	2.00	0.00	0.00	0.00	67.61	107.32	2.00	0.00	0.00	0.00
67.65	108.01	2.00	0.00	0.00	0.00	67.75	106.15	2.00	0.00	0.00	0.00
67.80	103.77	2.00	0.00	0.00	0.00	67.85	101.80	2.00	0.00	0.00	0.00
67.92	101.07	2.00	0.00	0.00	0.00	67.99	101.67	2.00	0.00	0.00	0.00
68.08	102.02	2.00	0.00	0.00	0.00	68.14	101.67	2.00	0.00	0.00	0.00
68.19	100.83	2.00	0.00	0.00	0.00	68.25	98.58	2.00	0.00	0.00	0.00
68.33	94.08	2.00	0.00	0.00	0.00	68.38	91.15	2.00	0.00	0.00	0.00
68.45	87.93	2.00	0.00	0.00	0.00	68.52	84.17	2.00	0.00	0.00	0.00
68.58	83.44	2.00	0.00	0.00	0.00	68.66	86.46	2.00	0.00	0.00	0.00
68.71	89.30	2.00	0.00	0.00	0.00	68.77	93.16	2.00	0.00	0.00	0.00
68.86	104.41	2.00	0.00	0.00	0.00	68.92	110.98	2.00	0.00	0.00	0.00
68.97	115.13	2.00	0.00	0.00	0.00	69.05	114.20	2.00	0.00	0.00	0.00
69.11	114.35	2.00	0.00	0.00	0.00	69.17	101.65	2.00	0.00	0.00	0.00
69.25	92.13	2.00	0.00	0.00	0.00	69.30	97.71	2.00	0.00	0.00	0.00
69.37	106.48	2.00	0.00	0.00	0.00	69.45	116.64	2.00	0.00	0.00	0.00
69.50	121.65	2.00	0.00	0.00	0.00	69.57	122.13	2.00	0.00	0.00	0.00
69.63	120.17	2.00	0.00	0.00	0.00	69.72	101.42	2.00	0.00	0.00	0.00
69.76	83.73	2.00	0.00	0.00	0.00	69.82	75.57	2.00	0.00	0.00	0.00
69.89	77.66	2.00	0.00	0.00	0.00	69.95	92.11	2.00	0.00	0.00	0.00
70.02	112.35	2.00	0.00	0.00	0.00	70.09	122.81	2.00	0.00	0.00	0.00
70.15	129.47	2.00	0.00	0.00	0.00	70.22	126.22	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
70.28	134.51	2.00	0.00	0.00	0.00	70.35	122.27	2.00	0.00	0.00	0.00
70.43	97.50	2.00	0.00	0.00	0.00	70.49	83.35	2.00	0.00	0.00	0.00
70.55	92.53	2.00	0.00	0.00	0.00	70.63	105.23	2.00	0.00	0.00	0.00
70.68	113.21	2.00	0.00	0.00	0.00	70.75	121.86	2.00	0.00	0.00	0.00
70.80	116.71	2.00	0.00	0.00	0.00	70.87	123.94	2.00	0.00	0.00	0.00
70.94	122.55	2.00	0.00	0.00	0.00	71.00	129.61	2.00	0.00	0.00	0.00
71.06	133.15	2.00	0.00	0.00	0.00	71.13	130.60	2.00	0.00	0.00	0.00
71.20	112.89	2.00	0.00	0.00	0.00	71.26	116.36	2.00	0.00	0.00	0.00
71.33	124.53	2.00	0.00	0.00	0.00	71.41	127.84	2.00	0.00	0.00	0.00
71.47	129.07	2.00	0.00	0.00	0.00	71.52	121.78	2.00	0.00	0.00	0.00
71.60	122.58	2.00	0.00	0.00	0.00	71.66	118.15	2.00	0.00	0.00	0.00
71.73	114.66	2.00	0.00	0.00	0.00	71.78	112.36	2.00	0.00	0.00	0.00
71.85	107.36	2.00	0.00	0.00	0.00	71.92	103.66	2.00	0.00	0.00	0.00
71.99	101.48	2.00	0.00	0.00	0.00	72.07	101.21	2.00	0.00	0.00	0.00
72.12	103.35	2.00	0.00	0.00	0.00	72.18	109.64	2.00	0.00	0.00	0.00
72.26	124.00	2.00	0.00	0.00	0.00	72.32	128.62	2.00	0.00	0.00	0.00
72.39	131.31	2.00	0.00	0.00	0.00	72.45	123.76	2.00	0.00	0.00	0.00
72.52	119.63	2.00	0.00	0.00	0.00	72.57	115.04	2.00	0.00	0.00	0.00
72.64	108.91	2.00	0.00	0.00	0.00	72.71	105.56	2.00	0.00	0.00	0.00
72.79	96.95	2.00	0.00	0.00	0.00	72.86	92.98	2.00	0.00	0.00	0.00
72.91	96.99	2.00	0.00	0.00	0.00	72.99	103.29	2.00	0.00	0.00	0.00
73.05	108.14	2.00	0.00	0.00	0.00	73.12	110.26	2.00	0.00	0.00	0.00
73.17	117.96	2.00	0.00	0.00	0.00	73.24	128.36	2.00	0.00	0.00	0.00
73.31	137.58	2.00	0.00	0.00	0.00	73.36	136.90	2.00	0.00	0.00	0.00
73.43	142.09	2.00	0.00	0.00	0.00	73.51	139.28	2.00	0.00	0.00	0.00
73.56	135.84	2.00	0.00	0.00	0.00	73.66	127.83	2.00	0.00	0.00	0.00
73.71	122.74	2.00	0.00	0.00	0.00	73.77	116.10	2.00	0.00	0.00	0.00
73.82	111.71	2.00	0.00	0.00	0.00	73.90	107.83	2.00	0.00	0.00	0.00
73.95	107.43	2.00	0.00	0.00	0.00	74.02	108.60	2.00	0.00	0.00	0.00
74.08	109.87	2.00	0.00	0.00	0.00	74.16	112.07	2.00	0.00	0.00	0.00
74.22	112.43	2.00	0.00	0.00	0.00	74.28	111.64	2.00	0.00	0.00	0.00
74.37	110.27	2.00	0.00	0.00	0.00	74.42	109.93	2.00	0.00	0.00	0.00
74.48	111.56	2.00	0.00	0.00	0.00	74.56	118.24	2.00	0.00	0.00	0.00
74.62	122.73	2.00	0.00	0.00	0.00	74.70	125.03	2.00	0.00	0.00	0.00
74.76	126.03	2.00	0.00	0.00	0.00	74.81	126.51	2.00	0.00	0.00	0.00
74.88	124.87	2.00	0.00	0.00	0.00	74.95	122.71	2.00	0.00	0.00	0.00
75.01	117.17	2.00	0.00	0.00	0.00	75.09	104.28	2.00	0.00	0.00	0.00
75.16	99.62	2.00	0.00	0.00	0.00	75.20	99.01	2.00	0.00	0.00	0.00
75.29	102.37	2.00	0.00	0.00	0.00	75.35	102.80	2.00	0.00	0.00	0.00
75.39	103.31	2.00	0.00	0.00	0.00	75.47	111.24	2.00	0.00	0.00	0.00
75.53	121.60	2.00	0.00	0.00	0.00	75.60	135.78	2.00	0.00	0.00	0.00
75.67	139.59	2.00	0.00	0.00	0.00	75.73	134.78	2.00	0.00	0.00	0.00
75.81	137.09	2.00	0.00	0.00	0.00	75.87	140.86	2.00	0.00	0.00	0.00
75.93	144.57	2.00	0.00	0.00	0.00	76.01	140.60	2.00	0.00	0.00	0.00
76.06	135.23	2.00	0.00	0.00	0.00	76.13	131.98	2.00	0.00	0.00	0.00
76.20	131.32	2.00	0.00	0.00	0.00	76.25	130.50	2.00	0.00	0.00	0.00
76.32	135.22	2.00	0.00	0.00	0.00	76.39	145.60	2.00	0.00	0.00	0.00
76.45	144.89	2.00	0.00	0.00	0.00	76.53	140.70	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
76.60	123.94	2.00	0.00	0.00	0.00	76.64	103.18	2.00	0.00	0.00	0.00
76.74	99.33	2.00	0.00	0.00	0.00	76.79	108.20	2.00	0.00	0.00	0.00
76.85	114.99	2.00	0.00	0.00	0.00	76.91	122.03	2.00	0.00	0.00	0.00
76.97	121.96	2.00	0.00	0.00	0.00	77.05	131.94	2.00	0.00	0.00	0.00
77.14	141.07	2.00	0.00	0.00	0.00	77.18	144.86	2.00	0.00	0.00	0.00
77.23	146.43	2.00	0.00	0.00	0.00	77.31	146.69	2.00	0.00	0.00	0.00
77.36	146.05	2.00	0.00	0.00	0.00	77.43	145.53	2.00	0.00	0.00	0.00
77.50	143.99	2.00	0.00	0.00	0.00	77.58	136.98	2.00	0.00	0.00	0.00
77.64	128.46	2.00	0.00	0.00	0.00	77.71	130.82	2.00	0.00	0.00	0.00
77.77	132.71	2.00	0.00	0.00	0.00	77.82	133.40	2.00	0.00	0.00	0.00
77.89	129.27	2.00	0.00	0.00	0.00	77.96	113.37	2.00	0.00	0.00	0.00
78.03	114.41	2.00	0.00	0.00	0.00	78.09	119.02	2.00	0.00	0.00	0.00
78.16	124.32	2.00	0.00	0.00	0.00	78.23	127.98	2.00	0.00	0.00	0.00
78.29	121.17	2.00	0.00	0.00	0.00	78.36	116.63	2.00	0.00	0.00	0.00
78.41	122.85	2.00	0.00	0.00	0.00	78.49	124.09	2.00	0.00	0.00	0.00
78.55	111.51	2.00	0.00	0.00	0.00	78.64	109.32	2.00	0.00	0.00	0.00
78.69	109.44	2.00	0.00	0.00	0.00	78.74	110.20	2.00	0.00	0.00	0.00
78.81	112.63	2.00	0.00	0.00	0.00	78.88	113.94	2.00	0.00	0.00	0.00
78.94	113.89	2.00	0.00	0.00	0.00	79.01	115.72	2.00	0.00	0.00	0.00
79.07	119.53	2.00	0.00	0.00	0.00	79.16	126.91	2.00	0.00	0.00	0.00
79.22	132.73	2.00	0.00	0.00	0.00	79.28	138.30	2.00	0.00	0.00	0.00
79.35	137.76	2.00	0.00	0.00	0.00	79.42	134.90	2.00	0.00	0.00	0.00
79.47	135.76	2.00	0.00	0.00	0.00	79.53	123.27	2.00	0.00	0.00	0.00
79.61	101.27	2.00	0.00	0.00	0.00	79.66	99.64	2.00	0.00	0.00	0.00
79.75	98.01	2.00	0.00	0.00	0.00	79.81	98.17	2.00	0.00	0.00	0.00
79.86	98.63	2.00	0.00	0.00	0.00	79.93	101.57	2.00	0.00	0.00	0.00
80.00	104.88	2.00	0.00	0.00	0.00	80.06	109.42	2.00	0.00	0.00	0.00
80.13	117.15	2.00	0.00	0.00	0.00	80.19	135.04	2.00	0.00	0.00	0.00
80.26	149.27	2.00	0.00	0.00	0.00	80.33	154.73	2.00	0.00	0.00	0.00
80.38	152.99	2.00	0.00	0.00	0.00	80.46	135.43	2.00	0.00	0.00	0.00
80.52	120.31	2.00	0.00	0.00	0.00	80.58	107.68	2.00	0.00	0.00	0.00
80.65	102.23	2.00	0.00	0.00	0.00	80.71	98.81	2.00	0.00	0.00	0.00
80.80	92.60	2.00	0.00	0.00	0.00	80.84	88.71	2.00	0.00	0.00	0.00
80.93	77.08	2.00	0.00	0.00	0.00	80.97	72.06	2.00	0.00	0.00	0.00
81.04	74.39	2.00	0.00	0.00	0.00	81.11	77.85	2.00	0.00	0.00	0.00
81.17	81.36	2.00	0.00	0.00	0.00	81.24	88.52	2.00	0.00	0.00	0.00
81.31	95.39	2.00	0.00	0.00	0.00	81.39	104.49	2.00	0.00	0.00	0.00
81.44	110.56	2.00	0.00	0.00	0.00	81.54	122.00	2.00	0.00	0.00	0.00
81.57	124.89	2.00	0.00	0.00	0.00	81.64	132.35	2.00	0.00	0.00	0.00
81.70	140.91	2.00	0.00	0.00	0.00	81.76	148.73	2.00	0.00	0.00	0.00
81.83	152.44	2.00	0.00	0.00	0.00	81.89	155.97	2.00	0.00	0.00	0.00
81.98	161.06	2.00	0.00	0.00	0.00	82.02	162.81	2.00	0.00	0.00	0.00
82.11	165.56	2.00	0.00	0.00	0.00	82.17	165.34	2.00	0.00	0.00	0.00
82.25	160.72	2.00	0.00	0.00	0.00	82.30	159.04	2.00	0.00	0.00	0.00
82.36	157.36	2.00	0.00	0.00	0.00	82.44	149.73	2.00	0.00	0.00	0.00
82.49	140.84	2.00	0.00	0.00	0.00	82.55	129.17	2.00	0.00	0.00	0.00
82.63	112.83	2.00	0.00	0.00	0.00	82.70	110.19	2.00	0.00	0.00	0.00
82.75	117.30	2.00	0.00	0.00	0.00	82.83	123.67	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
82.89	121.77	2.00	0.00	0.00	0.00	82.98	118.29	2.00	0.00	0.00	0.00
83.03	112.56	2.00	0.00	0.00	0.00	83.09	103.00	2.00	0.00	0.00	0.00
83.14	79.60	2.00	0.00	0.00	0.00	83.20	58.24	2.00	0.00	0.00	0.00
83.28	67.13	2.00	0.00	0.00	0.00	83.38	76.15	2.00	0.00	0.00	0.00
83.43	79.08	2.00	0.00	0.00	0.00	83.47	82.34	2.00	0.00	0.00	0.00
83.54	86.54	2.00	0.00	0.00	0.00	83.61	93.98	2.00	0.00	0.00	0.00
83.67	100.14	2.00	0.00	0.00	0.00	83.73	104.90	2.00	0.00	0.00	0.00
83.82	108.13	2.00	0.00	0.00	0.00	83.87	107.94	2.00	0.00	0.00	0.00
83.96	109.14	2.00	0.00	0.00	0.00	83.99	109.23	2.00	0.00	0.00	0.00
84.06	108.50	2.00	0.00	0.00	0.00	84.15	104.95	2.00	0.00	0.00	0.00
84.21	102.67	2.00	0.00	0.00	0.00	84.26	101.89	2.00	0.00	0.00	0.00
84.32	102.70	2.00	0.00	0.00	0.00	84.39	105.30	2.00	0.00	0.00	0.00
84.45	108.08	2.00	0.00	0.00	0.00	84.54	112.22	2.00	0.00	0.00	0.00
84.59	113.76	2.00	0.00	0.00	0.00	84.65	115.83	2.00	0.00	0.00	0.00
84.73	113.79	2.00	0.00	0.00	0.00	84.79	111.37	2.00	0.00	0.00	0.00
84.85	112.75	2.00	0.00	0.00	0.00	84.94	115.83	2.00	0.00	0.00	0.00
84.99	117.49	2.00	0.00	0.00	0.00	85.06	116.45	2.00	0.00	0.00	0.00
85.12	114.54	2.00	0.00	0.00	0.00	85.17	112.66	2.00	0.00	0.00	0.00
85.25	111.79	2.00	0.00	0.00	0.00	85.31	112.88	2.00	0.00	0.00	0.00
85.37	113.67	2.00	0.00	0.00	0.00	85.47	112.66	2.00	0.00	0.00	0.00
85.52	111.23	2.00	0.00	0.00	0.00	85.57	106.35	2.00	0.00	0.00	0.00
85.66	94.65	2.00	0.00	0.00	0.00	85.71	95.85	2.00	0.00	0.00	0.00
85.77	97.03	2.00	0.00	0.00	0.00	85.85	99.96	2.00	0.00	0.00	0.00
85.91	100.91	2.00	0.00	0.00	0.00	85.98	101.71	2.00	0.00	0.00	0.00
86.03	101.32	2.00	0.00	0.00	0.00	86.11	102.65	2.00	0.00	0.00	0.00
86.17	104.20	2.00	0.00	0.00	0.00	86.23	104.73	2.00	0.00	0.00	0.00
86.29	104.99	2.00	0.00	0.00	0.00	86.38	103.50	2.00	0.00	0.00	0.00
86.42	101.74	2.00	0.00	0.00	0.00	86.49	98.21	2.00	0.00	0.00	0.00
86.56	94.34	2.00	0.00	0.00	0.00	86.63	92.76	2.00	0.00	0.00	0.00
86.68	93.67	2.00	0.00	0.00	0.00	86.76	96.85	2.00	0.00	0.00	0.00
86.82	101.30	2.00	0.00	0.00	0.00	86.92	114.94	2.00	0.00	0.00	0.00
86.96	122.38	2.00	0.00	0.00	0.00	87.02	127.05	2.00	0.00	0.00	0.00
87.09	128.04	2.00	0.00	0.00	0.00	87.15	122.25	2.00	0.00	0.00	0.00
87.21	115.70	2.00	0.00	0.00	0.00	87.29	110.92	2.00	0.00	0.00	0.00
87.35	107.81	2.00	0.00	0.00	0.00	87.41	105.02	2.00	0.00	0.00	0.00
87.50	104.72	2.00	0.00	0.00	0.00	87.55	105.86	2.00	0.00	0.00	0.00
87.60	108.43	2.00	0.00	0.00	0.00	87.67	114.06	2.00	0.00	0.00	0.00
87.75	121.14	2.00	0.00	0.00	0.00	87.80	122.63	2.00	0.00	0.00	0.00
87.87	121.66	2.00	0.00	0.00	0.00	87.94	120.64	2.00	0.00	0.00	0.00
88.00	115.92	2.00	0.00	0.00	0.00	88.09	116.95	2.00	0.00	0.00	0.00
88.13	118.18	2.00	0.00	0.00	0.00	88.19	121.31	2.00	0.00	0.00	0.00
88.25	124.11	2.00	0.00	0.00	0.00	88.34	126.37	2.00	0.00	0.00	0.00
88.42	128.08	2.00	0.00	0.00	0.00	88.47	124.33	2.00	0.00	0.00	0.00
88.53	118.66	2.00	0.00	0.00	0.00	88.59	110.10	2.00	0.00	0.00	0.00
88.68	102.57	2.00	0.00	0.00	0.00	88.73	98.52	2.00	0.00	0.00	0.00
88.79	94.29	2.00	0.00	0.00	0.00	88.85	90.92	2.00	0.00	0.00	0.00
88.92	87.45	2.00	0.00	0.00	0.00	89.00	86.12	2.00	0.00	0.00	0.00
89.05	86.68	2.00	0.00	0.00	0.00	89.11	87.91	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
89.19	89.38	2.00	0.00	0.00	0.00	89.25	90.40	2.00	0.00	0.00	0.00
89.32	89.51	2.00	0.00	0.00	0.00	89.37	87.84	2.00	0.00	0.00	0.00
89.44	87.60	2.00	0.00	0.00	0.00	89.55	87.18	2.00	0.00	0.00	0.00
89.58	87.76	2.00	0.00	0.00	0.00	89.64	90.32	2.00	0.00	0.00	0.00
89.72	98.78	2.00	0.00	0.00	0.00	89.77	100.77	2.00	0.00	0.00	0.00
89.83	104.02	2.00	0.00	0.00	0.00	89.90	108.59	2.00	0.00	0.00	0.00
89.97	110.82	2.00	0.00	0.00	0.00	90.03	122.64	2.00	0.00	0.00	0.00
90.10	119.46	2.00	0.00	0.00	0.00	90.16	121.03	2.00	0.00	0.00	0.00
90.23	122.77	2.00	0.00	0.00	0.00	90.29	122.25	2.00	0.00	0.00	0.00
90.36	120.76	2.00	0.00	0.00	0.00	90.42	121.87	2.00	0.00	0.00	0.00
90.50	126.26	2.00	0.00	0.00	0.00	90.56	129.35	2.00	0.00	0.00	0.00
90.64	134.51	2.00	0.00	0.00	0.00	90.70	136.53	2.00	0.00	0.00	0.00
90.75	139.39	2.00	0.00	0.00	0.00	90.84	141.97	2.00	0.00	0.00	0.00
90.90	138.53	2.00	0.00	0.00	0.00	90.95	132.14	2.00	0.00	0.00	0.00
91.03	126.05	2.00	0.00	0.00	0.00	91.08	122.37	2.00	0.00	0.00	0.00
91.15	117.80	2.00	0.00	0.00	0.00	91.24	92.90	2.00	0.00	0.00	0.00
91.29	85.56	2.00	0.00	0.00	0.00	91.34	85.96	2.00	0.00	0.00	0.00
91.41	87.77	2.00	0.00	0.00	0.00	91.49	91.07	2.00	0.00	0.00	0.00
91.58	94.43	2.00	0.00	0.00	0.00	91.60	95.11	2.00	0.00	0.00	0.00
91.68	95.08	2.00	0.00	0.00	0.00	91.73	94.14	2.00	0.00	0.00	0.00
91.81	91.18	2.00	0.00	0.00	0.00	91.87	89.88	2.00	0.00	0.00	0.00
91.95	87.84	2.00	0.00	0.00	0.00	92.01	86.07	2.00	0.00	0.00	0.00
92.07	84.36	2.00	0.00	0.00	0.00	92.15	88.39	2.00	0.00	0.00	0.00
92.21	92.74	2.00	0.00	0.00	0.00	92.26	94.00	2.00	0.00	0.00	0.00
92.36	93.41	2.00	0.00	0.00	0.00	92.41	95.43	2.00	0.00	0.00	0.00
92.46	98.02	2.00	0.00	0.00	0.00	92.56	104.43	2.00	0.00	0.00	0.00
92.60	108.24	2.00	0.00	0.00	0.00	92.65	110.01	2.00	0.00	0.00	0.00
92.72	109.55	2.00	0.00	0.00	0.00	92.80	106.59	2.00	0.00	0.00	0.00
92.87	103.33	2.00	0.00	0.00	0.00	92.92	99.51	2.00	0.00	0.00	0.00
92.99	93.69	2.00	0.00	0.00	0.00	93.06	88.49	2.00	0.00	0.00	0.00
93.12	87.18	2.00	0.00	0.00	0.00	93.19	86.87	2.00	0.00	0.00	0.00
93.26	87.50	2.00	0.00	0.00	0.00	93.31	88.14	2.00	0.00	0.00	0.00
93.41	92.11	2.00	0.00	0.00	0.00	93.46	94.33	2.00	0.00	0.00	0.00
93.51	93.17	2.00	0.00	0.00	0.00	93.57	95.37	2.00	0.00	0.00	0.00
93.65	95.92	2.00	0.00	0.00	0.00	93.72	94.29	2.00	0.00	0.00	0.00
93.81	91.38	2.00	0.00	0.00	0.00	93.85	89.98	2.00	0.00	0.00	0.00
93.90	87.66	2.00	0.00	0.00	0.00	93.99	81.66	2.00	0.00	0.00	0.00
94.04	78.54	2.00	0.00	0.00	0.00	94.11	77.26	2.00	0.00	0.00	0.00
94.17	77.13	2.00	0.00	0.00	0.00	94.24	77.74	2.00	0.00	0.00	0.00
94.30	78.39	2.00	0.00	0.00	0.00	94.38	78.47	2.00	0.00	0.00	0.00
94.43	78.98	2.00	0.00	0.00	0.00	94.49	80.60	2.00	0.00	0.00	0.00
94.56	82.19	2.00	0.00	0.00	0.00	94.62	81.05	2.00	0.00	0.00	0.00
94.72	77.70	2.00	0.00	0.00	0.00	94.77	76.84	2.00	0.00	0.00	0.00
94.82	76.38	2.00	0.00	0.00	0.00	94.91	74.65	2.00	0.00	0.00	0.00
94.96	73.79	2.00	0.00	0.00	0.00	95.01	75.62	2.00	0.00	0.00	0.00
95.11	81.63	2.00	0.00	0.00	0.00	95.16	83.78	2.00	0.00	0.00	0.00
95.23	85.68	2.00	0.00	0.00	0.00	95.29	87.07	2.00	0.00	0.00	0.00
95.35	88.43	2.00	0.00	0.00	0.00	95.43	94.18	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
95.48	97.26	2.00	0.00	0.00	0.00	95.54	102.22	2.00	0.00	0.00	0.00
95.62	105.93	2.00	0.00	0.00	0.00	95.68	100.11	2.00	0.00	0.00	0.00
95.74	87.04	2.00	0.00	0.00	0.00	95.82	71.11	2.00	0.00	0.00	0.00
95.88	70.01	2.00	0.00	0.00	0.00	95.95	73.09	2.00	0.00	0.00	0.00
96.01	73.96	2.00	0.00	0.00	0.00	96.07	73.72	2.00	0.00	0.00	0.00
96.13	72.19	2.00	0.00	0.00	0.00	96.22	72.87	2.00	0.00	0.00	0.00
96.28	75.00	2.00	0.00	0.00	0.00	96.33	77.73	2.00	0.00	0.00	0.00
96.42	83.77	2.00	0.00	0.00	0.00	96.46	85.61	2.00	0.00	0.00	0.00
96.52	88.01	2.00	0.00	0.00	0.00	96.60	90.54	2.00	0.00	0.00	0.00
96.66	93.68	2.00	0.00	0.00	0.00	96.74	98.48	2.00	0.00	0.00	0.00
96.79	102.41	2.00	0.00	0.00	0.00	96.86	107.74	2.00	0.00	0.00	0.00
96.92	112.03	2.00	0.00	0.00	0.00	96.99	113.29	2.00	0.00	0.00	0.00
97.06	108.90	2.00	0.00	0.00	0.00	97.13	104.21	2.00	0.00	0.00	0.00
97.20	104.76	2.00	0.00	0.00	0.00	97.25	106.51	2.00	0.00	0.00	0.00
97.32	107.41	2.00	0.00	0.00	0.00	97.38	108.81	2.00	0.00	0.00	0.00
97.45	111.03	2.00	0.00	0.00	0.00	97.52	113.58	2.00	0.00	0.00	0.00
97.58	117.81	2.00	0.00	0.00	0.00	97.66	120.37	2.00	0.00	0.00	0.00
97.71	121.05	2.00	0.00	0.00	0.00	97.77	118.52	2.00	0.00	0.00	0.00
97.87	86.34	2.00	0.00	0.00	0.00	97.92	80.17	2.00	0.00	0.00	0.00
97.97	84.01	2.00	0.00	0.00	0.00	98.05	88.81	2.00	0.00	0.00	0.00
98.12	94.08	2.00	0.00	0.00	0.00	98.17	97.95	2.00	0.00	0.00	0.00
98.24	104.62	2.00	0.00	0.00	0.00	98.32	109.91	2.00	0.00	0.00	0.00
98.37	112.20	2.00	0.00	0.00	0.00	98.43	112.93	2.00	0.00	0.00	0.00
98.51	108.94	2.00	0.00	0.00	0.00	98.57	109.19	2.00	0.00	0.00	0.00
98.63	106.51	2.00	0.00	0.00	0.00	98.70	103.23	2.00	0.00	0.00	0.00
98.76	102.58	2.00	0.00	0.00	0.00	98.84	101.55	2.00	0.00	0.00	0.00
98.90	98.60	2.00	0.00	0.00	0.00	98.96	95.07	2.00	0.00	0.00	0.00
99.04	97.67	2.00	0.00	0.00	0.00	99.09	100.37	2.00	0.00	0.00	0.00
99.16	102.57	2.00	0.00	0.00	0.00	99.24	102.63	2.00	0.00	0.00	0.00
99.30	100.81	2.00	0.00	0.00	0.00	99.35	98.96	2.00	0.00	0.00	0.00
99.44	97.75	2.00	0.00	0.00	0.00	99.49	97.53	2.00	0.00	0.00	0.00
99.55	97.40	2.00	0.00	0.00	0.00	99.64	98.77	2.00	0.00	0.00	0.00
99.69	98.33	2.00	0.00	0.00	0.00	99.74	96.06	2.00	0.00	0.00	0.00
99.83	95.82	2.00	0.00	0.00	0.00	99.89	-1.00	2.00	0.00	0.00	0.00
99.94	-1.00	2.00	0.00	0.00	0.00	100.00	-1.00	2.00	0.00	0.00	0.00
100.08	-1.00	2.00	0.00	0.00	0.00	100.14	-1.00	2.00	0.00	0.00	0.00
100.21	-1.00	2.00	0.00	0.00	0.00						

Total estimated settlement: 1.14**Abbreviations**

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumetric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

LIQUEFACTION ANALYSIS REPORT

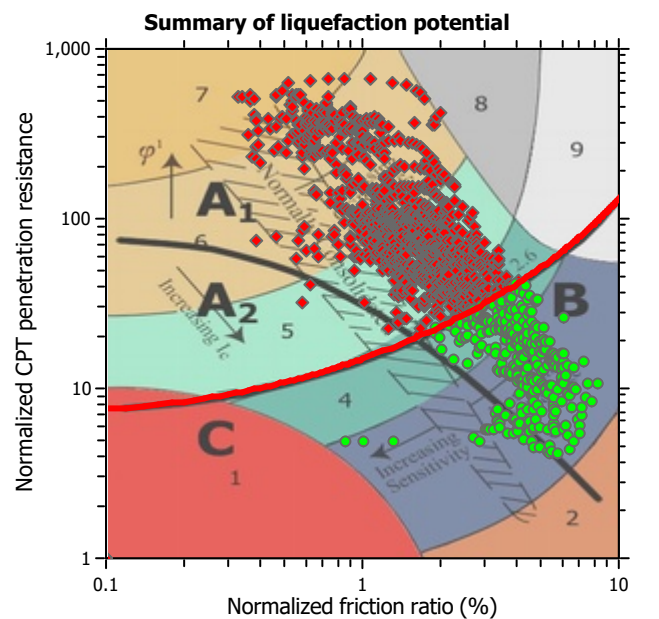
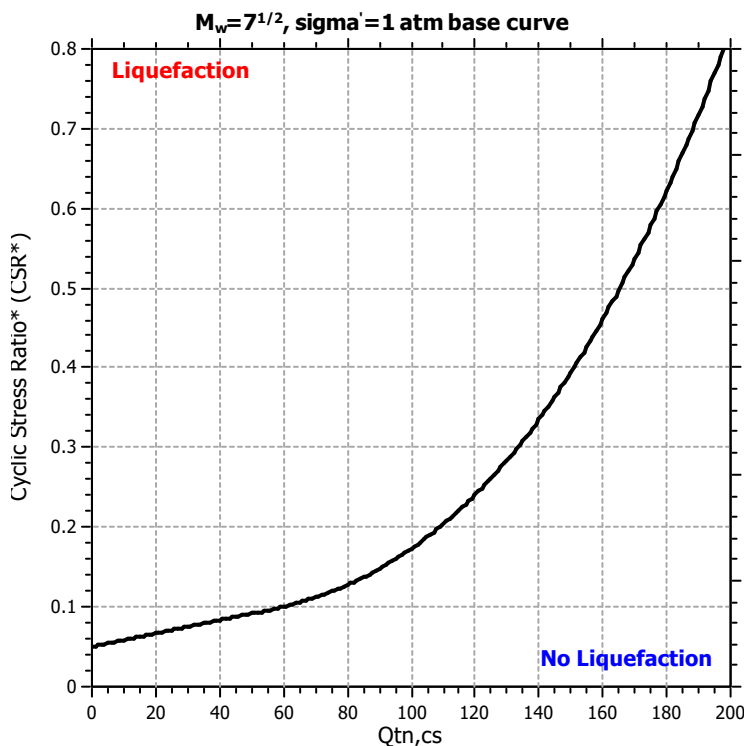
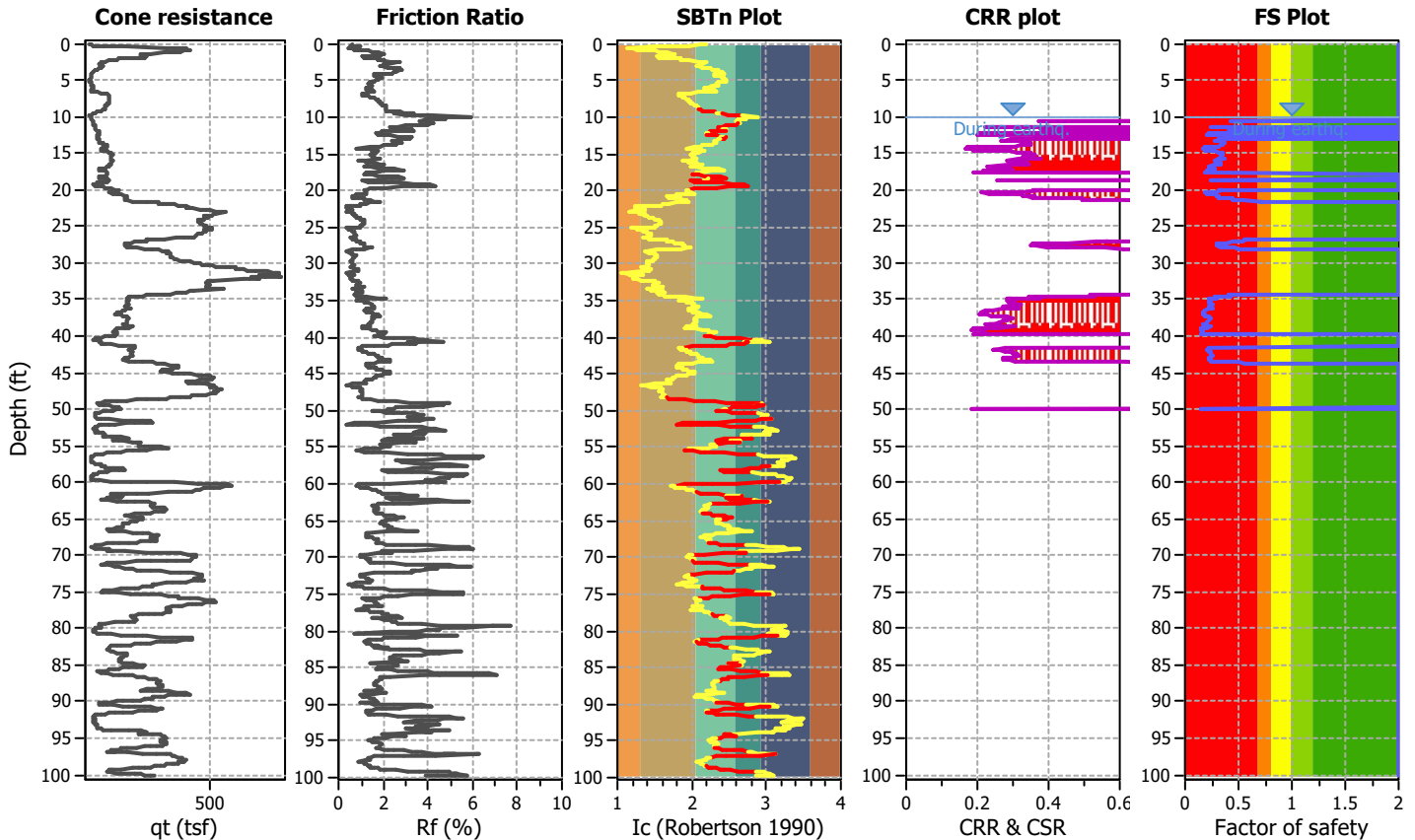
Project title : CB255142

Location : SB County 5th St.

CPT file : CPT-5A

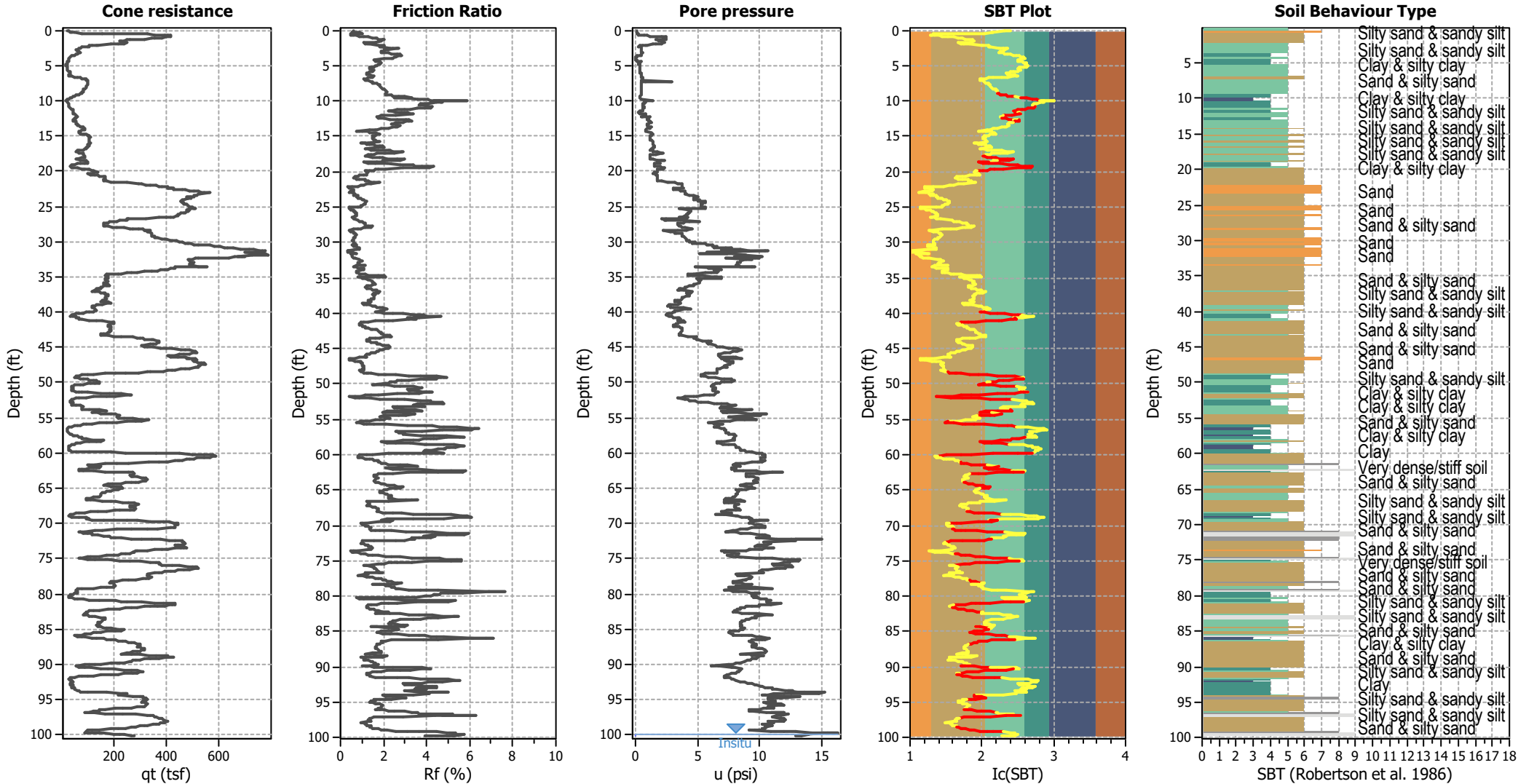
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	100.00 ft	Use fill:	No	Clay like behavior	
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	applied:	Sands only
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth applied:	Yes
Earthquake magnitude M_w :	7.91	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	Limit depth:	50.00 ft
Peak ground acceleration:	0.89	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based



Zone A₁: Cyclic liquefaction likely depending on size and duration of cyclic loading
 Zone A₂: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
 Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
 Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



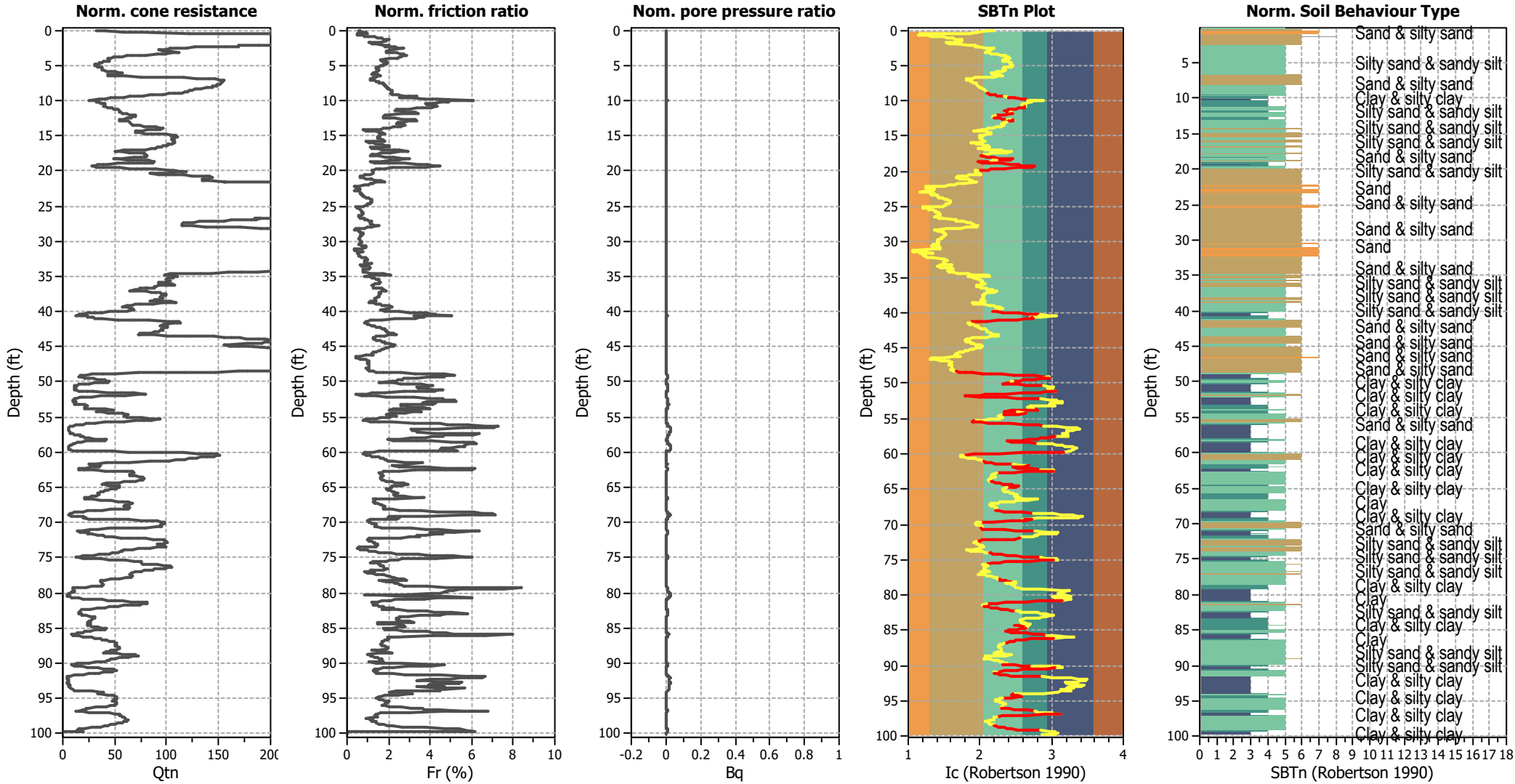
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on I_c value	I_c cut-off value:	2.60	K_0 applied:	Yes
Earthquake magnitude M_w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

CPT basic interpretation plots (normalized)



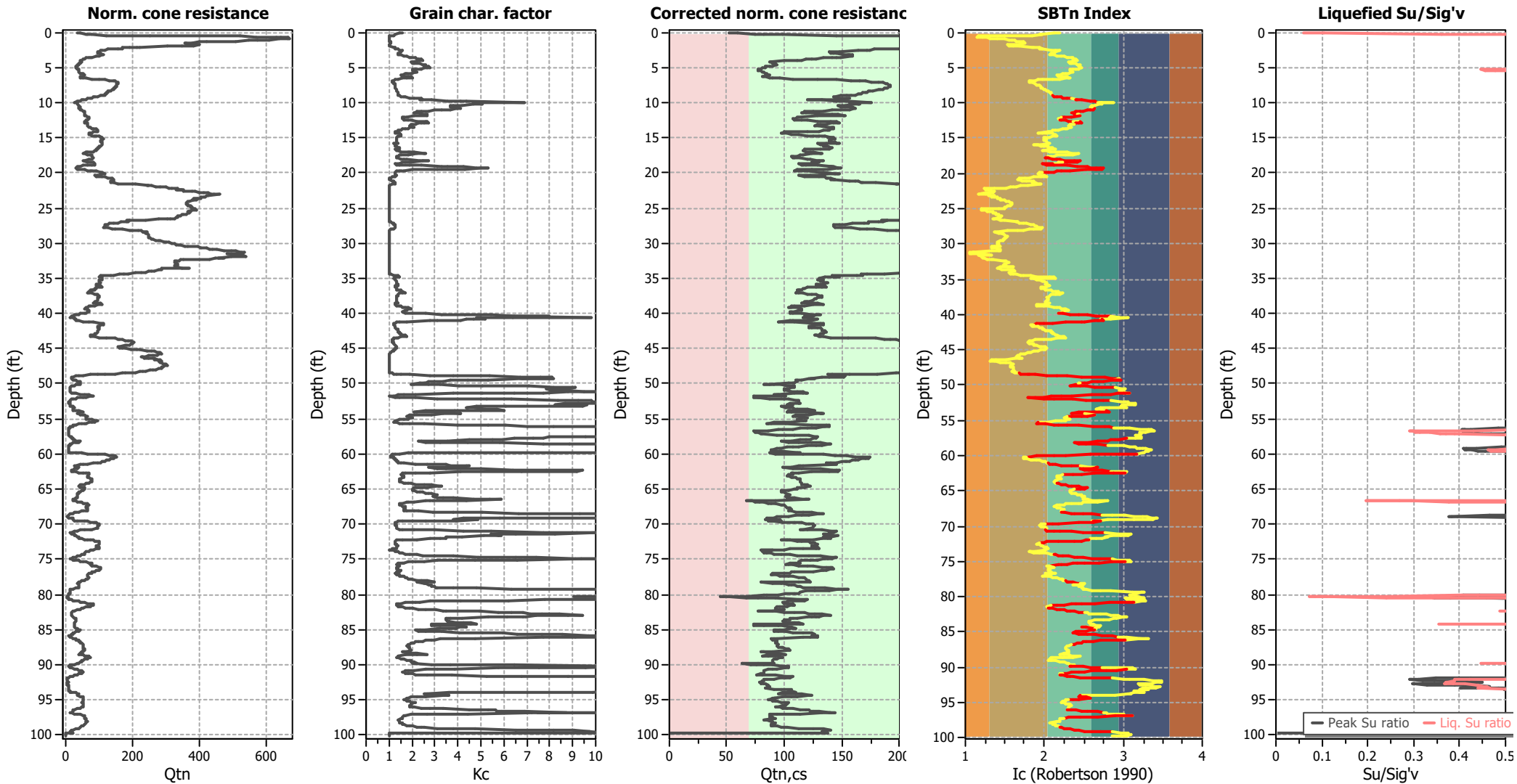
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBTn legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

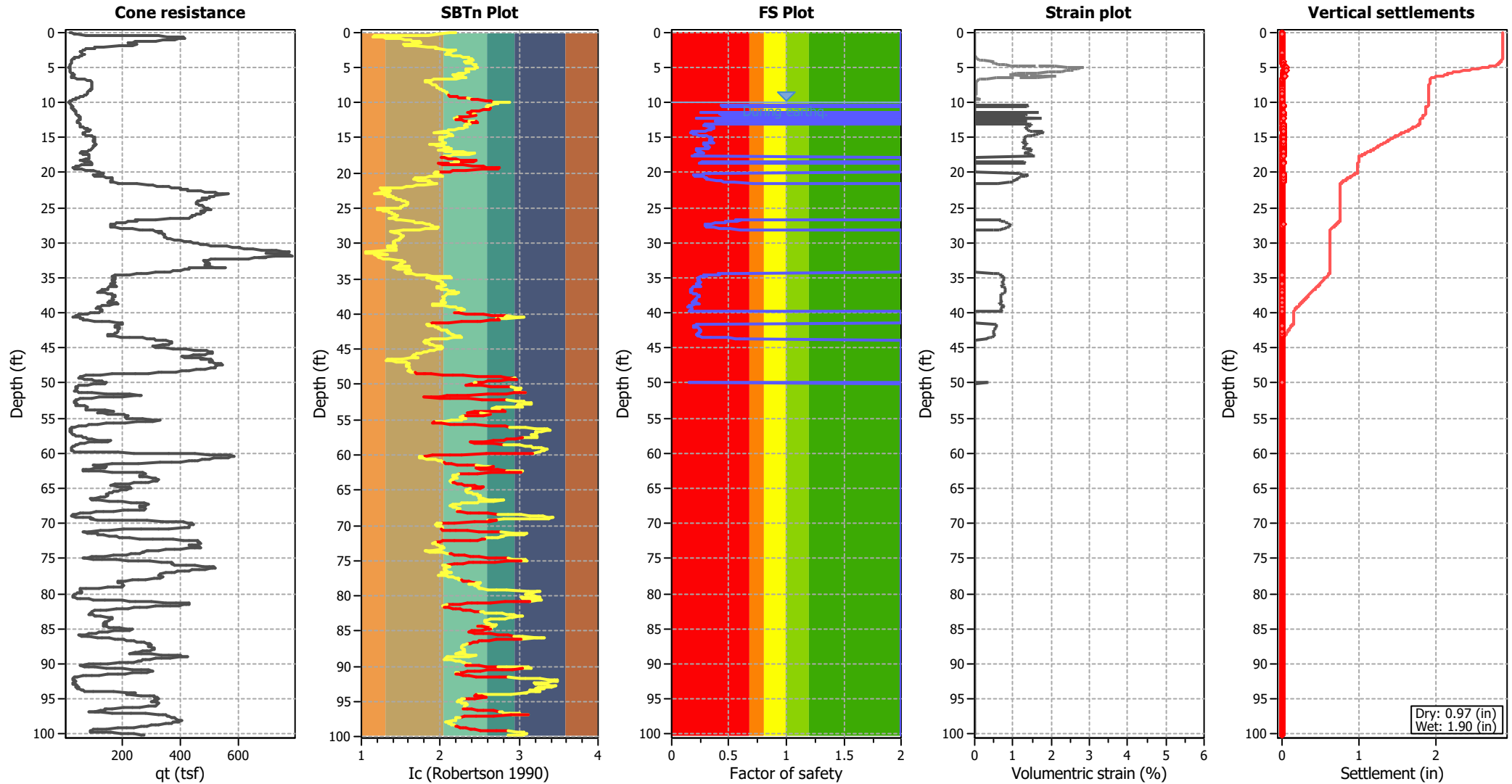
Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K ₀ applied:	Yes
Earthquake magnitude M _w :	7.91	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.89	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	100.00 ft	Fill height:	N/A	Limit depth:	50.00 ft

Estimation of post-earthquake settlements



Abbreviations

q_c : Total cone resistance (cone resistance q_c corrected for pore water effects)
 I_c : Soil Behaviour Type Index
 FS: Calculated Factor of Safety against liquefaction
 Volumetric strain: Post-liquefaction volumetric strain

:: Post-earthquake settlement of dry sands ::												
Depth (ft)	I _c	Q _{tn}	K _c	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
0.08	2.19	32.48	1.59	51.73	12	292	0.86	0.001	0.00	19.28	0.00	0.000
0.14	2.12	40.87	1.44	59.05	13	334	0.86	0.002	0.00	19.28	0.00	0.000
0.23	1.96	58.18	1.28	74.25	15	390	0.86	0.003	0.00	19.28	0.00	0.000
0.28	1.94	65.24	1.26	82.27	17	425	0.86	0.003	0.00	19.28	0.00	0.000
0.34	1.97	77.37	1.28	99.26	20	524	0.86	0.003	0.00	19.28	0.00	0.000
0.41	1.85	121.27	1.20	145.42	29	705	0.86	0.002	0.00	19.28	0.00	0.000
0.47	1.50	250.65	1.00	250.65	44	941	0.86	0.002	0.00	19.28	0.00	0.000
0.55	1.16	523.85	1.00	523.85	82	1276	0.86	0.002	0.00	19.28	0.00	0.000
0.60	1.15	569.47	1.00	569.47	89	1376	0.86	0.002	0.00	19.28	0.00	0.000
0.66	1.15	632.29	1.00	632.29	99	1511	0.86	0.002	0.00	19.28	0.00	0.000
0.73	1.21	645.70	1.00	645.70	103	1681	0.86	0.002	0.00	19.28	0.00	0.000
0.80	1.27	664.77	1.00	664.77	108	1856	0.86	0.002	0.00	19.28	0.00	0.000
0.85	1.32	670.83	1.00	670.83	111	1994	0.86	0.002	0.00	19.28	0.00	0.000
0.93	1.41	665.65	1.00	665.65	113	2219	0.86	0.002	0.00	19.28	0.00	0.000
0.99	1.49	639.36	1.00	639.36	111	2371	0.86	0.002	0.00	19.28	0.00	0.000
1.05	1.55	611.76	1.00	611.76	109	2451	0.86	0.002	0.00	19.28	0.00	0.000
1.12	1.60	573.65	1.00	573.65	103	2431	0.86	0.002	0.00	19.28	0.00	0.000
1.18	1.62	547.65	1.00	547.65	99	2390	0.86	0.002	0.00	19.28	0.00	0.000
1.25	1.65	509.08	1.00	509.08	93	2311	0.86	0.002	0.00	19.28	0.00	0.000
1.31	1.74	422.41	1.07	451.96	86	2147	0.86	0.002	0.00	19.28	0.00	0.000
1.38	1.74	399.45	1.08	429.46	81	2038	0.86	0.003	0.00	19.28	0.00	0.000
1.45	1.75	378.51	1.08	408.65	78	1937	0.86	0.003	0.00	19.28	0.00	0.000
1.53	1.76	361.75	1.10	396.86	76	1877	0.86	0.003	0.00	19.28	0.00	0.000
1.58	1.75	356.70	1.09	389.33	74	1842	0.86	0.004	0.00	19.28	0.00	0.000
1.64	1.69	365.21	1.00	365.21	68	1738	0.86	0.004	0.00	19.28	0.00	0.000
1.73	1.53	388.59	1.00	388.59	69	1514	0.86	0.005	0.00	19.28	0.00	0.000
1.78	1.53	401.59	1.00	401.59	71	1566	0.86	0.005	0.00	19.28	0.00	0.000
1.85	1.56	383.82	1.00	383.82	68	1552	0.86	0.005	0.00	19.28	0.00	0.000
1.92	1.61	347.13	1.00	347.13	63	1501	0.86	0.006	0.00	19.28	0.00	0.000
1.98	1.68	304.36	1.00	304.36	56	1429	0.86	0.006	0.00	19.28	0.00	0.000
2.05	1.85	221.75	1.20	266.31	52	1294	0.86	0.008	0.00	19.28	0.00	0.000
2.11	1.86	210.77	1.21	254.98	50	1247	0.86	0.008	0.00	19.28	0.00	0.000
2.17	1.94	188.95	1.26	238.40	48	1231	0.86	0.009	0.00	19.28	0.00	0.000
2.25	1.97	169.31	1.28	217.22	45	1147	0.86	0.010	0.00	19.28	0.00	0.000
2.31	1.93	168.58	1.26	212.06	43	1090	0.86	0.012	0.00	19.28	0.00	0.000
2.37	1.97	156.59	1.28	200.66	41	1058	0.86	0.012	0.01	19.28	0.01	0.000
2.45	2.09	127.40	1.40	178.61	38	1004	0.86	0.014	0.01	19.28	0.01	0.000
2.50	2.13	118.88	1.47	174.87	38	991	0.86	0.015	0.01	19.28	0.01	0.000
2.58	2.19	108.48	1.59	172.01	39	971	0.86	0.016	0.01	19.28	0.01	0.000
2.63	2.19	103.42	1.59	164.87	37	930	0.86	0.018	0.01	19.28	0.01	0.000
2.69	2.15	98.80	1.50	148.37	33	841	0.86	0.023	0.01	19.28	0.01	0.000
2.76	2.14	93.88	1.49	139.81	31	793	0.86	0.028	0.02	19.28	0.02	0.000
2.83	2.14	93.00	1.49	138.76	31	787	0.86	0.029	0.02	19.28	0.02	0.000
2.90	2.13	95.89	1.47	140.55	31	796	0.86	0.029	0.02	19.28	0.02	0.000
2.97	2.10	100.35	1.42	142.41	31	803	0.86	0.030	0.02	19.28	0.02	0.000
3.02	2.09	102.94	1.41	145.10	31	817	0.86	0.029	0.02	19.28	0.02	0.000
3.09	2.07	109.88	1.38	151.59	32	848	0.86	0.028	0.02	19.28	0.02	0.000
3.15	2.08	111.90	1.39	155.26	33	870	0.86	0.027	0.01	19.28	0.02	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
3.22	2.13	106.98	1.47	157.07	34	890	0.86	0.026	0.01	19.28	0.01	0.000
3.28	2.15	105.96	1.51	159.90	35	907	0.86	0.026	0.01	19.28	0.01	0.000
3.37	2.21	97.43	1.63	159.20	36	894	0.86	0.028	0.01	19.28	0.01	0.000
3.42	2.25	90.49	1.74	157.60	36	871	0.86	0.030	0.01	19.28	0.02	0.000
3.51	2.29	79.65	1.88	149.65	35	808	0.86	0.038	0.02	19.28	0.02	0.000
3.55	2.31	74.16	1.96	145.49	34	774	0.86	0.044	0.02	19.28	0.02	0.000
3.61	2.35	66.93	2.12	141.97	34	733	0.86	0.053	0.03	19.28	0.03	0.000
3.69	2.36	62.02	2.17	134.76	33	689	0.86	0.066	0.04	19.28	0.04	0.001
3.77	2.37	57.67	2.21	127.37	31	647	0.86	0.086	0.05	19.28	0.05	0.001
3.82	2.38	54.63	2.26	123.68	30	622	0.86	0.102	0.06	19.28	0.07	0.001
3.88	2.41	49.43	2.41	119.36	29	584	0.86	0.135	0.09	19.28	0.09	0.001
3.94	2.42	46.53	2.47	114.96	29	557	0.86	0.171	0.11	19.28	0.12	0.002
4.01	2.42	44.65	2.49	111.23	28	537	0.86	0.209	0.14	19.28	0.15	0.002
4.07	2.39	43.48	2.31	100.47	25	501	0.86	0.303	0.24	19.28	0.25	0.004
4.16	2.32	43.48	2.00	86.92	21	459	0.86	0.505	0.49	19.28	0.51	0.010
4.20	2.31	44.34	1.97	87.18	21	463	0.86	0.494	0.48	19.28	0.50	0.006
4.28	2.31	45.06	1.97	88.70	21	471	0.86	0.472	0.45	19.28	0.46	0.009
4.35	2.32	44.62	2.01	89.85	21	473	0.86	0.479	0.44	19.28	0.46	0.007
4.40	2.35	42.88	2.12	90.86	22	469	0.85	0.516	0.46	19.28	0.48	0.006
4.47	2.39	39.86	2.32	92.52	23	460	0.85	0.598	0.52	19.28	0.53	0.009
4.54	2.41	38.11	2.44	93.03	23	453	0.85	0.684	0.58	19.28	0.60	0.010
4.60	2.43	36.52	2.55	93.18	23	445	0.85	0.786	0.66	19.28	0.68	0.010
4.68	2.45	35.21	2.63	92.47	23	436	0.85	0.933	0.78	19.28	0.80	0.016
4.74	2.44	35.06	2.57	90.02	23	429	0.85	1.072	0.93	19.28	0.96	0.014
4.79	2.43	34.76	2.53	87.85	22	421	0.85	1.233	1.11	19.28	1.14	0.014
4.88	2.45	32.44	2.63	85.20	21	402	0.85	1.770	1.63	19.28	1.68	0.035
4.94	2.46	31.14	2.70	84.14	21	392	0.85	2.178	2.02	19.28	2.08	0.029
4.99	2.47	30.27	2.76	83.50	21	385	0.85	2.530	2.36	19.28	2.42	0.031
5.06	2.45	30.40	2.68	81.44	21	381	0.85	2.873	2.78	19.28	2.85	0.049
5.13	2.43	31.56	2.56	80.74	20	385	0.85	2.751	2.72	19.28	2.78	0.043
5.19	2.40	33.43	2.37	79.38	20	391	0.85	2.553	2.63	19.28	2.68	0.037
5.25	2.35	36.03	2.15	77.55	19	398	0.85	2.353	2.55	19.28	2.60	0.042
5.33	2.33	37.47	2.05	76.81	18	402	0.85	2.291	2.54	19.28	2.59	0.044
5.41	2.33	38.04	2.02	76.99	18	405	0.85	2.281	2.53	19.28	2.58	0.050
5.45	2.33	38.03	2.04	77.59	18	407	0.85	2.260	2.48	19.28	2.52	0.026
5.52	2.34	37.74	2.10	79.16	19	411	0.85	2.210	2.35	19.28	2.39	0.043
5.60	2.36	37.15	2.18	80.92	20	413	0.85	2.192	2.25	19.28	2.28	0.039
5.66	2.37	37.29	2.21	82.23	20	418	0.85	2.105	2.11	19.28	2.14	0.033
5.72	2.35	38.88	2.13	82.74	20	427	0.85	1.888	1.90	19.28	1.92	0.026
5.78	2.31	42.18	1.97	82.91	20	441	0.85	1.575	1.61	19.28	1.63	0.024
5.86	2.26	46.80	1.79	83.74	19	459	0.85	1.258	1.31	19.28	1.32	0.025
5.91	2.23	50.41	1.69	85.08	19	474	0.85	1.059	1.10	19.28	1.11	0.013
5.98	2.19	54.44	1.59	86.69	19	489	0.85	0.913	0.94	19.28	0.95	0.017
6.05	2.17	56.17	1.55	87.25	19	494	0.85	0.888	0.92	19.28	0.92	0.014
6.10	2.16	57.18	1.52	86.95	19	493	0.85	0.921	0.96	19.28	0.97	0.013
6.20	2.18	52.83	1.57	82.86	19	468	0.85	1.313	1.44	19.28	1.44	0.033
6.25	2.22	48.79	1.67	81.26	18	454	0.85	1.629	1.79	19.28	1.79	0.022
6.33	2.28	44.02	1.85	81.51	19	442	0.85	2.017	2.14	19.28	2.14	0.040

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	I _c	Q _{tn}	K _c	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _r (%)	Settle. (in)
6.38	2.31	42.71	1.95	83.22	20	444	0.85	2.027	2.07	19.28	2.07	0.028
6.45	2.32	43.14	2.01	86.85	21	458	0.85	1.707	1.64	19.28	1.64	0.025
6.50	2.26	50.22	1.79	90.08	21	494	0.85	1.086	1.03	19.28	1.03	0.015
6.58	2.19	60.61	1.59	96.19	22	543	0.85	0.647	0.59	19.28	0.59	0.010
6.63	2.10	75.91	1.41	107.38	23	605	0.85	0.375	0.31	19.28	0.31	0.004
6.70	1.97	100.58	1.29	129.50	27	687	0.85	0.214	0.15	19.28	0.15	0.002
6.76	1.93	116.47	1.25	146.12	30	749	0.85	0.154	0.10	19.28	0.10	0.002
6.83	1.89	128.45	1.23	158.02	32	788	0.85	0.129	0.07	19.28	0.07	0.001
6.92	1.82	141.26	1.18	166.17	32	805	0.85	0.123	0.07	19.28	0.07	0.002
6.98	1.82	146.33	1.17	171.08	33	831	0.85	0.112	0.06	19.28	0.06	0.001
7.02	1.82	150.36	1.17	175.93	34	858	0.85	0.102	0.05	19.28	0.05	0.001
7.10	1.83	153.98	1.18	182.32	36	897	0.85	0.090	0.04	19.28	0.04	0.001
7.17	1.85	154.92	1.20	186.06	37	925	0.85	0.083	0.04	19.28	0.04	0.001
7.25	1.88	154.10	1.22	188.06	37	950	0.85	0.078	0.04	19.28	0.04	0.001
7.30	1.89	153.06	1.23	188.33	38	962	0.85	0.076	0.04	19.28	0.04	0.000
7.40	1.90	153.31	1.24	189.85	38	982	0.85	0.073	0.03	19.28	0.03	0.001
7.43	1.91	153.12	1.24	190.58	38	993	0.85	0.072	0.03	19.28	0.03	0.000
7.49	1.93	152.98	1.26	192.38	39	1017	0.85	0.068	0.03	19.28	0.03	0.000
7.55	1.94	152.44	1.27	192.94	39	1031	0.85	0.066	0.03	19.28	0.03	0.000
7.64	1.95	151.54	1.27	192.68	39	1042	0.85	0.066	0.03	19.28	0.03	0.001
7.69	1.96	150.98	1.27	192.47	39	1047	0.85	0.066	0.03	19.28	0.03	0.000
7.77	1.96	150.08	1.28	191.85	39	1053	0.85	0.066	0.03	19.28	0.03	0.001
7.83	1.97	148.89	1.28	190.67	39	1053	0.85	0.067	0.03	19.28	0.03	0.000
7.88	1.97	147.55	1.29	189.67	39	1055	0.85	0.067	0.03	19.28	0.03	0.000
7.97	1.98	146.24	1.29	188.91	39	1063	0.85	0.067	0.03	19.28	0.03	0.001
8.01	1.99	144.37	1.30	187.31	39	1061	0.85	0.068	0.03	19.28	0.03	0.000
8.07	1.99	143.84	1.30	186.71	39	1062	0.85	0.069	0.03	19.28	0.03	0.000
8.16	2.00	140.36	1.31	183.63	38	1057	0.85	0.071	0.03	19.28	0.03	0.001
8.20	2.01	138.31	1.31	181.80	38	1053	0.85	0.073	0.03	19.28	0.03	0.000
8.30	2.02	133.32	1.33	177.14	37	1040	0.85	0.077	0.04	19.28	0.04	0.001
8.36	2.04	130.19	1.34	174.77	37	1035	0.85	0.079	0.04	19.28	0.04	0.000
8.41	2.05	127.25	1.36	172.84	37	1032	0.85	0.081	0.04	19.28	0.04	0.000
8.47	2.06	125.16	1.37	171.68	37	1031	0.85	0.082	0.04	19.28	0.04	0.001
8.54	2.07	123.35	1.38	170.29	36	1030	0.85	0.084	0.04	19.28	0.04	0.001
8.61	2.08	121.30	1.39	168.70	36	1027	0.85	0.086	0.04	19.28	0.04	0.001
8.66	2.09	119.97	1.40	167.70	36	1026	0.85	0.087	0.04	19.28	0.04	0.001
8.76	2.09	118.37	1.41	166.42	36	1025	0.85	0.089	0.04	19.28	0.04	0.001
8.80	2.09	117.08	1.41	165.05	36	1020	0.85	0.091	0.05	19.28	0.04	0.001
8.88	2.10	114.73	1.41	162.02	35	1008	0.85	0.096	0.05	19.28	0.05	0.001
8.94	2.10	111.98	1.42	158.75	34	992	0.85	0.103	0.05	19.28	0.05	0.001
8.99	2.11	108.36	1.43	154.97	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.06	2.13	101.77	1.46	148.85	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.13	2.15	95.85	1.51	144.45	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.21	2.21	86.97	1.64	142.63	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.25	2.23	83.56	1.71	142.71	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.34	2.30	76.64	1.91	146.15	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.38	2.34	72.20	2.08	150.13	0	0	0.85	0.000	0.00	0.00	0.00	0.000
9.46	2.41	64.87	2.43	157.49	0	0	0.85	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	I _c	Q _{tn}	K _c	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
9.53	2.41	58.50	2.45	143.24	35	760	0.85	0.326	0.16	19.28	0.15	0.002
9.59	2.40	50.70	2.36	119.87	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.65	2.48	46.55	2.84	132.34	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.72	2.58	40.92	3.57	145.88	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.80	2.64	37.59	4.09	153.83	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.87	2.67	35.56	4.38	155.90	0	0	0.84	0.000	0.00	0.00	0.00	0.000
9.91	2.88	25.58	6.88	175.96	0	0	0.84	0.000	0.00	0.00	0.00	0.000

Total estimated settlement: 0.97**Abbreviations**

Q_{tn}: Equivalent clean sand normalized cone resistance
 K_c: Fines correction factor
 Q_{tn,cs}: Post-liquefaction volumetric strain
 G_{max}: Small strain shear modulus
 CSR: Soil cyclic stress ratio
 γ: Cyclic shear strain
 e_{vol(15)}: Volumetric strain after 15 cycles
 N_c: Equivalent number of cycles
 e_v: Volumetric strain
 Settle.: Calculated settlement

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	Q _{tn,cs}	FS	e _v (%)	DF	Settlement (in)	Depth (ft)	Q _{tn,cs}	FS	e _v (%)	DF	Settlement (in)
10.00	156.54	2.00	0.00	0.83	0.00	10.05	161.34	2.00	0.00	0.83	0.00
10.15	164.21	2.00	0.00	0.83	0.00	10.18	165.31	2.00	0.00	0.83	0.00
10.24	160.56	2.00	0.00	0.83	0.00	10.34	153.03	2.00	0.00	0.82	0.00
10.38	151.12	2.00	0.00	0.82	0.00	10.44	147.85	2.00	0.00	0.82	0.00
10.52	146.51	0.43	1.40	0.82	0.01	10.58	149.30	0.45	1.38	0.82	0.01
10.63	153.24	2.00	0.00	0.82	0.00	10.71	159.96	2.00	0.00	0.82	0.00
10.76	162.40	2.00	0.00	0.82	0.00	10.86	162.42	2.00	0.00	0.82	0.00
10.90	161.35	2.00	0.00	0.82	0.00	10.97	157.13	2.00	0.00	0.81	0.00
11.03	149.34	2.00	0.00	0.81	0.00	11.10	141.64	2.00	0.00	0.81	0.00
11.17	133.87	2.00	0.00	0.81	0.00	11.23	124.79	2.00	0.00	0.81	0.00
11.31	118.01	2.00	0.00	0.81	0.00	11.35	115.94	2.00	0.00	0.81	0.00
11.44	115.43	0.25	1.67	0.81	0.02	11.51	118.81	2.00	0.00	0.81	0.00
11.55	124.19	2.00	0.00	0.80	0.00	11.62	133.20	2.00	0.00	0.80	0.00
11.69	142.33	2.00	0.00	0.80	0.00	11.75	147.30	0.41	1.36	0.80	0.01
11.84	151.94	0.44	1.33	0.80	0.01	11.89	153.01	2.00	0.00	0.80	0.00
11.97	128.77	2.00	0.00	0.80	0.00	12.03	112.65	2.00	0.00	0.80	0.00
12.08	112.11	2.00	0.00	0.80	0.00	12.17	111.51	2.00	0.00	0.79	0.00
12.23	110.73	0.22	1.70	0.79	0.01	12.28	109.73	0.22	1.71	0.79	0.01
12.35	108.20	0.21	1.73	0.79	0.02	12.41	108.36	2.00	0.00	0.79	0.00
12.51	114.68	2.00	0.00	0.79	0.00	12.56	120.68	2.00	0.00	0.79	0.00
12.61	129.40	2.00	0.00	0.79	0.00	12.69	140.72	2.00	0.00	0.78	0.00
12.74	144.98	0.38	1.35	0.78	0.01	12.80	148.29	2.00	0.00	0.78	0.00
12.90	146.48	2.00	0.00	0.78	0.00	12.95	143.20	2.00	0.00	0.78	0.00
13.00	140.37	2.00	0.00	0.78	0.00	13.07	136.37	2.00	0.00	0.78	0.00
13.14	132.11	0.31	1.45	0.78	0.01	13.19	128.52	0.29	1.48	0.78	0.01
13.26	126.57	0.28	1.49	0.78	0.01	13.34	130.38	0.30	1.45	0.77	0.01
13.42	137.41	0.33	1.39	0.77	0.01	13.48	142.00	0.36	1.35	0.77	0.01
13.53	142.88	0.36	1.34	0.77	0.01	13.60	142.85	0.36	1.34	0.77	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
13.65	142.80	0.36	1.34	0.77	0.01	13.72	142.20	0.36	1.34	0.77	0.01
13.81	140.91	0.35	1.35	0.77	0.01	13.86	139.67	0.34	1.36	0.77	0.01
13.92	137.87	0.33	1.37	0.76	0.01	13.99	134.32	0.31	1.40	0.76	0.01
14.05	130.33	0.29	1.43	0.76	0.01	14.11	120.77	0.25	1.52	0.76	0.01
14.20	100.53	0.18	1.77	0.76	0.02	14.26	98.51	0.17	1.79	0.76	0.01
14.31	97.85	0.17	1.80	0.76	0.01	14.39	99.65	0.17	1.77	0.76	0.02
14.45	102.85	0.18	1.72	0.76	0.01	14.51	106.03	0.19	1.68	0.75	0.01
14.59	112.41	0.21	1.60	0.75	0.01	14.66	119.93	0.24	1.51	0.75	0.01
14.72	125.47	0.26	1.46	0.75	0.01	14.77	130.54	0.29	1.41	0.75	0.01
14.83	135.48	0.31	1.36	0.75	0.01	14.93	140.36	0.34	1.32	0.75	0.02
14.97	142.62	0.35	1.30	0.75	0.01	15.03	138.27	0.32	1.33	0.75	0.01
15.12	144.18	0.35	1.29	0.74	0.01	15.17	143.74	0.35	1.29	0.74	0.01
15.24	142.21	0.34	1.30	0.74	0.01	15.30	140.51	0.33	1.31	0.74	0.01
15.37	139.28	0.33	1.32	0.74	0.01	15.46	139.11	0.32	1.32	0.74	0.01
15.51	139.82	0.33	1.31	0.74	0.01	15.55	140.96	0.33	1.30	0.74	0.01
15.65	144.29	0.35	1.27	0.73	0.02	15.70	145.70	0.36	1.26	0.73	0.01
15.78	147.66	0.37	1.24	0.73	0.01	15.84	136.48	0.31	1.32	0.73	0.01
15.89	129.25	0.27	1.38	0.73	0.01	15.95	131.50	0.28	1.36	0.73	0.01
16.01	133.48	0.29	1.34	0.73	0.01	16.09	136.46	0.31	1.32	0.73	0.01
16.15	136.17	0.30	1.32	0.73	0.01	16.22	134.75	0.30	1.33	0.73	0.01
16.28	137.66	0.31	1.30	0.72	0.01	16.36	141.03	0.33	1.27	0.72	0.01
16.41	141.83	0.33	1.27	0.72	0.01	16.48	141.56	0.33	1.27	0.72	0.01
16.56	139.52	0.32	1.28	0.72	0.01	16.62	131.08	0.28	1.34	0.72	0.01
16.67	117.48	0.22	1.47	0.72	0.01	16.74	117.42	0.22	1.47	0.72	0.01
16.82	117.30	0.22	1.47	0.71	0.01	16.87	116.93	0.22	1.47	0.71	0.01
16.96	119.26	0.23	1.44	0.71	0.02	17.00	122.23	0.24	1.41	0.71	0.01
17.07	123.25	0.24	1.40	0.71	0.01	17.13	124.98	0.25	1.38	0.71	0.01
17.20	132.12	0.28	1.32	0.71	0.01	17.27	132.81	0.28	1.31	0.71	0.01
17.34	123.87	0.24	1.38	0.71	0.01	17.39	116.41	0.21	1.45	0.71	0.01
17.47	113.45	0.20	1.48	0.70	0.01	17.52	114.14	0.21	1.47	0.70	0.01
17.61	110.87	0.19	1.51	0.70	0.02	17.66	107.86	0.18	1.54	0.70	0.01
17.72	106.10	0.18	1.56	0.70	0.01	17.80	107.28	2.00	0.00	0.70	0.00
17.86	108.86	2.00	0.00	0.70	0.00	17.92	113.92	2.00	0.00	0.70	0.00
17.99	120.35	2.00	0.00	0.70	0.00	18.05	122.47	2.00	0.00	0.69	0.00
18.12	123.03	2.00	0.00	0.69	0.00	18.20	128.57	2.00	0.00	0.69	0.00
18.26	133.67	2.00	0.00	0.69	0.00	18.32	129.89	2.00	0.00	0.69	0.00
18.38	124.68	2.00	0.00	0.69	0.00	18.45	123.58	2.00	0.00	0.69	0.00
18.51	127.02	2.00	0.00	0.69	0.00	18.58	130.59	0.26	1.29	0.69	0.01
18.64	123.67	0.24	1.34	0.68	0.01	18.70	113.05	2.00	0.00	0.68	0.00
18.79	115.78	2.00	0.00	0.68	0.00	18.85	115.86	2.00	0.00	0.68	0.00
18.90	119.03	2.00	0.00	0.68	0.00	18.98	129.74	2.00	0.00	0.68	0.00
19.04	141.18	2.00	0.00	0.68	0.00	19.13	138.93	2.00	0.00	0.68	0.00
19.18	143.18	2.00	0.00	0.67	0.00	19.23	146.69	2.00	0.00	0.67	0.00
19.31	149.67	2.00	0.00	0.67	0.00	19.36	146.60	2.00	0.00	0.67	0.00
19.42	138.32	2.00	0.00	0.67	0.00	19.50	124.24	2.00	0.00	0.67	0.00
19.57	110.83	2.00	0.00	0.67	0.00	19.63	108.32	2.00	0.00	0.67	0.00
19.70	108.58	2.00	0.00	0.67	0.00	19.76	112.58	2.00	0.00	0.67	0.00
19.82	119.92	2.00	0.00	0.66	0.00	19.91	130.32	2.00	0.00	0.66	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
19.95	134.80	2.00	0.00	0.66	0.00	20.04	143.97	0.32	1.14	0.66	0.01
20.10	148.52	0.35	1.11	0.66	0.01	20.15	146.95	0.34	1.12	0.66	0.01
20.22	138.25	0.29	1.18	0.66	0.01	20.28	130.10	0.26	1.24	0.66	0.01
20.34	122.55	0.23	1.30	0.66	0.01	20.43	112.10	0.19	1.39	0.65	0.01
20.49	117.45	0.21	1.34	0.65	0.01	20.56	129.96	0.25	1.23	0.65	0.01
20.61	135.03	0.28	1.19	0.65	0.01	20.68	137.13	0.29	1.17	0.65	0.01
20.77	138.57	0.29	1.16	0.65	0.01	20.80	140.73	0.30	1.14	0.65	0.00
20.88	144.30	0.32	1.12	0.65	0.01	20.95	140.79	0.30	1.14	0.64	0.01
21.01	143.51	0.32	1.12	0.64	0.01	21.07	156.86	0.39	1.04	0.64	0.01
21.16	161.72	0.42	1.01	0.64	0.01	21.22	164.23	0.44	1.00	0.64	0.01
21.26	164.27	0.44	0.99	0.64	0.01	21.35	167.23	0.46	0.98	0.64	0.01
21.40	168.67	0.47	0.97	0.64	0.01	21.47	179.22	0.54	0.92	0.64	0.01
21.55	198.45	0.71	0.59	0.63	0.01	21.59	197.49	0.70	0.59	0.63	0.00
21.67	238.01	2.00	0.00	0.63	0.00	21.73	246.10	2.00	0.00	0.63	0.00
21.79	244.47	2.00	0.00	0.63	0.00	21.87	257.07	2.00	0.00	0.63	0.00
21.92	270.93	2.00	0.00	0.63	0.00	21.98	283.33	2.00	0.00	0.63	0.00
22.05	300.05	2.00	0.00	0.63	0.00	22.12	308.94	2.00	0.00	0.63	0.00
22.18	316.03	2.00	0.00	0.62	0.00	22.26	333.76	2.00	0.00	0.62	0.00
22.32	335.12	2.00	0.00	0.62	0.00	22.38	348.89	2.00	0.00	0.62	0.00
22.44	332.40	2.00	0.00	0.62	0.00	22.51	352.55	2.00	0.00	0.62	0.00
22.57	353.41	2.00	0.00	0.62	0.00	22.64	380.28	2.00	0.00	0.62	0.00
22.71	387.94	2.00	0.00	0.62	0.00	22.78	399.06	2.00	0.00	0.61	0.00
22.84	412.51	2.00	0.00	0.61	0.00	22.91	426.53	2.00	0.00	0.61	0.00
22.98	433.54	2.00	0.00	0.61	0.00	23.03	444.30	2.00	0.00	0.61	0.00
23.10	461.50	2.00	0.00	0.61	0.00	23.18	427.32	2.00	0.00	0.61	0.00
23.23	423.77	2.00	0.00	0.61	0.00	23.30	423.09	2.00	0.00	0.61	0.00
23.36	417.70	2.00	0.00	0.60	0.00	23.44	412.86	2.00	0.00	0.60	0.00
23.50	406.11	2.00	0.00	0.60	0.00	23.57	404.81	2.00	0.00	0.60	0.00
23.63	384.25	2.00	0.00	0.60	0.00	23.70	395.94	2.00	0.00	0.60	0.00
23.77	393.04	2.00	0.00	0.60	0.00	23.83	386.57	2.00	0.00	0.60	0.00
23.89	380.63	2.00	0.00	0.60	0.00	23.95	382.35	2.00	0.00	0.59	0.00
24.02	370.11	2.00	0.00	0.59	0.00	24.08	366.61	2.00	0.00	0.59	0.00
24.16	364.79	2.00	0.00	0.59	0.00	24.21	361.92	2.00	0.00	0.59	0.00
24.28	362.23	2.00	0.00	0.59	0.00	24.35	360.87	2.00	0.00	0.59	0.00
24.42	360.68	2.00	0.00	0.59	0.00	24.48	361.25	2.00	0.00	0.59	0.00
24.55	364.00	2.00	0.00	0.58	0.00	24.62	365.90	2.00	0.00	0.58	0.00
24.68	370.21	2.00	0.00	0.58	0.00	24.76	373.55	2.00	0.00	0.58	0.00
24.81	376.71	2.00	0.00	0.58	0.00	24.88	374.48	2.00	0.00	0.58	0.00
24.94	374.89	2.00	0.00	0.58	0.00	25.00	378.12	2.00	0.00	0.58	0.00
25.09	379.68	2.00	0.00	0.57	0.00	25.14	383.13	2.00	0.00	0.57	0.00
25.20	385.20	2.00	0.00	0.57	0.00	25.27	391.21	2.00	0.00	0.57	0.00
25.34	392.64	2.00	0.00	0.57	0.00	25.39	378.10	2.00	0.00	0.57	0.00
25.47	365.41	2.00	0.00	0.57	0.00	25.54	367.84	2.00	0.00	0.57	0.00
25.61	373.06	2.00	0.00	0.57	0.00	25.67	370.90	2.00	0.00	0.56	0.00
25.72	369.29	2.00	0.00	0.56	0.00	25.79	364.28	2.00	0.00	0.56	0.00
25.86	359.45	2.00	0.00	0.56	0.00	25.93	353.58	2.00	0.00	0.56	0.00
26.00	346.91	2.00	0.00	0.56	0.00	26.06	342.62	2.00	0.00	0.56	0.00
26.12	338.22	2.00	0.00	0.56	0.00	26.20	336.05	2.00	0.00	0.56	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
26.25	335.34	2.00	0.00	0.56	0.00	26.31	334.69	2.00	0.00	0.55	0.00
26.39	331.77	2.00	0.00	0.55	0.00	26.46	324.02	2.00	0.00	0.55	0.00
26.53	311.61	2.00	0.00	0.55	0.00	26.57	302.33	2.00	0.00	0.55	0.00
26.64	277.28	2.00	0.00	0.55	0.00	26.71	239.29	2.00	0.00	0.55	0.00
26.78	184.32	0.55	0.68	0.55	0.01	26.84	190.09	0.60	0.65	0.55	0.00
26.91	186.45	0.57	0.67	0.54	0.01	26.98	181.70	0.53	0.78	0.54	0.01
27.04	173.09	0.47	0.81	0.54	0.01	27.10	173.53	0.47	0.80	0.54	0.01
27.17	169.74	0.45	0.82	0.54	0.01	27.24	159.41	0.38	0.86	0.54	0.01
27.30	153.52	0.35	0.88	0.54	0.01	27.37	148.11	0.32	0.91	0.54	0.01
27.45	143.33	0.29	0.93	0.53	0.01	27.50	142.81	0.29	0.93	0.53	0.00
27.56	142.76	0.29	0.93	0.53	0.01	27.63	143.09	0.29	0.93	0.53	0.01
27.70	144.56	0.30	0.92	0.53	0.01	27.76	149.69	0.32	0.89	0.53	0.01
27.83	158.45	0.37	0.85	0.53	0.01	27.91	166.18	0.42	0.81	0.53	0.01
27.96	172.53	0.46	0.79	0.53	0.00	28.04	179.05	0.51	0.76	0.52	0.01
28.10	189.92	0.59	0.63	0.52	0.00	28.15	196.96	0.65	0.49	0.52	0.00
28.23	215.69	2.00	0.00	0.52	0.00	28.28	225.08	2.00	0.00	0.52	0.00
28.35	231.00	2.00	0.00	0.52	0.00	28.44	244.91	2.00	0.00	0.52	0.00
28.48	230.26	2.00	0.00	0.52	0.00	28.55	243.52	2.00	0.00	0.52	0.00
28.61	238.06	2.00	0.00	0.52	0.00	28.70	242.00	2.00	0.00	0.51	0.00
28.75	248.75	2.00	0.00	0.51	0.00	28.81	247.04	2.00	0.00	0.51	0.00
28.89	249.29	2.00	0.00	0.51	0.00	28.95	249.01	2.00	0.00	0.51	0.00
29.01	248.26	2.00	0.00	0.51	0.00	29.10	248.35	2.00	0.00	0.51	0.00
29.14	246.97	2.00	0.00	0.51	0.00	29.21	247.90	2.00	0.00	0.50	0.00
29.27	249.29	2.00	0.00	0.50	0.00	29.33	251.54	2.00	0.00	0.50	0.00
29.42	254.58	2.00	0.00	0.50	0.00	29.47	256.96	2.00	0.00	0.50	0.00
29.53	260.37	2.00	0.00	0.50	0.00	29.61	270.07	2.00	0.00	0.50	0.00
29.67	277.96	2.00	0.00	0.50	0.00	29.73	284.71	2.00	0.00	0.50	0.00
29.81	296.29	2.00	0.00	0.49	0.00	29.88	298.91	2.00	0.00	0.49	0.00
29.93	309.12	2.00	0.00	0.49	0.00	29.99	317.34	2.00	0.00	0.49	0.00
30.07	326.17	2.00	0.00	0.49	0.00	30.12	325.97	2.00	0.00	0.49	0.00
30.18	332.47	2.00	0.00	0.49	0.00	30.25	338.30	2.00	0.00	0.49	0.00
30.32	345.10	2.00	0.00	0.49	0.00	30.39	355.49	2.00	0.00	0.48	0.00
30.45	366.85	2.00	0.00	0.48	0.00	30.52	394.87	2.00	0.00	0.48	0.00
30.58	406.15	2.00	0.00	0.48	0.00	30.65	422.91	2.00	0.00	0.48	0.00
30.71	421.69	2.00	0.00	0.48	0.00	30.78	420.53	2.00	0.00	0.48	0.00
30.84	432.55	2.00	0.00	0.48	0.00	30.91	439.99	2.00	0.00	0.48	0.00
30.97	454.41	2.00	0.00	0.48	0.00	31.04	474.22	2.00	0.00	0.47	0.00
31.11	497.11	2.00	0.00	0.47	0.00	31.17	507.81	2.00	0.00	0.47	0.00
31.24	522.22	2.00	0.00	0.47	0.00	31.30	527.09	2.00	0.00	0.47	0.00
31.37	536.80	2.00	0.00	0.47	0.00	31.43	526.19	2.00	0.00	0.47	0.00
31.51	525.85	2.00	0.00	0.47	0.00	31.57	481.21	2.00	0.00	0.46	0.00
31.64	531.79	2.00	0.00	0.46	0.00	31.70	532.56	2.00	0.00	0.46	0.00
31.77	533.25	2.00	0.00	0.46	0.00	31.83	539.20	2.00	0.00	0.46	0.00
31.90	538.31	2.00	0.00	0.46	0.00	31.96	496.75	2.00	0.00	0.46	0.00
32.04	458.03	2.00	0.00	0.46	0.00	32.09	469.68	2.00	0.00	0.46	0.00
32.16	476.34	2.00	0.00	0.45	0.00	32.22	447.36	2.00	0.00	0.45	0.00
32.29	432.38	2.00	0.00	0.45	0.00	32.35	352.94	2.00	0.00	0.45	0.00
32.42	344.64	2.00	0.00	0.45	0.00	32.48	337.92	2.00	0.00	0.45	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
32.55	330.74	2.00	0.00	0.45	0.00	32.62	326.59	2.00	0.00	0.45	0.00
32.68	329.49	2.00	0.00	0.45	0.00	32.77	326.89	2.00	0.00	0.44	0.00
32.81	328.26	2.00	0.00	0.44	0.00	32.88	332.60	2.00	0.00	0.44	0.00
32.96	335.62	2.00	0.00	0.44	0.00	33.01	336.64	2.00	0.00	0.44	0.00
33.08	335.95	2.00	0.00	0.44	0.00	33.16	330.12	2.00	0.00	0.44	0.00
33.21	324.58	2.00	0.00	0.44	0.00	33.30	325.30	2.00	0.00	0.44	0.00
33.34	324.39	2.00	0.00	0.43	0.00	33.41	330.98	2.00	0.00	0.43	0.00
33.48	347.45	2.00	0.00	0.43	0.00	33.54	369.02	2.00	0.00	0.43	0.00
33.60	368.81	2.00	0.00	0.43	0.00	33.66	287.94	2.00	0.00	0.43	0.00
33.74	287.25	2.00	0.00	0.43	0.00	33.80	282.79	2.00	0.00	0.43	0.00
33.87	276.60	2.00	0.00	0.43	0.00	33.93	265.99	2.00	0.00	0.42	0.00
34.00	257.76	2.00	0.00	0.42	0.00	34.06	247.75	2.00	0.00	0.42	0.00
34.12	239.84	2.00	0.00	0.42	0.00	34.20	226.33	2.00	0.00	0.42	0.00
34.25	207.86	2.00	0.00	0.42	0.00	34.34	187.78	0.55	0.51	0.42	0.01
34.40	172.48	0.44	0.62	0.42	0.00	34.45	167.38	0.41	0.64	0.42	0.00
34.55	168.80	0.42	0.63	0.41	0.01	34.60	163.26	0.39	0.65	0.41	0.00
34.68	142.03	0.28	0.72	0.41	0.01	34.74	143.17	0.28	0.72	0.41	0.01
34.79	147.52	0.30	0.70	0.41	0.00	34.86	135.72	0.25	0.74	0.41	0.01
34.92	130.30	0.23	0.77	0.41	0.01	34.98	132.55	0.24	0.75	0.41	0.01
35.05	132.67	0.24	0.75	0.41	0.01	35.12	133.15	0.24	0.75	0.40	0.01
35.17	134.06	0.24	0.74	0.40	0.00	35.24	129.37	0.22	0.76	0.40	0.01
35.31	130.53	0.23	0.75	0.40	0.01	35.37	131.02	0.23	0.75	0.40	0.01
35.45	131.99	0.23	0.74	0.40	0.01	35.50	132.63	0.24	0.74	0.40	0.00
35.57	135.10	0.25	0.73	0.40	0.01	35.65	137.36	0.25	0.71	0.40	0.01
35.71	136.80	0.25	0.71	0.39	0.01	35.76	134.00	0.24	0.72	0.39	0.00
35.86	128.51	0.22	0.75	0.39	0.01	35.90	128.29	0.22	0.75	0.39	0.00
35.97	127.22	0.21	0.75	0.39	0.01	36.04	130.99	0.23	0.73	0.39	0.01
36.10	135.28	0.25	0.71	0.39	0.00	36.17	136.68	0.25	0.70	0.39	0.01
36.24	133.34	0.24	0.71	0.39	0.01	36.30	127.61	0.22	0.74	0.38	0.01
36.36	120.85	0.19	0.77	0.38	0.01	36.42	117.45	0.18	0.78	0.38	0.01
36.49	115.95	0.18	0.79	0.38	0.01	36.57	115.74	0.18	0.79	0.38	0.01
36.63	111.48	0.17	0.81	0.38	0.01	36.69	114.07	0.17	0.79	0.38	0.01
36.75	112.19	0.17	0.80	0.38	0.01	36.82	111.63	0.17	0.80	0.38	0.01
36.88	112.63	0.17	0.79	0.37	0.01	36.94	111.21	0.16	0.80	0.37	0.01
37.03	110.06	0.16	0.80	0.37	0.01	37.10	112.52	0.17	0.79	0.37	0.01
37.16	116.70	0.18	0.76	0.37	0.01	37.22	120.02	0.19	0.74	0.37	0.01
37.27	123.70	0.20	0.72	0.37	0.00	37.36	128.19	0.22	0.70	0.37	0.01
37.42	130.23	0.23	0.69	0.37	0.00	37.48	132.61	0.23	0.68	0.36	0.01
37.55	133.37	0.24	0.67	0.36	0.01	37.61	133.47	0.24	0.67	0.36	0.00
37.67	132.33	0.23	0.67	0.36	0.00	37.76	130.23	0.23	0.68	0.36	0.01
37.80	129.27	0.22	0.68	0.36	0.00	37.89	128.45	0.22	0.68	0.36	0.01
37.95	127.38	0.22	0.68	0.36	0.00	38.00	126.10	0.21	0.69	0.36	0.00
38.08	125.38	0.21	0.69	0.35	0.01	38.13	125.10	0.21	0.69	0.35	0.00
38.19	125.89	0.21	0.68	0.35	0.00	38.26	121.41	0.19	0.70	0.35	0.01
38.32	117.99	0.18	0.72	0.35	0.00	38.39	120.87	0.19	0.70	0.35	0.01
38.48	115.13	0.18	0.72	0.35	0.01	38.53	119.73	0.19	0.70	0.35	0.00
38.60	129.04	0.22	0.66	0.35	0.00	38.66	134.18	0.24	0.63	0.34	0.00
38.72	133.95	0.24	0.63	0.34	0.00	38.81	125.18	0.21	0.66	0.34	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
38.87	117.48	0.18	0.70	0.34	0.00	38.92	109.05	0.16	0.74	0.34	0.00
39.00	106.41	0.15	0.75	0.34	0.01	39.05	105.23	0.15	0.76	0.34	0.00
39.14	103.83	0.15	0.76	0.34	0.01	39.17	106.61	0.15	0.75	0.34	0.00
39.25	112.02	0.17	0.71	0.33	0.01	39.32	114.61	0.17	0.70	0.33	0.01
39.39	114.91	0.17	0.69	0.33	0.01	39.44	114.83	0.17	0.69	0.33	0.00
39.52	114.67	0.17	0.69	0.33	0.01	39.59	114.31	0.17	0.69	0.33	0.01
39.63	113.22	0.17	0.69	0.33	0.00	39.73	108.34	0.16	0.71	0.33	0.01
39.78	106.09	0.15	0.73	0.33	0.00	39.83	104.96	2.00	0.00	0.32	0.00
39.91	104.96	2.00	0.00	0.32	0.00	39.98	107.55	2.00	0.00	0.32	0.00
40.05	115.11	2.00	0.00	0.32	0.00	40.11	123.61	2.00	0.00	0.32	0.00
40.17	131.13	2.00	0.00	0.32	0.00	40.25	128.06	2.00	0.00	0.32	0.00
40.30	125.43	2.00	0.00	0.32	0.00	40.36	118.78	2.00	0.00	0.32	0.00
40.45	118.07	2.00	0.00	0.31	0.00	40.51	121.61	2.00	0.00	0.31	0.00
40.55	120.23	2.00	0.00	0.31	0.00	40.63	116.96	2.00	0.00	0.31	0.00
40.70	120.70	2.00	0.00	0.31	0.00	40.75	126.33	2.00	0.00	0.31	0.00
40.82	128.26	2.00	0.00	0.31	0.00	40.89	129.10	2.00	0.00	0.31	0.00
40.95	124.53	2.00	0.00	0.31	0.00	41.04	107.65	2.00	0.00	0.30	0.00
41.09	104.46	2.00	0.00	0.30	0.00	41.15	94.64	2.00	0.00	0.30	0.00
41.22	98.15	2.00	0.00	0.30	0.00	41.28	108.79	2.00	0.00	0.30	0.00
41.35	126.00	2.00	0.00	0.30	0.00	41.43	132.26	2.00	0.00	0.30	0.00
41.48	134.27	2.00	0.00	0.30	0.00	41.54	133.73	0.24	0.54	0.30	0.00
41.62	131.93	0.23	0.55	0.29	0.01	41.67	128.43	0.22	0.56	0.29	0.00
41.77	122.90	0.20	0.58	0.29	0.01	41.81	121.22	0.20	0.58	0.29	0.00
41.87	123.51	0.20	0.57	0.29	0.00	41.95	121.17	0.20	0.58	0.29	0.01
42.01	124.56	0.21	0.56	0.29	0.00	42.07	128.95	0.22	0.54	0.29	0.00
42.14	131.39	0.23	0.53	0.29	0.00	42.21	132.71	0.24	0.53	0.28	0.00
42.27	132.68	0.24	0.53	0.28	0.00	42.33	132.72	0.24	0.52	0.28	0.00
42.39	133.12	0.24	0.52	0.28	0.00	42.45	134.93	0.25	0.51	0.28	0.00
42.54	135.52	0.25	0.51	0.28	0.01	42.59	136.41	0.25	0.50	0.28	0.00
42.69	136.09	0.25	0.50	0.28	0.01	42.74	135.29	0.25	0.50	0.28	0.00
42.78	134.49	0.24	0.50	0.27	0.00	42.86	133.17	0.24	0.51	0.27	0.00
42.92	131.47	0.23	0.51	0.27	0.00	42.98	129.88	0.23	0.51	0.27	0.00
43.07	127.19	0.22	0.52	0.27	0.01	43.13	127.68	0.22	0.51	0.27	0.00
43.19	130.11	0.23	0.50	0.27	0.00	43.25	131.53	0.23	0.50	0.27	0.00
43.31	131.47	0.23	0.50	0.27	0.00	43.39	134.04	0.24	0.49	0.26	0.00
43.44	140.38	0.27	0.47	0.26	0.00	43.51	155.44	0.34	0.43	0.26	0.00
43.59	179.14	0.49	0.38	0.26	0.00	43.65	187.38	0.55	0.32	0.26	0.00
43.70	192.29	0.59	0.30	0.26	0.00	43.79	197.26	0.64	0.29	0.26	0.00
43.85	201.67	2.00	0.00	0.26	0.00	43.93	215.16	2.00	0.00	0.26	0.00
43.97	221.53	2.00	0.00	0.25	0.00	44.04	231.75	2.00	0.00	0.25	0.00
44.10	236.40	2.00	0.00	0.25	0.00	44.18	239.99	2.00	0.00	0.25	0.00
44.24	241.18	2.00	0.00	0.25	0.00	44.30	240.74	2.00	0.00	0.25	0.00
44.37	239.36	2.00	0.00	0.25	0.00	44.44	236.98	2.00	0.00	0.25	0.00
44.51	231.40	2.00	0.00	0.25	0.00	44.58	226.36	2.00	0.00	0.24	0.00
44.63	211.77	2.00	0.00	0.24	0.00	44.70	208.80	2.00	0.00	0.24	0.00
44.76	207.86	2.00	0.00	0.24	0.00	44.83	208.10	2.00	0.00	0.24	0.00
44.90	212.22	2.00	0.00	0.24	0.00	44.96	219.32	2.00	0.00	0.24	0.00
45.02	229.73	2.00	0.00	0.24	0.00	45.10	246.78	2.00	0.00	0.24	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
45.15	259.71	2.00	0.00	0.23	0.00	45.22	271.05	2.00	0.00	0.23	0.00
45.29	287.61	2.00	0.00	0.23	0.00	45.34	295.75	2.00	0.00	0.23	0.00
45.41	301.95	2.00	0.00	0.23	0.00	45.49	304.67	2.00	0.00	0.23	0.00
45.55	302.91	2.00	0.00	0.23	0.00	45.62	296.40	2.00	0.00	0.23	0.00
45.69	284.81	2.00	0.00	0.23	0.00	45.74	287.28	2.00	0.00	0.22	0.00
45.81	285.93	2.00	0.00	0.22	0.00	45.87	278.94	2.00	0.00	0.22	0.00
45.94	272.99	2.00	0.00	0.22	0.00	46.00	260.01	2.00	0.00	0.22	0.00
46.07	248.38	2.00	0.00	0.22	0.00	46.14	239.81	2.00	0.00	0.22	0.00
46.22	232.29	2.00	0.00	0.22	0.00	46.27	228.39	2.00	0.00	0.22	0.00
46.33	234.39	2.00	0.00	0.21	0.00	46.42	249.36	2.00	0.00	0.21	0.00
46.47	264.10	2.00	0.00	0.21	0.00	46.52	274.57	2.00	0.00	0.21	0.00
46.59	265.63	2.00	0.00	0.21	0.00	46.66	284.44	2.00	0.00	0.21	0.00
46.73	287.15	2.00	0.00	0.21	0.00	46.78	282.07	2.00	0.00	0.21	0.00
46.87	279.85	2.00	0.00	0.21	0.00	46.93	280.73	2.00	0.00	0.20	0.00
46.98	283.17	2.00	0.00	0.20	0.00	47.05	284.98	2.00	0.00	0.20	0.00
47.12	291.16	2.00	0.00	0.20	0.00	47.18	296.68	2.00	0.00	0.20	0.00
47.25	301.93	2.00	0.00	0.20	0.00	47.32	305.31	2.00	0.00	0.20	0.00
47.38	302.27	2.00	0.00	0.20	0.00	47.46	296.84	2.00	0.00	0.20	0.00
47.52	294.33	2.00	0.00	0.19	0.00	47.58	290.61	2.00	0.00	0.19	0.00
47.66	288.29	2.00	0.00	0.19	0.00	47.71	288.67	2.00	0.00	0.19	0.00
47.77	287.92	2.00	0.00	0.19	0.00	47.85	285.57	2.00	0.00	0.19	0.00
47.90	280.14	2.00	0.00	0.19	0.00	47.97	268.43	2.00	0.00	0.19	0.00
48.05	258.76	2.00	0.00	0.19	0.00	48.10	250.18	2.00	0.00	0.18	0.00
48.17	238.12	2.00	0.00	0.18	0.00	48.23	230.13	2.00	0.00	0.18	0.00
48.29	220.70	2.00	0.00	0.18	0.00	48.38	207.04	2.00	0.00	0.18	0.00
48.43	201.61	2.00	0.00	0.18	0.00	48.50	197.53	2.00	0.00	0.18	0.00
48.57	180.56	2.00	0.00	0.18	0.00	48.65	156.50	2.00	0.00	0.18	0.00
48.71	142.05	2.00	0.00	0.17	0.00	48.76	137.60	2.00	0.00	0.17	0.00
48.84	142.36	2.00	0.00	0.17	0.00	48.90	147.90	2.00	0.00	0.17	0.00
48.96	153.17	2.00	0.00	0.17	0.00	49.03	151.69	2.00	0.00	0.17	0.00
49.09	139.54	2.00	0.00	0.17	0.00	49.15	133.45	2.00	0.00	0.17	0.00
49.21	123.22	2.00	0.00	0.17	0.00	49.28	127.00	2.00	0.00	0.16	0.00
49.38	121.74	2.00	0.00	0.16	0.00	49.43	115.16	2.00	0.00	0.16	0.00
49.49	111.63	2.00	0.00	0.16	0.00	49.55	110.26	2.00	0.00	0.16	0.00
49.62	111.39	2.00	0.00	0.16	0.00	49.68	110.92	2.00	0.00	0.16	0.00
49.74	110.32	2.00	0.00	0.16	0.00	49.81	108.74	2.00	0.00	0.16	0.00
49.88	107.48	0.16	0.34	0.15	0.00	49.96	104.10	0.15	0.35	0.15	0.00
50.02	87.36	2.00	0.00	0.15	0.00	50.07	82.05	2.00	0.00	0.15	0.00
50.15	91.31	2.00	0.00	0.15	0.00	50.21	97.12	2.00	0.00	0.15	0.00
50.27	102.47	2.00	0.00	0.15	0.00	50.33	105.53	2.00	0.00	0.15	0.00
50.40	109.03	2.00	0.00	0.15	0.00	50.46	109.05	2.00	0.00	0.14	0.00
50.56	107.44	2.00	0.00	0.14	0.00	50.59	106.66	2.00	0.00	0.14	0.00
50.67	104.39	2.00	0.00	0.14	0.00	50.73	101.94	2.00	0.00	0.14	0.00
50.82	99.79	2.00	0.00	0.14	0.00	50.87	100.19	2.00	0.00	0.14	0.00
50.93	100.31	2.00	0.00	0.14	0.00	51.01	103.10	2.00	0.00	0.14	0.00
51.06	106.52	2.00	0.00	0.13	0.00	51.12	111.46	2.00	0.00	0.13	0.00
51.20	116.12	2.00	0.00	0.13	0.00	51.25	118.62	2.00	0.00	0.13	0.00
51.32	120.23	2.00	0.00	0.13	0.00	51.40	116.97	2.00	0.00	0.13	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
51.44	108.95	2.00	0.00	0.13	0.00	51.54	93.48	2.00	0.00	0.13	0.00
51.59	91.01	2.00	0.00	0.13	0.00	51.64	95.34	2.00	0.00	0.12	0.00
51.72	101.35	2.00	0.00	0.12	0.00	51.79	98.01	2.00	0.00	0.12	0.00
51.84	73.62	2.00	0.00	0.12	0.00	51.93	78.08	2.00	0.00	0.12	0.00
51.98	73.56	2.00	0.00	0.12	0.00	52.04	77.35	2.00	0.00	0.12	0.00
52.11	86.82	2.00	0.00	0.12	0.00	52.19	100.17	2.00	0.00	0.12	0.00
52.23	104.31	2.00	0.00	0.11	0.00	52.31	110.01	2.00	0.00	0.11	0.00
52.38	111.73	2.00	0.00	0.11	0.00	52.44	112.57	2.00	0.00	0.11	0.00
52.51	112.25	2.00	0.00	0.11	0.00	52.57	112.21	2.00	0.00	0.11	0.00
52.66	113.23	2.00	0.00	0.11	0.00	52.71	113.08	2.00	0.00	0.11	0.00
52.76	113.78	2.00	0.00	0.11	0.00	52.84	105.46	2.00	0.00	0.10	0.00
52.91	102.77	2.00	0.00	0.10	0.00	52.95	104.18	2.00	0.00	0.10	0.00
53.05	107.84	2.00	0.00	0.10	0.00	53.10	107.60	2.00	0.00	0.10	0.00
53.15	106.01	2.00	0.00	0.10	0.00	53.23	96.91	2.00	0.00	0.10	0.00
53.29	97.37	2.00	0.00	0.10	0.00	53.35	101.17	2.00	0.00	0.10	0.00
53.41	105.22	2.00	0.00	0.09	0.00	53.49	107.03	2.00	0.00	0.09	0.00
53.58	109.48	2.00	0.00	0.09	0.00	53.63	111.37	2.00	0.00	0.09	0.00
53.69	120.51	2.00	0.00	0.09	0.00	53.75	126.56	2.00	0.00	0.09	0.00
53.82	114.95	2.00	0.00	0.09	0.00	53.88	104.04	2.00	0.00	0.09	0.00
53.97	103.01	2.00	0.00	0.09	0.00	54.02	106.15	2.00	0.00	0.08	0.00
54.08	119.30	2.00	0.00	0.08	0.00	54.15	133.61	2.00	0.00	0.08	0.00
54.22	131.88	2.00	0.00	0.08	0.00	54.27	133.25	2.00	0.00	0.08	0.00
54.34	127.92	2.00	0.00	0.08	0.00	54.41	121.93	2.00	0.00	0.08	0.00
54.48	109.84	2.00	0.00	0.08	0.00	54.54	110.51	2.00	0.00	0.08	0.00
54.60	107.14	2.00	0.00	0.07	0.00	54.67	110.46	2.00	0.00	0.07	0.00
54.73	112.70	2.00	0.00	0.07	0.00	54.83	120.53	2.00	0.00	0.07	0.00
54.88	117.39	2.00	0.00	0.07	0.00	54.92	114.88	2.00	0.00	0.07	0.00
55.01	112.22	2.00	0.00	0.07	0.00	55.08	110.99	2.00	0.00	0.07	0.00
55.13	112.60	2.00	0.00	0.07	0.00	55.19	116.50	2.00	0.00	0.06	0.00
55.27	119.34	2.00	0.00	0.06	0.00	55.32	115.44	2.00	0.00	0.06	0.00
55.38	105.83	2.00	0.00	0.06	0.00	55.45	98.53	2.00	0.00	0.06	0.00
55.51	91.19	2.00	0.00	0.06	0.00	55.59	85.71	2.00	0.00	0.06	0.00
55.65	84.51	2.00	0.00	0.06	0.00	55.72	88.31	2.00	0.00	0.06	0.00
55.78	101.15	2.00	0.00	0.05	0.00	55.85	123.94	2.00	0.00	0.05	0.00
55.92	136.63	2.00	0.00	0.05	0.00	55.98	139.48	2.00	0.00	0.05	0.00
56.05	139.37	2.00	0.00	0.05	0.00	56.12	135.56	2.00	0.00	0.05	0.00
56.17	133.64	2.00	0.00	0.05	0.00	56.24	128.41	2.00	0.00	0.05	0.00
56.33	119.69	2.00	0.00	0.05	0.00	56.38	113.50	2.00	0.00	0.04	0.00
56.43	107.09	2.00	0.00	0.04	0.00	56.50	98.77	2.00	0.00	0.04	0.00
56.56	94.97	2.00	0.00	0.04	0.00	56.63	86.31	2.00	0.00	0.04	0.00
56.70	73.32	2.00	0.00	0.04	0.00	56.77	73.76	2.00	0.00	0.04	0.00
56.85	74.45	2.00	0.00	0.04	0.00	56.91	75.47	2.00	0.00	0.04	0.00
56.97	77.51	2.00	0.00	0.03	0.00	57.03	79.18	2.00	0.00	0.03	0.00
57.09	80.17	2.00	0.00	0.03	0.00	57.16	81.49	2.00	0.00	0.03	0.00
57.26	93.37	2.00	0.00	0.03	0.00	57.31	100.99	2.00	0.00	0.03	0.00
57.35	108.82	2.00	0.00	0.03	0.00	57.44	121.53	2.00	0.00	0.03	0.00
57.50	127.18	2.00	0.00	0.03	0.00	57.55	128.16	2.00	0.00	0.02	0.00
57.65	128.56	2.00	0.00	0.02	0.00	57.69	128.32	2.00	0.00	0.02	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.74	127.47	2.00	0.00	0.02	0.00	57.83	125.38	2.00	0.00	0.02	0.00
57.89	122.87	2.00	0.00	0.02	0.00	57.94	119.56	2.00	0.00	0.02	0.00
58.01	113.56	2.00	0.00	0.02	0.00	58.08	105.88	2.00	0.00	0.02	0.00
58.17	96.99	2.00	0.00	0.01	0.00	58.20	97.15	2.00	0.00	0.01	0.00
58.28	103.40	2.00	0.00	0.01	0.00	58.34	112.06	2.00	0.00	0.01	0.00
58.42	123.99	2.00	0.00	0.01	0.00	58.47	131.97	2.00	0.00	0.01	0.00
58.55	138.39	2.00	0.00	0.01	0.00	58.60	140.67	2.00	0.00	0.01	0.00
58.67	139.65	2.00	0.00	0.01	0.00	58.75	133.09	2.00	0.00	0.00	0.00
58.80	127.86	2.00	0.00	0.00	0.00	58.87	119.76	2.00	0.00	0.00	0.00
58.94	112.17	2.00	0.00	0.00	0.00	58.99	108.00	2.00	0.00	0.00	0.00
59.06	102.51	2.00	0.00	0.00	0.00	59.15	97.53	2.00	0.00	0.00	0.00
59.20	96.01	2.00	0.00	0.00	0.00	59.27	93.14	2.00	0.00	0.00	0.00
59.33	90.28	2.00	0.00	0.00	0.00	59.39	88.71	2.00	0.00	0.00	0.00
59.46	88.34	2.00	0.00	0.00	0.00	59.54	88.73	2.00	0.00	0.00	0.00
59.59	90.52	2.00	0.00	0.00	0.00	59.67	99.29	2.00	0.00	0.00	0.00
59.73	111.86	2.00	0.00	0.00	0.00	59.78	114.16	2.00	0.00	0.00	0.00
59.85	98.11	2.00	0.00	0.00	0.00	59.92	87.44	2.00	0.00	0.00	0.00
59.99	92.02	2.00	0.00	0.00	0.00	60.05	116.02	2.00	0.00	0.00	0.00
60.13	134.48	2.00	0.00	0.00	0.00	60.19	143.73	2.00	0.00	0.00	0.00
60.25	148.81	2.00	0.00	0.00	0.00	60.31	155.02	2.00	0.00	0.00	0.00
60.37	162.61	2.00	0.00	0.00	0.00	60.44	168.64	2.00	0.00	0.00	0.00
60.53	174.23	2.00	0.00	0.00	0.00	60.57	173.94	2.00	0.00	0.00	0.00
60.64	171.49	2.00	0.00	0.00	0.00	60.71	167.28	2.00	0.00	0.00	0.00
60.77	164.60	2.00	0.00	0.00	0.00	60.83	161.95	2.00	0.00	0.00	0.00
60.89	159.80	2.00	0.00	0.00	0.00	60.96	157.08	2.00	0.00	0.00	0.00
61.05	155.04	2.00	0.00	0.00	0.00	61.11	153.36	2.00	0.00	0.00	0.00
61.17	150.88	2.00	0.00	0.00	0.00	61.23	145.57	2.00	0.00	0.00	0.00
61.30	140.91	2.00	0.00	0.00	0.00	61.35	137.20	2.00	0.00	0.00	0.00
61.44	137.88	2.00	0.00	0.00	0.00	61.51	140.34	2.00	0.00	0.00	0.00
61.56	145.35	2.00	0.00	0.00	0.00	61.65	116.60	2.00	0.00	0.00	0.00
61.70	113.88	2.00	0.00	0.00	0.00	61.75	112.18	2.00	0.00	0.00	0.00
61.83	106.50	2.00	0.00	0.00	0.00	61.88	99.14	2.00	0.00	0.00	0.00
61.94	98.93	2.00	0.00	0.00	0.00	62.02	107.76	2.00	0.00	0.00	0.00
62.09	115.66	2.00	0.00	0.00	0.00	62.14	131.34	2.00	0.00	0.00	0.00
62.21	142.01	2.00	0.00	0.00	0.00	62.27	145.17	2.00	0.00	0.00	0.00
62.34	147.61	2.00	0.00	0.00	0.00	62.41	146.90	2.00	0.00	0.00	0.00
62.48	139.40	2.00	0.00	0.00	0.00	62.55	124.10	2.00	0.00	0.00	0.00
62.62	112.23	2.00	0.00	0.00	0.00	62.67	106.81	2.00	0.00	0.00	0.00
62.76	106.23	2.00	0.00	0.00	0.00	62.81	107.34	2.00	0.00	0.00	0.00
62.87	107.60	2.00	0.00	0.00	0.00	62.94	105.53	2.00	0.00	0.00	0.00
63.01	103.18	2.00	0.00	0.00	0.00	63.07	102.73	2.00	0.00	0.00	0.00
63.14	102.70	2.00	0.00	0.00	0.00	63.20	104.05	2.00	0.00	0.00	0.00
63.26	106.16	2.00	0.00	0.00	0.00	63.34	108.09	2.00	0.00	0.00	0.00
63.40	109.57	2.00	0.00	0.00	0.00	63.48	111.94	2.00	0.00	0.00	0.00
63.55	113.16	2.00	0.00	0.00	0.00	63.59	113.85	2.00	0.00	0.00	0.00
63.66	114.11	2.00	0.00	0.00	0.00	63.72	113.86	2.00	0.00	0.00	0.00
63.78	114.03	2.00	0.00	0.00	0.00	63.86	114.30	2.00	0.00	0.00	0.00
63.91	114.37	2.00	0.00	0.00	0.00	63.98	114.54	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.07	115.29	2.00	0.00	0.00	0.00	64.13	115.19	2.00	0.00	0.00	0.00
64.18	115.24	2.00	0.00	0.00	0.00	64.26	114.71	2.00	0.00	0.00	0.00
64.31	115.02	2.00	0.00	0.00	0.00	64.39	118.20	2.00	0.00	0.00	0.00
64.44	119.98	2.00	0.00	0.00	0.00	64.53	121.61	2.00	0.00	0.00	0.00
64.57	122.98	2.00	0.00	0.00	0.00	64.64	121.58	2.00	0.00	0.00	0.00
64.70	117.68	2.00	0.00	0.00	0.00	64.77	113.41	2.00	0.00	0.00	0.00
64.86	111.79	2.00	0.00	0.00	0.00	64.92	111.11	2.00	0.00	0.00	0.00
64.97	110.16	2.00	0.00	0.00	0.00	65.03	108.48	2.00	0.00	0.00	0.00
65.11	104.15	2.00	0.00	0.00	0.00	65.16	101.48	2.00	0.00	0.00	0.00
65.24	97.97	2.00	0.00	0.00	0.00	65.30	96.99	2.00	0.00	0.00	0.00
65.39	97.33	2.00	0.00	0.00	0.00	65.42	98.32	2.00	0.00	0.00	0.00
65.50	100.33	2.00	0.00	0.00	0.00	65.55	100.88	2.00	0.00	0.00	0.00
65.63	101.22	2.00	0.00	0.00	0.00	65.69	101.82	2.00	0.00	0.00	0.00
65.79	104.48	2.00	0.00	0.00	0.00	65.84	105.28	2.00	0.00	0.00	0.00
65.89	105.05	2.00	0.00	0.00	0.00	65.97	102.89	2.00	0.00	0.00	0.00
66.03	101.29	2.00	0.00	0.00	0.00	66.08	100.97	2.00	0.00	0.00	0.00
66.16	102.07	2.00	0.00	0.00	0.00	66.22	104.01	2.00	0.00	0.00	0.00
66.28	108.25	2.00	0.00	0.00	0.00	66.36	114.72	2.00	0.00	0.00	0.00
66.41	119.06	2.00	0.00	0.00	0.00	66.47	121.24	2.00	0.00	0.00	0.00
66.56	92.90	2.00	0.00	0.00	0.00	66.61	66.77	2.00	0.00	0.00	0.00
66.70	70.63	2.00	0.00	0.00	0.00	66.73	71.73	2.00	0.00	0.00	0.00
66.81	74.74	2.00	0.00	0.00	0.00	66.89	78.83	2.00	0.00	0.00	0.00
66.94	81.83	2.00	0.00	0.00	0.00	67.01	85.45	2.00	0.00	0.00	0.00
67.07	88.39	2.00	0.00	0.00	0.00	67.13	92.25	2.00	0.00	0.00	0.00
67.22	97.11	2.00	0.00	0.00	0.00	67.26	98.54	2.00	0.00	0.00	0.00
67.33	100.40	2.00	0.00	0.00	0.00	67.41	101.63	2.00	0.00	0.00	0.00
67.47	101.51	2.00	0.00	0.00	0.00	67.54	101.50	2.00	0.00	0.00	0.00
67.61	102.38	2.00	0.00	0.00	0.00	67.66	103.89	2.00	0.00	0.00	0.00
67.73	105.63	2.00	0.00	0.00	0.00	67.79	106.70	2.00	0.00	0.00	0.00
67.86	106.57	2.00	0.00	0.00	0.00	67.94	105.07	2.00	0.00	0.00	0.00
68.00	103.89	2.00	0.00	0.00	0.00	68.05	103.71	2.00	0.00	0.00	0.00
68.14	104.23	2.00	0.00	0.00	0.00	68.18	105.72	2.00	0.00	0.00	0.00
68.24	110.74	2.00	0.00	0.00	0.00	68.33	116.04	2.00	0.00	0.00	0.00
68.39	123.53	2.00	0.00	0.00	0.00	68.44	129.98	2.00	0.00	0.00	0.00
68.50	134.41	2.00	0.00	0.00	0.00	68.57	129.95	2.00	0.00	0.00	0.00
68.67	121.38	2.00	0.00	0.00	0.00	68.73	115.69	2.00	0.00	0.00	0.00
68.78	110.40	2.00	0.00	0.00	0.00	68.85	103.17	2.00	0.00	0.00	0.00
68.91	97.53	2.00	0.00	0.00	0.00	68.97	94.24	2.00	0.00	0.00	0.00
69.07	90.96	2.00	0.00	0.00	0.00	69.12	84.19	2.00	0.00	0.00	0.00
69.17	84.21	2.00	0.00	0.00	0.00	69.25	84.55	2.00	0.00	0.00	0.00
69.31	83.70	2.00	0.00	0.00	0.00	69.36	96.03	2.00	0.00	0.00	0.00
69.44	97.51	2.00	0.00	0.00	0.00	69.49	88.91	2.00	0.00	0.00	0.00
69.59	86.03	2.00	0.00	0.00	0.00	69.63	89.89	2.00	0.00	0.00	0.00
69.69	98.88	2.00	0.00	0.00	0.00	69.75	108.59	2.00	0.00	0.00	0.00
69.84	115.24	2.00	0.00	0.00	0.00	69.88	119.33	2.00	0.00	0.00	0.00
69.95	122.07	2.00	0.00	0.00	0.00	70.03	124.71	2.00	0.00	0.00	0.00
70.08	125.72	2.00	0.00	0.00	0.00	70.16	126.00	2.00	0.00	0.00	0.00
70.21	126.03	2.00	0.00	0.00	0.00	70.28	125.80	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
70.35	125.61	2.00	0.00	0.00	0.00	70.42	125.32	2.00	0.00	0.00	0.00
70.48	124.66	2.00	0.00	0.00	0.00	70.56	123.98	2.00	0.00	0.00	0.00
70.62	122.49	2.00	0.00	0.00	0.00	70.71	116.18	2.00	0.00	0.00	0.00
70.73	114.27	2.00	0.00	0.00	0.00	70.81	120.79	2.00	0.00	0.00	0.00
70.87	132.54	2.00	0.00	0.00	0.00	70.95	141.08	2.00	0.00	0.00	0.00
71.00	145.17	2.00	0.00	0.00	0.00	71.09	143.00	2.00	0.00	0.00	0.00
71.15	139.69	2.00	0.00	0.00	0.00	71.20	141.78	2.00	0.00	0.00	0.00
71.26	141.95	2.00	0.00	0.00	0.00	71.34	137.61	2.00	0.00	0.00	0.00
71.40	135.04	2.00	0.00	0.00	0.00	71.48	133.64	2.00	0.00	0.00	0.00
71.53	139.43	2.00	0.00	0.00	0.00	71.59	145.77	2.00	0.00	0.00	0.00
71.66	146.49	2.00	0.00	0.00	0.00	71.74	140.00	2.00	0.00	0.00	0.00
71.81	133.98	2.00	0.00	0.00	0.00	71.86	134.90	2.00	0.00	0.00	0.00
71.93	140.05	2.00	0.00	0.00	0.00	72.00	138.14	2.00	0.00	0.00	0.00
72.05	132.60	2.00	0.00	0.00	0.00	72.12	125.12	2.00	0.00	0.00	0.00
72.20	101.92	2.00	0.00	0.00	0.00	72.25	97.16	2.00	0.00	0.00	0.00
72.32	104.84	2.00	0.00	0.00	0.00	72.38	111.72	2.00	0.00	0.00	0.00
72.44	115.80	2.00	0.00	0.00	0.00	72.52	121.72	2.00	0.00	0.00	0.00
72.58	122.69	2.00	0.00	0.00	0.00	72.64	124.31	2.00	0.00	0.00	0.00
72.71	126.63	2.00	0.00	0.00	0.00	72.78	128.23	2.00	0.00	0.00	0.00
72.84	128.82	2.00	0.00	0.00	0.00	72.91	128.68	2.00	0.00	0.00	0.00
72.98	127.34	2.00	0.00	0.00	0.00	73.04	124.91	2.00	0.00	0.00	0.00
73.11	124.13	2.00	0.00	0.00	0.00	73.17	124.58	2.00	0.00	0.00	0.00
73.25	127.25	2.00	0.00	0.00	0.00	73.30	129.35	2.00	0.00	0.00	0.00
73.37	130.14	2.00	0.00	0.00	0.00	73.43	128.32	2.00	0.00	0.00	0.00
73.51	116.05	2.00	0.00	0.00	0.00	73.56	105.06	2.00	0.00	0.00	0.00
73.62	99.64	2.00	0.00	0.00	0.00	73.69	79.12	2.00	0.00	0.00	0.00
73.76	89.43	2.00	0.00	0.00	0.00	73.83	85.15	2.00	0.00	0.00	0.00
73.89	80.46	2.00	0.00	0.00	0.00	73.96	81.87	2.00	0.00	0.00	0.00
74.02	82.28	2.00	0.00	0.00	0.00	74.09	85.38	2.00	0.00	0.00	0.00
74.16	88.30	2.00	0.00	0.00	0.00	74.22	91.77	2.00	0.00	0.00	0.00
74.28	97.23	2.00	0.00	0.00	0.00	74.35	104.78	2.00	0.00	0.00	0.00
74.41	111.41	2.00	0.00	0.00	0.00	74.49	121.57	2.00	0.00	0.00	0.00
74.56	132.26	2.00	0.00	0.00	0.00	74.61	140.13	2.00	0.00	0.00	0.00
74.69	145.16	2.00	0.00	0.00	0.00	74.75	143.71	2.00	0.00	0.00	0.00
74.81	141.72	2.00	0.00	0.00	0.00	74.87	137.68	2.00	0.00	0.00	0.00
74.94	134.85	2.00	0.00	0.00	0.00	75.01	133.76	2.00	0.00	0.00	0.00
75.09	129.34	2.00	0.00	0.00	0.00	75.14	122.58	2.00	0.00	0.00	0.00
75.22	114.64	2.00	0.00	0.00	0.00	75.28	112.38	2.00	0.00	0.00	0.00
75.33	112.36	2.00	0.00	0.00	0.00	75.40	112.77	2.00	0.00	0.00	0.00
75.48	113.20	2.00	0.00	0.00	0.00	75.53	113.94	2.00	0.00	0.00	0.00
75.62	104.77	2.00	0.00	0.00	0.00	75.67	101.21	2.00	0.00	0.00	0.00
75.72	103.89	2.00	0.00	0.00	0.00	75.80	108.16	2.00	0.00	0.00	0.00
75.87	112.45	2.00	0.00	0.00	0.00	75.95	120.24	2.00	0.00	0.00	0.00
75.99	125.57	2.00	0.00	0.00	0.00	76.06	132.56	2.00	0.00	0.00	0.00
76.12	136.96	2.00	0.00	0.00	0.00	76.20	140.53	2.00	0.00	0.00	0.00
76.25	142.07	2.00	0.00	0.00	0.00	76.32	142.85	2.00	0.00	0.00	0.00
76.38	141.40	2.00	0.00	0.00	0.00	76.45	140.19	2.00	0.00	0.00	0.00
76.52	137.27	2.00	0.00	0.00	0.00	76.58	134.72	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
76.65	132.37	2.00	0.00	0.00	0.00	76.71	125.15	2.00	0.00	0.00	0.00
76.77	109.25	2.00	0.00	0.00	0.00	76.85	106.23	2.00	0.00	0.00	0.00
76.92	105.12	2.00	0.00	0.00	0.00	76.97	99.76	2.00	0.00	0.00	0.00
77.04	90.50	2.00	0.00	0.00	0.00	77.11	88.06	2.00	0.00	0.00	0.00
77.17	90.25	2.00	0.00	0.00	0.00	77.24	93.23	2.00	0.00	0.00	0.00
77.30	96.71	2.00	0.00	0.00	0.00	77.36	99.63	2.00	0.00	0.00	0.00
77.44	103.23	2.00	0.00	0.00	0.00	77.50	107.29	2.00	0.00	0.00	0.00
77.58	113.24	2.00	0.00	0.00	0.00	77.63	115.82	2.00	0.00	0.00	0.00
77.69	117.14	2.00	0.00	0.00	0.00	77.78	118.52	2.00	0.00	0.00	0.00
77.83	118.81	2.00	0.00	0.00	0.00	77.89	118.88	2.00	0.00	0.00	0.00
77.96	119.96	2.00	0.00	0.00	0.00	78.04	120.45	2.00	0.00	0.00	0.00
78.09	121.95	2.00	0.00	0.00	0.00	78.15	123.27	2.00	0.00	0.00	0.00
78.23	112.71	2.00	0.00	0.00	0.00	78.28	80.30	2.00	0.00	0.00	0.00
78.35	90.17	2.00	0.00	0.00	0.00	78.43	97.91	2.00	0.00	0.00	0.00
78.49	99.91	2.00	0.00	0.00	0.00	78.57	104.03	2.00	0.00	0.00	0.00
78.62	106.52	2.00	0.00	0.00	0.00	78.68	109.18	2.00	0.00	0.00	0.00
78.74	111.16	2.00	0.00	0.00	0.00	78.81	112.39	2.00	0.00	0.00	0.00
78.88	113.68	2.00	0.00	0.00	0.00	78.95	115.95	2.00	0.00	0.00	0.00
79.01	117.51	2.00	0.00	0.00	0.00	79.08	126.13	2.00	0.00	0.00	0.00
79.15	135.80	2.00	0.00	0.00	0.00	79.20	145.00	2.00	0.00	0.00	0.00
79.27	155.46	2.00	0.00	0.00	0.00	79.36	147.18	2.00	0.00	0.00	0.00
79.41	139.57	2.00	0.00	0.00	0.00	79.48	126.20	2.00	0.00	0.00	0.00
79.53	118.38	2.00	0.00	0.00	0.00	79.60	113.74	2.00	0.00	0.00	0.00
79.67	114.21	2.00	0.00	0.00	0.00	79.73	114.44	2.00	0.00	0.00	0.00
79.80	112.22	2.00	0.00	0.00	0.00	79.86	108.76	2.00	0.00	0.00	0.00
79.94	101.43	2.00	0.00	0.00	0.00	79.99	95.24	2.00	0.00	0.00	0.00
80.09	85.42	2.00	0.00	0.00	0.00	80.12	82.40	2.00	0.00	0.00	0.00
80.19	67.40	2.00	0.00	0.00	0.00	80.27	43.84	2.00	0.00	0.00	0.00
80.33	46.35	2.00	0.00	0.00	0.00	80.38	50.75	2.00	0.00	0.00	0.00
80.47	67.53	2.00	0.00	0.00	0.00	80.52	77.38	2.00	0.00	0.00	0.00
80.58	92.26	2.00	0.00	0.00	0.00	80.67	113.14	2.00	0.00	0.00	0.00
80.72	118.58	2.00	0.00	0.00	0.00	80.79	119.74	2.00	0.00	0.00	0.00
80.85	117.63	2.00	0.00	0.00	0.00	80.91	107.58	2.00	0.00	0.00	0.00
81.00	104.42	2.00	0.00	0.00	0.00	81.06	100.84	2.00	0.00	0.00	0.00
81.10	99.69	2.00	0.00	0.00	0.00	81.18	99.18	2.00	0.00	0.00	0.00
81.24	100.16	2.00	0.00	0.00	0.00	81.30	103.07	2.00	0.00	0.00	0.00
81.37	108.02	2.00	0.00	0.00	0.00	81.43	109.10	2.00	0.00	0.00	0.00
81.51	107.54	2.00	0.00	0.00	0.00	81.57	105.48	2.00	0.00	0.00	0.00
81.64	102.80	2.00	0.00	0.00	0.00	81.71	98.94	2.00	0.00	0.00	0.00
81.77	95.96	2.00	0.00	0.00	0.00	81.83	94.17	2.00	0.00	0.00	0.00
81.91	92.72	2.00	0.00	0.00	0.00	81.98	92.15	2.00	0.00	0.00	0.00
82.03	91.79	2.00	0.00	0.00	0.00	82.10	91.99	2.00	0.00	0.00	0.00
82.17	95.20	2.00	0.00	0.00	0.00	82.22	100.04	2.00	0.00	0.00	0.00
82.31	89.28	2.00	0.00	0.00	0.00	82.36	77.84	2.00	0.00	0.00	0.00
82.42	92.19	2.00	0.00	0.00	0.00	82.48	100.37	2.00	0.00	0.00	0.00
82.56	108.43	2.00	0.00	0.00	0.00	82.64	117.61	2.00	0.00	0.00	0.00
82.69	122.09	2.00	0.00	0.00	0.00	82.75	126.64	2.00	0.00	0.00	0.00
82.82	132.57	2.00	0.00	0.00	0.00	82.90	140.27	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

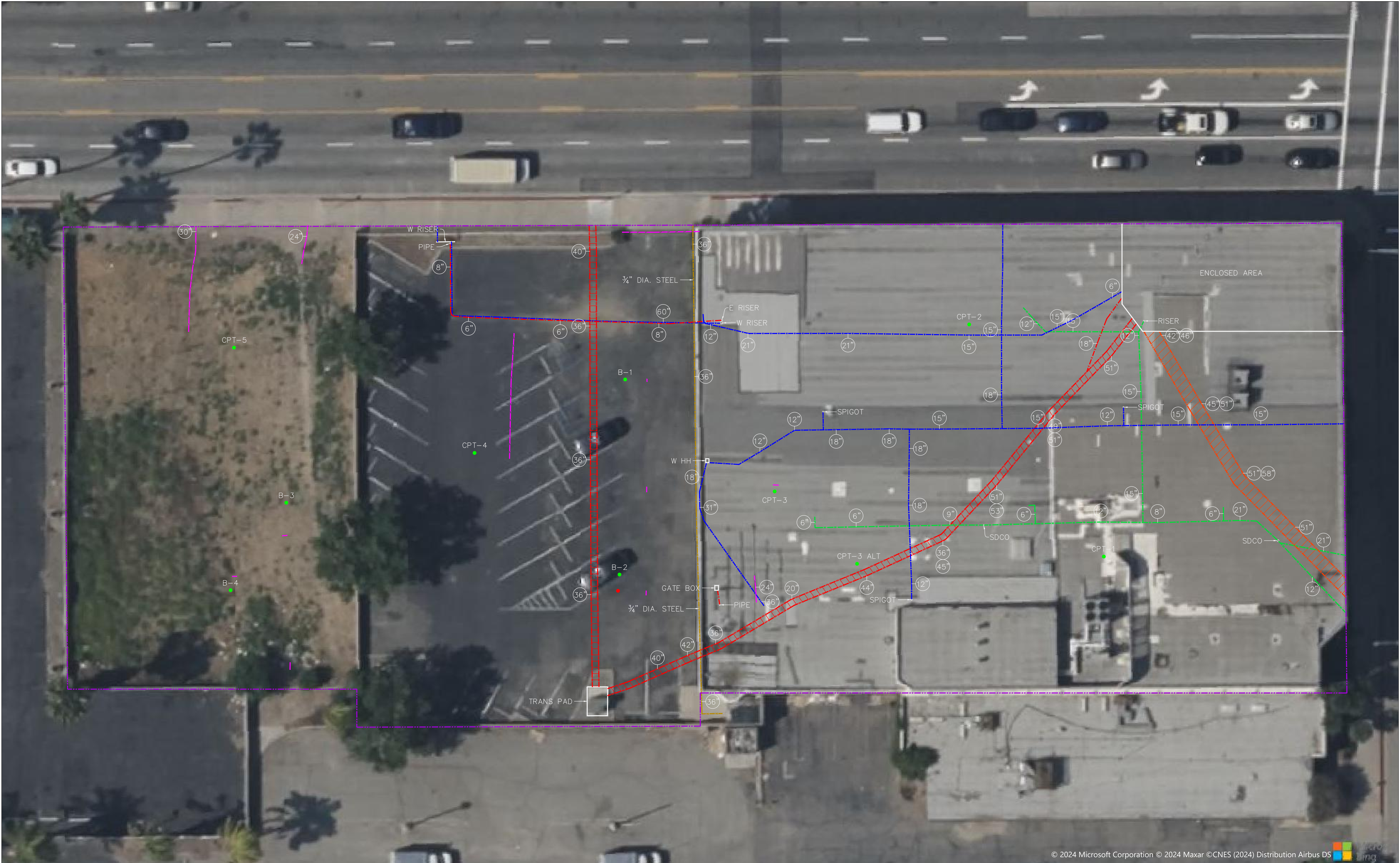
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
82.94	140.54	2.00	0.00	0.00	0.00	83.02	134.55	2.00	0.00	0.00	0.00
83.08	130.63	2.00	0.00	0.00	0.00	83.14	128.19	2.00	0.00	0.00	0.00
83.23	124.00	2.00	0.00	0.00	0.00	83.28	119.70	2.00	0.00	0.00	0.00
83.34	111.72	2.00	0.00	0.00	0.00	83.42	107.23	2.00	0.00	0.00	0.00
83.48	105.56	2.00	0.00	0.00	0.00	83.55	104.74	2.00	0.00	0.00	0.00
83.61	103.17	2.00	0.00	0.00	0.00	83.67	100.36	2.00	0.00	0.00	0.00
83.73	99.68	2.00	0.00	0.00	0.00	83.81	101.15	2.00	0.00	0.00	0.00
83.86	98.50	2.00	0.00	0.00	0.00	83.94	104.14	2.00	0.00	0.00	0.00
84.00	109.11	2.00	0.00	0.00	0.00	84.06	112.98	2.00	0.00	0.00	0.00
84.15	116.11	2.00	0.00	0.00	0.00	84.20	114.45	2.00	0.00	0.00	0.00
84.30	74.02	2.00	0.00	0.00	0.00	84.33	73.79	2.00	0.00	0.00	0.00
84.40	81.72	2.00	0.00	0.00	0.00	84.48	94.63	2.00	0.00	0.00	0.00
84.52	98.36	2.00	0.00	0.00	0.00	84.59	104.53	2.00	0.00	0.00	0.00
84.66	106.55	2.00	0.00	0.00	0.00	84.75	109.63	2.00	0.00	0.00	0.00
84.78	107.89	2.00	0.00	0.00	0.00	84.84	105.52	2.00	0.00	0.00	0.00
84.94	99.89	2.00	0.00	0.00	0.00	85.00	96.20	2.00	0.00	0.00	0.00
85.05	92.90	2.00	0.00	0.00	0.00	85.12	90.79	2.00	0.00	0.00	0.00
85.17	91.68	2.00	0.00	0.00	0.00	85.24	94.94	2.00	0.00	0.00	0.00
85.33	100.87	2.00	0.00	0.00	0.00	85.39	107.98	2.00	0.00	0.00	0.00
85.45	116.83	2.00	0.00	0.00	0.00	85.52	123.97	2.00	0.00	0.00	0.00
85.57	126.53	2.00	0.00	0.00	0.00	85.67	125.34	2.00	0.00	0.00	0.00
85.72	124.76	2.00	0.00	0.00	0.00	85.77	124.16	2.00	0.00	0.00	0.00
85.87	128.22	2.00	0.00	0.00	0.00	85.91	129.15	2.00	0.00	0.00	0.00
85.96	129.63	2.00	0.00	0.00	0.00	86.03	129.02	2.00	0.00	0.00	0.00
86.12	122.70	2.00	0.00	0.00	0.00	86.16	116.23	2.00	0.00	0.00	0.00
86.25	94.18	2.00	0.00	0.00	0.00	86.31	91.53	2.00	0.00	0.00	0.00
86.38	88.62	2.00	0.00	0.00	0.00	86.43	89.54	2.00	0.00	0.00	0.00
86.49	92.53	2.00	0.00	0.00	0.00	86.59	94.22	2.00	0.00	0.00	0.00
86.62	93.48	2.00	0.00	0.00	0.00	86.72	92.85	2.00	0.00	0.00	0.00
86.77	92.22	2.00	0.00	0.00	0.00	86.83	92.12	2.00	0.00	0.00	0.00
86.89	92.34	2.00	0.00	0.00	0.00	86.96	93.79	2.00	0.00	0.00	0.00
87.01	94.49	2.00	0.00	0.00	0.00	87.07	94.96	2.00	0.00	0.00	0.00
87.16	94.33	2.00	0.00	0.00	0.00	87.21	93.89	2.00	0.00	0.00	0.00
87.29	93.82	2.00	0.00	0.00	0.00	87.36	93.91	2.00	0.00	0.00	0.00
87.41	94.10	2.00	0.00	0.00	0.00	87.47	94.97	2.00	0.00	0.00	0.00
87.54	96.97	2.00	0.00	0.00	0.00	87.61	98.38	2.00	0.00	0.00	0.00
87.70	100.92	2.00	0.00	0.00	0.00	87.74	102.22	2.00	0.00	0.00	0.00
87.80	103.87	2.00	0.00	0.00	0.00	87.88	104.76	2.00	0.00	0.00	0.00
87.94	104.19	2.00	0.00	0.00	0.00	87.99	103.42	2.00	0.00	0.00	0.00
88.07	89.75	2.00	0.00	0.00	0.00	88.14	79.54	2.00	0.00	0.00	0.00
88.20	82.81	2.00	0.00	0.00	0.00	88.26	86.65	2.00	0.00	0.00	0.00
88.33	90.09	2.00	0.00	0.00	0.00	88.40	93.88	2.00	0.00	0.00	0.00
88.45	101.85	2.00	0.00	0.00	0.00	88.52	101.41	2.00	0.00	0.00	0.00
88.59	87.90	2.00	0.00	0.00	0.00	88.67	81.08	2.00	0.00	0.00	0.00
88.72	86.39	2.00	0.00	0.00	0.00	88.78	92.84	2.00	0.00	0.00	0.00
88.85	95.74	2.00	0.00	0.00	0.00	88.92	96.08	2.00	0.00	0.00	0.00
88.98	98.29	2.00	0.00	0.00	0.00	89.05	95.64	2.00	0.00	0.00	0.00
89.11	93.70	2.00	0.00	0.00	0.00	89.18	92.14	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
89.25	90.65	2.00	0.00	0.00	0.00	89.31	89.75	2.00	0.00	0.00	0.00
89.38	89.64	2.00	0.00	0.00	0.00	89.45	90.17	2.00	0.00	0.00	0.00
89.52	89.98	2.00	0.00	0.00	0.00	89.59	90.02	2.00	0.00	0.00	0.00
89.64	90.38	2.00	0.00	0.00	0.00	89.71	90.60	2.00	0.00	0.00	0.00
89.78	76.76	2.00	0.00	0.00	0.00	89.84	63.64	2.00	0.00	0.00	0.00
89.90	70.81	2.00	0.00	0.00	0.00	89.97	76.11	2.00	0.00	0.00	0.00
90.03	82.40	2.00	0.00	0.00	0.00	90.11	89.32	2.00	0.00	0.00	0.00
90.16	99.36	2.00	0.00	0.00	0.00	90.22	102.72	2.00	0.00	0.00	0.00
90.29	103.99	2.00	0.00	0.00	0.00	90.36	104.31	2.00	0.00	0.00	0.00
90.42	103.95	2.00	0.00	0.00	0.00	90.49	101.14	2.00	0.00	0.00	0.00
90.56	93.41	2.00	0.00	0.00	0.00	90.62	89.43	2.00	0.00	0.00	0.00
90.69	85.97	2.00	0.00	0.00	0.00	90.75	82.87	2.00	0.00	0.00	0.00
90.83	82.14	2.00	0.00	0.00	0.00	90.88	82.38	2.00	0.00	0.00	0.00
90.95	82.68	2.00	0.00	0.00	0.00	91.01	82.44	2.00	0.00	0.00	0.00
91.09	82.08	2.00	0.00	0.00	0.00	91.15	82.14	2.00	0.00	0.00	0.00
91.21	82.90	2.00	0.00	0.00	0.00	91.28	79.71	2.00	0.00	0.00	0.00
91.35	76.28	2.00	0.00	0.00	0.00	91.41	81.61	2.00	0.00	0.00	0.00
91.48	92.28	2.00	0.00	0.00	0.00	91.56	100.97	2.00	0.00	0.00	0.00
91.60	105.75	2.00	0.00	0.00	0.00	91.67	108.03	2.00	0.00	0.00	0.00
91.73	107.33	2.00	0.00	0.00	0.00	91.81	104.95	2.00	0.00	0.00	0.00
91.87	100.91	2.00	0.00	0.00	0.00	91.94	96.08	2.00	0.00	0.00	0.00
92.00	90.66	2.00	0.00	0.00	0.00	92.07	84.70	2.00	0.00	0.00	0.00
92.13	82.14	2.00	0.00	0.00	0.00	92.21	81.95	2.00	0.00	0.00	0.00
92.26	81.74	2.00	0.00	0.00	0.00	92.32	81.16	2.00	0.00	0.00	0.00
92.41	79.17	2.00	0.00	0.00	0.00	92.47	78.89	2.00	0.00	0.00	0.00
92.55	79.47	2.00	0.00	0.00	0.00	92.59	79.71	2.00	0.00	0.00	0.00
92.66	80.00	2.00	0.00	0.00	0.00	92.72	81.75	2.00	0.00	0.00	0.00
92.79	83.79	2.00	0.00	0.00	0.00	92.86	85.68	2.00	0.00	0.00	0.00
92.93	85.31	2.00	0.00	0.00	0.00	93.00	85.09	2.00	0.00	0.00	0.00
93.05	85.64	2.00	0.00	0.00	0.00	93.12	85.98	2.00	0.00	0.00	0.00
93.20	86.81	2.00	0.00	0.00	0.00	93.24	87.47	2.00	0.00	0.00	0.00
93.33	84.30	2.00	0.00	0.00	0.00	93.38	83.63	2.00	0.00	0.00	0.00
93.47	90.54	2.00	0.00	0.00	0.00	93.51	96.91	2.00	0.00	0.00	0.00
93.58	105.80	2.00	0.00	0.00	0.00	93.64	106.28	2.00	0.00	0.00	0.00
93.70	104.26	2.00	0.00	0.00	0.00	93.77	106.16	2.00	0.00	0.00	0.00
93.83	110.34	2.00	0.00	0.00	0.00	93.90	110.16	2.00	0.00	0.00	0.00
93.97	98.96	2.00	0.00	0.00	0.00	94.04	95.53	2.00	0.00	0.00	0.00
94.11	100.98	2.00	0.00	0.00	0.00	94.16	109.78	2.00	0.00	0.00	0.00
94.23	115.15	2.00	0.00	0.00	0.00	94.31	123.21	2.00	0.00	0.00	0.00
94.37	124.39	2.00	0.00	0.00	0.00	94.43	121.53	2.00	0.00	0.00	0.00
94.50	111.25	2.00	0.00	0.00	0.00	94.56	106.37	2.00	0.00	0.00	0.00
94.63	98.34	2.00	0.00	0.00	0.00	94.69	91.48	2.00	0.00	0.00	0.00
94.76	92.60	2.00	0.00	0.00	0.00	94.83	90.44	2.00	0.00	0.00	0.00
94.89	87.54	2.00	0.00	0.00	0.00	94.95	86.63	2.00	0.00	0.00	0.00
95.02	88.32	2.00	0.00	0.00	0.00	95.08	90.40	2.00	0.00	0.00	0.00
95.15	92.62	2.00	0.00	0.00	0.00	95.21	94.27	2.00	0.00	0.00	0.00
95.29	97.26	2.00	0.00	0.00	0.00	95.36	101.02	2.00	0.00	0.00	0.00
95.42	103.16	2.00	0.00	0.00	0.00	95.47	103.18	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)											
Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
95.55	101.91	2.00	0.00	0.00	0.00	95.61	101.50	2.00	0.00	0.00	0.00
95.68	101.37	2.00	0.00	0.00	0.00	95.74	101.41	2.00	0.00	0.00	0.00
95.82	100.25	2.00	0.00	0.00	0.00	95.88	98.18	2.00	0.00	0.00	0.00
95.93	95.30	2.00	0.00	0.00	0.00	96.01	92.93	2.00	0.00	0.00	0.00
96.07	95.61	2.00	0.00	0.00	0.00	96.13	98.96	2.00	0.00	0.00	0.00
96.20	102.65	2.00	0.00	0.00	0.00	96.26	107.93	2.00	0.00	0.00	0.00
96.33	114.10	2.00	0.00	0.00	0.00	96.40	118.93	2.00	0.00	0.00	0.00
96.46	121.49	2.00	0.00	0.00	0.00	96.52	123.33	2.00	0.00	0.00	0.00
96.60	124.93	2.00	0.00	0.00	0.00	96.66	130.90	2.00	0.00	0.00	0.00
96.72	139.95	2.00	0.00	0.00	0.00	96.79	138.92	2.00	0.00	0.00	0.00
96.86	144.58	2.00	0.00	0.00	0.00	96.92	132.56	2.00	0.00	0.00	0.00
96.98	113.94	2.00	0.00	0.00	0.00	97.05	94.30	2.00	0.00	0.00	0.00
97.13	87.46	2.00	0.00	0.00	0.00	97.20	87.74	2.00	0.00	0.00	0.00
97.25	88.58	2.00	0.00	0.00	0.00	97.33	88.57	2.00	0.00	0.00	0.00
97.38	88.34	2.00	0.00	0.00	0.00	97.45	87.88	2.00	0.00	0.00	0.00
97.51	89.25	2.00	0.00	0.00	0.00	97.58	91.41	2.00	0.00	0.00	0.00
97.64	93.01	2.00	0.00	0.00	0.00	97.71	89.97	2.00	0.00	0.00	0.00
97.80	82.41	2.00	0.00	0.00	0.00	97.83	83.36	2.00	0.00	0.00	0.00
97.90	85.33	2.00	0.00	0.00	0.00	97.97	88.14	2.00	0.00	0.00	0.00
98.04	90.11	2.00	0.00	0.00	0.00	98.11	89.87	2.00	0.00	0.00	0.00
98.17	89.68	2.00	0.00	0.00	0.00	98.23	89.38	2.00	0.00	0.00	0.00
98.30	90.71	2.00	0.00	0.00	0.00	98.36	92.03	2.00	0.00	0.00	0.00
98.43	91.42	2.00	0.00	0.00	0.00	98.49	89.62	2.00	0.00	0.00	0.00
98.57	88.63	2.00	0.00	0.00	0.00	98.63	88.84	2.00	0.00	0.00	0.00
98.69	90.12	2.00	0.00	0.00	0.00	98.76	93.54	2.00	0.00	0.00	0.00
98.82	97.05	2.00	0.00	0.00	0.00	98.89	99.63	2.00	0.00	0.00	0.00
98.95	102.50	2.00	0.00	0.00	0.00	99.02	112.95	2.00	0.00	0.00	0.00
99.09	125.04	2.00	0.00	0.00	0.00	99.15	133.78	2.00	0.00	0.00	0.00
99.22	140.77	2.00	0.00	0.00	0.00	99.29	138.47	2.00	0.00	0.00	0.00
99.35	133.89	2.00	0.00	0.00	0.00	99.43	134.83	2.00	0.00	0.00	0.00
99.48	133.63	2.00	0.00	0.00	0.00	99.54	132.61	2.00	0.00	0.00	0.00
99.63	137.79	2.00	0.00	0.00	0.00	99.68	135.63	2.00	0.00	0.00	0.00
99.74	126.01	2.00	0.00	0.00	0.00	99.81	-1.00	2.00	0.00	0.00	0.00
99.87	-1.00	2.00	0.00	0.00	0.00	99.95	-1.00	2.00	0.00	0.00	0.00
100.00	-1.00	2.00	0.00	0.00	0.00	100.07	-1.00	2.00	0.00	0.00	0.00
100.13	-1.00	2.00	0.00	0.00	0.00						
						Total estimated settlement: 1.90					

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumetric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement



General Notes

Sampling	Water Level	Field Tests
 Auger Cuttings  Modified Dames & Moore Ring Sampler	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time  Cave In Encountered	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer
 Grab Sample  Standard Penetration Test	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance			Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Ring Sampler (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)	Ring Sampler (Blows/Ft.)
Very Loose	0 - 3	0 - 6	Very Soft	less than 0.25	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	0.25 to 0.50	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium Stiff	0.50 to 1.00	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	1.00 to 2.00	8 - 15	10 - 18
Very Dense	> 50	> 99	Very Stiff	2.00 to 4.00	15 - 30	19 - 42
			Hard	> 4.00	> 30	> 42

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F
			$Cu < 4$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I
			$Cu < 6$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	SP	Poorly graded sand ^I
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots above "A" line ^J	CL	Lean clay ^{K, L, M}
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}
		Organic:	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OL	Organic clay ^{K, L, M, N} Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}
			PI plots below "A" line	MH	Elastic silt ^{K, L, M}
		Organic:	$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OH	Organic clay ^{K, L, M, P} Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$^E Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.

