

APPENDIX J

Geotechnical Report

APPENDIX J.1

Preliminary Geological and Other Hazards Evaluation

Preliminary Geological and Other Hazards Evaluation Compton High School Reconstruction 601 South Acacia Avenue Compton, California

Compton Unified School District
429 South Oleander Avenue | Compton, California 90220

October 31, 2017 | Project No. 210256001



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Preliminary Geological and Other Hazards Evaluation

Compton High School Reconstruction
601 South Acacia Avenue
Compton, California

Mr. Alejandro Alvarez
Deputy Superintendent
Compton Unified School District
429 South Oleander Avenue | Compton, California 90220

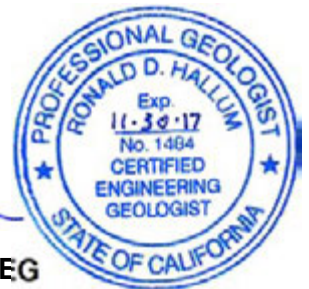
October 31, 2017 | Project No. 210256001



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1 INTRODUCTION

Ninyo & Moore has performed a preliminary geological and other hazards evaluation for the proposed Compton High School Reconstruction in the city of Compton (Figure 1) for the Compton Unified School District. The purpose of our study was to provide a preliminary evaluation of the potential geological hazards and potential hazards from power lines and pipelines, and other sources in compliance with the California Environmental Quality Act and the California Department of Education. This report is intended to meet the requirements of the California Education Code regarding school site selection.

2 SCOPE OF SERVICES

Our scope of services for this geological hazards assessment included the following:

- Review of background information, including readily available geotechnical reports, geologic maps, fault maps, landslide maps, flood inundation maps, and historical stereoscopic aerial photographs.
- Performance of a geologic reconnaissance of the site and surrounding areas.
- Performance of a pipeline risk analyses in accordance with Education Code Section 17213(a)
- Performance of an above-ground water or fuel storage tank analysis in accordance with California Code of Regulations 14010(h).
- Preparation of this report presenting our preliminary findings and conclusions regarding potential geological and other hazards.

3 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site is located at 601 South Acacia Avenue, west of South Acacia Avenue, south of East Myrrh Street and east of Compton Creek, in Compton (Figure 2). The approximately 40-acre site is currently developed as the existing Compton High School site. We understand that the site will be reconstructed by demolishing the existing buildings, athletic fields, and other facilities and constructing new buildings, athletic fields, and associated facilities.

4 GEOLOGY

The project site is located within the Peninsular Ranges Geomorphic Province of southern California. This geomorphic province encompasses an area that extends approximately 125 miles from the Transverse Ranges and the Los Angeles Basin south to the Mexican border, and beyond another approximately 775 miles to the tip of Baja California. The Peninsular Ranges province varies in width from approximately 30 to 100 miles and is characterized by northwest-trending

mountain range blocks separated by similarly trending northwest-trending faults (Norris and Webb, 1990).

Active northwest-trending fault zones in the Peninsular Ranges Province include the Newport-Inglewood fault zone, Elsinore fault zone (Whittier fault), and San Jacinto fault zone. The northern boundary of the Province is formed by the Transverse Ranges Southern Boundary fault system which includes the active Malibu, Santa Monica, Hollywood, and Raymond faults. The active San Andreas fault zone is located northeast of the province within the adjacent Colorado Desert Geomorphic Province. The predominant major tectonic activity associated with these and other faults within this regional tectonic framework is right-lateral, strike-slip movement (Norris and Webb, 1990).

The site is located within the Central structural block of the Los Angeles Basin. The Central Block is a depositional basin characterized by thick sequences of alluvium overlying predominantly sedimentary rock of Cretaceous through Pleistocene age, and includes the Los Angeles coastal plain that extends from West Los Angeles southeast to the Downey Plains in central Orange County (Norris and Webb, 1990). Quaternary sediments, primarily of alluvial origin, comprise the low-lying valley and drainage areas within the region, including the Compton Creek drainage adjacent to the west side of the project site (Figure 3).

5 FAULTING, SEISMICITY, AND GEOLOGIC HAZARDS

The site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone). However, the site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed structure. The numerous faults in southern California include active, potentially active, and inactive faults. As defined by the California Geological Survey (CGS), active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. The approximate locations of major faults in the site vicinity and their geographic relationship to the site are shown on Figure 4. Historical earthquakes with a magnitude of 6.5 or greater, or that caused significant loss of life and property within approximately 62 miles (100 kilometers) of the subject site were obtained from the CGS Regional Geologic Hazards and Mapping Program website (CGS, 2017) and are presented in Table 1.

Table 1 – Historical Earthquakes

Date	Name, Location, or Region Affected	Approximate Earthquake Epicenter to Site Distance in miles (km)	Earthquake Magnitude
December 8, 1812	Wrightwood	46.7 (75.2)	7.3
December 21, 1812	LA, Ventura, Santa Barbara	63.1 (101.5)	7.1
July 22, 1899	Wrightwood	50.3 (80.9)	6.4
March 11, 1933	Long Beach	18.6 (29.9)	6.4
February 9, 1971	San Fernando	37.2 (59.9)	6.6
October 1, 1987	Whittier Narrows	15.0 (24.1)	6.0
January 17, 1994	Northridge	28.4 (45.7)	6.7

Note:
CGS, 2017.

In addition to the mapped faults shown on Figure 4, the Los Angeles segment of the Puente Hills blind thrust fault is located within approximately 4.8 miles from the site, the Santa Fe Springs segment of the Puente Hills blind thrust fault is located approximately 5.2 miles from the site, and the San Joaquin Hills blind thrust fault is located approximately 21.6 miles from the site (United States Geological Survey [USGS], 2008). Blind thrust faults are low-angle faults at depth that do not break the surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 2.

Table 2 lists selected principal known active faults that may affect the site and the maximum moment magnitude (M_{max}) as published by the USGS (USGS, 2008). The approximate fault-to-site distances were calculated using the USGS web-based program (USGS, 2008).

Table 2 – Principal Active Faults

Fault	Approximate Fault-to-Site Distance ¹ miles (kilometers)	Maximum Moment Magnitude ¹ (M_{max})
Newport-Inglewood (LA Basin)	1.8 (2.9)	7.5
Puente Hills Blind Thrust (LA Basin)	4.8 (7.8)	7.0
Puente Hills Blind Thrust (Santa Fe Springs)	5.2 (8.3)	6.7
Palos Verdes	9.2 (14.8)	7.7
Puente Hills Blind Thrust (Coyote Hills)	10.5 (16.9)	6.9
Elysian Park (Upper)	12.1 (19.5)	6.7
Elsinore	12.5 (20.1)	7.8
Santa Monica	15.2 (24.4)	7.4
Hollywood	15.7 (25.2)	6.7
Raymond	15.7 (25.6)	6.8
Verdugo	17.1 (27.5)	6.9
Malibu Coast	19.6 (31.6)	7.0
Anacapa-Dume	20.7 (33.4)	7.2
San Joaquin Hills Blind Thrust	21.6 (34.8)	7.1

Notes:
¹ USGS, 2008

In general, seismic hazards that could impact the project include ground surface rupture, strong ground motion, liquefaction, and dynamic compaction of dry soils. These potential hazards are discussed in the following sections.

5.1 Surface Fault Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

5.2 Ground Motion

The 2016 California Building Code (CBC) specifies that the Risk-Targeted, Maximum Considered Earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration (PGA) that corresponds to the MCE_R for the site was calculated as 0.67g using the USGS (USGS, 2017) seismic design tool (web-based).

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the mapped Maximum Considered Earthquake Geometric Mean (MCE_G) PGA (PGA_M) with adjustment for site class effects in accordance with the American Society of Civil Engineers 7-10 Standard. The MCE_G PGA is based on the geometric mean PGA with a 2 percent probability of exceedance in 50 years. The mapped MCE_G PGA with adjustment for site class effects (PGA_M) was calculated as 0.62g using the USGS (USGS, 2017) seismic design tool.

5.3 Liquefaction and Seismically Induced Settlement

Liquefaction is the phenomenon in which loosely deposited granular soils and cohesionless fine-grained soils located below the water table undergo rapid loss of shear strength due to excess pore pressure generation when subjected to strong earthquake-induced ground shaking. Sufficient ground shaking duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure. This causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction

potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The historic high depth to groundwater is mapped in the vicinity of the site as approximately 10 feet below the existing ground surface (CGS, 1998). Our review of readily available groundwater data in the vicinity of the site indicates that for a site located adjacent to the south side of the site, the depth to groundwater has been recorded as being as shallow as 40 feet (GeoTracker, 2017). The State of California Seismic Hazard Zones Map (Figure 5) indicates the project area is located within an area mapped as subject to seismically induced liquefaction hazards. Based on the nature of the underlying formational materials and the historical groundwater levels, the potential for dynamic settlement due to liquefaction is considered to be high, and should be further evaluated by a geotechnical evaluation, including subsurface and laboratory evaluation, prior to final design.

5.4 Dynamic Compaction of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo dynamic compaction during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated, soft soils and dilation in dense or overconsolidated, stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable. Based on the nature of the underlying formational materials, the potential for dynamic compaction of dry soils is considered to be high, and should be further evaluated prior to final design.

5.5 Landsliding

There are no mapped landslides on site or in the vicinity, and the site is not mapped as having the potential for seismic-induced landslides. Based on this information and the location of the site, landsliding is not considered to be a potential hazard at the site.

5.6 Tsunamis and Seiches

Tsunamis are long wavelength, seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. Seiches are waves generated in a large, enclosed body of water. The project area is not mapped within an area considered susceptible to tsunamis or seiche inundation. Therefore, damage due to tsunamis or seiches is not a design consideration.

5.7 Flood Hazards

Based on review of a Los Angeles County Geographic Information System Hazards Mapping, the site is mapped as lying partially within the 500-year floodplain. The site is also mapped as within the potential inundation zones due to dam failure for Sepulveda and Hansen dams. Based on this review, the potential for flooding of the site is considered possible.

6 OTHER HAZARDS BASED ON CALIFORNIA EDUCATION CODE REQUIREMENTS AND DISTRICT BOARD RESOLUTIONS

Section 17213(a) of the California Education Code states that the governing board of a school district should evaluate if the school site “contains one or more pipelines, situated underground or aboveground, which carry hazardous substances, acutely hazardous materials, or hazardous wastes, unless the pipeline is a natural gas pipeline which is used only to supply natural gas to that school or neighborhood.”

Ninyo & Moore has evaluated these conditions with respect to the site and they are discussed in the following sections.

6.1 Underground Pipelines

The following paragraphs provide information regarding underground petroleum, natural gas, and water lines located within approximately 1,500 feet of the site.

6.1.1 Natural Gas and Petroleum Pipelines

Ninyo & Moore contacted the Office of the State Fire Marshal (OSM) for a pipeline location request for the Los Angeles County Assessor’s Parcel Number 104-144-14 (site). According to the OSM, there are no pipelines jurisdictional to the OSM in or around the site.

Hazardous liquid pipeline location information was reviewed through the United States Department of Transportation’s Pipeline and Hazardous Materials Safety Administration’s National Pipeline Mapping System (NPMS) (www.npms.phmsa.dot.gov). According to the NPMS, gas transmission or hazardous liquid pipelines are not within 1,500 feet of the site. The nearest gas transmission pipeline parallels Rosecrans Avenue, approximately 0.8 mile north of the site. The nearest hazardous liquid pipeline parallels Alameda Street, approximately 0.4 mile east of the site.

Ninyo & Moore reviewed the Southern California Gas Company, a Sempra Energy Utility (Gas Company) website (<https://www.socalgas.com/stay-safe/pipeline-and-storage-safety/natural-gas-pipeline-map/los-angeles>) for additional information on potential natural

gas pipelines in the vicinity of the site. According to the Gas Company website, natural gas pipelines are not located within approximately 1,500 feet of the site. The nearest natural gas pipeline is a transmission line (“generally large diameter pipelines that operate at pressures above 200 pounds per square inch (psi) and transport gas from supply points to the gas distribution system”) that parallels South Central Avenue, located approximately 1.15 miles to the west of the site.

Based on a search of the Newtin B USA Dig Alert database, Ninyo & Moore requested records from Sempra Energy Utility (Southern California Gas Company) and Torrance Logistic Company LLC. According to Torrance Logistics Company LLC (formerly known as ExxonMobil Oil Corporation and Mobil Pacific Pipeline Company), they do not maintain any pipeline facilities within the area of the site. According to the Atlas map received from the Sempra Energy Utility, natural gas pipelines are present parallel to West Laurel Street, West Myrrh Street, South Oleander Avenue, South Acacia Avenue, and West Alondra Boulevard with lateral 0.5 and 1 inch connection lines to the site. However, the maximum diameter of the pipelines in the vicinity of the site is 3 inches. Since high pressure natural gas pipelines are not located within 1,500 feet of the site, natural gas pipelines are not considered a concern to the project.

6.1.2 Water Pipelines

Potable water and wastewater services are provided to the site vicinity by the City of Compton. According to Mr. Bobby Fouladi, Civil Engineer with the City of Compton Department of Public Works & Municipal Utilities, high-pressure water pipelines are not present within 1,500 feet of the site. There are domestic water lines beneath West Laurel Street (6-inch-diameter transite piping) with lateral service, South Oleander Avenue (12-inch-diameter transite piping) with lateral service, West Myrrh Street (4-inch-diameter cast iron piping) with lateral service, South Acacia Avenue (6-inch cast iron piping) with lateral service, and West Alondra Boulevard (10- and 12-inch-diameter transite piping). The pipe diameters for the lateral water service lines range from 1 to 2 inches.

According to Mr. Alexander Santos, Production & Distribution Supervisor for the City of Compton Department of Public Works & Municipal Utilities, the static psi in the water pipelines in the vicinity of Compton High School ranges between 55 and 60 psi. Since high pressure water pipelines are not located within 1,500 feet of the site, water pipelines are not considered a concern to the project.

6.2 High-Voltage Electrical Transmission Lines

In accordance with Title 5, Section 14010 of the California Code of Regulations, the property line of a new school site should be at least the following distance from the edge of respective power line easements: (1) 100 feet for a 50-133 kilovolt (kV) line, (2) 150 feet for a 220-230 kV line, and (3) 350 feet for a 500-550 kV line.

Electricity is provided to the site vicinity by Southern California Edison (SCE). According to Mr. Matthew Russell of SCE, there are high-voltage transmission power lines on and adjacent to the site. There are 4 kV transmission power lines along South Oleander Avenue (passing north-south through the central portion of the site) and West Cocoa Street (adjacent to south of the site). There are 16 kV transmission power lines along West Myrrh Street (adjacent to the north of the site), along South Oleander Avenue (passing north-south through the central portion of the site), and along the west site boundary. Based on this information, the existing high voltage electrical transmission lines are not considered a concern to the project.

6.3 Railroad Tracks

During the site reconnaissance, railroad tracks were not observed within or adjacent to the site. According to the USGS South Gate Quadrangle map, the nearest railroad tracks parallel South Willowbrook Avenue, approximately 700 feet to the east of the site.

6.4 Airports

According to the USGS South Gate Quadrangle map, existing airport runway and/or airport hazards are present within two miles of the site. Compton-Woodley Airport is located approximately 1,600 feet west of the site.

6.5 Reservoirs/Water Storage Tanks

Potable water and wastewater services are provided to the site vicinity by the City of Compton. According to Mr. Bobby Fouladi of the City of Compton Public Works/Municipal Utilities Department, the nearest water storage tank (well, pump, and a small holding tank) is located approximately 1,000 feet to the north of the site. Mr. Fouladi stated that Compton Reservoirs are far from Compton High School to ever be a flood concern at the site. Additionally, they do not operate at full capacity. Additionally, Mr. Fouladi stated that the Sibrie Park (located approximately 1.8 miles to the northwest of the site) reservoir has a capacity of 750,000 gallons, but does not store that much water on a daily basis (normally 15-20% full).

6.6 Asbestos and Lead-Based Paint (LBP)

Based on the age of the school buildings (1930s), asbestos and LBP are likely present on-site. Ninyo & Moore understands that on-site asbestos-containing materials (ACMs) and LBP will be managed separately during the planned demolition, construction, and renovation activities by using the existing management plans as a starting point to be supplemented by additional sampling and analyses. Pre-demolition surveys for ACMs and LBP should be conducted.

6.7 Suspected Termiticides and Lead in Soil

Based on the age of the school buildings, in accordance with California Department of Toxic Substances Control (DTSC) guidelines, organochlorine pesticides and lead from LBP are suspected to be present in shallow soil around building foundations.

6.8 Lead in Drinking Water

According to the 2015 Compton Water Quality Consumer Confidence Report, the 90th percentile value for lead was 0 parts per billion (ppb), below the federal Action Level of 15 ppb. Based on the 90th percentile value, lead in drinking water is not considered a potential environmental concern.

7 CONCLUSIONS

Based on the results of our limited geological hazards evaluation, the following preliminary conclusions are provided for the proposed Compton High School reconstruction:

- The site is underlain by fill soils and Quaternary-age alluvium.
- The subject site is not located within a State of California Earthquake Fault (Alquist-Priolo Special Studies) Zone.
- Active faults have not been mapped on or adjacent to the site. The closest known active fault, the Newport-Inglewood, is located approximately 1.8 miles west of the site.
- The site (like the majority of southern California) is located in Seismic Zone 4 according to the 2016 CBC. Accordingly, the potential for relatively strong seismic accelerations should be considered in the design of proposed improvements.
- The site is not located in an area considered susceptible to landslides.
- The site is located in an area considered susceptible to liquefaction, dynamic compaction, flood hazards, and inundation. The potential for liquefaction and dynamic compaction of soils should be further evaluated prior to final design.
- The potential hazards from high voltage power lines, natural gas and water pipelines, railroad tracks, airports, reservoir/water storage tanks, and lead in drinking water are not considered significant.

- Asbestos and LBP on constructed surfaces, and suspected presence of termiticides and lead in soil represent a potential health hazard.

8 RECOMMENDATIONS

Prior to the design and construction of proposed improvements at the site, a detailed geotechnical evaluation, including subsurface exploration and laboratory testing, should be performed. The purpose of the geotechnical evaluation would be to 1) further evaluate the subsurface conditions, including liquefaction potential, at the site, 2) provide site-specific data regarding potential geologic and geotechnical constraints, and 3) provide information pertaining to the engineering characteristics of earth materials with regard to the proposed improvements. Recommendations for earthwork, foundations, pavements, and other pertinent geotechnical design considerations may be formulated from the detailed geotechnical evaluation. In addition, pre-demolition ACM and LBP surveys should be conducted, as well as an investigation for suspected termiticides and lead in shallow soil around building foundations.

9 LIMITATIONS

The field evaluation and analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical and environmental consultants performing similar tasks in this area. No warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Variations may exist and conditions not observed or described in this report may be encountered. Our preliminary conclusions and recommendations are based on an analysis of the observed conditions and the referenced background information.

The purpose of this study was to evaluate geological and other conditions within the project site and to provide a reconnaissance report to assist in the preparation of site selection documents for the project. A comprehensive geotechnical evaluation, including subsurface exploration and laboratory testing, should be performed prior to design and construction of structural improvements.

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AERIAL PHOTOGRAPHS				
Source	Scale	Date	Flight	Numbers
USDA	1:20,000	12-4-52	AXJ-7K	76 and 77



FIGURES



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: USGS, 2015.

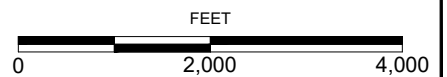


FIGURE 1



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SITE LOCATION
 COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA



LEGEND

 SITE BOUNDARY

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: GOOGLE EARTH, 2017.

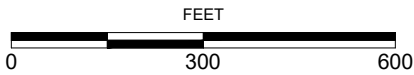
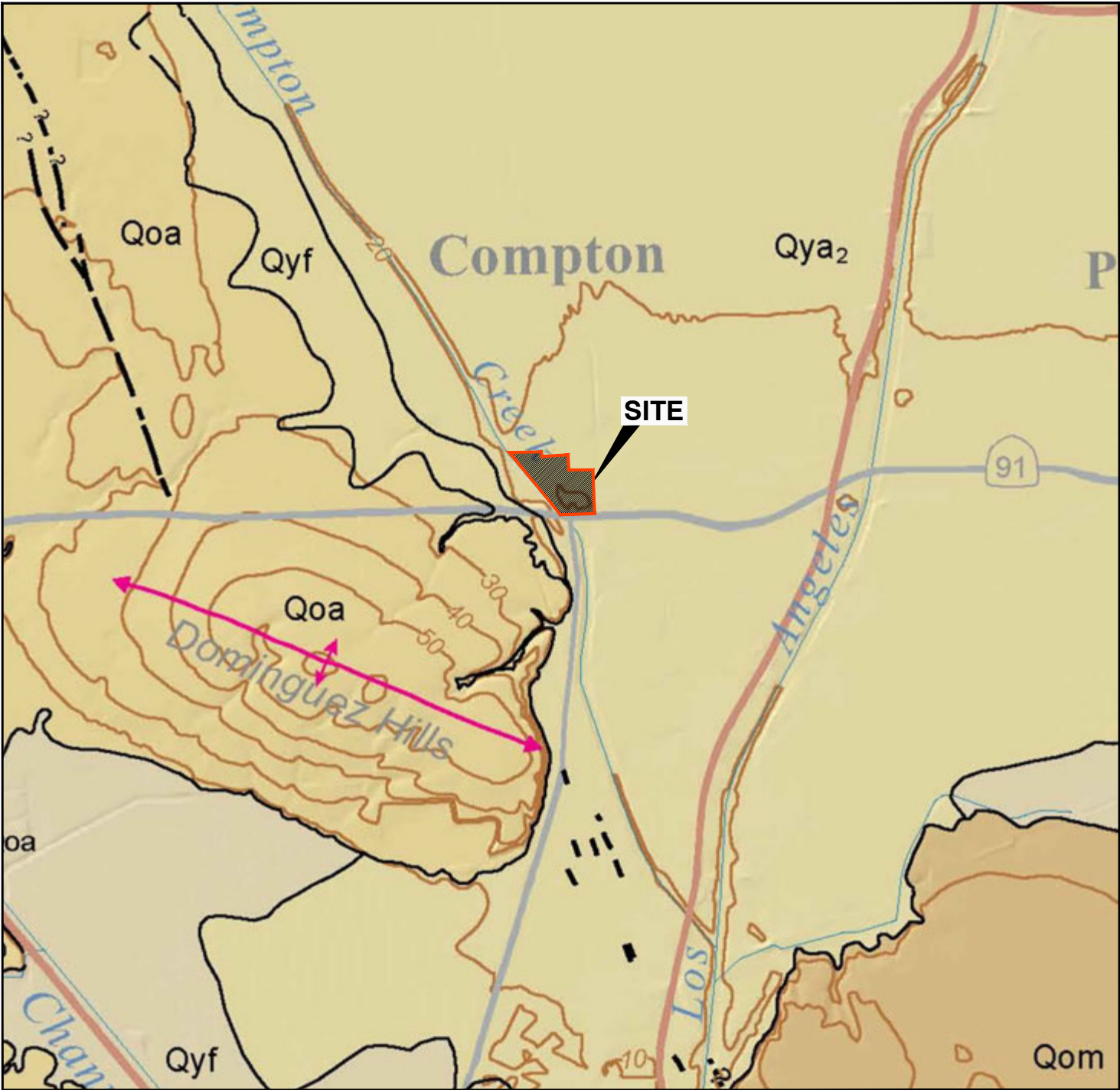







FIGURE 2



REFERENCE: GEORGE J. SAUCEDO, H. GARY GREENE, MICHAEL P KENNEDY AND STEPHEN P BEZONE, 2016.

LEGEND

	OLD ALLUVIUM		YOUNG ALLUVIAL FAN DEPOSITS
	YOUNG ALLUVIUM		GEOLOGIC CONTACT
	OLD MARINE DEPOSITS		

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

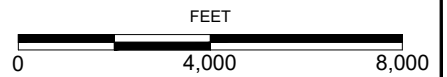
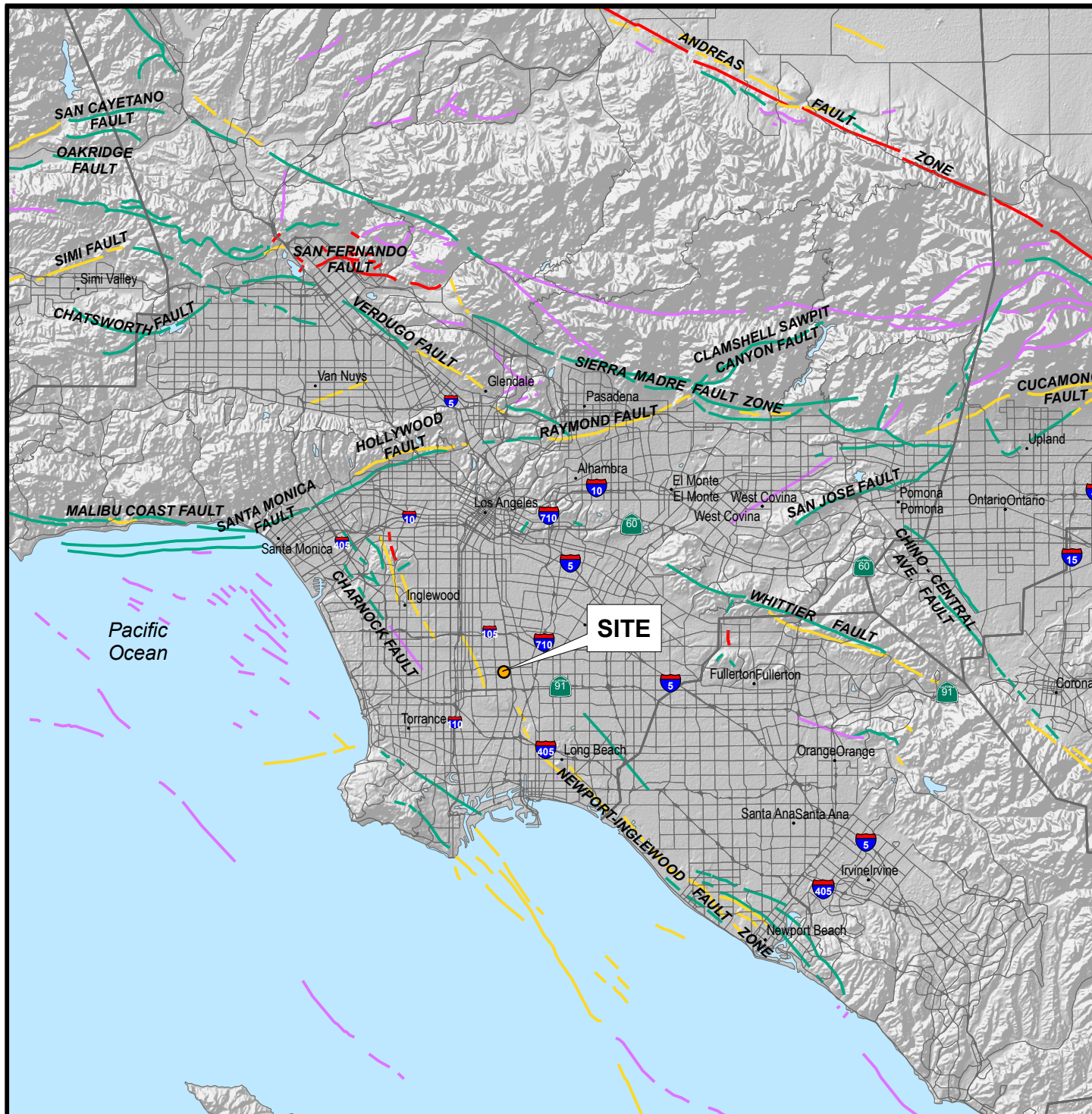


FIGURE 3



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
 REFERENCE: JENNINGS, 1994, FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS

LEGEND

FAULT ACTIVITY:

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- COUNTY BOUNDARIES
- LATE QUATERNARY
- QUATERNARY

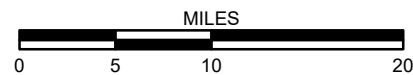
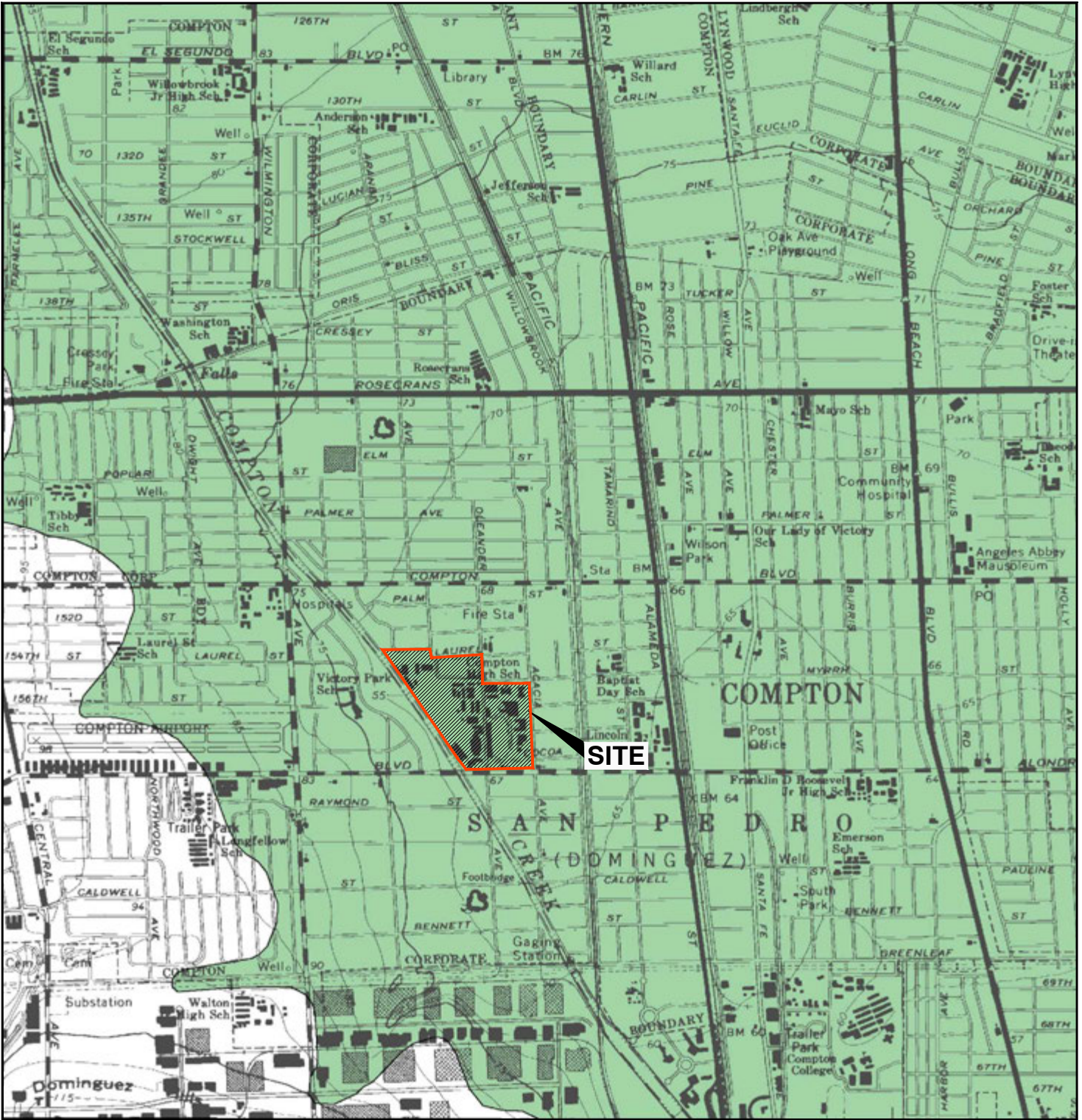


FIGURE 4

FAULT LOCATIONS
 COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA

210256001_FL_08/2017_GK



REFERENCE: CALIFORNIA GEOLOGICAL SURVEY, 1999.

LEGEND

LIQUEFACTION:
 Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

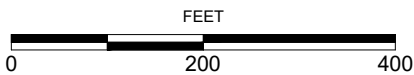


FIGURE 5

SEISMIC HAZARD ZONES

COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA

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APPENDIX J.2

Geotechnical Evaluation

Geotechnical Evaluation

Compton High School Reconstruction

601 South Acacia Avenue
Compton, California

Compton Unified School District
429 South Oleander Avenue | Compton, California 90220

January 12, 2018 | Project No. 210256003



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Geotechnical Evaluation

Compton High School Reconstruction
601 South Acacia Avenue
Compton, California

Mr. Alejandro Alvarez
Deputy Superintendent
Compton Unified School District
429 South Oleander Avenue | Compton, California 90220

January 12, 2018 | Project No. 210256003

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1 INTRODUCTION

In accordance with your request, we have performed a geotechnical engineering evaluation for reconstruction of Compton High School located at 601 South Acacia Avenue in Compton, California (Figure 1). We understand that the existing high school buildings and facilities will be demolished and replaced with new structures and improvements. The purpose of our geotechnical services was to evaluate the soil, geologic and groundwater conditions at the project site and to provide conclusions and recommendations regarding the geotechnical aspects of the planned demolition and new construction.

2 SCOPE OF SERVICES

Our scope of services included the following:

- Project planning and coordination, including review of readily available geologic maps, published stereoscopic aerial photographs, seismic data, groundwater data, project planning documents provided by Compton Unified School District, conceptual plans prepared by DLR Group (2017), and geotechnical literature including our geologic and site hazards report (Ninyo & Moore, 2017).
- Geotechnical reconnaissance to map and document the existing surficial conditions at the project site and to mark proposed boring locations for utility clearance with Underground Service Alert.
- Utilization of a private utility locator subcontractor to locate existing underground utilities in the areas of our proposed subsurface explorations.
- Acquisition of boring permits as needed from the County of Los Angeles Department of Public Health.
- Subsurface exploration consisting of the drilling, logging and sampling of 21 hollow-stem auger borings and advancing 21 cone penetrometer (CPT) soundings using truck-mounted equipment. The borings and CPTs were located in accessible areas on, or adjacent to, the proposed improvements. The borings were advanced to depths of approximately 6.5 feet in planned pavement areas and up to approximately 76¹/₂ feet in planned building areas. The CPTs were advanced to depths of up to 82 feet, or refusal, whichever was shallower. In three CPT soundings, seismic cone penetration testing was performed to evaluate the shear wave velocity (V_s) at the site. The borings were logged by representatives from our firm, and bulk and relatively undisturbed soil samples collected at selected intervals for laboratory testing.
- An additional five borings were hand-augured to a depth up to approximately 10 feet for percolation testing.
- Geotechnical laboratory testing of representative soil samples to evaluate in-situ moisture and dry density, gradation, percent finer than No. 200 sieve, Atterberg limits, consolidation, direct shear strength, expansion index, R-value and soil corrosivity.
- Compilation and geotechnical analysis of field and laboratory data, including analyses to evaluate and provide recommendations pertaining to the following:
 - Description of the geology, soils and groundwater depth at the site.

- Evaluation of the site seismicity and potential geologic hazards, including liquefaction potential and estimated dynamic settlement.
- Evaluation of site seismicity and applicable 2016 California Building Code (CBC) seismic design coefficients.
- Percolation testing for use in design of storm water infiltration devices.
- Excavation characteristics of the on-site materials, including anticipated difficult excavation, caving potential and oversize material handling.
- Fill material and compaction requirements, including suitability of the on-site soils for use as structural fill, bedding material and trench backfill.
- Evaluation of suitable foundation types, as well as allowable bearing capacities, friction coefficient and allowable passive pressures.
- Concrete floor slab-on-grade design recommendations including thickness, reinforcement, base, vapor retarder and compaction.
- Exterior concrete flatwork, including sidewalks, courtyards, and athletic courts.
- Preliminary asphalt concrete and concrete pavement sections based on assumed traffic indices for parking areas, drive aisles and delivery areas and fire access lanes.
- Evaluation of the expansion potential of on-site soils.
- Evaluation of the corrosion potential of on-site soils.
- Preparation of this geotechnical report presenting our findings, conclusions, and recommendations regarding the proposed project.

3 SITE DESCRIPTION

The site has been developed for use as high school site since the late 1800's. Originally the high school consisted one building. Over time the school site has expanded to occupy its current approximately 40-acre area. The high school is located near the northwest corner of West Alondra Boulevard and North Acacia Avenue in the city of Compton, California (Figure 1). The site is bounded on the south by West Alondra Avenue and West Cocoa Street. South Acacia Avenue and the Compton Creek bound the site to the east and west, respectively. South Oleander Avenue roughly bisects the campus from East Cocoa Street to East Myrrh Street. The portion of Oleander Avenue crossing through the campus is closed to vehicular traffic. In general, buildings for the school are located between South Acacia Avenue to the west side of South Oleander Avenue (Figure 2). The western portion of the site is generally used for outdoor and sporting activities. Review of historical aerial photographs and topographic maps suggests that in the vicinity of the auditorium/administration/library, Business Development Center Building, and Ramsaur Stadium, changes to the site improvements have occurred overtime. These changes include the building and removal of structures and relocation of the outside tennis courts. Existing site improvements

include a two-story main building with a partial subterranean basement, seventeen single-story classroom buildings, gymnasium building, ten portable classroom buildings, lighted football/soccer stadium with home and away locker facilities, concrete tennis courts, asphalt concrete (AC) basketball and all-purpose courts, lighted baseball field, softball field, all-purpose fields, driveways, parking lots, hardscape, landscaping and wet and dry utilities. We understand that the two story building was constructed circa 1900 is being evaluated for designation as a historical building. Several different methods of construction were used to construct the existing buildings; including poured-in-place Portland cement concrete (PCC), tilt-up PCC panels and concrete masonry unit blocks. Driveways and parking lot pavements were constructed using AC, AC over base and AC over PCC.

The site is located at latitude 33.89139 degrees north and longitude 118.227 degrees west, (United States Geological Survey, 2015). Topography in the vicinity of the project area is relatively level. Topographic relief across the site is approximately 5 feet, sloping gently downward to the southeast. Approximate site elevation in the vicinity of the project area is 65 to 70 feet above mean sea level.

4 PROJECT DESCRIPTION

We understand that the project will include demolition of the existing site improvements, with the possible exception of the two-story main building, and construction of a new school. Based on our review of conceptual plans (DLR Ground, 2017), we understand site improvements will include two- and three-story classroom buildings (total footprint of 56,000 square feet), two-story performing arts center building (total footprint of 41,000 square feet), one-story administration building (total footprint of 12,300 square feet), two-story gymnasium and aquatic center building and diving pool (total footprint of 21,000 square feet), football stadium with a track, field house facilities, grandstands and lighting, lighted baseball field and softball fields, lighted outdoor tennis and basketball courts, multi-purpose fields, parking lots, wet and dry utilities, flatwork and landscaping (Figure 3).

5 SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface evaluation was conducted between November 2 and November 10, 2017, and consisted of the drilling, logging, and sampling of twenty-one small-diameter borings (B-1 through B-21) to depths ranging from approximately 6½ to 76½ feet. The exploratory borings were drilled using truck-mounted drilling equipment utilizing hollow stem augers. The purpose of the borings was to evaluate the subsurface conditions at the project site and to collect bulk and relatively undisturbed soil samples for laboratory testing. To evaluate the infiltration characteristics of the

near surface materials, five hand-auger borings (P-1 through P-5) were excavated to depths between 5 and 10 feet for percolation testing. Details regarding the percolation test procedures and test results are provided in the Field Percolation Testing section of this report. Logs of the exploratory borings are presented in Appendix A. The approximate locations of the borings are presented on Figure 3.

Twenty-one CPT soundings were performed on November 2 through 4, 2017 and on November 11, 2017, to depths ranging from approximately 39.2 to 82.2 feet. At three of the CPT locations, CPT-9, CPT-14 and CPT-16, seismic cone penetration testing was performed. The CPT soundings utilized a 30-ton rig with hydraulic rams to push an approximately 1¹/₂-inch-diameter instrumented cone-tipped probe into the ground while simultaneously recording the resistance to penetration at the cone tip and along the friction sleeve to produce a continuous log of the subsurface soil conditions. Seismic cone penetration testing was performed by measuring the soils response to a seismic compression (shear) waves imparted through the soils by striking a weighted block of wood with a sledgehammer. The sledgehammer strike was horizontal to the ground surface and was applied to one side of the block. The hammer strike was performed at 5-foot interval for the total depth of the CPT sounding. Penetration refusal of the CPT occurred at numerous sounding locations including CPT-2 (39.2 feet), CPT-3 (40.4 feet), CPT-9 (64.0 feet), CPT-10 (60.7 feet), CPT-11 (42.0 feet), CPT-12 (42.45 feet), CPT-13 (64.1 feet), CPT-14 (50.7 feet), CPT-16 (82.2 feet), CPT-17 (40.7 feet) and CPT-21 (67.9 feet). Results of data collected from the borings and CPT soundings were used to evaluate the soil profile below the site. The results of the CPT exploration are presented in Appendix B.

Laboratory testing was performed to evaluate in-situ moisture and dry density, gradation, percent finer than the No. 200 sieve, Atterberg limits, expansion index, consolidation, shear strength, R-value and soil corrosivity (soil pH, electrical resistivity, water-soluble sulfate content, and chloride content). The results of our in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix C.

6 FIELD PERCOLATION TESTING

Percolation testing was performed on November 2 through 4, 2017, at five locations, P-1 through P-5, in general accordance with the 2014 County of Los Angeles Department of Public Works guidelines (CLADPW, 2014). The testing was performed to evaluate the infiltration rate of the on-site soils for use in design of on-site stormwater infiltration Best Management Practices by others.

To reduce the potential for caving during the testing, a 2-inch-diameter slotted polyvinyl chloride pipe was placed and the annular space between the pipe and the boring was backfilled with clean

gravel. The boring was presoaked to a depth of more than 12 inches above the bottom of the boring. In accordance with CLADPW guidelines (CLADPW, 2017), during the initial hour the rate of infiltration within the boring was checked over two 30-minute intervals. Based the rate of infiltration during the first hour, the method of presoaking the boring and the time interval between readings was established. The depths to water measurements were taken to the nearest $\frac{1}{8}$ inch using an electronic sounding device. The measured rate of percolation during the last test interval was utilized for the calculation of the infiltration rate at each boring location. The 2017 guidelines indicate that the design infiltration rate should be evaluated by the civil engineer or infiltration system designer by dividing the field measured percolation rate by a Total Correction Factor (CF). The CF should be calculated using field the Reduction Factor (R_f) multiplied by site-specific correction factors for site variability (CF_v) and long-term siltation (CF_s). The R_f is used to account for non-vertical flow from the sides of the boring. The R_f was calculated in accordance with the 2017 guidelines and is provided in Table 1. The CF_v is used to account for site variability and the number of tests performed. A CF_v of 3 is appropriate for this project. The CF_s is used to account for long-term siltation and plugging of the infiltration system. The CF_s should be provided by the infiltration system designer based on the type of storm water infiltration system and planned maintenance programs (CLADPW, 2017).

Table 1 – Percolation Test Results

Boring Location	Depth Interval (ft)	Soil Type at Test Interval (USCS Classification)	Field Measured Percolation Rate (in/hr)	Reduction Factor (R _f)
P-1	3.0-5.0	Alluvium (CL)	7.0	11.5
P-2	8.0-10.0	Alluvium (ML/CL)	8.4	8.3
P-3	8.0-10.0	Alluvium (CL)	3.4	9.5
P-4	3.0-5.0	Alluvium (SM)	43.2	11.1
P-5	3.0-5.0	Alluvium (CL)	2.4	30.8

Notes:

ft – feet

in/hr – inches per hour

7 GEOLOGY

The subject site is located within the southerly portion of the Los Angeles Basin, which is included in the Peninsular Ranges Geomorphic Province (Norris and Webb, 1990). The Los Angeles Basin has been divided into four structural blocks by Norris and Webb (1990), which area generally bounded by prominent fault systems, and includes the Northwestern Block, the Southwestern Block, the Central Block, and the Northeastern Block. The site is located within the Central Block, which is bordered on the west by the Newport-Inglewood fault, on the east by the Whittier-Elsinore fault, on the north by the Malibu Coast-Santa Monica-Raymond fault, and on the south by the San Joaquin Hills and the Santa Ana Mountains. The Central Block is a depositional basin characterized by thick sequences of alluvium overlying predominantly sedimentary rock of

Cretaceous through Pleistocene age, and includes the Los Angeles coastal plain that extends from West Los Angeles southeast to the Downey Plains in central Orange County (Norris and Webb, 1990). Quaternary sediments, primarily of alluvial origin, comprise the low-lying valley and drainage areas within the region, including the Compton Creek drainage adjacent to the west side of the project site (Figure 4).

7.1 Subsurface Conditions

Earth materials encountered during our subsurface exploration at the site include fill soils and Holocene-age alluvial deposits, which were encountered in the borings to the depths explored of up to approximately 82 feet. The alluvial deposits are comprised of predominately silty and clayey layers, soft to hard in consistency, with varying layers of loose to very dense sands. The alluvial deposits generally encountered were laterally discontinuous, consistent with basin geomorphology. Selected cross-sectional views of the interpreted subsurface data are presented on Figures 5 and 6. Detailed descriptions of the subsurface conditions are presented on the boring logs and CPT soundings in Appendix A and B, respectively.

7.1.1 Existing Pavement

Structural pavement consisting of AC over aggregate base (AB) was encountered at borings B-2, B-3, B-6, B-8, B-12, B-13, B-15 and B-19. At these locations the AC pavement varied from approximately 1 to 5 inches thick over AB that varied from approximately 2 to 18 inches thick and was generally comprised of moist, medium dense, silty and sandy gravel. In borings B-2, B-14, B-17 and B-18 PCC was encountered beneath the AC/AB pavement. The thickness of the PCC varied from approximately 2 to 4¹/₂ inches.

7.1.2 Fill

Fill soils were encountered in borings B-2, B-3, B-6, B-10, B-11, B-12, B-13, B-14, B-15, B-17, B-18, B-19, B-21, P-3, P-4 and P-5 to depths ranging from approximately 1 to 8 feet. The fill encountered at the boring locations generally consisted of dark brown, dark reddish brown and light yellowish brown, moist, loose, silty sand and poorly graded sand.

7.1.3 Alluvial Deposits

Alluvial deposits were generally encountered beneath the fill or from the surface to the full depths explored of up to approximately 82 feet and were comprised of predominately silty and clayey layers, soft to hard in consistency, with varying amounts of loose to very dense sands. The alluvial deposits generally encountered were highly variable and laterally discontinuous, which is consistent with basin geomorphology.

7.2 Groundwater

Groundwater was observed during drilling in borings B-1, B-2, B-3, B-18 and B-19 and at CPT-12 during a pore pressure dissipation test at depths ranging from approximately 30 to 44 feet below the surface. In boring B-13, groundwater was observed at a depth of approximately 23.5 feet. The depths to groundwater observed at the time of drilling are not considered stabilized conditions.

The historic high depth to groundwater is mapped in the vicinity of the site as approximately 10 feet below the existing ground surface (California Geological Survey [CGS], 1998). Review of groundwater well data from a site located near the southeast corner of West Alondra Boulevard and South Acacia Avenue (approximately 305 feet southeast of the site) indicates the depth to groundwater as approximately 40 feet below the ground surface (GeoTracker, 2017).

It should be noted that fluctuations in the level of groundwater at the site may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, and other factors which may not have been evident at the time of our evaluation.

7.3 Flood Hazards

Based on review of a Los Angeles County Geographic Information System Hazards Mapping, the site is mapped as lying partially within the 500-year floodplain. The site is also mapped as within the potential inundation zones due to dam failure for Sepulveda and Hansen dams. Based on this review, the potential for flooding of the site is considered low but possible.

8 FAULTING AND SEISMICITY

Based on our review of pertinent readily available geologic literature, geologic maps, stereoscopic aerial photographs, and our geologic field reconnaissance, no active faults are known to cross the subject site and the site is not located within a State of California Earthquake Fault Zone (EFZ) formerly known as an Alquist-Priolo Special Studies Zone (Hart and Bryant, 2007). However, the site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed project. Figure 7 shows the approximate site location relative to the major faults in the region.

Table 2 lists selected principal known active faults that may affect the subject site and the maximum moment magnitudes (M_{max}) as published by the United States Geological Survey (USGS, 2008). An active fault, as defined by the USGS (2008), has exhibited activity within the last approximate 11,000 years. The approximate fault-to-site distances were calculated using the USGS fault database (USGS, 2008).

Table 2 – Principal Active Faults

Fault	Approximate Fault-to-Site Distance miles (kilometers)	Maximum Moment Magnitude (Mmax)
Newport-Inglewood (LA Basin)	1.8 (2.9)	7.5
Puente Hills Blind Thrust (LA Basin)	4.8 (7.8)	7.0
Puente Hills Blind Thrust (Santa Fe Springs)	5.2 (8.3)	6.7
Palos Verdes	9.2 (14.8)	7.7
Puente Hills Blind Thrust (Coyote Hills)	10.5 (16.9)	6.9
Elysian Park (Upper)	12.1 (19.5)	6.7
Elsinore	12.5 (20.1)	7.8
Santa Monica	15.2 (24.4)	7.4
Hollywood	15.7 (25.2)	6.7
Raymond	15.7 (25.6)	6.8
Verdugo	17.1 (27.5)	6.9
Malibu Coast	19.6 (31.6)	7.0
Anacapa-Dume	20.7 (33.4)	7.2
San Joaquin Hills Blind Thrust	21.6 (34.8)	7.1

Notes:¹ USGS, 2008

In addition to the mapped faults shown on Figure 7, the Los Angeles segment of the Puente Hills blind thrust fault is located within approximately 4.8 miles from the site, the Santa Fe Springs segment of the Puente Hills blind thrust fault is located approximately 5.2 miles from the site, and the San Joaquin Hills blind thrust fault is located approximately 21.6 miles from the site (USGS, 2008). Blind thrust faults are low-angle faults at depth that do not break the surface and are, therefore, not shown on Figure 7. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 2.

Historical earthquakes, greater than magnitude 6.5 or that caused significant loss of life and property, within approximately 62 miles (100 kilometers) of the subject site are presented in Table 3. The 1933 Long Beach Earthquake occurred on the Newport-Inglewood Fault. Review of the relevant literature indicated that the fault rupture initiated near the Huntington Beach-Newport Beach City boundary and extended unilaterally to the northwest to a distance of 13 to 16 kilometers (Hauksson and Gross, 1990). Seismic hazards including building collapse, ground surface rupture and soil liquefaction were observed and reported. However, no site-specific seismic hazards from the 1933 Long Beach Earthquake were known.

Table 3 – Historical Earthquakes

Date	Name, Location, or Region Affected	Approximate Fault to Site Distance in miles (km)	Magnitude
December 8, 1812	Wrightwood	54 (87)	7.3
July 22, 1899	Wrightwood	53 (85)	6.4
December 25, 1899	San Jacinto and Hemet	54 (87)	6.7
April 21, 1918	San Jacinto	54 (86)	6.8
March 11, 1933	Long Beach	7 (12)	6.4
February 9, 1971	San Fernando	61 (99)	6.6
October 1, 1987	Whittier Narrows	33 (53)	6.0
January 17, 1994	Northridge	54 (87)	6.7

Note:
CGS, 2016.

Historically, the project site suffered significant damage during the 1933 Long Beach Earthquake. A review of published historical photographs and discussion with Compton Unified School District employees documents several structures having received significant damage. According to the discussion, the structures damaged were demolished and rebuilt. Notable recent earthquakes, the 1971 San Fernando Earthquake and the 1994 Northridge Earthquake, were also mentioned during our discussions with employees as not having caused notable damage to school structures. Requested documentation has not been received from the school district at the time of our study.

In general, seismic hazards that could impact the project include ground surface rupture, strong ground motion, liquefaction, and dynamic compaction of dry soils. These potential hazards are discussed in the following sections.

8.1 Surface Fault Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

8.2 Ground Motion

The 2016 CBC specifies that the Risk-Targeted, Maximum Considered Earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration (PGA) that

corresponds to the MCE_R for the site was calculated as 0.69g using the USGS (USGS, 2017) seismic design tool (web-based).

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the mapped Maximum Considered Earthquake Geometric Mean (MCE_G) PGA (PGA_M) with adjustment for site class effects in accordance with the American Society of Civil Engineers 7-10 Standard. The MCE_G PGA is based on the geometric mean PGA with a 2 percent probability of exceedance in 50 years. The mapped MCE_G PGA with adjustment for site class effects (PGA_M) was calculated as 0.82g using the USGS (USGS, 2017) seismic design tool.

8.3 Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils and cohesionless fine-grained soils located below the water table undergo rapid loss of shear strength due to excess pore pressure generation when subjected to strong earthquake-induced ground shaking. Sufficient ground shaking duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure. This causes the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The historic high depth to groundwater is mapped in the vicinity of the site as approximately 10 feet below the existing ground surface (CGS, 1998). Our review of readily available groundwater data in the vicinity of the site indicates that for a site located adjacent to the south side of the site, the depth to groundwater has been recorded as being as shallow as 40 feet (GeoTracker, 2017). The State of California Seismic Hazard Zones Map (Figure 8) indicates the project area is located within an area mapped as subject to seismically induced liquefaction hazards. Based on the nature of the underlying soil materials, the recorded groundwater elevations of approximately 23 to 44 below the ground surface during the subsurface evaluation, and the historical groundwater levels of approximately 10 feet below the ground surface, the potential for dynamic settlement due to liquefaction is considered to be high.

Our review of the exploration results indicated a good agreement in correlation with borings and CPT soundings. However, due to the fact that CPT soundings provide nearly continuous subsurface soil strata data, liquefaction potential of subsurface soils was evaluated using the CPT soundings CPT-1 through CPT-21. The liquefaction analysis was based on the National Center for Earthquake Engineering Research procedure (Youd, et al., 2001) using the computer program

CLiq (Geologismiki Geotechnical Software, 2006). A design earthquake moment magnitude of 6.79 and an associated ground acceleration of 0.82g were used in the analysis. In accordance with the 2013 Division of State Architect checklist for evaluation of schools, a historic high depth to groundwater of 10 feet below the existing ground surface, as indicated by CGS (CGS, 1998), was used in our liquefaction evaluation. Please note that this historically highest depth to groundwater was based on data from monitoring wells recorded in 1905, 1927 and 1952 (California Department of Conservation, Division of Mines and Geology, 1998). Wells monitored by the California Department of Water Resources (1961) indicate that the depth to groundwater could move upward into semi-perched zones if pressure levels in the underlying units become sufficiently high (CGS, 1998). Our liquefaction analysis indicates that the interbedded, medium dense to dense, granular soil layers below the historic high depth to groundwater level and between depths of approximately 10 to 45 feet below the ground surface are susceptible to liquefaction during the design seismic event.

8.4 Dynamic Settlement of Dry Soils

Relatively dry soils (e.g., soils above the groundwater table) with low density or softer consistency tend to undergo dynamic settlement during a seismic event. Earthquake shaking often induces significant cyclic shear strain in a soil mass, which responds to the vibration by undergoing volumetric changes. Volumetric changes in dry soils take place primarily through changes in the void ratio (usually contraction in loose or normally consolidated, soft soils and dilation in dense or over consolidated, stiff soils) and secondarily through particle reorientation. Such volumetric changes are generally non-recoverable. Our analysis, which was based on the method proposed by Robertson and Lisheng (2010), indicated that up to approximately one-inch dynamic settlement of dry sand may occur during the design seismic event.

8.5 Liquefaction-Induced Dynamic Settlement of Saturated Soils

In order to estimate the amount of dynamic settlement of saturated soils, the method proposed by Zhang et al. (2002) was used. The amount of soil settlement during a strong seismic event depends on the thickness of the liquefiable layers and the density and/or consistency of the soils. Table 4 presents the results of our analysis.

Under the current conditions, a liquefaction-induced dynamic settlement of saturated soils up to approximately 2 inches is calculated for the site. Based on the guidelines presented in CGS Special Publication 117 (CGS, 2008) and assuming relatively uniform subsurface stratigraphy across the site, we estimate differential settlement on the order of one inch. Results of our analysis are presented in Appendix D.

Table 4 – Estimated Settlement Due to Earthquake Loading

CPT Sounding Location	Liquefaction-Induced Dynamic Settlement of Saturated Soils (in.) ⁽¹⁾	Dry Sand Settlement (in.) ^(2,3)	Total Settlement (in.)
CPT-1	0.5	0.0	0.6
CPT-2	1.2	0.0	1.3
CPT-3	0.8	0.4	1.2
CPT-4	1.2	0.0	1.2
CPT-5	0.9	0.9	1.7
CPT-6	1.6	0.0	1.7
CPT-7	0.7	0.0	0.7
CPT-8	0.7	0.0	0.7
CPT-9	0.1	0.0	0.1
CPT-10	1.4	0.7	2.1
CPT-11	0.4	0.1	0.5
CPT-12	0.5	0.7	1.2
CPT-13	0.1	0.2	0.3
CPT-14	0.8	0.0	0.8
CPT-14A	0.4	0.0	0.4
CPT-15	1.1	0.4	1.6
CPT-16	0.9	0.1	1.0
CPT-17	0.9	0.0	0.9
CPT-18	1.3	0.8	2.1
CPT-19	0.6	0.3	0.9
CPT-20	1.1	0.1	1.2
CPT-21	0.3	0.0	0.3

Notes:¹ Estimated based on method proposed by Zhang, et al. (2002)² Estimated based on method proposed by Robertson and Lisheng (2010)³ Dry sand settlement is adjusted to account for disturbance caused by hand augering in upper 5 feet of CPT sounding. Dry sand settlement from 0 to 5 feet depth is subtracted from total dry sand settlement.

8.6 Lateral Spread

Lateral spread of the ground surface during an earthquake usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spread has generally been observed to take place in the direction of a free-face (i.e., retaining wall, slope, creek) but has also been observed to a lesser extent on ground surfaces with very gentle slopes. An empirical model developed by Zhang et al. (2004), is typically used to predict the amount of horizontal ground displacement within the site. For sites located in proximity to a free face, the amount of lateral ground displacement is strongly correlated with the distance of the site from the free-face. Other factors such as earthquake magnitude, distance from the earthquake epicenter, thickness of the liquefiable layers, and the fines content and particle sizes of the liquefiable layers also affect the amount of lateral ground displacement.

The concrete-lined Compton Creek bounds the west side of the site. The estimated depth of the creek is approximately 15 feet. Based on review to the Conceptual Plan (DLR Group, 2017b) the

shortest distance between the nearest building and the Compton Creek is approximately 600 feet. Accordingly, our analysis indicated that liquefaction-induced lateral spread up to approximately one foot may occur during the design seismic event.

8.7 Bearing Capacity Failure

Our analysis also included using the residual shear strength of the liquefiable soil as recommended in the monograph by Earthquake Engineering Research Institute (EERI, 2008) to evaluate the potential for bearing capacity failure under the proposed footings. Due to the existence of non-liquefiable soil crust (approximately 10 feet in thickness) overlying the liquefiable soils and our recommended geogrid-reinforced soil mat under the proposed footing, our analysis indicated that the potential for bearing capacity failure during a seismic-induced soil liquefaction condition is low.

8.8 Tsunamis and Seiches

Tsunamis are long wavelength, seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. Seiches are waves generated in a large, enclosed body of water. The project area is not mapped within an area considered susceptible to tsunamis or seiche inundation. Therefore, damage due to tsunamis or seiches is not a design consideration.

9 CONCLUSIONS

Based on our subsurface evaluation, review of background information, and our experience in the area, it is our opinion that the proposed project is feasible from a geotechnical standpoint, provided that the following preliminary recommendations are incorporated into the design and construction of the proposed project. In general, the following conclusions were made:

- The site is generally underlain by fill and alluvial deposits consisting of soft to hard clay with layers of loose to dense silt, silty sand and poorly graded sand.
- Based on our review of the State of California Seismic Hazard Zones map (CGS, 1998), the subject site is located in an area mapped as being potentially liquefiable. Our liquefaction analysis indicated that liquefaction-induced dynamic settlement up to 2 inches may occur during the design seismic event.
- Groundwater was observed during drilling of our exploratory borings from depths ranging from 23 to 44 feet below the ground surface. Groundwater levels are, however, subject to variation depending on rainfall, irrigation, groundwater pumping and other factors. Seepage should be anticipated during construction activities.
- Demolition and earthwork during removal of site improvements including existing foundations, floor slabs, basements and earthwork to remove the basement, site grading for new

improvements should be feasible with heavy earthmoving equipment in good working condition. During earthwork the contractor should anticipate encountering building foundations and associated improvements with previously demolished site improvements.

- The subject site is not located within a State of California EFZ. The potential for surface fault rupture as defined by the Alquist-Priolo Earthquake Fault Zoning Act is considered to be relatively low.
- On-site soils should be considered as Type C soils in accordance with Occupational Safety and Health Administration (OSHA) soil classifications. Sandy soil may be prone to caving during earthwork operations.
- The $PGAM$ was estimated to be 0.82g for the site.
- Based on laboratory test results, the near-surface site soils can be classified as non-corrosive based on California Department of Transportation (Caltrans, 2012) corrosion guidelines.
- Based upon the percolation test results, the field measured percolation rate of the soils between 3 to 5 feet below the ground surface ranges from approximately 2 to 43 inch per hour. The field measured percolation rate of the soils between 8 to 10 feet below the ground surface ranged from 3 to 8 inch per hour. The design infiltration rates should be reduced in accordance with the appropriate total correction factors evaluated by the project civil engineer.
- A setback of 15 feet or more should be maintained between the invert of proposed infiltration systems and a 1:1 (horizontal to vertical) plane drawn down from the bottom outside edges of adjacent structural foundations and/or hardscape areas.

10 RECOMMENDATIONS

The following sections include our geotechnical recommendations related to the demolition and reconstruction of Compton High School. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the planned project. The project design and construction should be performed in conformance with the recommendations presented in this report, project specifications, and appropriate agency standards.

10.1 Liquefaction Mitigation

Our analysis indicates that dynamic settlement up to approximately 2 inches and lateral spread up to approximately one foot due to soil liquefaction may occur at the site during the design seismic event. According to SP117, there are two general levels of liquefaction hazards; large-scale displacement which are defined as those that exceed 1 to 3 feet horizontally and 4 to 6 inches vertically, and more localized failures with displacement less than those defined by large-scale displacement. Our analysis indicated that our site is considered as having localized failures hazard level. The recommended mitigations include soil densification and reinforced shallow foundations.

Due to the predominantly clayey nature of the subsurface soils and the fact that liquefiable sandy soils are thin layers interbedded with clay, the effect of soil densification using vibro-replacement such as stone columns is limited. Therefore, it is our opinion that a cost-effective mitigation method would be reinforced shallow foundations such as using mat foundation or footings supported by reinforced soil mat.

10.2 Earthwork

Earthwork at the site is anticipated to consist of excavation to remove foundations, basement retaining walls, and other building components, site improvements and utilities associated with demolition of existing school, and backfill of the resulting excavation with compacted fill to approximately match existing adjacent grades. We anticipate that earthwork associated with reconstruction of the school will include minor cuts and fills for construction access, building pad preparation, new foundation excavations, subgrade preparation and trenching and backfilling for new utilities. Earthwork should be performed in accordance with the requirements of the applicable governing agencies and the recommendations presented in the following sections.

10.2.1 Construction Plan Review and Pre-Construction Conference

We recommend that the grading, demolition and foundation plans be submitted to Ninyo & Moore for review to evaluate conformance to the geotechnical recommendations provided in this report. We further recommend that a pre-construction conference be held in order to discuss the recommendations presented in this report. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan, project schedule, and earthwork requirements.

10.2.2 Site Clearing and Preparation

Prior to performing excavations or other earthwork, the site should be cleared of debris resulting from the demolition process, including existing site improvements and foundations, gravel, debris, vegetation, and loose or otherwise unsuitable materials. Existing utilities to remain in place (if any) should be located and protected from damage by construction activities. Materials generated from the clearing/demolition operations should be removed from the project site and disposed of at a legal dump site.

10.2.3 Excavation Characteristics

Based on our field exploration, we anticipate that excavations at the site may be accomplished with conventional earthmoving equipment in good working condition. We

anticipate that existing undocumented fill and alluvial deposits encountered during construction will be generally comprised of clay, silt, silty sand and poorly graded sand. In the event that oversize material, including cobbles, is encountered during excavation operations, the oversized material is not suitable for backfill and should be disposed of off-site. Contractors should make their own independent evaluation of the excavatability of the on-site materials prior to submitting their bids.

10.2.4 Treatment of Near Surface Soils

In order to provide suitable support and reduce the potential of settlements, we recommend that areas of new construction be overexcavated. The depth of the overexcavation should extend below the existing foundation systems and should remove existing fill associated with the original building construction. The bottom of the excavation should expose relatively dense native deposits. The lateral limits of the excavation should remove existing fills that extend 5 feet or more beyond the outside edges new improvements. The excavation bottom should be evaluated by our representative during the excavation work. Additional overexcavation of loose, soft, and/or wet areas may be appropriate, depending on our observations during construction. Prior to placing new compacted fill, the exposed bottom should be scarified, moisture-conditioned, and recompacted to a depth of approximately 8 inches.

Care should be taken by the contractor to avoid undermining existing improvements located adjacent to the project site or the outside edge of the building foundations to remain. In the event that excavations will extend within this zone, our office should be notified and appropriate recommendations provided, such as temporary underpinning of impacted foundations and/or temporary shoring.

In order to reduce the potential for damage to footings and slab-on-grade due to liquefaction-induced dynamic settlement, we recommend that a relatively rigid soil mat consisting of compacted soil reinforced by two layers of Tensar Triax TX160 or equivalent be constructed below the proposed building footprint. The compacted soil mat should be 5 feet thick or 3 feet below the bottom of the footing, whichever is thicker. The mat should extend laterally 5 feet beyond the building footprint. Two layers of geogrids, one placed at the bottom of the overexcavation and the other at 1.5 feet above the first layer of geogrid, should be placed in between compacted fills. Geogrids and compacted soils should be placed in accordance with the project specifications and/or manufacturer guidelines. In the event that geogrids were damaged or need to be cut open for future construction, the damaged geogrids should be repaired. The repair should consist of removing fill soils approximately 3 feet beyond the

damaged geogrid. The damaged geogrid should be cut and replaced with an overlap of 1 foot or more in each direction.

10.2.4.1 Transition Building Pads

Site grading to removal unsuitable soils including undocumented fill and soft or loose alluvium may create transitional building pads that could subject the new improvements to excessive differential movement under loading. To reduce the potential for excessive differential settlement site grading should include providing a horizontally continuous uniform fill blanket of approximately 3 feet below the bottom of shallow footings.

10.2.4.2 Pavement Subgrade

In order to provide suitable support and reduce the potential settlements of new and reconstructed pavements subject to vehicle traffic, we recommend overexcavating the upper approximately 2 feet of existing subgrade or to a depth that provides 2 feet of compacted fill beneath the pavement section, whichever is deeper. The lateral limits of overexcavation should extend to a depth of approximately 2 feet or to a distance equal to the depth of overexcavation, whichever is greater. The exposed subgrade should be evaluated by our representative during the excavation work. Loose, soft, and/or wet areas may need to be overexcavated, depending on our observations during construction. Prior to placing new compacted fill, the exposed bottom should be scarified, moisture-conditioned, and recompacted to a depth of approximately 8 inches.

10.2.4.3 Hardscape Subgrade

In order to provide suitable support and reduce the potential settlements of new and reconstructed hardscape (i.e., sidewalks, curbs and gutter, ribbon gutters, etc.), we recommend that the subgrade materials beneath the proposed hardscape areas be overexcavated to a depth of approximately 12 inches, scarified, moisture-conditioned to near optimum moisture content, and recompacted. The limits of the scarification should extend laterally 12 inches beyond the outside edge of hardscape. The exposed subgrade should be evaluated by our representative during the excavation work. Loose, soft, and/or wet areas may need to be overexcavated, depending on our observations during construction. Prior to placing new compacted fill in areas that are overexcavated and/or in areas where the existing subgrade will be raised with new fill, the exposed bottom should be scarified, moisture-conditioned, and recompacted to a depth of approximately 8 inches.

10.2.5 Fill Material

In general, the on-site soils should be suitable for use as compacted fill provided they are free of construction/demolition debris, trash, roots, vegetation, deleterious materials, and contamination. Fill should generally be free of rocks or lumps of material in excess of 4 inches in diameter. Rocks or hard lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site. On-site soils used as fill will involve moisture conditioning to achieve appropriate moisture content for compaction. The clayey on-site soils are not suitable for use as retaining wall backfill.

Fill used as backfill behind the retaining wall should consist of free-draining, granular, non-expansive soil that conforms with the latest edition of “Greenbook” Standard Specifications for Public Works Construction for structure backfill. “Non-expansive” can be defined as soil having an expansion index (EI) of 20 or less in accordance with ASTM International (ASTM) Test Method D 4829 (CBC, 2013).

Import material should consist of clean, non-expansive, granular material, which conforms to the “Greenbook” for structure backfill. Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials satisfy the Caltrans (2012) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million [ppm] or less, a soluble sulfate content of approximately 0.20 percent [2,000 ppm] or less, a pH value of 5.5 or more and an electrical resistivity of 1,000 ohm-centimeter [ohm-cm] or more). Import material should be submitted to Ninyo & Moore for review prior to importing to the site. The contractor should be responsible for the uniformity of import material brought to the site

10.2.6 Fill Placement and Compaction

Fill soils placed should be compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM D 1557 as well as City of Compton Building Code. Materials with less than 15 percent fines (i.e., material finer than the No. 200 sieve) should be compacted to a relative compaction of 95 percent as evaluated by ASTM D 1557. The lift thickness for fill soils will vary depending on the type of compaction equipment used but should generally be placed in horizontal lifts not exceeding 8 inches in loose thickness. Fill soils should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557. Special care should be taken to avoid damage to utility lines and foundations when compacting fill and subgrade materials.

10.2.7 Temporary Excavations

We recommend that trenches and excavations be designed and constructed in accordance with OSHA regulations. These regulations provide trench sloping and shoring design parameters for trenches up to 20 feet deep based on the soil types encountered. Trenches/excavations over 20 feet deep should be designed by the contractor's engineer based on site-specific geotechnical analyses. For planning purposes, we recommend that the materials on site be considered as OSHA soil Type C.

Temporary excavations should be constructed in accordance with OSHA recommendations. For trench or other excavations, OSHA requirements regarding personnel safety should be met by using appropriate shoring (including trench boxes) or by laying back the slopes no steeper than 1.5:1 (horizontal to vertical). Temporary excavations that encounter seepage may need shoring or may be mitigated by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor. Recommendations for temporary shoring can be provided, if requested.

10.2.8 Excavation Bottom Stability

In general, we anticipate that the bottoms of excavations at depths of approximately 5 or less feet should be relatively stable and suitable for placement of backfill. Excavations deeper than approximately 5 feet are anticipated to encounter soft and/or loose alluvium which may be unstable and subject to pumping under heavy equipment loads. Stabilization may involve overexcavation and replacement with compacted aggregate base material or crushed rock to thicknesses of approximately 1 to 3 feet. If crushed rock is used it should be wrapped in a suitable geotextile filter fabric to minimize infiltration of fine grained soils and collapse of overlying fill material. Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

10.2.9 Shoring

Where temporary slopes are not possible, shoring will be appropriate. The design of the shoring system should consider the excavation characteristics of the onsite soil, temporary excavation stability, and the impact of construction on existing structures.

If necessary, shoring systems will be constructed through fill and old dune deposits. The types of shoring systems for the project are unknown at this time. We anticipate that cantilevered shoring systems will be appropriate for the project to depths up to approximately 10 feet. Cantilevered shoring systems should be designed using the lateral earth pressure values

presented on Figure 8. The recommended design pressures are based on the assumptions that the shoring system is constructed without raising the ground surface elevation behind the sheet piles, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical) plane extending up and back from the base of the sheet pile system. For sheet piles subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral pressures against the sheet wall system. The shoring systems planned for the project should be reviewed by our office to evaluate the design considerations and geotechnical parameters used.

Ground settlement may occur behind the shoring system wall during excavation. The amount of settlement depends on the type of shoring system, the contractor's workmanship, and soil conditions. We recommend that structures/improvements in the vicinity of the planned shoring installation be reviewed with regard to foundation support and tolerance to settlement. To reduce the potential for distress to adjacent structures, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less, which would equal approximately ½ inch of deflection. Possible causes of settlement that should be addressed include settlement during installation of the shoring, excavation for structure construction, construction vibrations, and removal of the support system. The vibrations from the driving of sheet piles may result in some dynamic settlement of granular soils that may affect the adjacent structures. We recommend that shoring installation be evaluated carefully by the contractor prior to construction and that ground vibration and settlement monitoring be performed during construction. Vibration and settlement monitoring should be performed during sheet pile driving. If settlement is detected or peak particle velocities of approximately ½ inch per second or more are measured adjacent to existing improvements, the sheet pile driving should be stopped and evaluated. The evaluation may include changing the hammer vibration frequency and monitoring for settlement and vibrations. To reduce the potential for settlement associated with sheet pile removal, sheet piles may be left in place. In the event excessive settlement or other damage occurs associated with the pile driving operations, it may be appropriate to perform grouting beneath nearby structure(s) to mitigate the pile driving effects. We recommend that shoring installation be evaluated carefully by the contractor prior to construction.

The contractor should retain a licensed, qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the required

modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed.

10.3 Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 5 presents the seismic design parameters for the site in accordance with CBC (2016) guidelines and mapped spectral acceleration parameters (USGS, 2017a).

Seismic Design Factors	Value
Site Class	D
Site Coefficient, F_A	1.0
Site Coefficient, F_V	1.7
Mapped Spectral Acceleration at 0.2-second Period, S_s	1.726g
Mapped Spectral Acceleration at 1.0-second Period, S_1	0.616g
Spectral Acceleration at 0.2-second Period Adjusted for Site Class, SM_s	1.726g
Spectral Acceleration at 1.0-second Period Adjusted for Site Class, SM_1	1.048g
Design Spectral Response Acceleration at 0.2-second Period, SD_s	1.150g
Design Spectral Response Acceleration at 1.0-second Period, SD_1	0.698g

10.4 Foundations

The proposed building may be supported on shallow foundations including spread footings bearing on geogrid-reinforced fill material compacted in accordance with the recommendations presented in the Earthwork section of this report or mat foundations. Based on our earthwork recommendations, we anticipate that the spread footings will be underlain by compacted fill for at-grade structures.

Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

10.4.1 Spread Footings

Footings should extend 24 inches or more below the adjacent finished grade. Continuous footings should have a width of 18 inches or more and should be reinforced with two No. 5 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings. Further details should be in accordance with the recommendations of the structural engineer.

Footings, as described above, may be designed using an allowable bearing capacity of 3,000 pounds per square foot (psf). The allowable bearing capacity may be increased by one-third when considering loads of short duration such as wind or seismic forces. Total and differential settlements for footings designed and constructed in accordance with the above recommendations are estimated to be less than approximately one and ½ inch over a horizontal span of 40 feet, respectively under the static loading condition. Under the seismic event, we anticipate that the total and differential settlements are 2 inches and 1 inch over a horizontal span of 40 feet, respectively.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for a level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance, provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

10.4.2 Mat Foundation

As an alternative, the proposed buildings may be supported on a mat foundation designed using a net allowable bearing capacity of 1,500 psf bearing on compacted fill underlain by competent native soils. The total and differential settlements under both the static and dynamic loading conditions corresponding to this allowable bearing load are estimated to be less than approximately 4 inches and 2 inches over a horizontal span of 40 feet, respectively. A design modulus of subgrade reaction of 30 pounds per cubic inches (pci) can be used for the subgrade soils in evaluating deflections.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance value of 350 psf per foot of depth, up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The net allowable bearing capacity and passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

10.4.3 Slabs-On-Grade

Building floor slabs should be designed by the project structural engineer based on the anticipated loading conditions. As a minimum we recommend that slabs have a thickness of 5 inches or more, and be reinforced with No. 4 steel reinforcing bars placed 18 inches on-center (each way) in the middle one-third of the slab height. Exterior slabs-on-grade may be 4 inches thick. The proper placement of the reinforcement in the slab is vital for satisfactory performance. The floor slab and foundations should be tied together by extending the slab reinforcement into the footings. The slab should be underlain by a polyethylene vapor retarder, 10-mil or thicker. The vapor retarder should further be underlain by a 4-inch-thick layer of sand or gravel with a particle size of approximately $\frac{3}{4}$ inch or smaller. The vapor retarder is recommended in areas where moisture sensitive floor coverings are anticipated. Soils underlying the slabs should be moisture conditioned and compacted in accordance with the recommendations contained in this report prior to concrete placement. Joints should be constructed at intervals designed by the structural engineer to help reduce random cracking of the slab.

10.4.4 Underground Utilities

We anticipate that utility pipelines will be supported on future compacted fill or deeper native alluvial soils. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet.

10.4.4.1 Pipe Bedding

We recommend that bedding material be placed around pipe zones 1 foot or more above the top of the pipe. The bedding material should be classified as sand, should be free of organic material, and have a sand equivalent of 30 or more. We do not recommend gravel be used for bedding material because of the silty nature of the subsurface material. It has been our experience that the voids within gravel material are sufficiently large to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface. Where soft, wet soil conditions are encountered the trench excavation should be excavated approximately 1 foot or more below the pipe invert and should be backfilled with gravel wrapped in filter fabric.

Special care should be taken not to allow voids beneath and around the pipe. Compaction of the bedding material and backfill should proceed uniformly up both sides of the pipe. Trench backfill, including bedding material, should be placed in accordance with the recommendations presented in the preceding section.

10.4.4.2 Trench Backfill

Based on our subsurface evaluation, the on-site soils should generally be suitable for reuse as trench backfill provided they are free of organic material, clay lumps, debris, and rocks more than approximately 4 inches in diameter. We recommend that trench backfilling be in general conformance with the Standard Specifications for Public Works Construction (“Greenbook”) for structure backfill. Fill should be moisture-conditioned to at or slightly above the laboratory optimum. Wet soils should be allowed to dry to a moisture content near the optimum prior to their placement as trench backfill. Trench backfill should be compacted to a relative compaction of 90 percent as evaluated by ASTM D 1557. Lift thickness for backfill will depend on the type of compaction equipment utilized, but fill should generally be placed in horizontal lifts not exceeding 8 inches in loose thickness. Special care should be exercised to avoid damaging the pipe during compaction of the backfill.

10.4.4.3 Modulus of Soil Reaction

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed on the sides of buried flexible pipelines for the purpose of evaluating lateral deflection caused by the weight of the backfill above the pipe. We recommend that a modulus of soil reaction of 400 pounds per square inch be used for design, provided that granular bedding material is placed adjacent to the pipe, as recommended in this report.

10.5 Preliminary Pavement Design

We anticipate that future new parking lots will include new flexible pavement (AC) and rigid pavement (PCC). Traffic loading information was not available for our design at the time of preparation of this report. For planning purposes, we have assumed traffic index (TI) values of 4.0, 5.0, and 6.0 for the preliminary design of pavement sections. The TIs of 4.0 and 5.0 are generally used for designing pavements that will generally be used as parking stalls and/or driveways subjected to relatively light passenger vehicles and periodic heavy equipment/truck traffic. The TI of 6.0 is generally used for designing pavements for driveway areas that are subjected to relatively light passenger vehicles and more routine heavy equipment/truck traffic. Laboratory testing was performed on representative soil samples and indicated an R-value of 16 and 75. For conservatism, a design R-value of 16 was used for the subgrade soil in the design of the preliminary pavement sections

Based on the traffic indices described above, a design R-value of 16, and guidelines of the Caltrans Highway Design Manual (Caltrans, 2015), we have developed the following preliminary

pavement sections for the project (Table 6). We recommend that these pavement sections be re-evaluated once project-specific traffic indices are developed and the as-graded near-surface earth materials are further tested.

Traffic Index	AC/CAB or CMB (inches)	PCC (inches)
4.0	3.0/6.0	5.5
5.0	3.0/9.0	6.0
6.0	3.0/12.0	7.0

Notes:
AC – Asphalt Concrete
PCC – Portland Cement Concrete, based on 28-day compressive strength of 2,500 psi.
CAB – Crushed Aggregate Base
CMB – Crushed Miscellaneous Base

Subgrade soils in areas to be paved should be prepared as recommended in the Earthwork section of this report. Expansive clayey soils, if encountered during grading, should not be placed within the upper 12 inches of the subgrade to reduce the potential for pavement damage. Crushed aggregate base (CAB) or crushed miscellaneous base (CMB) material should conform to the latest edition of the Standard Specifications for Public Works Construction “Greenbook,” Section 200. The CAB/CMB should be compacted to a relative compaction of 95 percent as evaluated by ASTM D 1557. CAB/CMB should be placed at slightly above the optimum moisture content as evaluated by ASTM D 1557. AC should conform to Section 203 of the Greenbook and should be compacted to a relative compaction of 95 percent. Final pavement sections should be selected based on actual anticipated traffic loading conditions and evaluation of the subgrade materials at the time of construction.

10.6 Hardscape

We recommend that new exterior concrete sidewalks and flatwork (hardscape) have a minimum thickness of 4 inches and be reinforced with No. 4 steel reinforcing bars placed 24 inches on-center (each way) near the mid-height of the slab. The hardscape should be underlain by 4 inches of granular material such as Crushed Aggregate Base or Crushed Miscellaneous Base and installed with crack-control joints at an appropriate spacing as designed by the structural engineer to reduce the potential for shrinkage cracking. Positive drainage should be established and maintained adjacent to flatwork. To reduce the potential for differential offset, joints between the new hardscape and adjacent curbs, existing hardscape, building walls, and/or other structures, and between sections of new hardscape, should be doweled.

10.7 Instrumentation and Documentation

Due to the nature of the work, we recommend implementing documentation and instrumentation programs to monitor movements, levels, and deformations during construction. The monitoring programs may include the use of seismographs, inclinometers, convergence points, and an array of surface control points. The resulting data should be reviewed and evaluated by Ninyo & Moore. These programs should be in-place or conducted prior to the start of construction. This information can also be helpful in reducing potential claims and expediting and limiting settlement of legitimate claims.

10.7.1 Documentation of Existing Conditions

We recommend that a pre-construction survey of the existing conditions of the nearby structures be performed before construction on-site. The pre-construction survey should consist of photographic documentation of the exterior portions of the buildings, including distress features such as cracks and/or separations that may be present, and floor level surveys of existing buildings at the site. The purpose of the pre-construction survey is to develop documentation of existing conditions prior to construction that may serve as a basis for evaluating potential damage claims.

10.7.2 Construction Vibrations

Human experience has shown that vibrations at very low levels can be perceived and judged as being much higher than they actually are. Hendron and Oriard (1972) stated that transient vibrations from construction activities, such as drilling and earth-moving, are noticeable at peak particle velocities as low as 0.02 to 0.06 inch per second. At peak particle velocities as low as 0.2 to 0.4 inch per second, the vibrations are disturbing and may result in complaints and damage claims. However, these vibration levels are below the peak particle velocity threshold considered to cause cosmetic damage to commercial/residential construction.

We recommend that vibration caused by construction activities be monitored in terms of peak particle velocity during construction. To monitor the peak particle velocity, seismographs could be positioned at the construction site and monitored at selected intervals during construction. Consideration should be given to locating one seismograph close to the construction activity, another at the nearest building, and a third at a building farther away.

10.7.3 Lateral Movement of Shoring Support System

We recommend the installation of tiltmeters and/or survey points on the adjacent A OFS building during construction. The tiltmeters and/or survey points should be monitored and

evaluated daily during excavation activities to provide an advanced warning system of potential problems. In addition, tiltmeters and/or survey points should also be established between excavations and buildings if proposed excavations will extend below a 1:1 (horizontal to vertical) plane projected from the bottom of adjacent building foundations. The survey points should be installed as close as practical to the excavation and incrementally away from the excavation

10.8 Corrosivity

Laboratory testing was performed on a representative sample of near-surface soil collected from boring B-2 to evaluate soil pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. The chloride content test was performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417. The laboratory test results are presented in Appendix B.

The soil pH was measured at approximately 6.9 and the electrical resistivity was measured to be approximately 10,675 ohm-cm. The chloride content of the sample was measured to be approximately 30 ppm. The sulfate content of the tested sample was approximately 0.001 percent (i.e., 10 ppm). Based on the laboratory test results and Caltrans (2012) corrosion criteria, the project site can be classified as a non-corrosive site, which is defined as having earth materials with less than 500 ppm chlorides, less than 0.20 percent sulfates (i.e., 2,000 ppm), a pH of 5.5 or more, and an electrical resistivity of 1,000 ohm-cm or more.

10.9 Concrete Placement

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. The sample tested during this evaluation indicated a water-soluble sulfate content of approximately 0.001 percent by weight (i.e., 10 ppm). Based on the American Concrete Institute (ACI) 318-14 criteria 318-14 (ACI, 2016), the potential for sulfate attack is considered negligible for water-soluble sulfate contents in soils of less than 0.1 percent by weight (1,000 ppm), moderate for water-soluble sulfate contents in soils between 0.1 and 0.2 percent by weight (1,000 to 2,000 ppm), and severe for water-soluble sulfate contents in soils between 0.2 and 2 percent by weight (2,000 to 20,000 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. Per the ACI 318-14 criteria (ACI, 2016), Type II cement is considered to be appropriate for the project. Due to the potential variability in soil conditions across the site, Type V cement with a water/cement ratio of 0.45 or less may be considered for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete for the proposed structures be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We also recommend that crack control joints be provided in sidewalks and exterior hardscape in accordance with the recommendations of the structural engineer to reduce the potential for distress due to minor soil movement and concrete shrinkage. The structural engineer should be consulted for additional concrete specifications.

10.10 Drainage

Good surface drainage is imperative for satisfactory site performance. Positive drainage should be provided and maintained to channel surface water off the pavement, away from foundations and off-site. Positive drainage is defined as a slope of 2 percent or more for a distance of 5 feet or more away from foundations and tops of slopes. Runoff should then be transported by the use of swales or pipes into a collective drainage system and discharged to suitable facilities. Surface waters should not be allowed to pond adjacent to footings or on pavements. Concentrated runoff should not be allowed to flow over asphalt pavement as this can result in early deterioration of the pavement. Area drains for landscaped and paved areas are recommended.

11 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and on our evaluation of the data collected based on subsurface conditions disclosed by widely spaced exploratory borings. It is imperative that the interpolated subsurface conditions be checked by our representative during construction. Observation and testing of compacted fill and backfill should also be performed by our representative during construction. We further recommend that the project plans and specifications be reviewed by this office prior to construction. In addition, we should review the plans and specifications prior to construction. It should be noted that, upon review of these documents, some recommendations presented in this report might be revised or modified.

During construction, we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing site clearing/demolition and removal of foundations.
- Observing excavation bottoms and the placement and compaction of fill, including trench backfill, if applicable, and filling of the basement excavation.
- Evaluating imported materials prior to their use as fill.
- Performing field tests to evaluate fill compaction.

- Performing field tests to evaluate pavement subgrade and AB compaction.
- Observing retaining wall foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.

The recommendations provided in this report assume that Ninyo & Moore will be retained as the geotechnical consultant during the construction phase of this project. If another geotechnical consultant is selected, we request that the selected consultant indicate to the Compton Unified School District and the City of Compton and to our firm in writing that our recommendations are understood and that they are in full agreement with our recommendations.

12 LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials. A hazardous materials assessment conducted for the subject properties by Ninyo & Moore is presented under separate cover.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be

provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

DRAFT

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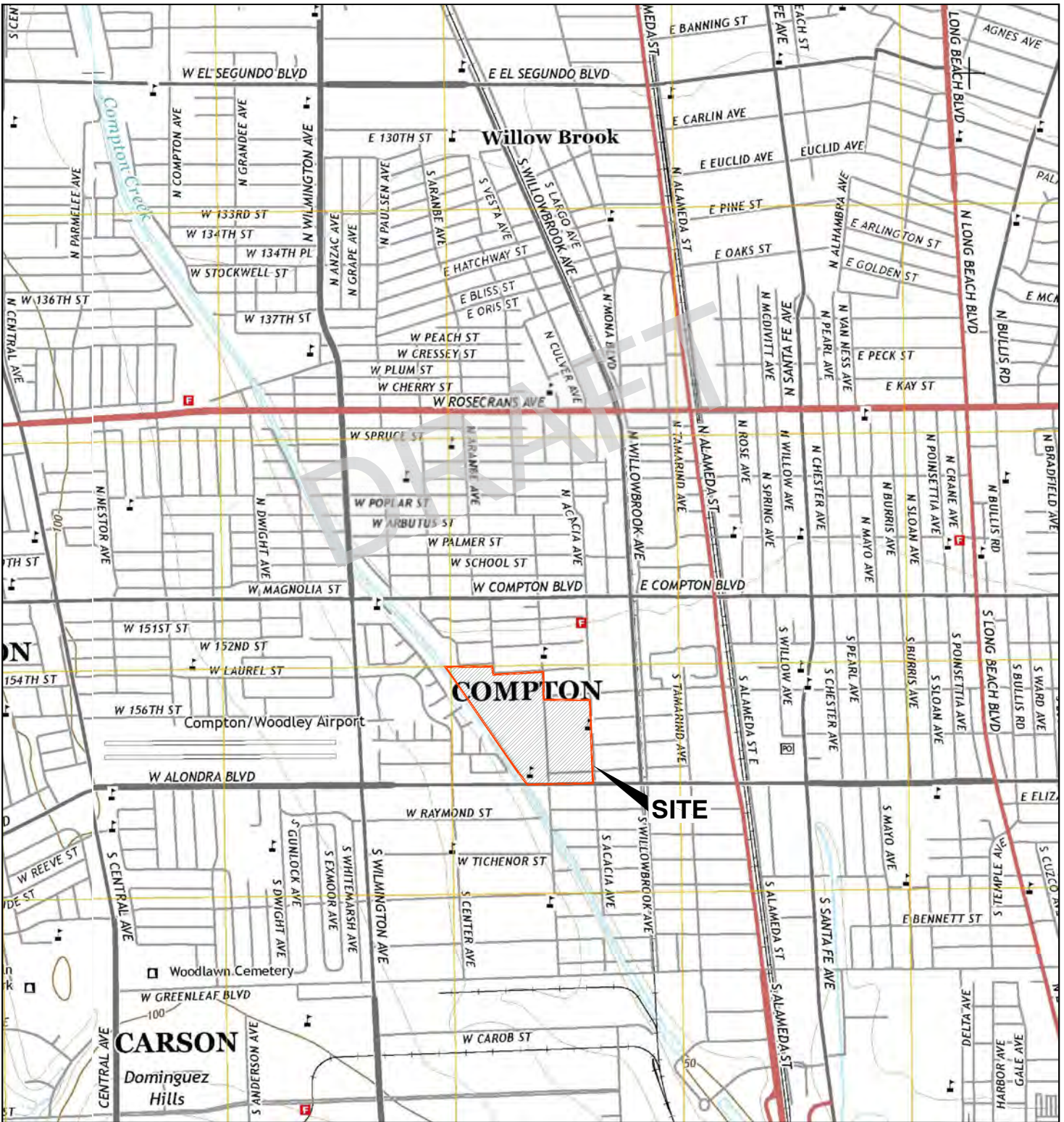
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FIGURES



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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: USGS, 2015.

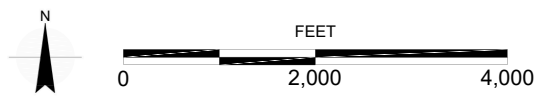


FIGURE □

Ninyo & Moore
 Geotechnical & Environmental Sciences Consultants

SITE LOCATION
 COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA



LEGEND

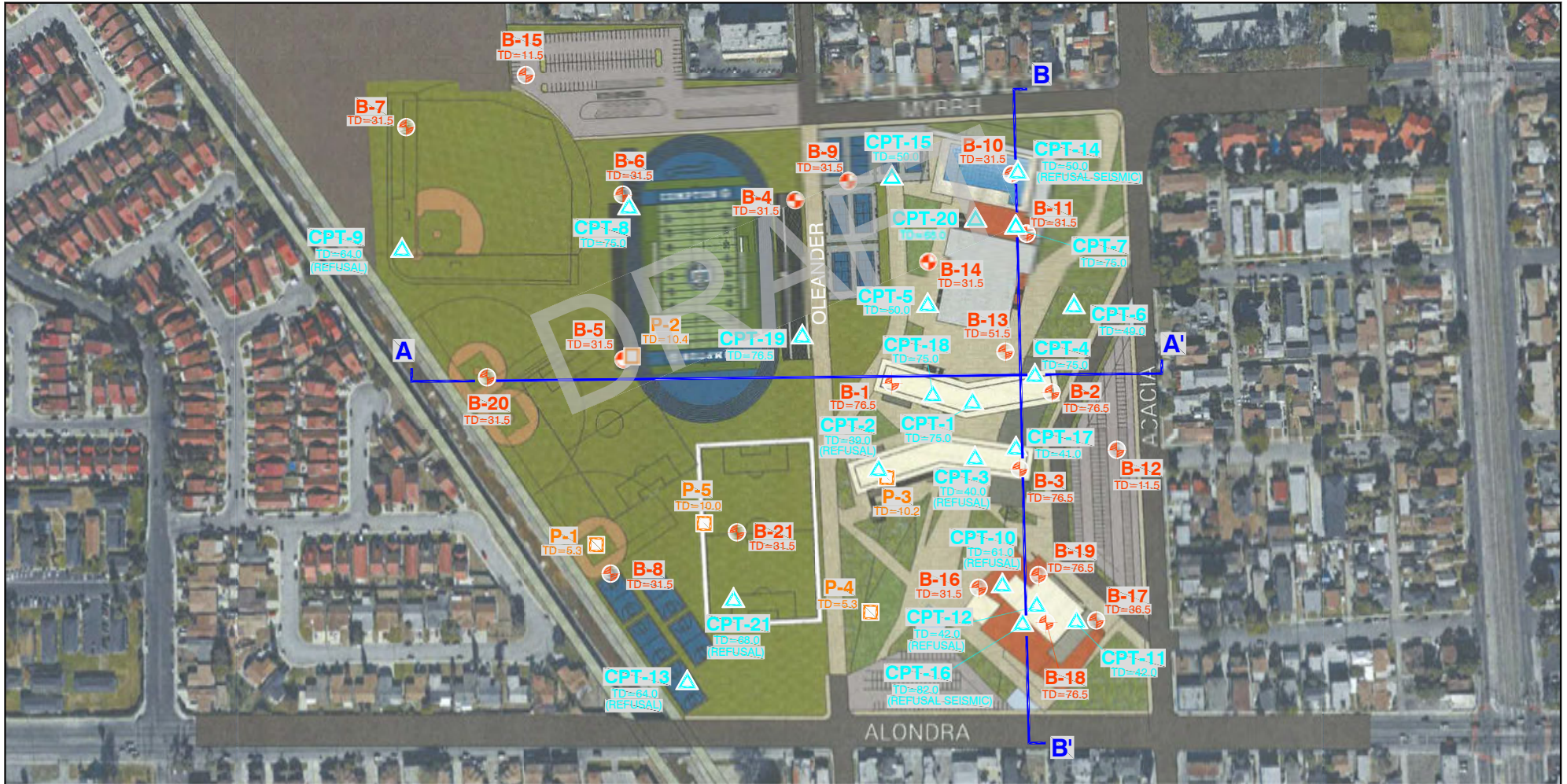
 SITE BOUNDARY

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: GOOGLE EARTH, 2017.



FIGURE

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LEGEND

- | | | | |
|--|---|---|---|
| <p>B-21
TD=31.5</p> <p>P-5
TD=10.0</p> | <p>BORING;
TD=TOTAL DEPTH IN FEET</p> <p>PERCOLATION TEST;
TD=TOTAL DEPTH IN FEET</p> | <p>CPT-21
TD=68.0</p> <p>B B'</p> | <p>CONE PENETRATION TEST;
TD=TOTAL DEPTH IN FEET</p> <p>CROSS SECTION</p> |
|--|---|---|---|

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: DLR GROUP, 2017.

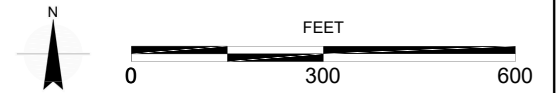
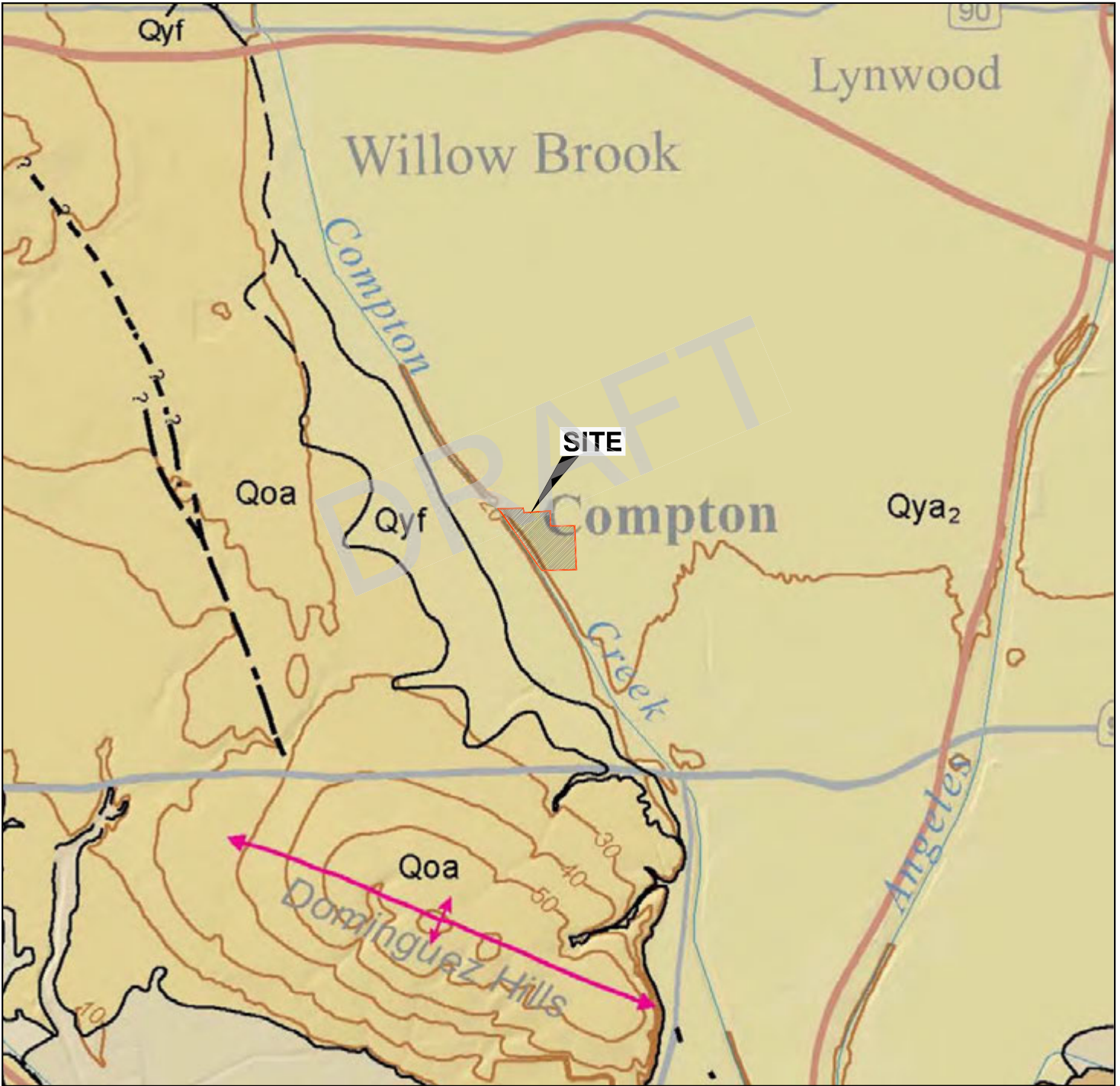


FIGURE □

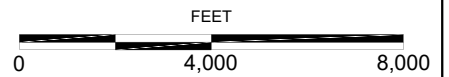


REFERENCE: GEORGE J. SAUCEDO, H. GARY GREENE, MICHAEL P KENNEDY AND STEPHEN P BEZONE, 2016.

LEGEND

- | | | | |
|--|---------------------|--|-----------------------------|
| | OLD ALLUVIUM | | YOUNG ALLUVIAL FAN DEPOSITS |
| | YOUNG ALLUVIUM | | GEOLOGIC CONTACT |
| | OLD MARINE DEPOSITS | | |

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.



FIGURE

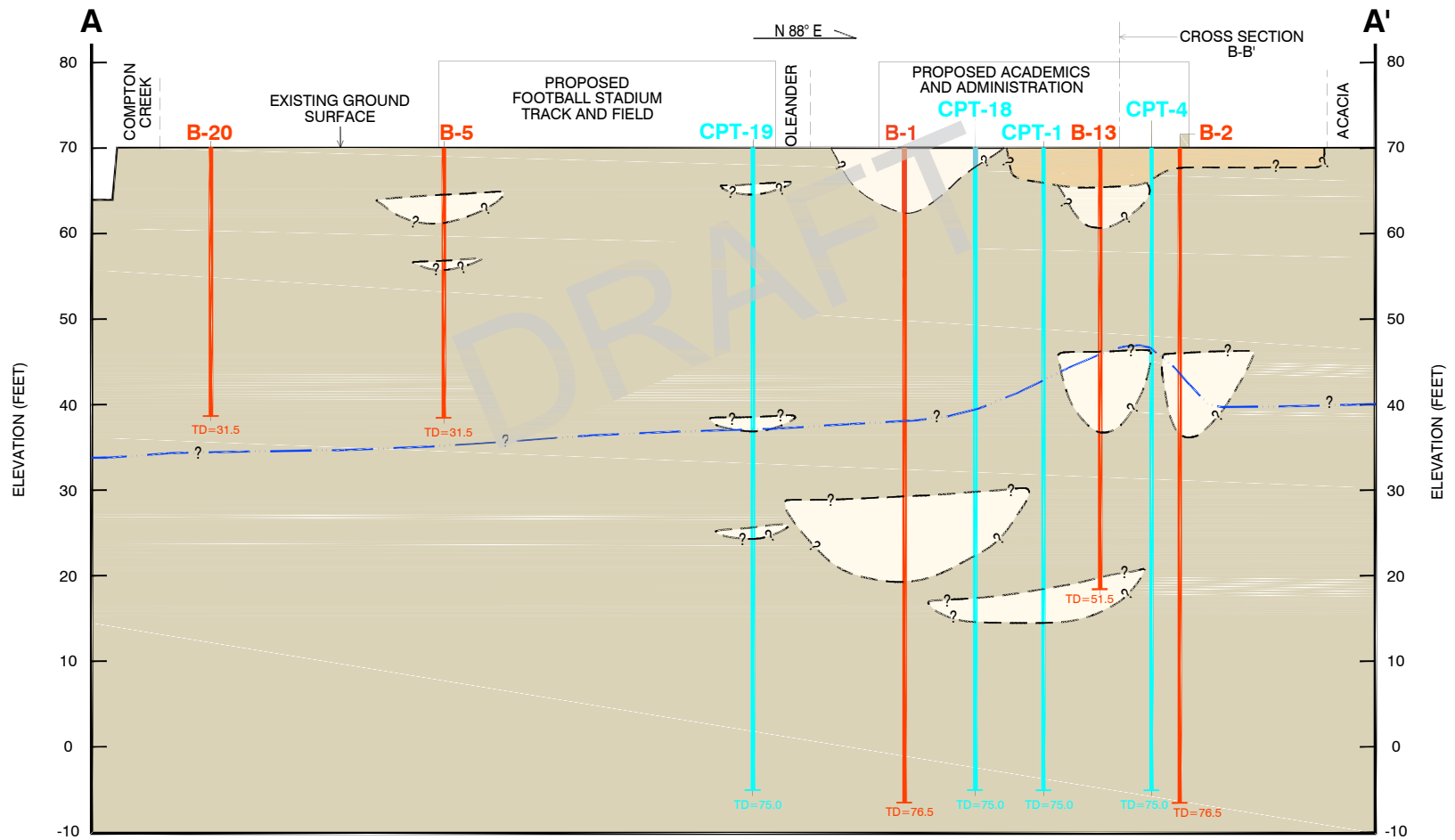
REGIONAL GEOLOG

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

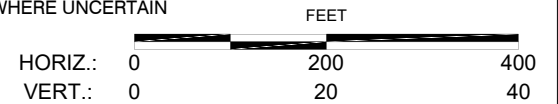


FIGURE 5

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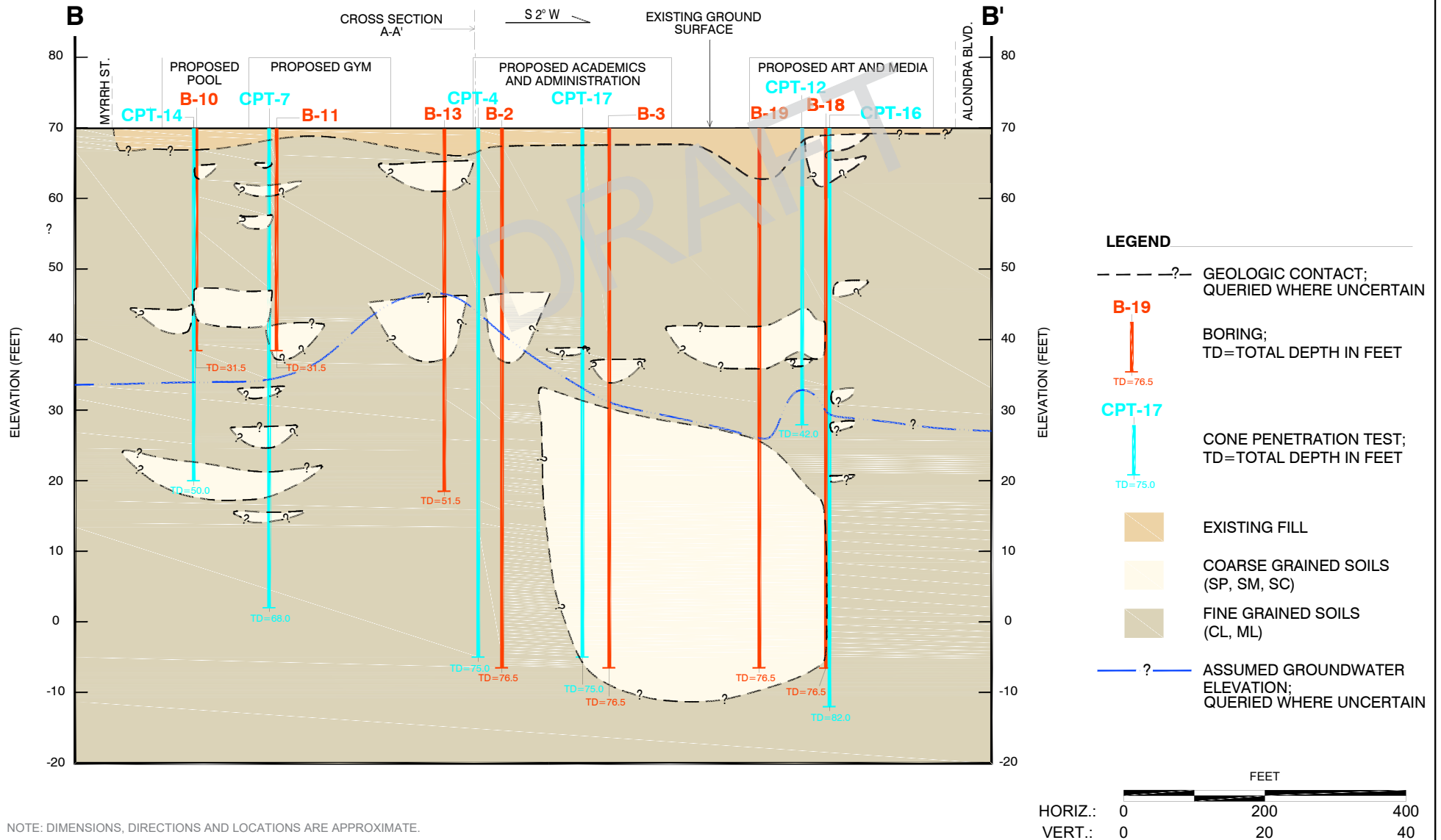
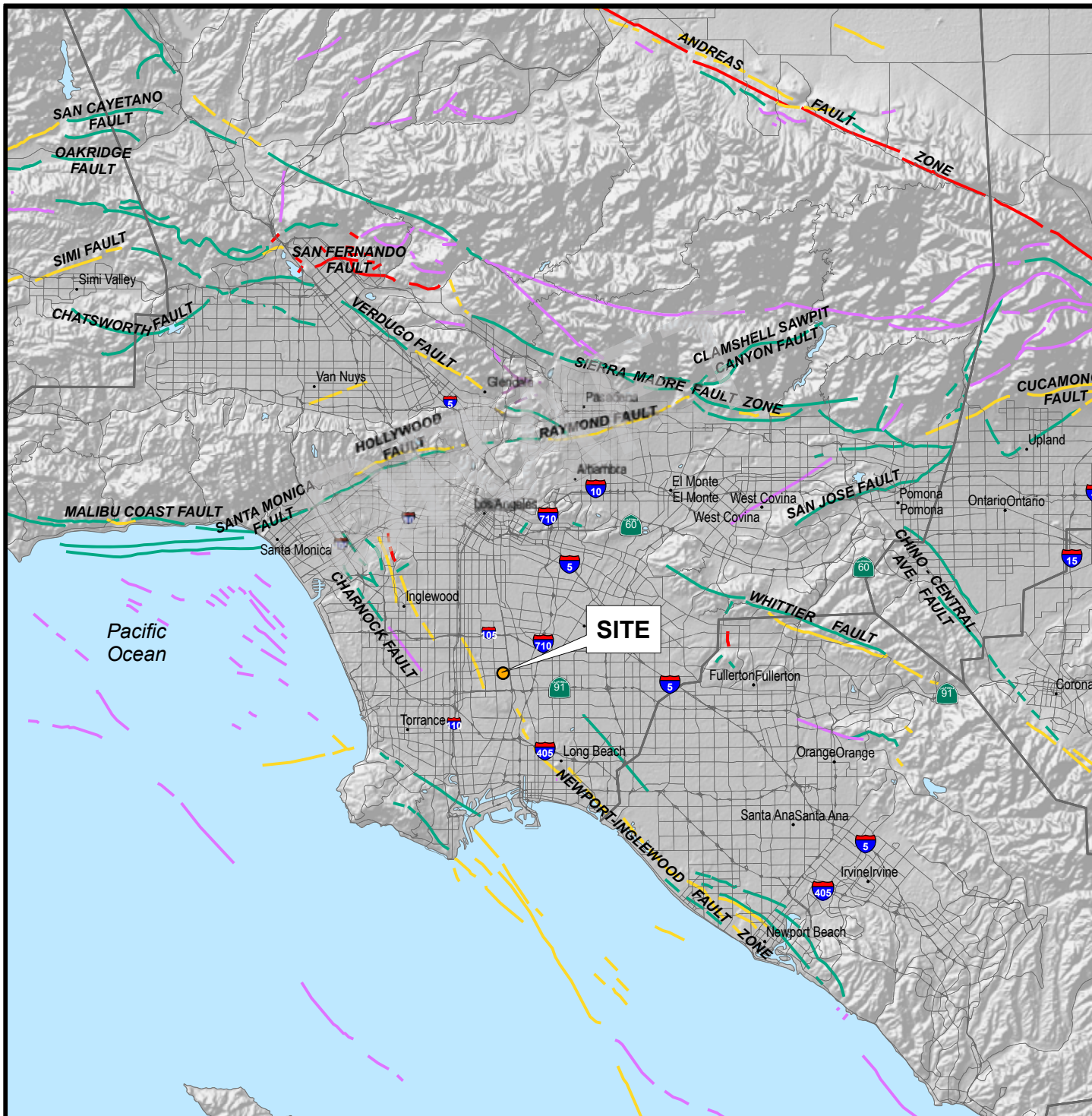


FIGURE □

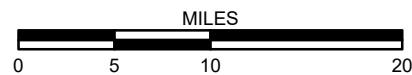


GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
 REFERENCE: JENNINGS, 1994, FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS

LEGEND

FAULT ACTIVITY:

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY
- QUATERNARY
- COUNTY BOUNDARIES

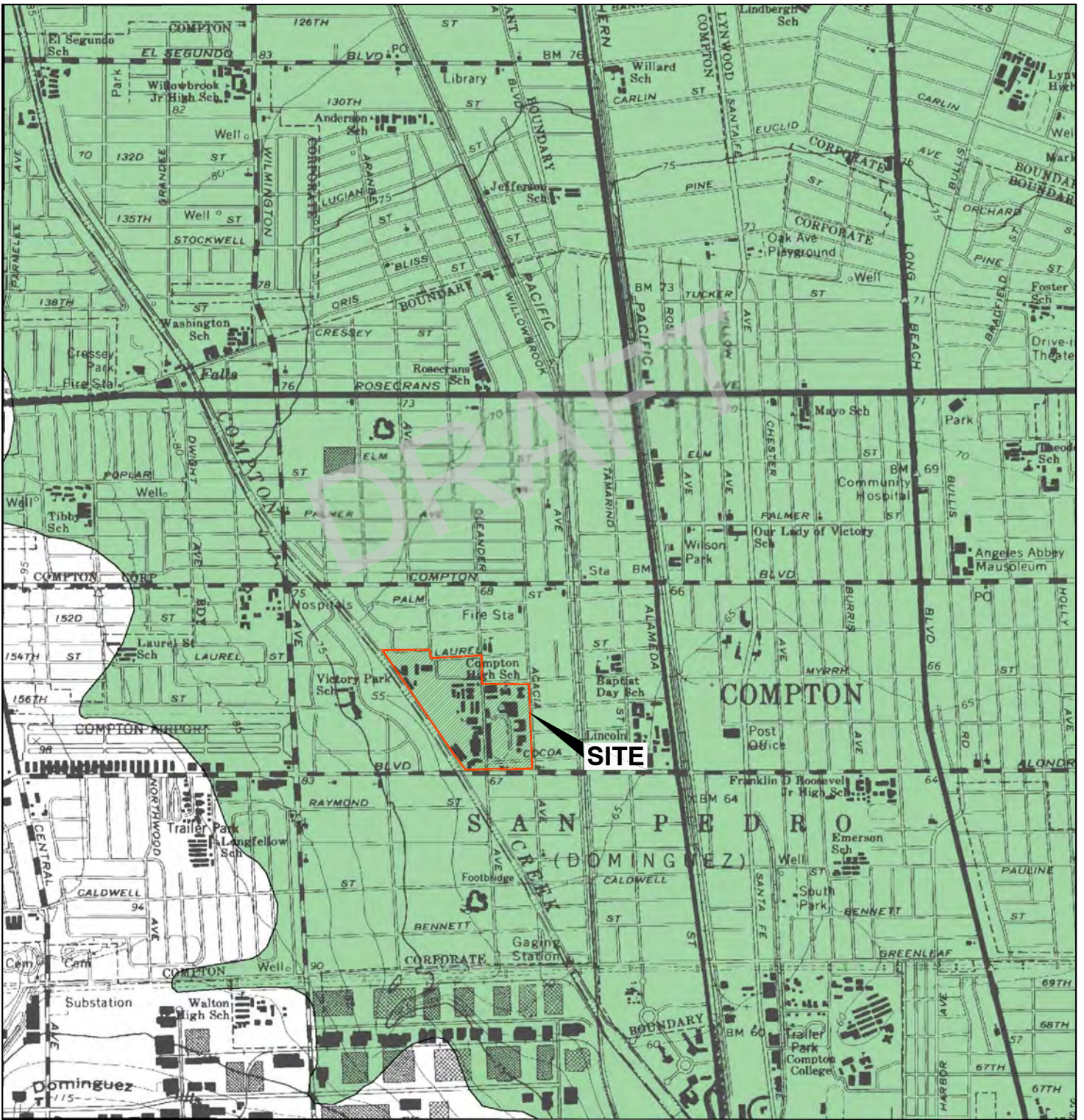


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FIGURE 7

FAULT LOCATIONS

COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA



REFERENCE: CALIFORNIA GEOLOGICAL SURVEY, 1999.

LEGEND

LIQUEFACTION:
 Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

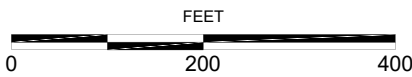
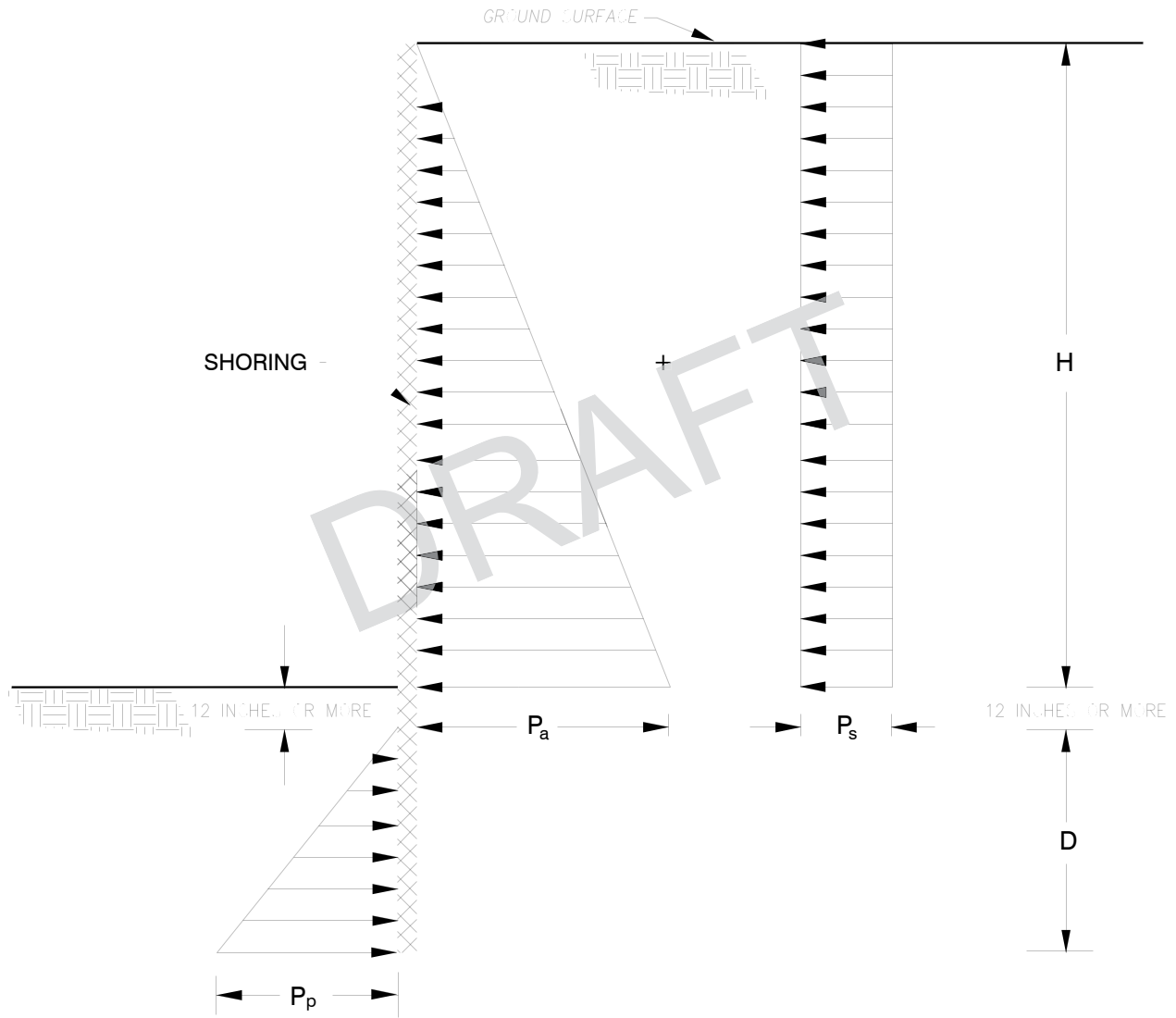


FIGURE □

SEISMIC HAZARD ZONES

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



NOTES:

1. ACTIVE LATERAL EARTH PRESSURE, P_a
 $P_a = 35 H$ psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE, P_s
 $P_s = 120$ psf
3. PASSIVE LATERAL EARTH PRESSURE, P_p
 $P_p = 350 D$ psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

FIGURE □

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APPENDIX A

Boring Logs

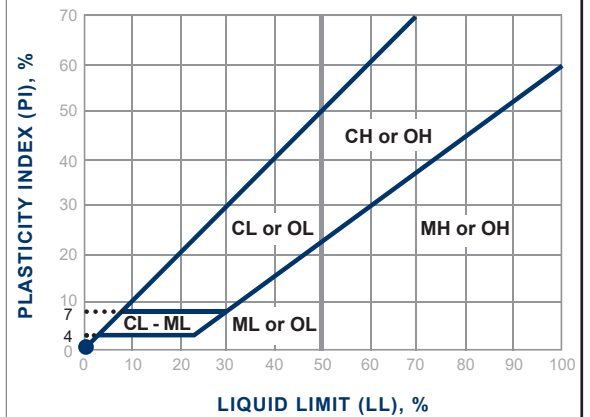
ASTM D 2488

Primary Divisions		Secondary Divisions			
		Group Symbol	Group Name		
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVEL more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL □ □ □ □ □ □ □ □	GW	well-graded GRAVEL	
			GP	poorly graded GRAVEL	
		GRAVEL with DUAL CLASSIFICATIONS □ □ □ □ □ □ □ □	GW-GM	well-graded GRAVEL with silt	
			GP-GM	poorly graded GRAVEL with silt	
			GW-GC	well-graded GRAVEL with clay	
		GRAVEL with FINES more than □ □ □ □ □	GP-GC	poorly graded GRAVEL with	
			GM	silty GRAVEL	
			GC	clayey GRAVEL	
		SAND 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND □ □ □ □ □ □ □ □	SW	well-graded SAND
			SP	poorly graded SAND	
	SAND with DUAL CLASSIFICATIONS □ □ □ □ □ □ □ □		SW-SM	well-graded SAND with silt	
			SP-SM	poorly graded SAND with silt	
			SW-SC	well-graded SAND with clay	
	SAND with FINES more than □ □ □ □ □		SP-SC	poorly graded SAND with clay	
			SM	silty SAND	
			SC	clayey SAND	
	FINE-GRAINED SOILS 50% or more passes No. 200 sieve		SILT and CLAY liquid limit less than 50%	INORGANIC	CL
		ML			SILT
CL-ML		silty CLAY			
ORGANIC		OL (PI > 4)		organic CLAY	
		OL (PI < 4)		organic SILT	
SILT and CLAY liquid limit 50% or more		INORGANIC	CH	fat CLAY	
			MH	elastic SILT	
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY	
			OH (plots below "A"-line)	organic SILT	
		Highly Organic Soils		PT	Peat

Grain Size

Description	Sieve Size	Grain Size	Approximate Size
Boulders	> 12"	> 12"	Larger than basketball-sized
Cobbles	3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	Thumb-sized to □ □ □ □ □
	Fine	#4 - 3/4"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	Rock-salt-sized to pea-sized
	Medium	#40 - #10	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	Flour-sized to sugar-sized
Fines	Passing #200	< 0.0029"	Flour-sized and smaller

Plasticity Chart





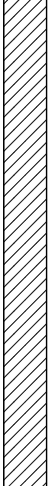
Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

Consistency - Fine-Grained Soil

Consistency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
□ □ □	9 - 15	11 - 20	6 - 10	7 - 13
V □ □ □ □	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
	Bulk	Driven						
0	XX/XX							Bulk sample. Modified split-barrel drive sampler. No recovery with modified split-barrel drive sampler. Sample retained by others. Standard Penetration Test (SPT). No recovery with a SPT. Shelby tube sample. Distance pushed in inches/length of sample recovered in inches. No recovery with Shelby tube sampler. Continuous Push Sample. Seepage. Groundwater encountered during drilling. Groundwater measured after drilling.
5								
10								
15							SM	MAJOR MATERIAL TYPE (SOIL): Solid line denotes unit change.
15							CL	Dashed line denotes material change. Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Shear Bedding Surface
20								The total depth line is a solid line that is drawn at the bottom of the boring.

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/6/17 & 11/8/17	B-1
								70' ± (MSL)	SHEET 1 OF 3
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								VAM	LOGGED BY VAM REVIEWED BY MRH
0							SC	ALLUVIUM: Olive brown, moist, medium dense, clayey SAND; few iron oxidation staining.	
			13	12.1	87.3		SM	Light gray, moist, loose, silty SAND.	
10			6				CL	Very dark gray to black, moist, very stiff, CLAY. Light olive brown; stiff.	
			11	32.2	89.1		ML	Yellowish brown, moist, loose SILT; little iron oxidation staining.	
20			3				CL	Gray, moist, soft, CLAY; trace organic fragments alternating with black sand layers with abundant shell fragments.	
			7	51.3	70.8			Stiff; few caliche gravel.	
30			5					Very dark greenish gray; little caliche gravel. Gravel (drill rig broke down; backfilled; continued on 11/8/17). @ 32': Groundwater encountered during drilling.	
			39	20.0	109.3		ML	Light brownish gray; wet, hard. Light brownish gray, wet, medium dense, sandy SILT; some iron oxidation staining.	
40									

FIGURE A-1

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION		
	Bulk	Driven						DATE DRILLED	BORING NO.	
								11/6/17 & 11/8/17	B-1	
								70' ± (MSL)	SHEET 2 OF 3	
								8" Hollow-Stem Auger (Geoboden)		
								140 lbs. (Auto. Trip Hammer)	DROP 30"	
								VAM	LOGGED BY VAM REVIEWED BY MRH	
40			42				SM	ALLUVIUM: (Continued) Light brownish gray, wet, very dense, silty SAND.		
			73					<p style="text-align: center; font-size: 48px; opacity: 0.2;">DRAFT</p>		
50			33			CL	Greenish gray, wet, hard, CLAY.			
60			65				Few caliche gravel.			
70			38				Some iron oxidation staining.			
80							Total Depth = 76.5 Feet. Groundwater encountered at approximately 32 feet during drilling. Backfilled with cement bentonite slurry on 11/8/17.			

FIGURE A- 2

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/6/17 & 11/8/17</u> BORING NO. <u>B-1</u>
	Bulk Driven							GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>3</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>
								DESCRIPTION/INTERPRETATION
80								Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
90								
100								
110								
120								

FIGURE A-3

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/7/17</u> BORING NO. <u>B-2</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden Drilling)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
0							SM	ASPHALT CONCRETE: Approximately 4 inches thick.	
							GM	AGGREGATE BASE:	
							SW	Dark brown, moist, medium dense, silty SAND with gravel; approximately 5 inches thick.	
							ML	CEMENT CONCRETE: Approximately 4 inches thick.	
		23	9.9	104.6				AGGREGATE BASE: Brown, moist, medium dense, silty GRAVEL with sand; approximately 4 inches thick.	
								FILL: Gray, moist, loose, well graded SAND with gravel.	
10		5					CL	ALLUVIUM: Olive brown, moist, medium dense, SILT; micaceous. Reddish gray, moist, firm, CLAY with silt; trace mottling.	
							ML	Olive brown, moist, very stiff, SILT; laminated.	
		19	28.8	93.1					
							CL	Dark gray, moist, soft, CLAY; micaceous.	
20		2							
							SM	Gray, moist, medium dense, silty SAND.	
		38	21.6	103.1					
30		21						@30': Groundwater encountered during drilling. Wet; dense.	
							CL	Dark gray, wet, firm, CLAY.	
		6							
40									

FIGURE A- 4

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/7/17	B-2
								70' ± (MSL)	SHEET 2 OF 3
								8" Hollow-Stem Auger (Geoboden Drilling)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	LOGGED BY ER REVIEWED BY MRH
40			21				CL	ALLUVIUM: (Continued) Dark gray, wet, hard, CLAY.	
			14					Light brown; very stiff.	
50							ML	Olive, wet, hard, SILT; micaceous.	
			25						
60							CL	Olive, wet, hard, CLAY.	
			39						
70									
			26						
80								Total Depth = 76.5 Feet. Groundwater encountered at approximately 30 feet during drilling. Backfilled with cement-bentonite slurry and capped with concrete on 11/7/17.	

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FIGURE A- 5

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/7/17</u> BORING NO. <u>B-2</u>
	Bulk Driven							GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>3</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden Drilling)</u>
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>
								SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>
								DESCRIPTION/INTERPRETATION
80								Notes: Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
90								
100								
110								
120								

FIGURE A- 6

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							11/7/17	B-3	
							GROUND ELEVATION	SHEET	OF
							70' ± (MSL)	1	3
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)		
							DRIVE WEIGHT	DROP	
							140 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							VAM	VAM	MRH
							DESCRIPTION/INTERPRETATION		
0						SC	ASPHALT CONCRETE: Approximately 4½ inches thick.		
						ML	AGGREGATE BASE: Black, dense, asphalt-treated base; approximately 5 inches thick.		
						CL	ALLUVIUM: Very dark olive brown, moist, loose, clayey SAND; iron oxidation staining.		
6						CL	Olive yellow, moist, loose, SILT. Light olive brown, moist, stiff, CLAY.		
						ML	Light olive brown, moist, loose, SILT; trace root casts, few iron oxidation staining.		
10		5				CL	Pale brown, moist, very stiff, sandy CLAY; light red mottling.		
			19.8	107.9		CL	Few caliche gravel; few iron and manganese oxidation staining.		
18		18				CL	Hard.		
			23.7	104.2		SM	Pale brown, moist, dense, silty SAND; abundant iron oxidation staining.		
20		18				CL	Pale brown, moist, hard, CLAY; few caliche gravel; abundant iron oxidation staining.		
			10.0	96.7					
30		30							
40									

FIGURE A-7

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/7/17</u> BORING NO. <u>B-3</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>2</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
40			61	☒			SP-SM	ALLUVIUM: (Continued) Pale brown, wet, very dense, poorly graded SAND with silt. @ 40.0': Groundwater encountered during drilling.	
			72				SP	Pale brown, wet, very dense, poorly graded SAND.	
50							SC	Dark greenish gray, wet, dense, clayey SAND.	
			29						
60									
			51					Some caliche gravel.	
70									
			49					Some iron oxidation staining.	
80								Total Depth = 76.5 Feet. Groundwater encountered at approximately 40.0 feet during drilling. Backfilled with cement bentonite slurry and capped with concrete on 11/7/17.	

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FIGURE A- 8

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/7/17</u> BORING NO. <u>B-3</u>	
	Bulk Driven							GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>3</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
80								<p>Notes:</p> <p>Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>	
90									
100									
110									
120									

FIGURE A-9

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/9/17	B-4
								70' ± (MSL)	SHEET 1 OF 2
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								GM	LOGGED BY GM REVIEWED BY MRH
0							SM	ALLUVIUM:	
							SP	Brown, moist, medium dense, silty SAND; trace clay pockets of roots. Grayish brown, moist, medium dense, poorly graded fine SAND.	
			12				CL	Olive brown, moist, very stiff, CLAY.	
10			20	19.2	92.5		SM	Olive brown, moist, medium dense, silty SAND.	
							CL	Dark brown, moist, very stiff, CLAY.	
			20					Increase in sandy clay.	
20			11				SM	Dark brown, moist, loose, silty SAND.	
							CL	Dark brown, moist, very stiff, sandy CLAY.	
								Sandy clay. Hard.	
			28				SC	Dark reddish brown, moist, dense, clayey SAND.	
30			32				CL	Black, moist, hard, CLAY.	
								Reddish brown.	
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils on 11/9/17.	
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
40								The ground elevation shown above is an estimation only. It is based on our	

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FIGURE A- 10

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/9/17	B-4				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	GM	LOGGED BY	GM	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 11

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/6/17	B-5
								70' ± (MSL)	SHEET 1 OF 2
								8" Hollow-Stem Auger (Cal Pac Drilling)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								VAM	LOGGED BY VAM REVIEWED BY MRH
0							CL	ALLUVIUM: Very dark olive brown, moist, firm, CLAY.	
10			10				SM	Reddish brown, moist, medium dense, silty SAND. Light brownish gray.	
10			6				CL	White to light gray, moist, stiff, CLAY; caliche gravel.	
							CL-ML	Light olive brown, moist, stiff, clayey SILT; blocky texture.	
							SM	Light olive brown, moist, loose, silty SAND.	
			12				CL	Very dark grayish brown to black, moist, stiff, CLAY; few caliche gravel.	
20			11					Light olive brown; very stiff; some caliche gravel.	
			47					Hard.	
30			10					Very pale brown; stiff; few caliche veins; few iron oxidation staining.	
40								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with tamped-in-place, on-site soils on 11/6/17. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our	

FIGURE A- 12

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/6/17</u> BORING NO. <u>B-5</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>2</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Cal Pac Drilling)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
50									
60									
70									
80									

FIGURE A- 13

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/17</u> BORING NO. <u>B-6</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
0							GM	ASPHALT CONCRETE: Approximately 3½ inches thick.	
							CL	AGGREGATE BASE: Reddish brown, moist, medium dense, silty GRAVEL with sand; approximately 18 inches thick; trace concrete pieces.	
			8				CL	FILL: Mottled black and yellow, moist, firm, CLAY.	
							SM	ALLUVIUM: Very dark olive brown, moist, stiff, CLAY. Reddish brown, moist, loose, silty SAND.	
							CL	Very dark olive brown, moist, stiff, CLAY.	
10			13					Pale brown.	
								Very stiff.	
			15				SM	Pale brown, moist, medium dense, silty SAND; little iron oxidation staining.	
							ML	Pale brown, moist, loose, sandy SILT.	
20			12				CL	Black, moist, stiff, CLAY.	
								Dark greenish gray.	
30			20					Pale brown and greenish gray mottling; very stiff; some caliche gravel.	
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with soils and capped with concrete on 11/8/17.	
								<u>Notes:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
								The ground elevation shown above is an estimation only. It is based on our	

FIGURE A- 14

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/8/17	B-7
								70' ± (MSL)	SHEET 1 OF 2
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	LOGGED BY ER REVIEWED BY MRH
0							ML	ALLUVIUM: Light brown, moist, very stiff, SILT with clay.	
11			11				CL	Black, moist, stiff, CLAY.	
15			15					Grayish brown; very stiff.	
45			45	14.4	113.9			Light brown; hard.	
20			17					Very stiff.	
78			78				ML	Yellowish brown, moist, hard, SILT; trace clay.	
30			17				CL	Light brown, moist, very stiff, CLAY.	
40								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils on 11/8/17. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our	

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FIGURE A- 16

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/8/17	B-7				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	ER	LOGGED BY	ER	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 17

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							11/8/17	B-8	
							GROUND ELEVATION	SHEET	OF
							70' ± (MSL)	1	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)		
							DRIVE WEIGHT	DROP	
							140 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							ER	ER	MRH
							DESCRIPTION/INTERPRETATION		
0						GM	ASPHALT CONCRETE: Approximately 4 inches thick.		
						ML	AGGREGATE BASE: Brown, moist, silt GRAVEL with sand; approximately 3 inches thick.		
							ALLUVIUM: Brown, moist, stiff, SILT with sand and clay.		
		13				CL	Brown, moist, stiff, CLAY.		
10		21					Light brown; hard.		
		48	22.2	105.3					
20		14					Very stiff; laminated.		
		28					Hard.		
30		9					Stiff.		
							Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils and capped with concrete on 11/8/17.		
							<u>Notes:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		
							The ground elevation shown above is an estimation only. It is based on our		

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FIGURE A- 18

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/17</u> BORING NO. <u>B-8</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>	
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
40								<p>interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p> <p style="font-size: 48px; opacity: 0.3; transform: rotate(-15deg); position: absolute; top: 50%; left: 50%;">DRAFT</p>	
50									
60									
70									
80									

FIGURE A- 19

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/8/17</u> BORING NO. <u>B-9</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
0							SM	ALLUVIUM: Brown, moist, loose, silty SAND.	
			21	2.9	91.6		ML	Brown, dry, medium dense, sandy SILT; micaceous.	
10			10				CL	Grayish brown, moist, stiff, silty CLAY; trace sand.	
			10					Reddish brown.	
20			21				SC	Reddish brown, moist, dense, slightly clayey SAND.	
			32	39.1	82.9		SP	Reddish yellow, moist, medium dense, poorly graded, SAND; cohesionless; trace fine gravel.	
30			16				CL	Olive brown, moist, very stiff, CLAY.	
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils on 11/8/17.	
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
								The ground elevation shown above is an estimation only. It is based on our	

FIGURE A- 20

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.
	Bulk	Driven					
DATE DRILLED <u>11/8/17</u> BORING NO. <u>B-9</u> GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u> METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u> DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u> SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u> DESCRIPTION/INTERPRETATION							
40							interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
50							DRAFT
60							
70							
80							

FIGURE A- 21

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION					
	Bulk	Driven						DATE DRILLED	BORING NO.				
								DATE DRILLED	11/9/17	BORING NO.	B-10		
								GROUND ELEVATION	70' ± (MSL)	SHEET	1 OF 2		
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	GM	LOGGED BY	GM	REVIEWED BY	MRH
0							ML	FILL: Grayish brown, moist, stiff, sandy SILT.					
							ML	ALLUVIUM: Grayish brown, moist, stiff, sandy SILT; trace rootlets.					
			6				SM	Reddish brown, moist, loose, silty SAND.					
							CL	Reddish brown, moist, stiff, sandy CLAY.					
10			10	25.5	92.4								
								Very stiff.					
20			13					@20': Seepage. Grayish brown; wet.					
							SC	Olive brown, moist, dense, clayey SAND.					
			25										
							CL	Dark grayish brown, moist, hard, CLAY.					
30			55					Thin laminations of silty sand; trace gravel.					
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Seepage at approximately 20 feet. Backfilled with on-site soils on 11/9/17.					
								<u>Notes:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.					
40													

DRAFT

FIGURE A- 22

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/9/17	B-10				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	GM	LOGGED BY	GM	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 23

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							11/9/17	B-11	
							GROUND ELEVATION	SHEET	OF
							70' ± (MSL)	1	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)		
							DRIVE WEIGHT	DROP	
							140 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							VAM	VAM	MRH
							DESCRIPTION/INTERPRETATION		
0						ML	FILL: Reddish brown, moist, medium dense, SILT with sand.		
						ML	ALLUVIUM: Reddish brown, moist, medium dense, SILT; few oxidation stains; caliche veins; porosity.		
		37							
						SM	Pale brown, moist, medium dense, silty SAND.		
						ML	Reddish brown, moist, medium dense, SILT with sand.		
10		14							
						CL	Very dark brownish gray, moist, hard, CLAY.		
							Reddish brown.		
		47	6.8	99.5					
20		20					Very dark brownish gray to black; very stiff; few iron oxidation staining; trace roots.		
							Some caliche veins.		
		38							
						SP	Reddish yellow, moist, dense, poorly graded SAND.		
30		23							
							Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with cement bentonite slurry and capped with concrete on 11/9/17.		
							<u>Notes:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		
							The ground elevation shown above is an estimation only. It is based on our		
40									

FIGURE A- 24

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/9/17	B-11				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	VAM	LOGGED BY	VAM	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 25

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/9/17	B-12
								70' ± (MSL)	SHEET 1 OF 1
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								GM	LOGGED BY GM REVIEWED BY MRH
0							SM	ASPHALT CONCRETE: Approximately 4 inches thick.	
							SM	AGGREGATE BASE: Brown, moist, medium dense, silty SAND with gravel. Approximately 6 Inches thick.	
			3				CL	FILL: Reddish brown, moist, medium dense, silty SAND; trace gravel. ALLUVIUM: Reddish brown, moist, soft, CLAY; laminated sand layers.	
10			6					Firm.	
								Total Depth = 11.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils and patched with concrete on 11/9/17.	
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
20								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
30									
40									

FIGURE A- 26

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							11/7/17	B-13	
							GROUND ELEVATION	SHEET	OF
							70' ± (MSL)	1	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)		
							DRIVE WEIGHT	DROP	
							140 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							VAM	VAM	MRH
							DESCRIPTION/INTERPRETATION		
0						SM	ASPHALT CONCRETE: Approximately 2½ inches thick.		
						SM	AGGREGATE BASE: Dark brown, moist, medium dense, silty SAND with gravel; approximately 9½ inches thick.		
		14	10.2	92.2		CL	FILL: Brown, moist, loose to medium dense, silty SAND.		
						SM	Light red.		
							ALLUVIUM: Very dark olive gray to black, moist, firm CLAY with sand.		
							Reddish brown, moist, medium dense, silty SAND; iron oxidation staining.		
							Some gravel.		
10		7				CL	Dark olive gray, moist, stiff, CLAY.		
						ML	Pale brown, moist, medium dense, sandy SILT.		
		22							
20		15				CL	Dark reddish gray to black, moist, very stiff, CLAY; trace shell fragments.		
		33				SM	@ 23.5': Groundwater encountered during drilling. Light brownish gray, wet, medium dense, silty SAND.		
30		21					Very dark bluish gray; dense.		
						CL	Dark grayish brown, wet, stiff, CLAY.		
		10	74.1	55.3					
40									

FIGURE A- 27

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/7/17	B-13
								70' ± (MSL)	SHEET 2 OF 2
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								VAM	LOGGED BY VAM REVIEWED BY MRH
40			20				CL	ALLUVIUM: (Continued) Dark grayish brown, wet, very stiff, CLAY.	
			70					Yellow; hard.	
50			69				SM	Pale brown, wet, dense, silty SAND.	
								<p>Total Depth = 51.5 Feet. Groundwater encountered at approximately 23.5 feet during drilling. Backfilled with cement bentonite slurry and capped with concrete on 11/7/17.</p> <p><u>Notes:</u> Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>	
60									
70									
80									

FIGURE A- 28

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							11/6/17	B-14	
							GROUND ELEVATION	SHEET	OF
							70' ± (MSL)	1	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)		
							DRIVE WEIGHT	DROP	
							140 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							ER	ER	MRH
							DESCRIPTION/INTERPRETATION		
0						ML	ASPHALT CONCRETE: Approximately 1 inch thick. CEMENT CONCRETE: Approximately 2 inches thick. FILL: Light brown, moist, loose, SILT; micaceous.		
		14	6.2	91.0		SP	ALLUVIUM: Light brown, moist, loose, poorly graded SAND.		
10		7				CL	Dark brown, moist, stiff, CLAY with sand.		
		24				ML	Light brown, moist, medium dense, SILT.		
20		3					Loose.		
		17	39.1	82.3			Gray; medium dense.		
30		9				CL	Gray, moist, stiff, CLAY with sand; trace gravel.		
							Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils and capped with concrete on 11/6/17.		
							<u>Notes:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.		
40							The ground elevation shown above is an estimation only. It is based on our		

FIGURE A- 29

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/6/17	B-14				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	ER	LOGGED BY	ER	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 30

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
	Bulk	Driven						
DATE DRILLED <u>11/8/17</u> BORING NO. <u>B-15</u> GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u> DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u> SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>								
0							SM	ASPHALT CONCRETE: Approximately 6 inches thick.
							ML	AGGREGATE BASE: Brown, moist, medium dense silty SAND with gravel. Approximately 6 inches thick.
			11				CL	ALLUVIUM: Brown, moist, loose, SILT. Brown, moist, stiff, CLAY.
							ML	Brown, moist, loose, SILT.
10			7					
								Total Depth = 11.5 Feet. Groundwater was not encountered during drilling. Backfilled with on-site soils on 11/8/17. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
20								
30								
40								

FIGURE A- 31

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/8/17	B-16
								70' ± (MSL)	SHEET 1 OF 2
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	ER
								MRH	
0							ML	ALLUVIUM: Reddish gray, moist, medium dense, SILT with sand; micaceous.	
23			23				CL	Black, moist, very stiff, CLAY with silt; micaceous; laminated.	
10			4					Reddish brown; firm; with silt and sand.	
20			20	33.4	90.9			Very stiff.	
20			15					Light brown.	
27			27					Hard.	
30			23						
40								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils on 11/8/17. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our	

DRAFT

FIGURE A- 32

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						11/8/17	B-16				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	8" Hollow-Stem Auger (Geoboden)				
								DRIVE WEIGHT	140 lbs. (Auto. Trip Hammer)	DROP	30"		
								SAMPLED BY	ER	LOGGED BY	ER	REVIEWED BY	MRH
								DESCRIPTION/INTERPRETATION					
40								interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.					
50								DRAFT					
60													
70													
80													

FIGURE A- 33

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/9/17</u> BORING NO. <u>B-17</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>GM</u> LOGGED BY <u>GM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
0							CL	ASPHALT CONCRETE: Approximately 2 inches thick. PORTLAND CEMENT CONCRETE: Approximately 4.5 inches thick. ALLUVIUM: Dark grayish brown, moist, stiff, CLAY; laminated; thin laminations of silty sand. Olive brown, moist, loose, silty SAND. Seepage.	
			12	32.2	85.8		SM		
10			14				CL	Dark brown, moist, very stiff, sandy CLAY; laminated with sand; mottled reddish brown.	
			15					Reddish brown.	
20			10					Dark olive brown; stiff; thin laminations of silty sand; trace gravel.	
			39	12.9	116.7		SC	Dark gray. Reddish brown, moist, medium dense, clayey SAND.	
							SP	Reddish brown, moist, medium dense, poorly graded SAND.	
30			28				CL	Brown, moist, hard, CLAY; mottled light gray.	
			76					Laminations of sand.	
40								Total Depth = 36.5 Feet. Groundwater not encountered during drilling. Slight seepage encountered at approximately 3 feet. Backfilled with on-site soils and capped with concrete on 11/9/17.	

FIGURE A- 34

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/9/17</u> BORING NO. <u>B-17</u>
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u> SHEET <u>2</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>
								SAMPLED BY <u>GM</u> LOGGED BY <u>GM</u> REVIEWED BY <u>MRH</u>
								DESCRIPTION/INTERPRETATION
40								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.
50								
60								
70								
80								

DRAFT

FIGURE A- 35

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/7/17	B-18
								70' ± (MSL)	SHEET 1 OF 2
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	ER
								MRH	
0							SM	ASPHALT CONCRETE: Approximately 5 inches thick. AGGREGATE BASE: Brown, moist, medium dense, silty SAND with gravel. Approximately 2 inches thick. CEMENT CONCRETE: Approximately 3 inches thick. ALLUVIUM: Light brown, moist, loose, silty SAND.	
7			7						
10			3				CL	Brown, moist, soft, CLAY with silt; trace sand.	
13			13	31.0	89.6			Stiff; laminated.	
20			7					Trace mottling.	
33			33	15.1	108.1			Hard.	
30			25				SM	Light brown, moist, dense, silty SAND.	
42			42				CL	Light brown, moist, hard, CLAY with silt; laminated.	
40									

FIGURE A- 36

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
							11/7/17	B-18				
							GROUND ELEVATION	SHEET	OF			
							70' ± (MSL)	2	2			
							METHOD OF DRILLING 8" Hollow-Stem Auger (Geoboden)					
							DRIVE WEIGHT	DROP				
							140 lbs. (Auto. Trip Hammer)	30"				
							SAMPLED BY	LOGGED BY	REVIEWED BY			
							ER	ER	MRH			
							DESCRIPTION/INTERPRETATION					
40		27				ML	ALLUVIUM: (Continued) Light brown, moist, dense, SILT. @ 41': Groundwater encountered during drilling.					
		51	18.4	109.3			Wet.					
50							DRAFT					
		30				SP				Brown, wet, dense, poorly graded SAND.		
60												
		62										
70												
		12					Medium dense.					
							Total Depth = 76.5 Feet. Groundwater encountered at approximately 41 feet during drilling. Backfilled with cement bentonite slurry and capped with concrete on 11/7/17.					
80												

FIGURE A- 37

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/6/17	B-19
								70' ± (MSL)	SHEET 1 OF 3
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	LOGGED BY ER REVIEWED BY MRH
0							GM SM	ASPHALT CONCRETE: Approximately 4 inches thick. AGGREGATE BASE: Brown, moist, medium dense, silty GRAVEL with sand; approximately 5 inches thick. FILL: Light brown, moist, loose, silty SAND; micaceous.	
13			13	10.6	89.0				
10			5				CL	ALLUVIUM: Light brown, moist, firm, silty CLAY; micaceous.	
16			16					Very stiff.	
20			9					Stiff.	
17			17	24.4	101.3			Very stiff.	
30			16				SP	Light brown, moist, medium dense, poorly graded SAND.	
27			27				ML	Light brown, moist, medium dense, SILT; micaceous.	
40									

FIGURE A- 38

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION	
	Bulk	Driven						DATE DRILLED	BORING NO.
								11/6/17	B-19
								70' ± (MSL)	SHEET 2 OF 3
								8" Hollow-Stem Auger (Geoboden)	
								140 lbs. (Auto. Trip Hammer)	DROP 30"
								ER	LOGGED BY ER REVIEWED BY MRH
40			39				ML	ALLUVIUM: (Continued) Light brown, moist, medium dense, SILT; micaceous.	
			63	3.9	116.0		SP-SM	Gray, wet, dense, poorly graded SAND with silt.	
50			40				SP	Brown, wet, very dense, poorly graded SAND.	
			47					Dense.	
			53					Very dense.	
80								Total Depth = 76.5 Feet. Groundwater encountered at approximately 44 feet during drilling. Backfilled with cement-bentonite slurry and capped with concrete on 11/6/17.	

DRAFT

FIGURE A- 39

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/6/17</u> BORING NO. <u>B-19</u>	
	Bulk Driven							GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>3</u> OF <u>3</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>ER</u> LOGGED BY <u>ER</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
80								<p>Notes:</p> <p>Groundwater may rise to a level higher than that measured in borehole due to relatively slow rate of seepage in clay and several other factors as discussed in the report. Please refer to the report for groundwater monitoring recommendations.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>	
90									
100									
110									
120									

FIGURE A- 40

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION										
	Bulk	Driven						DATE DRILLED	BORING NO.	GROUND ELEVATION	SHEET	OF	METHOD OF DRILLING	DRIVE WEIGHT	DROP	SAMPLED BY	LOGGED BY	REVIEWED BY
								11/6/17	B-20	70' ± (MSL)	1	2	8" Hollow-Stem Auger (Geoboden)	140 lbs. (Auto. Trip Hammer)	30"	ER	ER	MRH
0							CL	ALLUVIUM: Olive brown, moist, soft, CLAY with silt; trace mottling.										
			12	24.3	94.4			Stiff.										
10			13					Very stiff; with sand; little mottling.										
							ML	Light brown, moist, dense, SILT; little mottling.										
			59															
20			29					Few sand.										
							CL	Light brown, moist, hard, CLAY with silt; trace black organics; trace mottling.										
			29															
30			14					Very stiff.										
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with on-site soils on 11/6/17.										
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.										
								The ground elevation shown above is an estimation only. It is based on our										
40																		

DRAFT

FIGURE A- 41

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/9/17</u> BORING NO. <u>B-21</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>2</u>
								METHOD OF DRILLING <u>8" Hollow-Stem Auger (Geoboden)</u>	
								DRIVE WEIGHT <u>140 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
								DESCRIPTION/INTERPRETATION	
0							CL	CONCRETE: Approximately 8 inches thick.	
							SC	ALLUVIUM: Very dark brownish gray to black, moist, firm, CLAY. Pale brown, moist, loose, clayey SAND.	
							CL	Very dark brownish gray, moist, firm CLAY.	
			4				ML	Brown, moist, loose, sandy SILT.	
							CL	Black, moist, firm CLAY.	
10			13	26.1	98.5			Reddish brown; stiff; little caliche veins; few iron oxidation staining.	
			15					Pale brown; very stiff; few organics; trace oxidation staining.	
20			36					Hard.	
			16					Very stiff.	
30			32					Hard; abundant root casts.	
								Total Depth = 31.5 Feet. Groundwater not encountered during drilling. Backfilled with cement bentonite slurry and capped with concrete on 11/9/17. Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report. The ground elevation shown above is an estimation only. It is based on our	

FIGURE A- 43

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/2/17</u> BORING NO. <u>P-1</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>Hand Auger (Ninyo & Moore)</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
DESCRIPTION/INTERPRETATION									
0							CL	<p>ALLUVIUM: Very dark olive brown, moist, firm to stiff, CLAY; abundant rootlets. Some sand.</p>	
10								<p>Total Depth = 5.3 Feet. Groundwater not encountered during drilling. Backfilled with clean gravel and tamped-in-place soil cuttings on 11/2/17.</p> <p>Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.</p> <p>The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.</p>	
20									
30									
40									

FIGURE A- 45

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/4/17</u> BORING NO. <u>P-2</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>Hand Auger (Ninyo & Moore)</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
DESCRIPTION/INTERPRETATION									
0							CL	ALLUVIUM: Very dark olive brown to black, moist, firm, CLAY; rootlets. Moderately cemented caliche layer; few gravel. Light gray with sand.	
							SM	Light gray, moist, medium dense, silty SAND.	
							CL	Black, moist, very stiff, CLAY.	
							ML	Light gray, moist, medium dense, SILT with sand.	
							CL-ML	Light gray, moist, stiff, silty CLAY.	
10							CL	White to pale brown, moist, HARD; weakly cemented caliche layer; blocky texture.	
								Total Depth = 10.4 Feet. Groundwater not encountered during drilling. Backfilled with clean gravel and tamped-in-place soil cuttings on 11/4/17.	
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
20									
30									
40									

FIGURE A- 46

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/3/17</u> BORING NO. <u>P-3</u>	
	Bulk	Driven						GROUND ELEVATION <u>71' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>Hand Auger (Ninyo & Moore)</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
DESCRIPTION/INTERPRETATION									
0							CL	FILL: Pale red, moist, very stiff, CLAY; little sand; rootlets.	
							CL	ALLUVIUM: Very dark olive brown, moist, very stiff, CLAY; blocky texture. Very dark brown; sandy CLAY.	
							SM	Dark olive brown, moist, medium dense, silty SAND. Light gray.	
							ML	Light gray, moist, medium dense, SILT with sand.	
							CL	Light gray, moist, firm, silty CLAY; few iron and black oxidation staining.	
10								Black; very stiff. Total Depth = 10.2 Feet. Groundwater not encountered during drilling. Backfilled with clean gravel and tamped-in-place soil cuttings on 11/3/17.	
								Notes: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
20									
30									
40									

FIGURE A- 47

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>11/2/17</u> BORING NO. <u>P-4</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>Hand Auger (Ninyo & Moore)</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
DESCRIPTION/INTERPRETATION									
0							SM	FILL:	
							SC	Light red, moist, medium dense, silty SAND.	
							CL	Reddish yellow, moist, medium dense, clayey SAND; little concrete pieces; few gravel.	
							SM	Light olive brown.	
								ALLUVIUM:	
								Very dark olive brown, moist, firm, CLAY.	
								Light gray, moist, medium dense, silty SAND.	
								Total Depth = 5.3 Feet.	
								Groundwater not encountered during drilling.	
								Backfilled with clean gravel and tamped-in-place soil cuttings on 11/2/17.	
								Notes:	
								Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
10									
20									
30									
40									

FIGURE A- 48

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>1/14/17</u> BORING NO. <u>P-5</u>	
	Bulk	Driven						GROUND ELEVATION <u>70' ± (MSL)</u>	SHEET <u>1</u> OF <u>1</u>
								METHOD OF DRILLING <u>Hand Auger (Ninyo & Moore)</u>	
								DRIVE WEIGHT <u>N/A</u> DROP <u>N/A</u>	
								SAMPLED BY <u>VAM</u> LOGGED BY <u>VAM</u> REVIEWED BY <u>MRH</u>	
DESCRIPTION/INTERPRETATION									
0							SM	FILL:	
							SM	Light reddish brown, moist, medium dense, silty SAND; rootlets; few gravel.	
								ALLUVIUM:	
								Light reddish brown, moist, medium dense, silty SAND.	
							CL	Very dark grayish brown to black, moist, hard, CLAY.	
10								Little iron oxidation staining.	
								Reddish brown; few caliche gravel; strongly cemented.	
								Total Depth = 10.0 Feet.	
								Groundwater encountered during drilling.	
								Backfilled with clean gravel and tamped-in-place soil cuttings on 11/4/17.	
								Notes:	
								Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.	
20								The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.	
30									
40									

FIGURE A- 49

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following method.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

The Standard Penetration Test (SPT) Sampler

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 18 inches with a 140-pound hammer free-falling from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer of the drill rig in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

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APPENDIX B

Cone Penetration Test Results



Ninyo & Moore

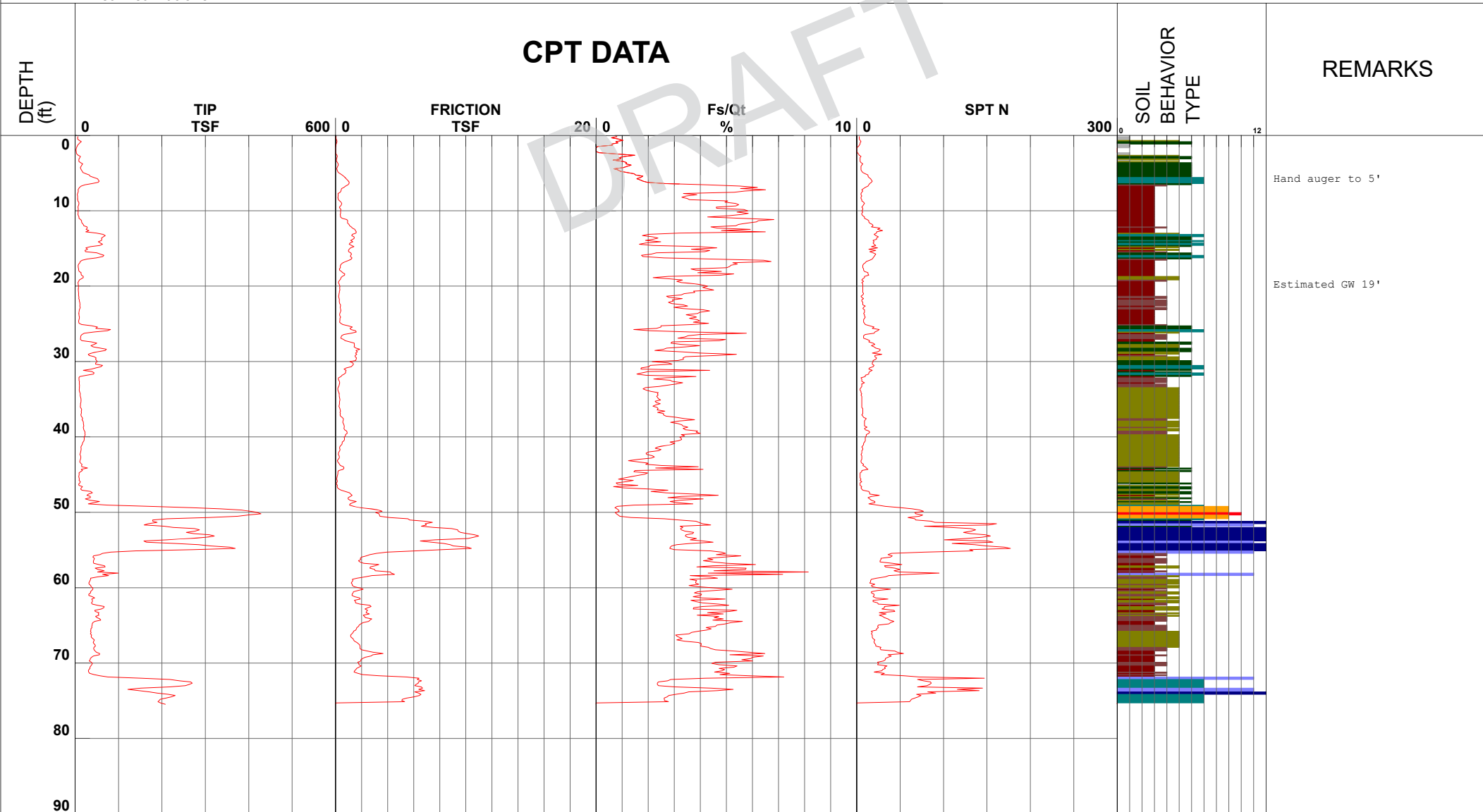
Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-01 Date and Time 11/3/2017 1:01:20 PM
 EST GW Depth During Test 19.00 ft

Filename SDF(171).cpt
 GPS
 Maximum Depth 75.46 ft

Net Area Ratio .8

CPT DATA

REMARKS



Hand auger to 5'

Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



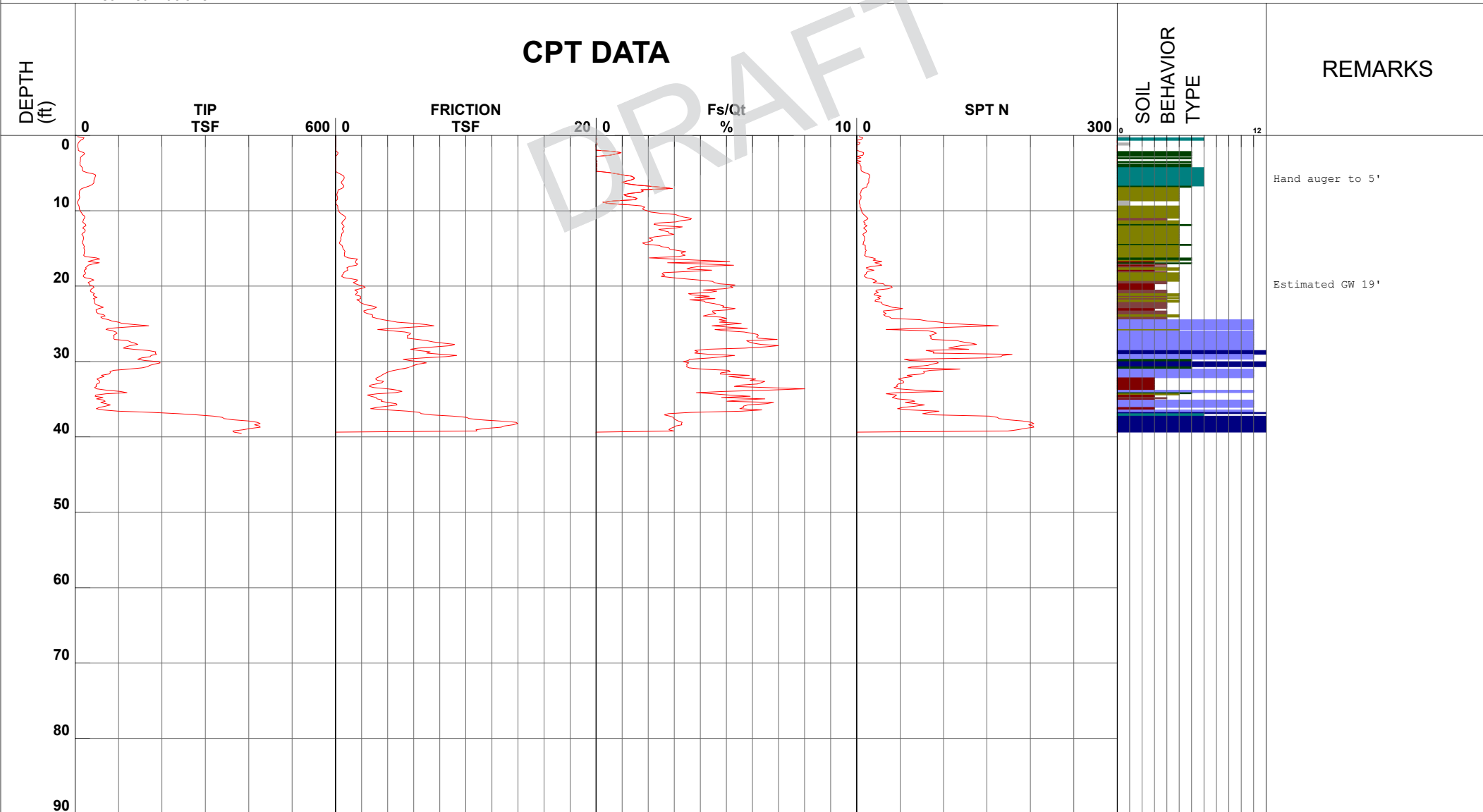
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-02 Date and Time 11/3/2017 11:43:51 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(170).cpt
 GPS
 Maximum Depth 39.53 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



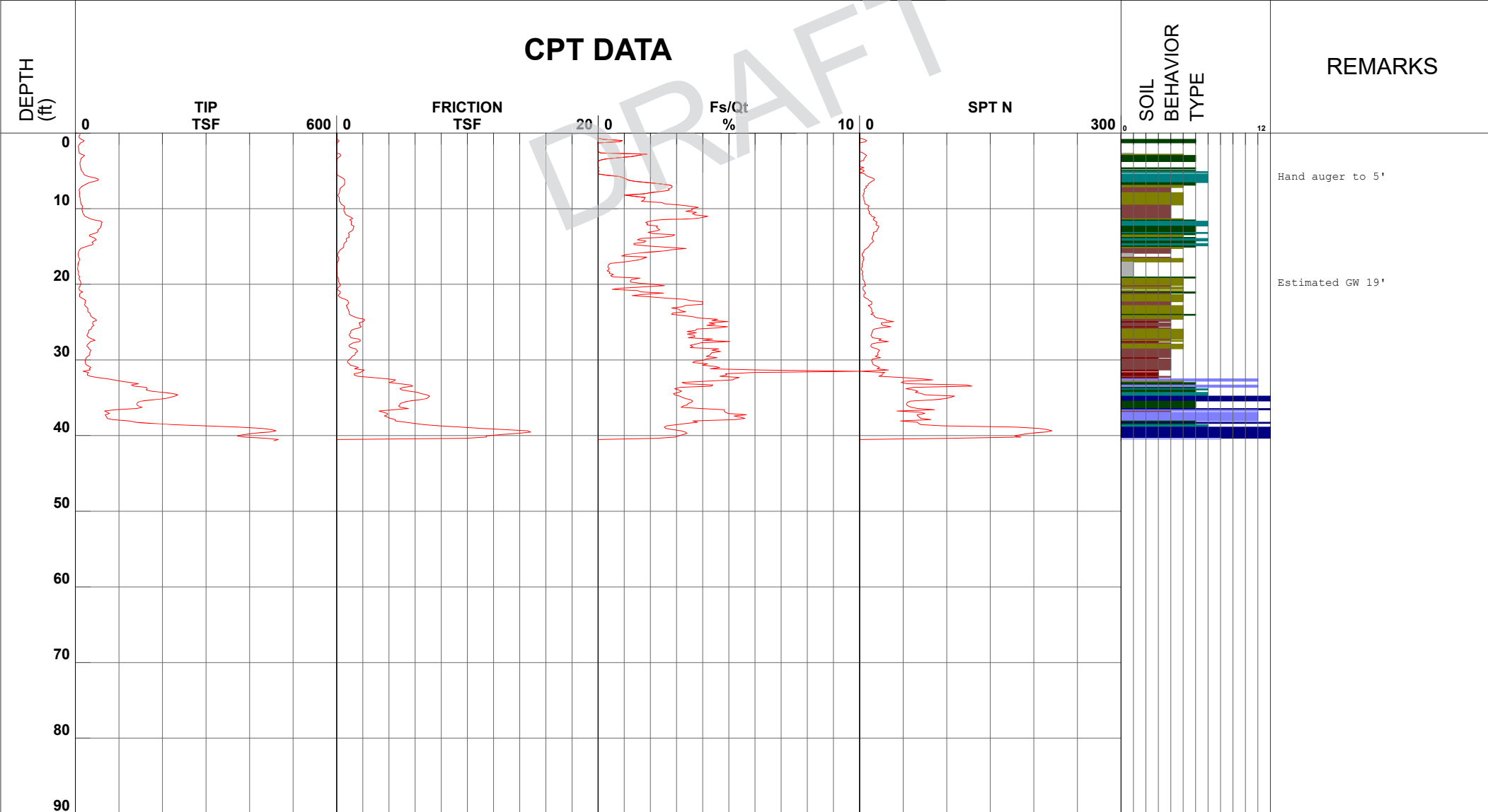
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-03 Date and Time 11/3/2017 9:33:44 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(168).cpt
 GPS
 Maximum Depth 40.68 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

Project CUSD/Compton High Reconstruction
 Job Number 210256003
 Hole Number CPT-04
 EST GW Depth During Test

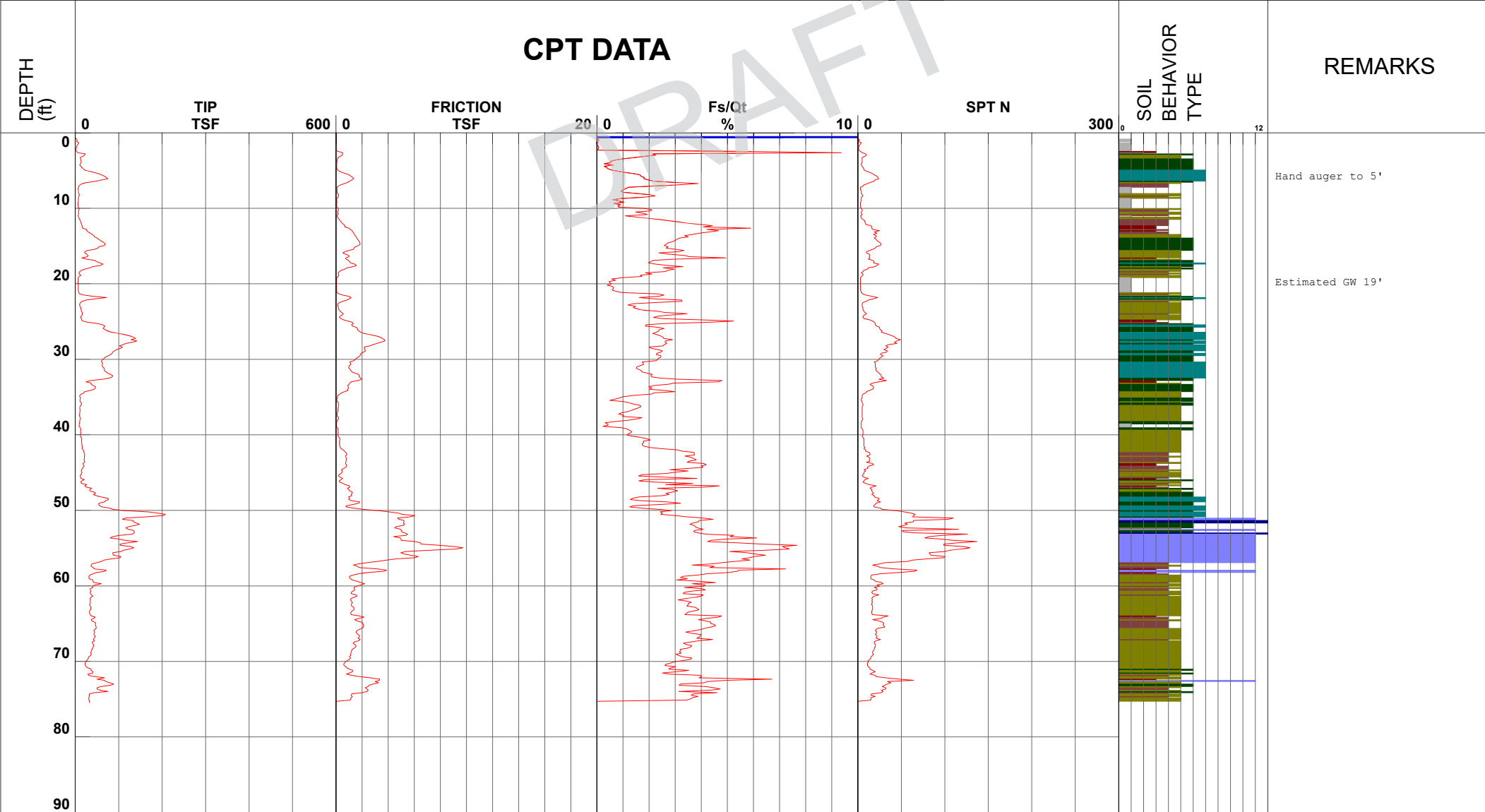
Operator RC AS
 Cone Number DDG1281
 Date and Time 11/11/2017 11:48:25 AM
 19.00 ft

Filename SDF(209).cpt
 GPS _____
 Maximum Depth 75.46 ft

Net Area Ratio .8

CPT DATA

REMARKS



Hand auger to 5'

 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

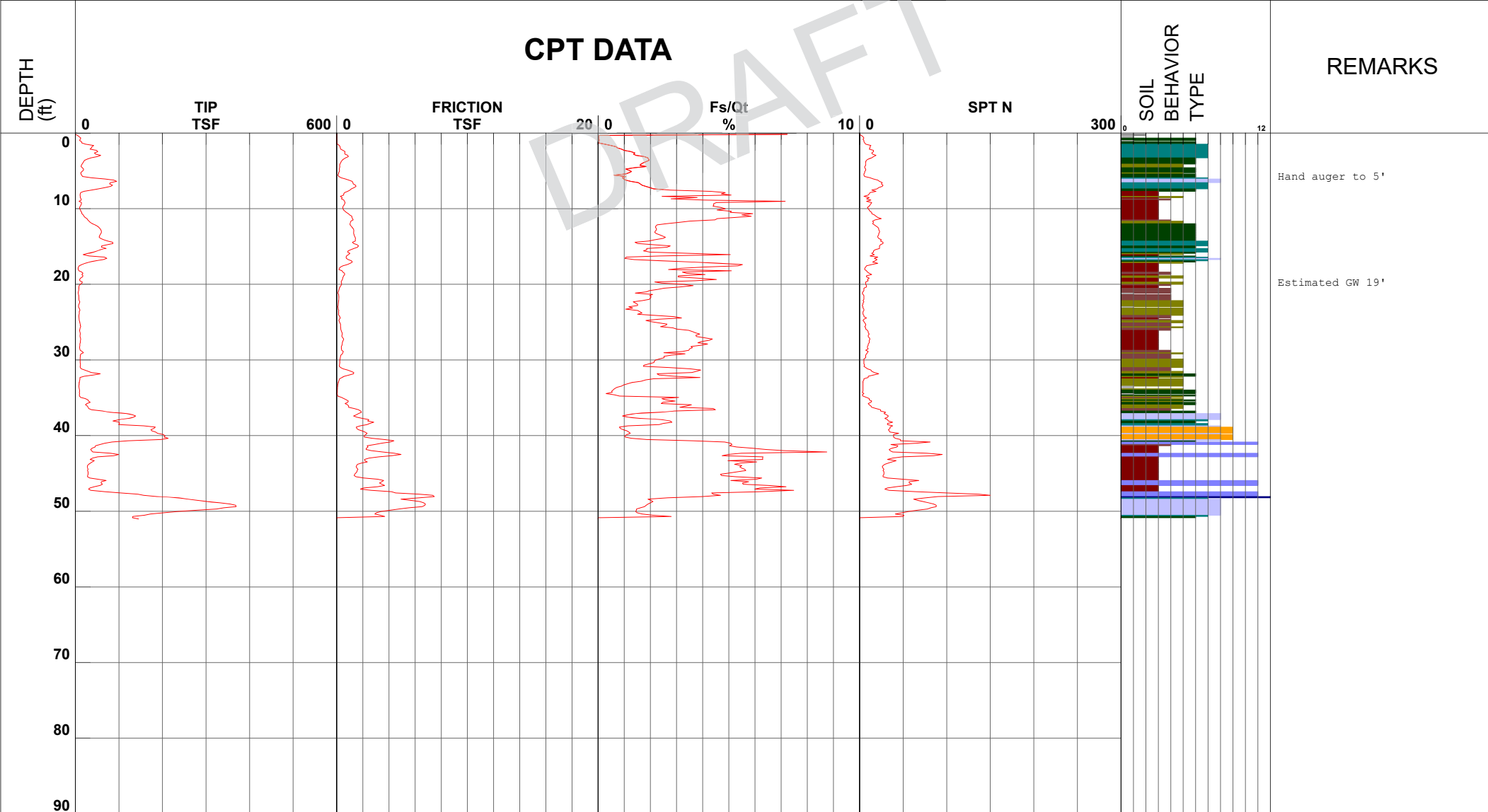
Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-05 Date and Time 11/2/2017 3:33:05 PM
 EST GW Depth During Test 19.00 ft

Filename SDF(166).cpt
 GPS
 Maximum Depth 51.02 ft

Net Area Ratio .8

CPT DATA

REMARKS



Hand auger to 5'

Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

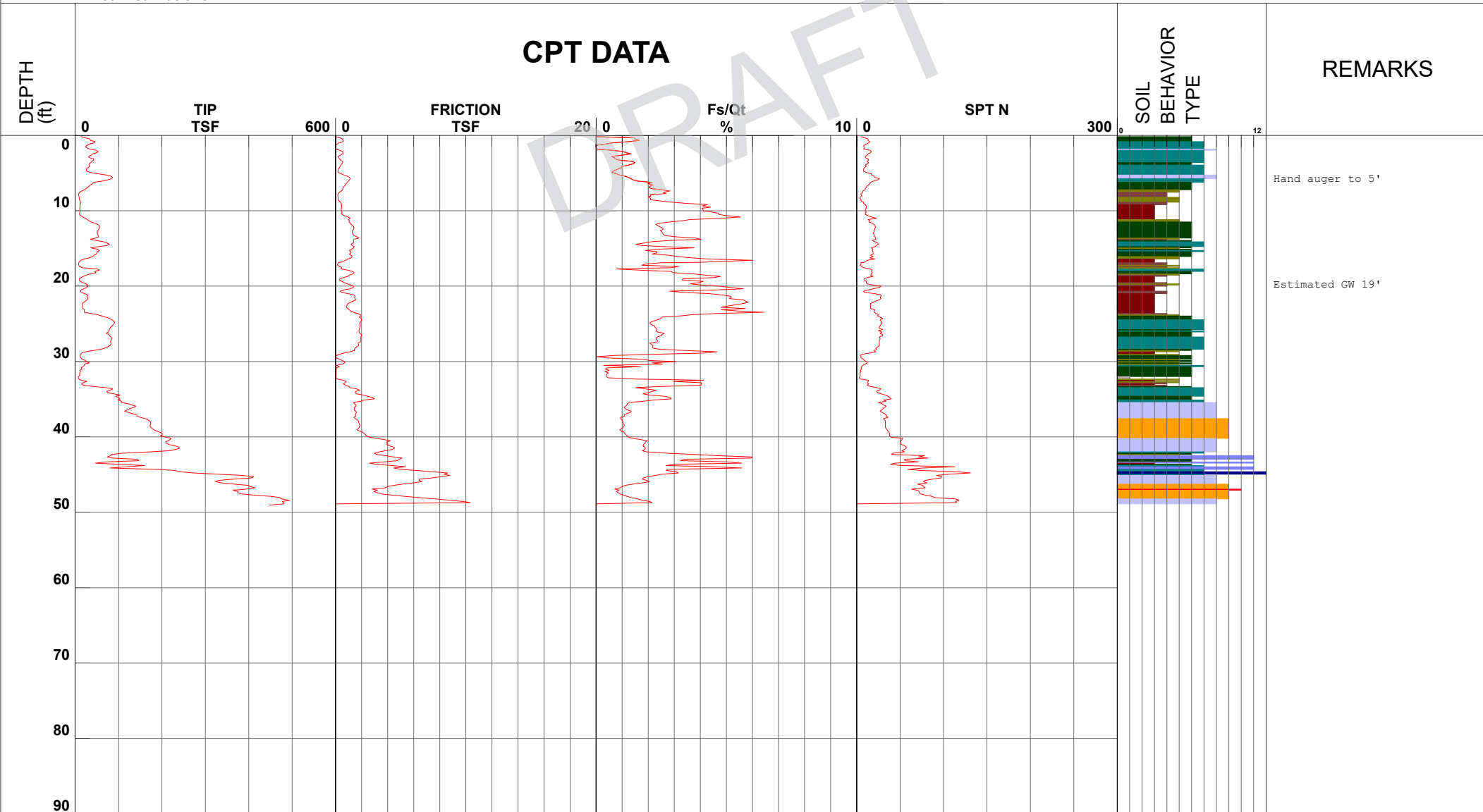
Project CUSD/Compton High School ReconstructiOperator
 Job Number 210256003
 Hole Number CPT-06
 EST GW Depth During Test 19.00 ft

RC AS
 Cone Number DDG1281
 Date and Time 11/4/2017 12:59:23 PM

Filename SDF(180).cpt
 GPS
 Maximum Depth 49.05 ft

Net Area Ratio .8

CPT DATA



- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



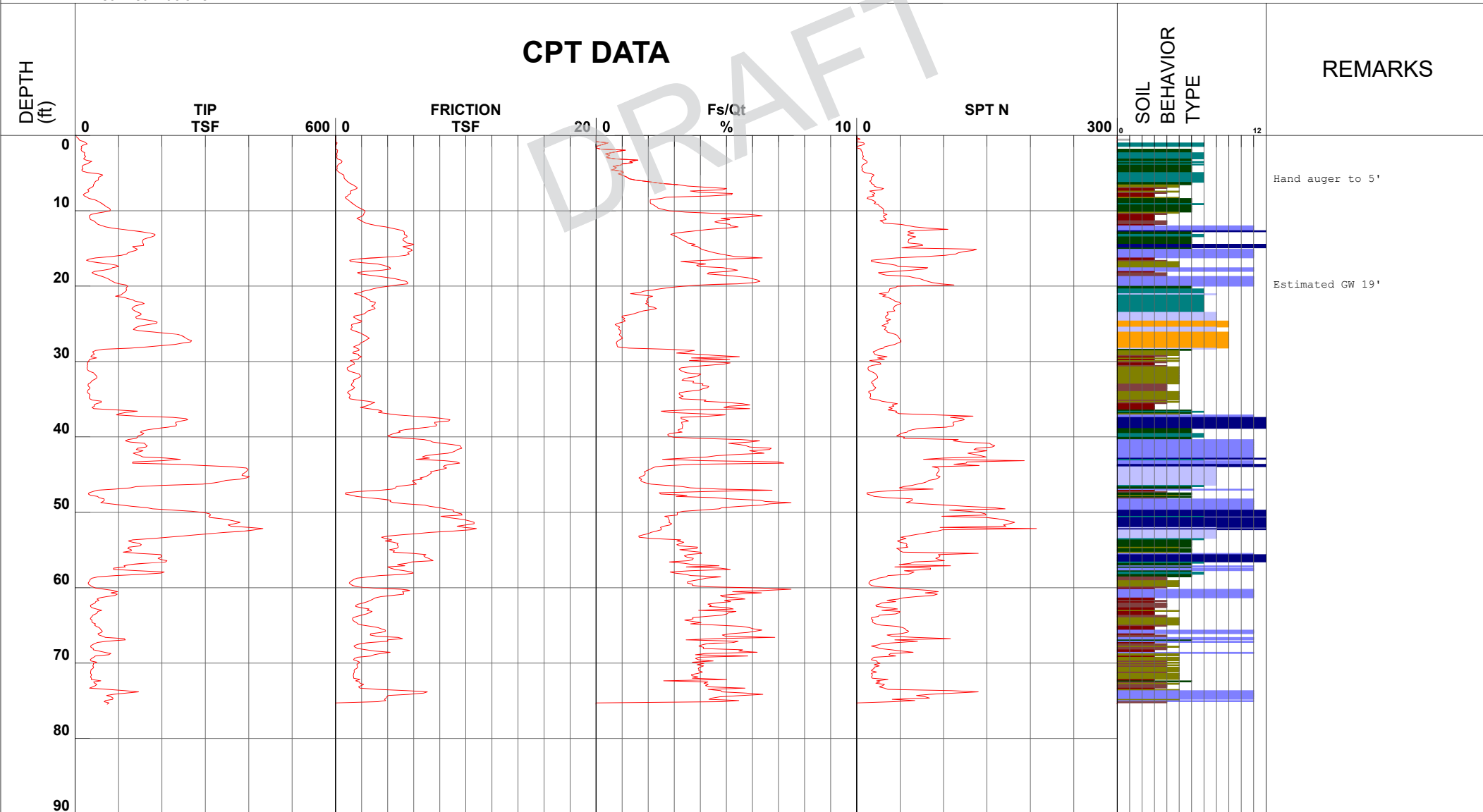
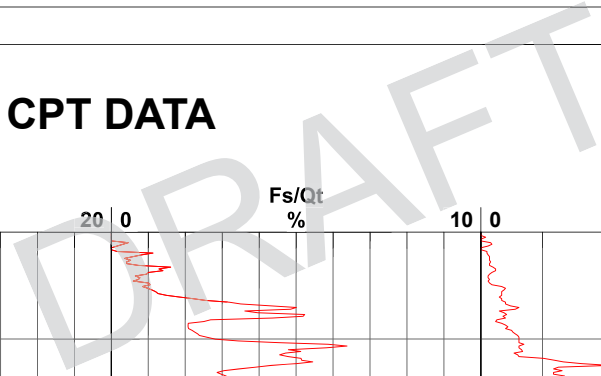
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-07 Date and Time 11/4/2017 9:42:23 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(178).cpt
 GPS
 Maximum Depth 75.46 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

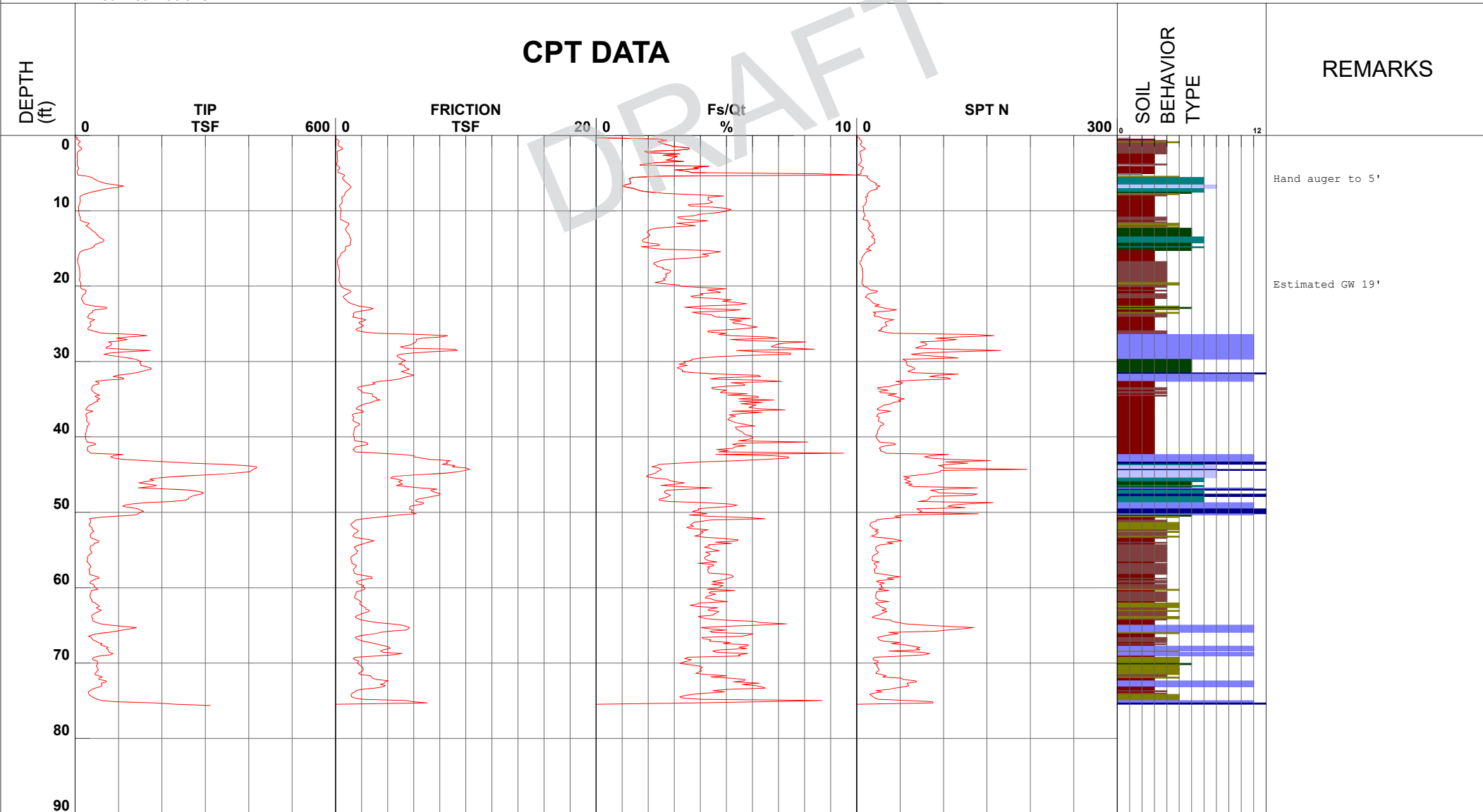
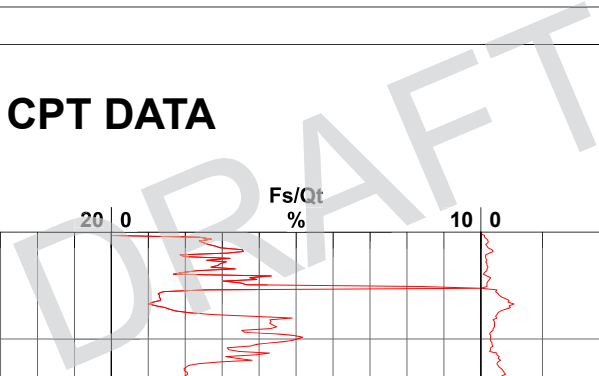
Project CUSD/Compton High School ReconstructiOperator
 Job Number 210256003
 Hole Number CPT-08
 EST GW Depth During Test 19.00 ft

RC AS
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 Date and Time 11/2/2017 1:35:52 PM

Filename SDF(165).cpt
 GPS
 Maximum Depth 75.62 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'
 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



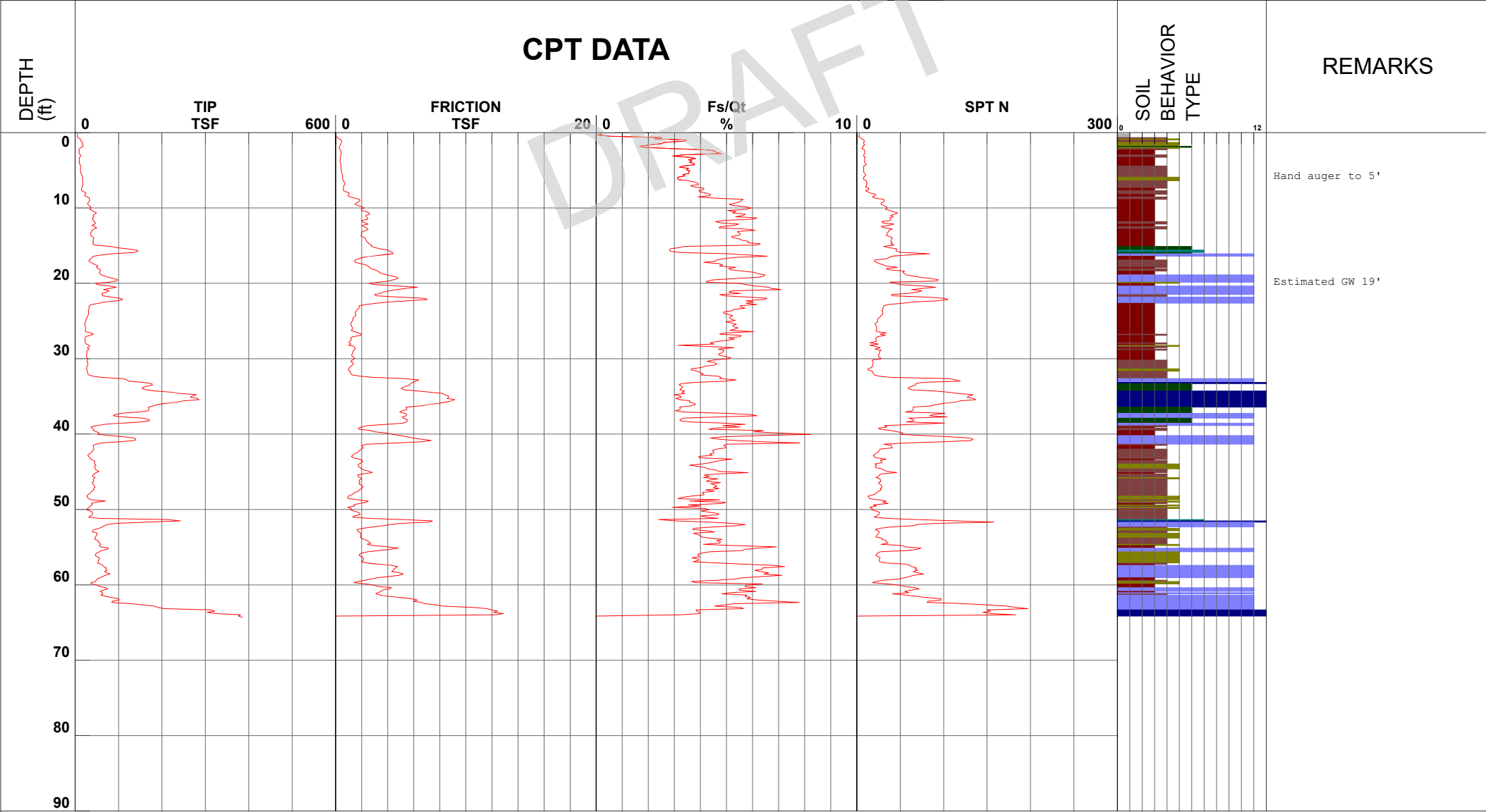
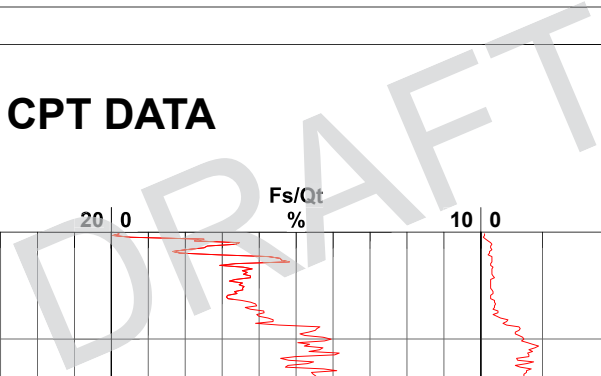
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-09 Date and Time 11/3/2017 7:50:36 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(167).cpt
 GPS
 Maximum Depth 64.30 ft

Net Area Ratio .8

CPT DATA



Hand auger to 5'
 Estimated GW 19'

REMARKS

- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

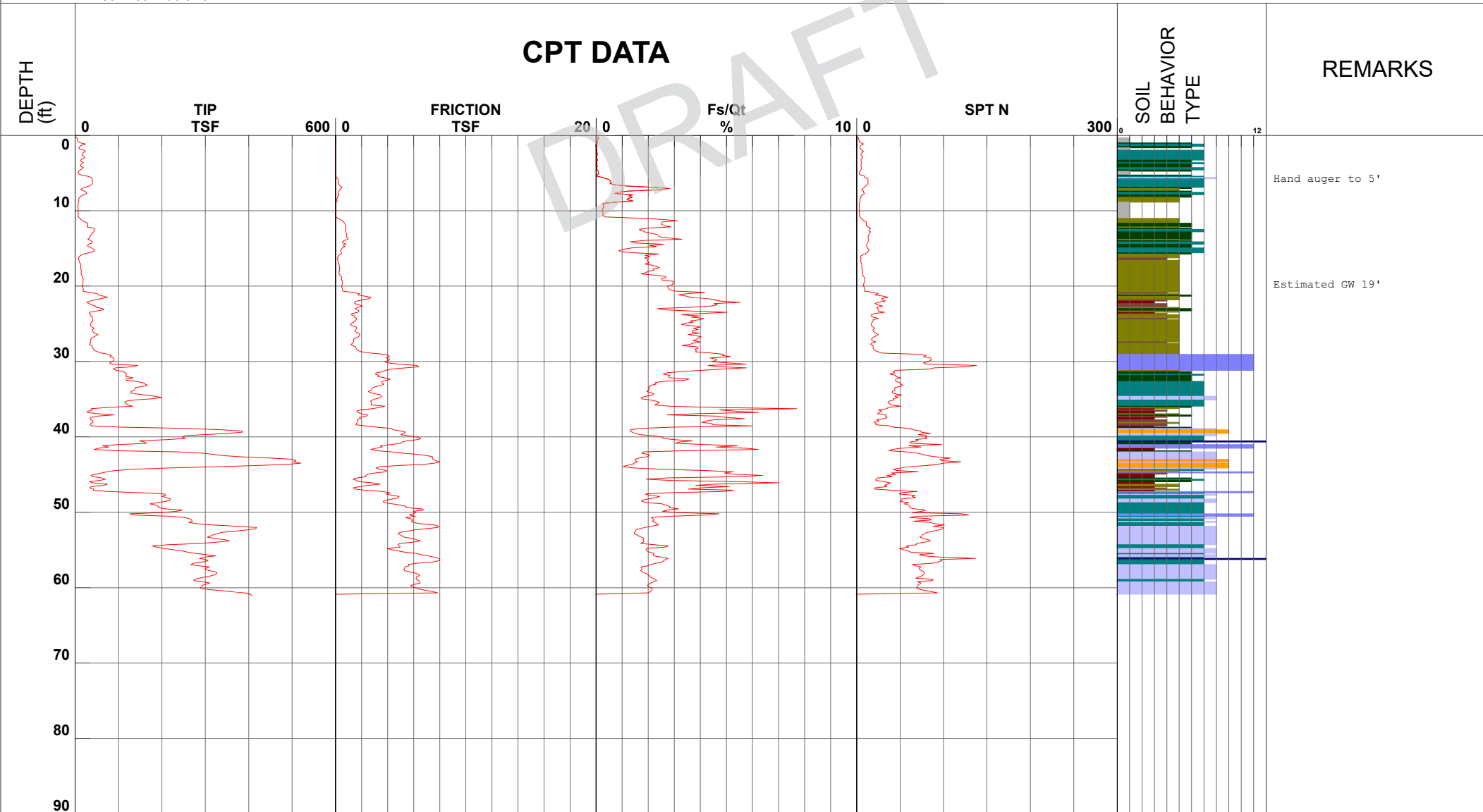
Project CUSD/Compton High School ReconstructiOperator
 Job Number 210256003
 Hole Number CPT-10
 EST GW Depth During Test 19.00 ft

RC AS
 Cone Number DDG1281
 Date and Time 11/2/2017 10:56:52 AM

Filename SDF(163).cpt
 GPS
 Maximum Depth 61.02 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

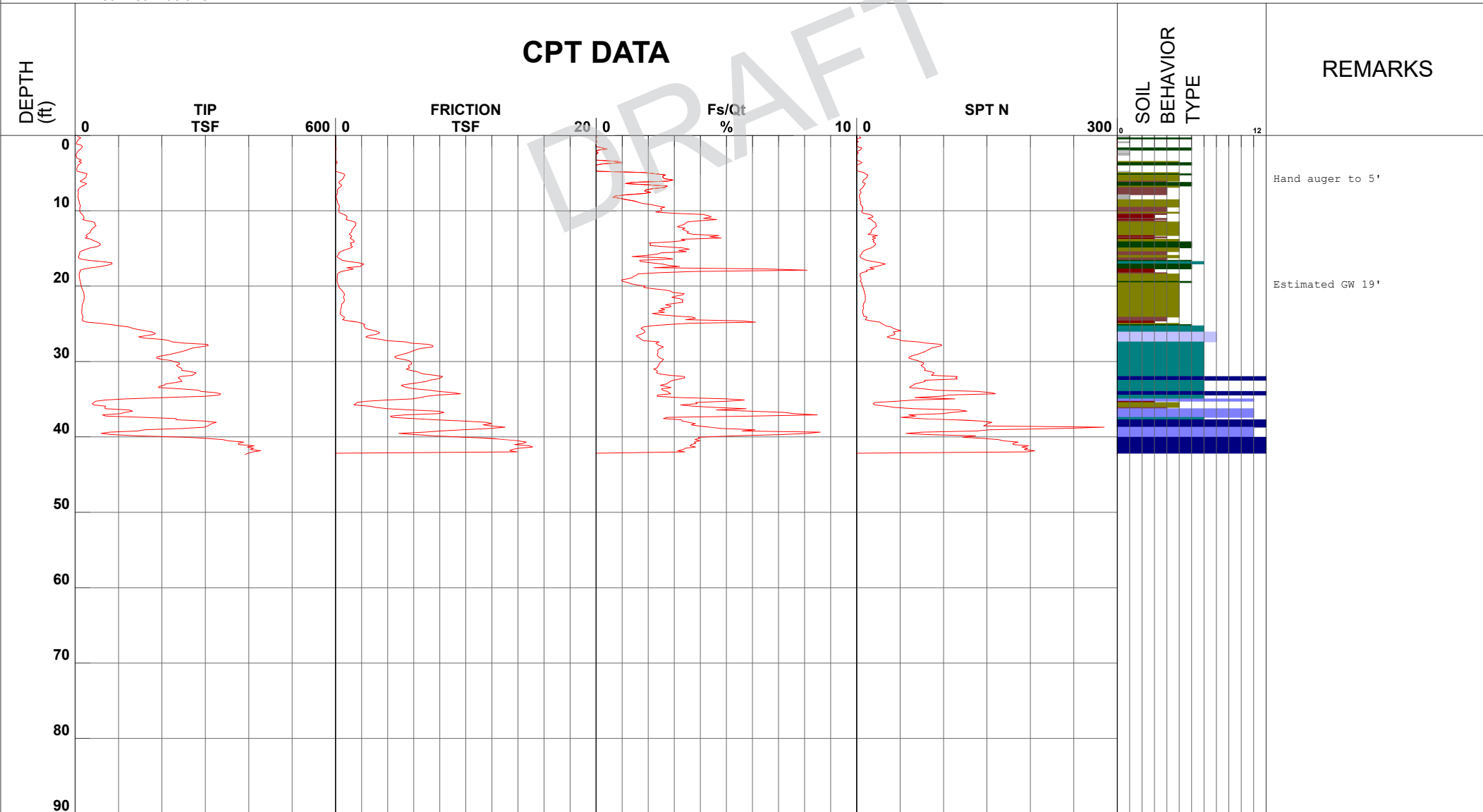
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 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-11 Date and Time 11/11/2017 2:08:25 PM
 EST GW Depth During Test 19.00 ft

Filename SDF(211).cpt
 GPS _____
 Maximum Depth 42.32 ft

Net Area Ratio .8

CPT DATA

REMARKS



Hand auger to 5'

Estimated GW 19'

- 1 - sensitive fine grained
- 2 - organic material
- 3 - clay
- 4 - silty clay to clay
- 5 - clayey silt to silty clay
- 6 - sandy silt to clayey silt
- 7 - silty sand to sandy silt
- 8 - sand to silty sand
- 9 - sand
- 10 - gravelly sand to sand
- 11 - very stiff fine grained (*)
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



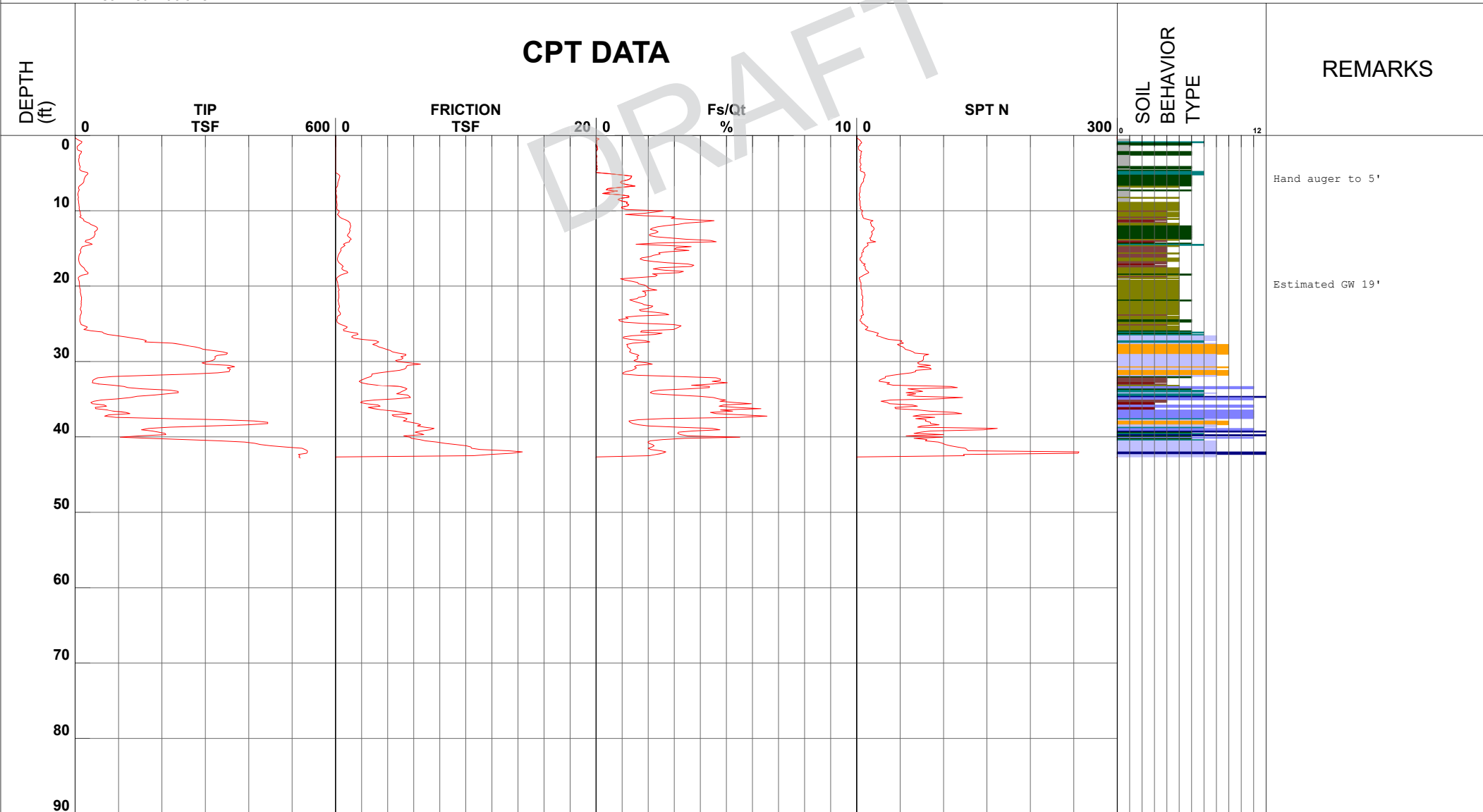
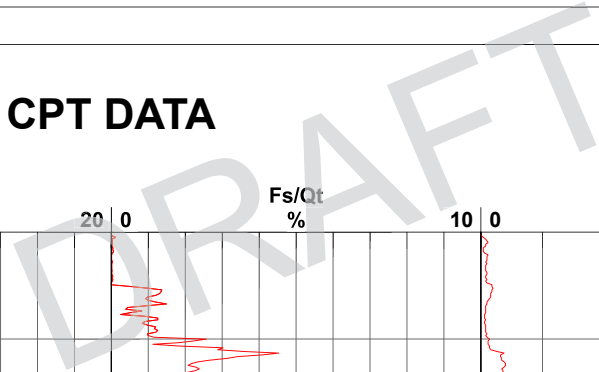
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-12 Date and Time 11/2/2017 12:09:57 PM
 EST GW Depth During Test 19.00 ft

Filename SDF(164).cpt
 GPS
 Maximum Depth 42.81 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

Project CUSD/Compton High Reconstruction
 Job Number 210256003
 Hole Number CPT-13
 EST GW Depth During Test _____

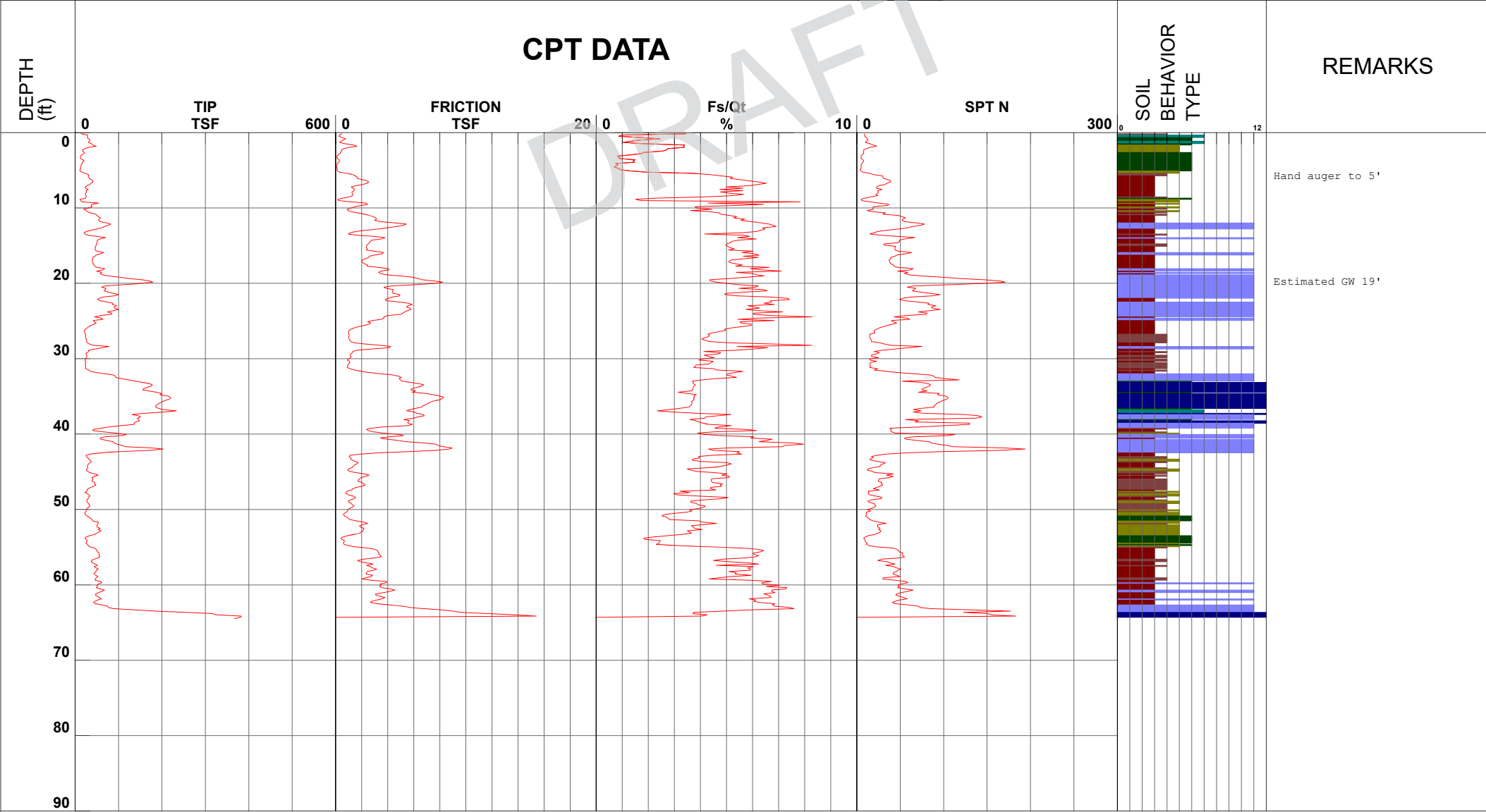
Operator RC AS
 Cone Number DDG1281
 Date and Time 11/11/2017 3:59:48 PM
 19.00 ft

Filename SDF(213).cpt
 GPS _____
 Maximum Depth 64.47 ft

Net Area Ratio .8

CPT DATA

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REMARKS

Hand auger to 5'

 Estimated GW 19'

- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



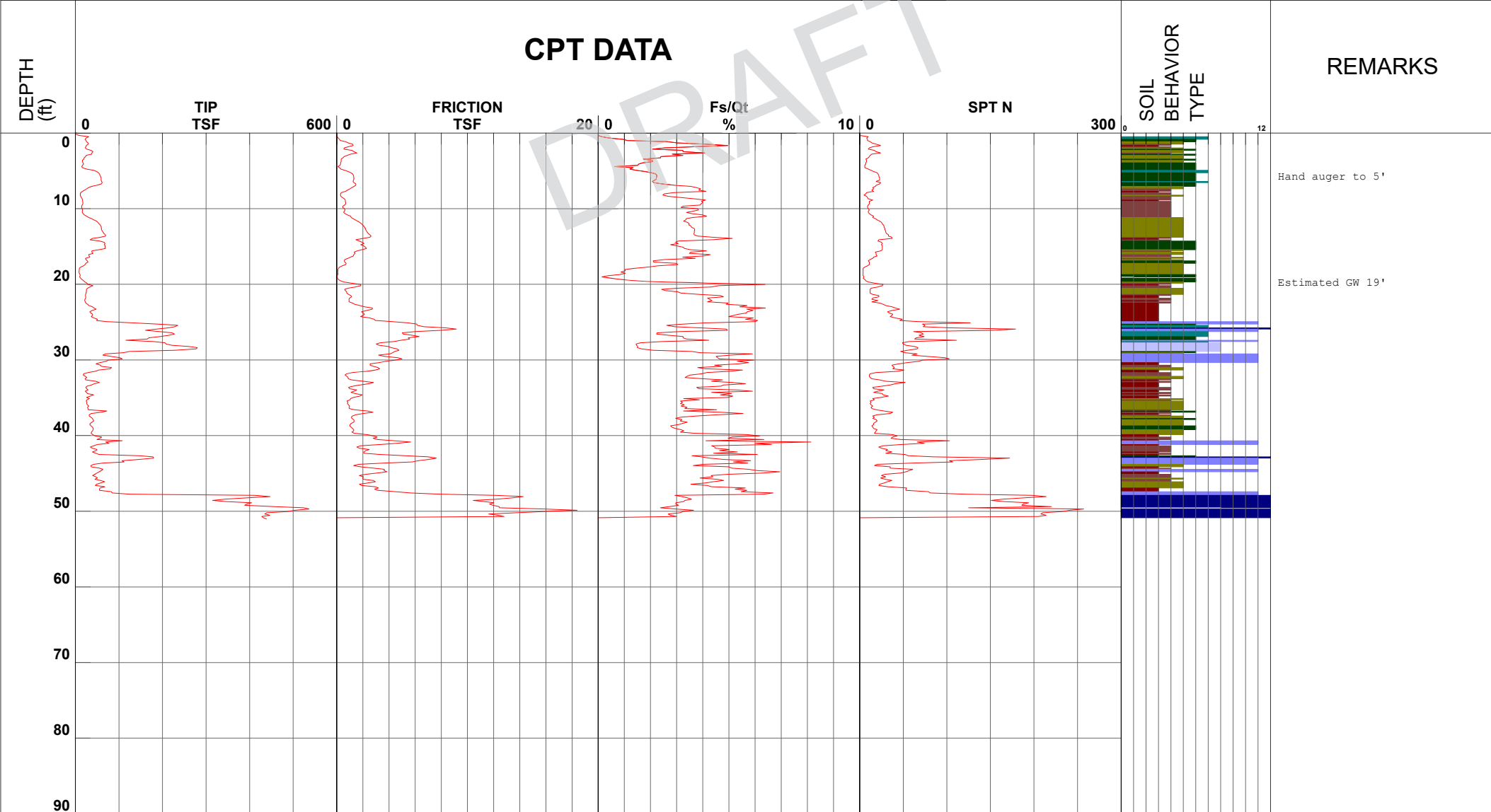
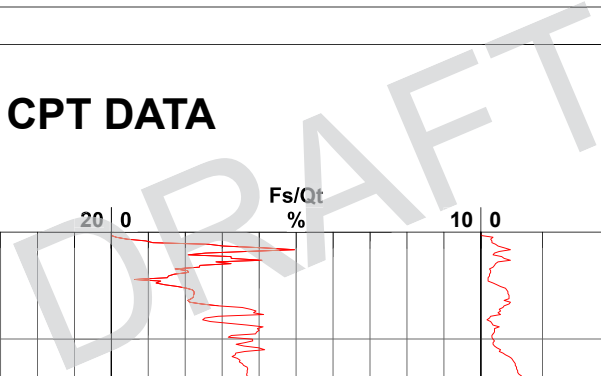
Ninyo & Moore

Project CUSD/Compton High Reconstruction Operator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-14 Date and Time 11/11/2017 8:58:39 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(207).cpt
 GPS _____
 Maximum Depth 51.02 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

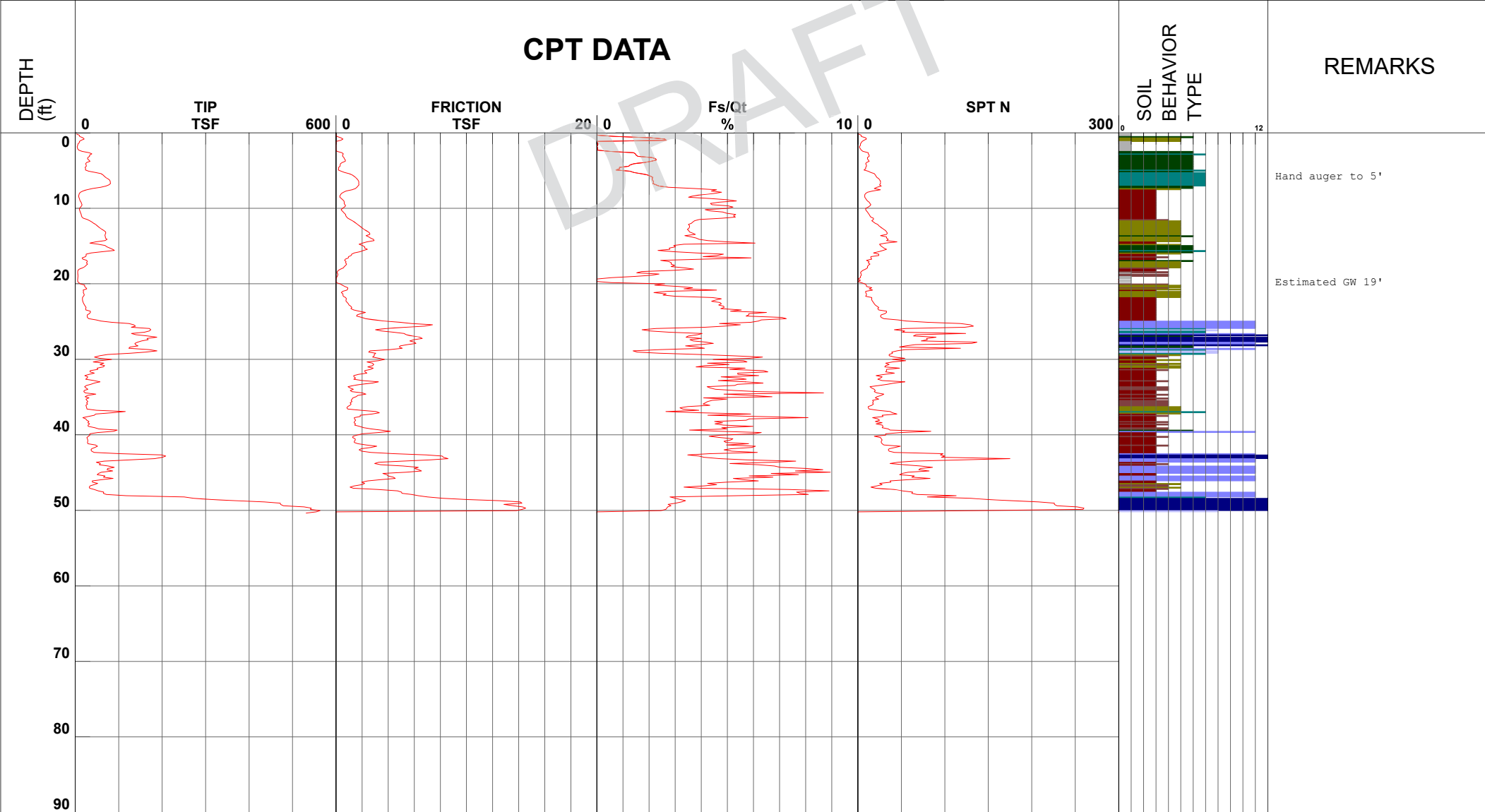
Project CUSD/Compton High Reconstruction
 Job Number 210256003
 Hole Number CPT-14A
 EST GW Depth During Test

Operator RC AS
 Cone Number DDG1281
 Date and Time 11/11/2017 10:20:57 AM
 19.00 ft

Filename SDF(208).cpt
 GPS
 Maximum Depth 50.36 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

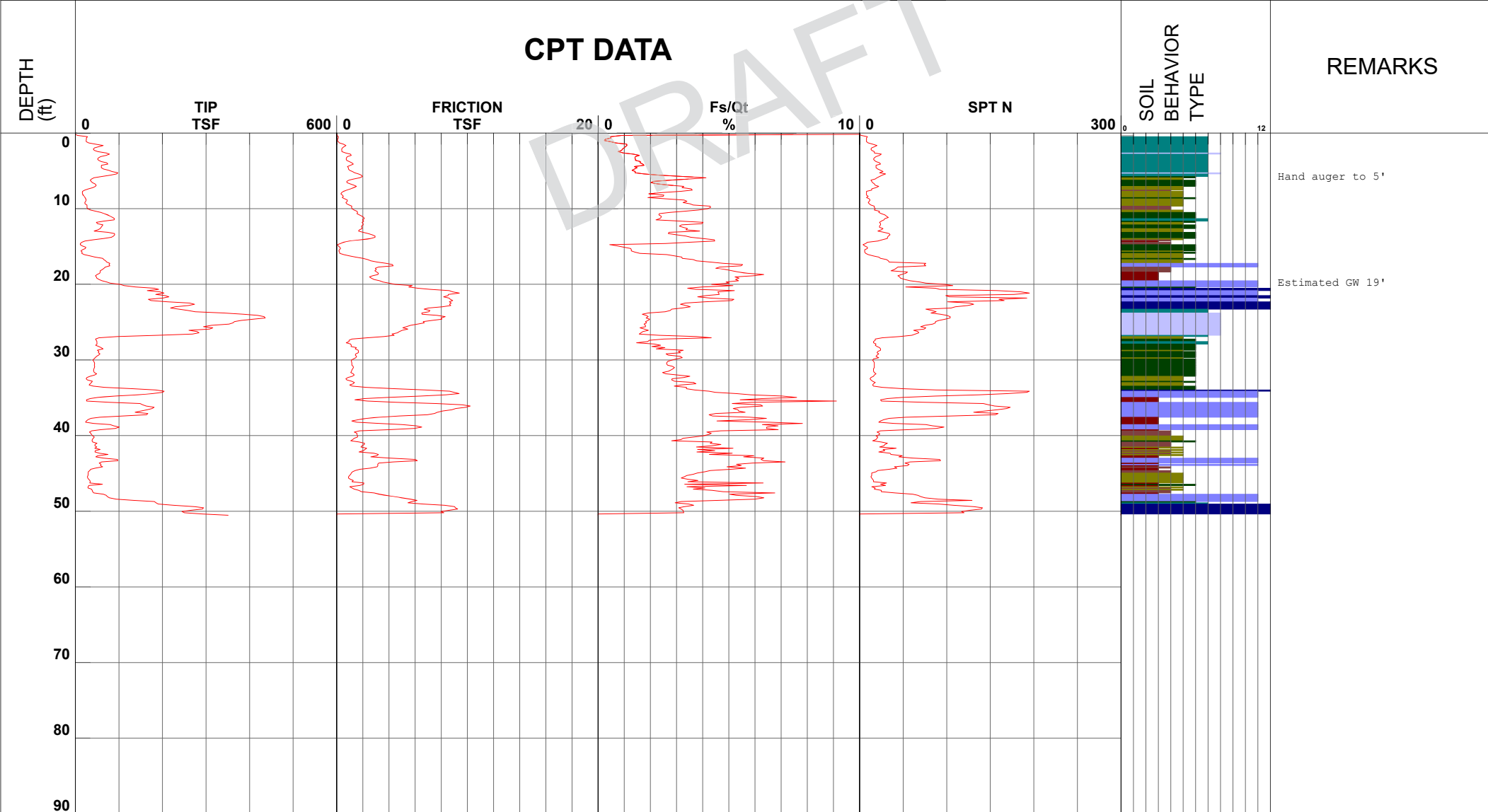
Project CUSD/Compton High Reconstruction
 Job Number 210256003
 Hole Number CPT-15
 EST GW Depth During Test

Operator RC AS
 Cone Number DDG1281
 Date and Time 11/11/2017 7:25:19 AM
 19.00 ft

Filename SDF(206).cpt
 GPS
 Maximum Depth 50.52 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

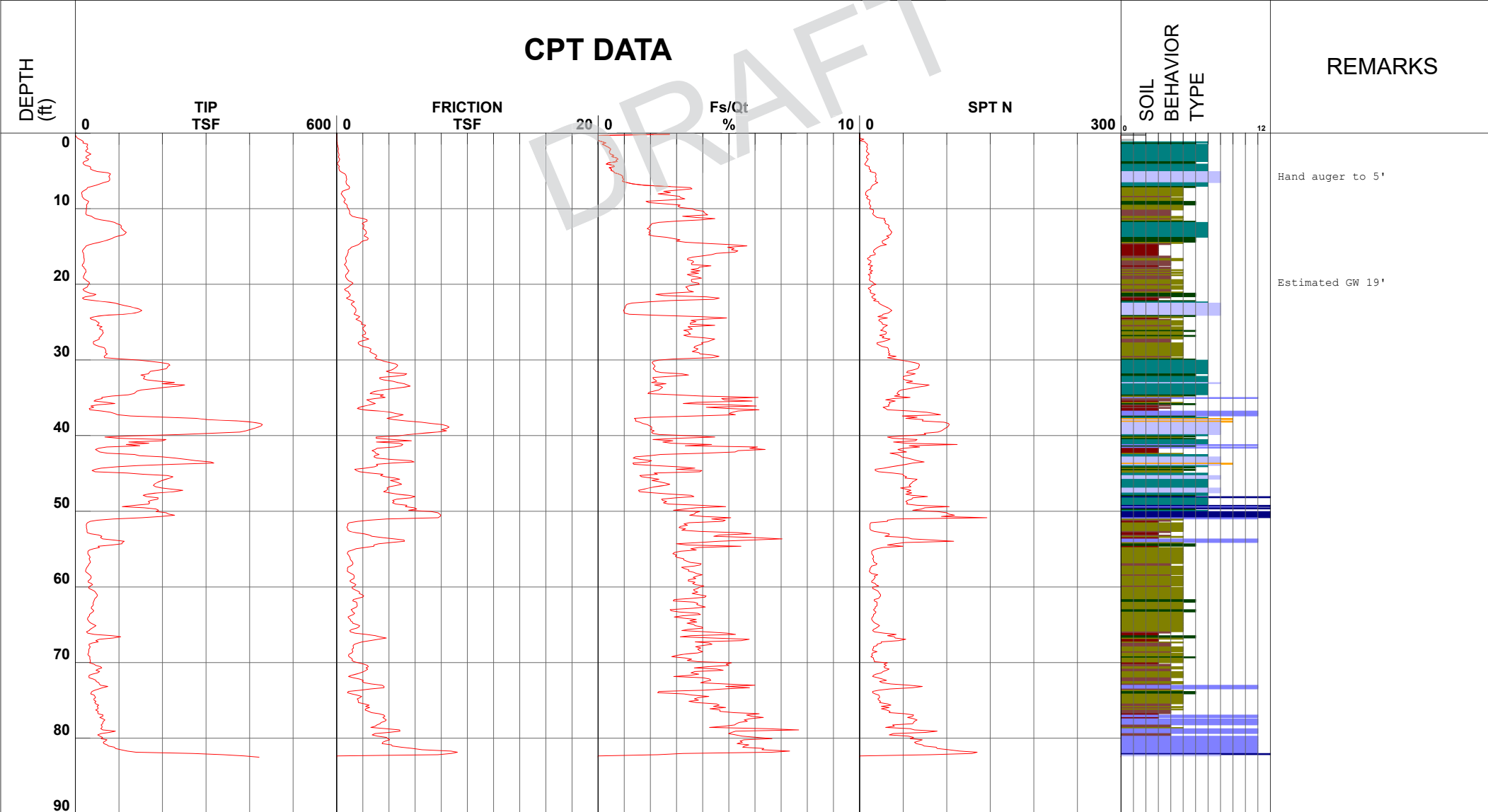
Project CUSD/Compton High School ReconstructiOperator
 Job Number 210256003
 Hole Number CPT-16
 EST GW Depth During Test

RC AS
 Cone Number DDG1281
 Date and Time 11/2/2017 9:23:15 AM

Filename SDF(162).cpt
 GPS
 Maximum Depth 82.51 ft

Net Area Ratio .8

CPT DATA



REMARKS

- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



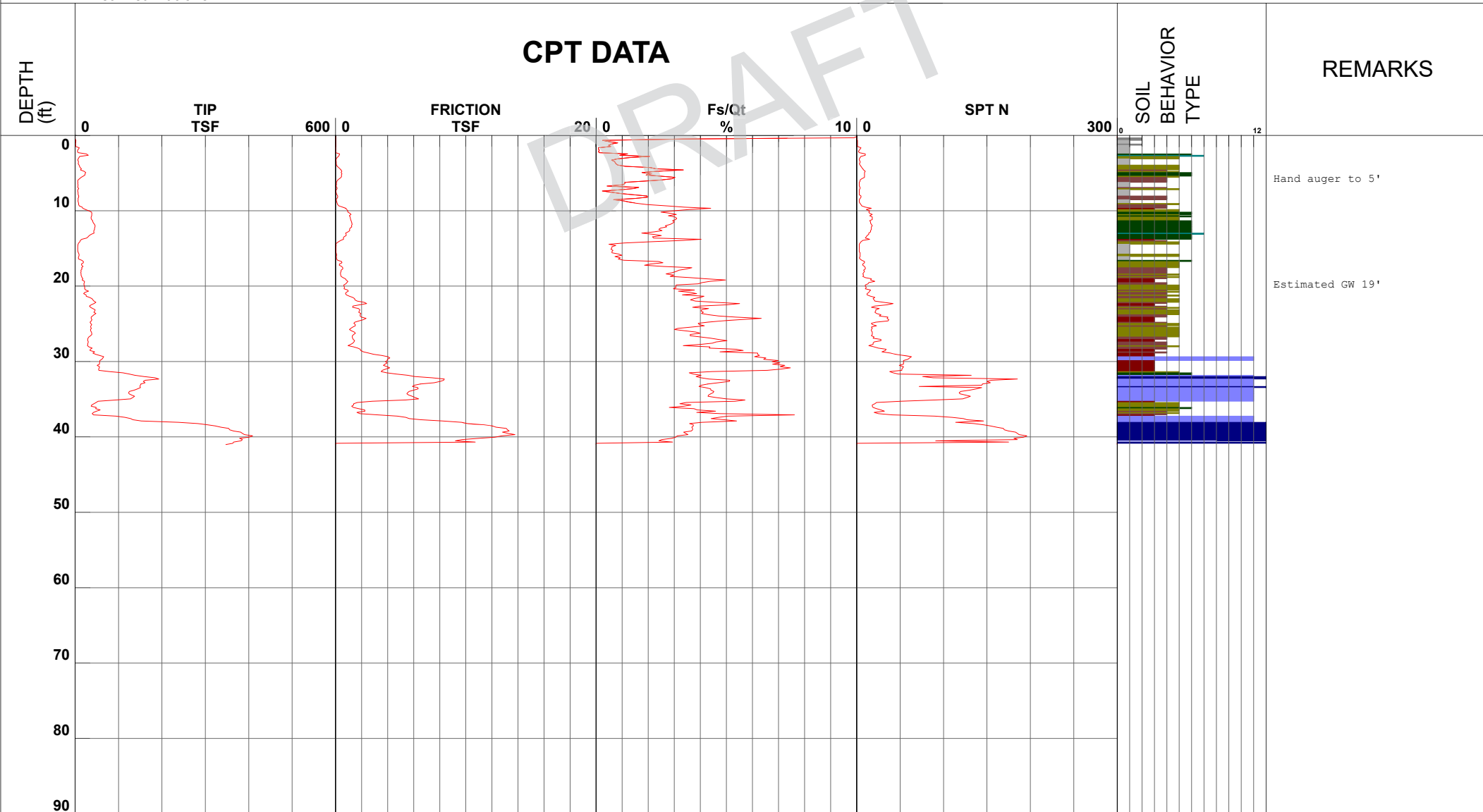
Ninyo & Moore

Project CUSD/Compton High Reconstruction Operator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-17 Date and Time 11/11/2017 1:13:47 PM
 EST GW Depth During Test 19.00 ft

Filename SDF(210).cpt
 GPS _____
 Maximum Depth 41.01 ft

Net Area Ratio .8

CPT DATA



REMARKS

- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



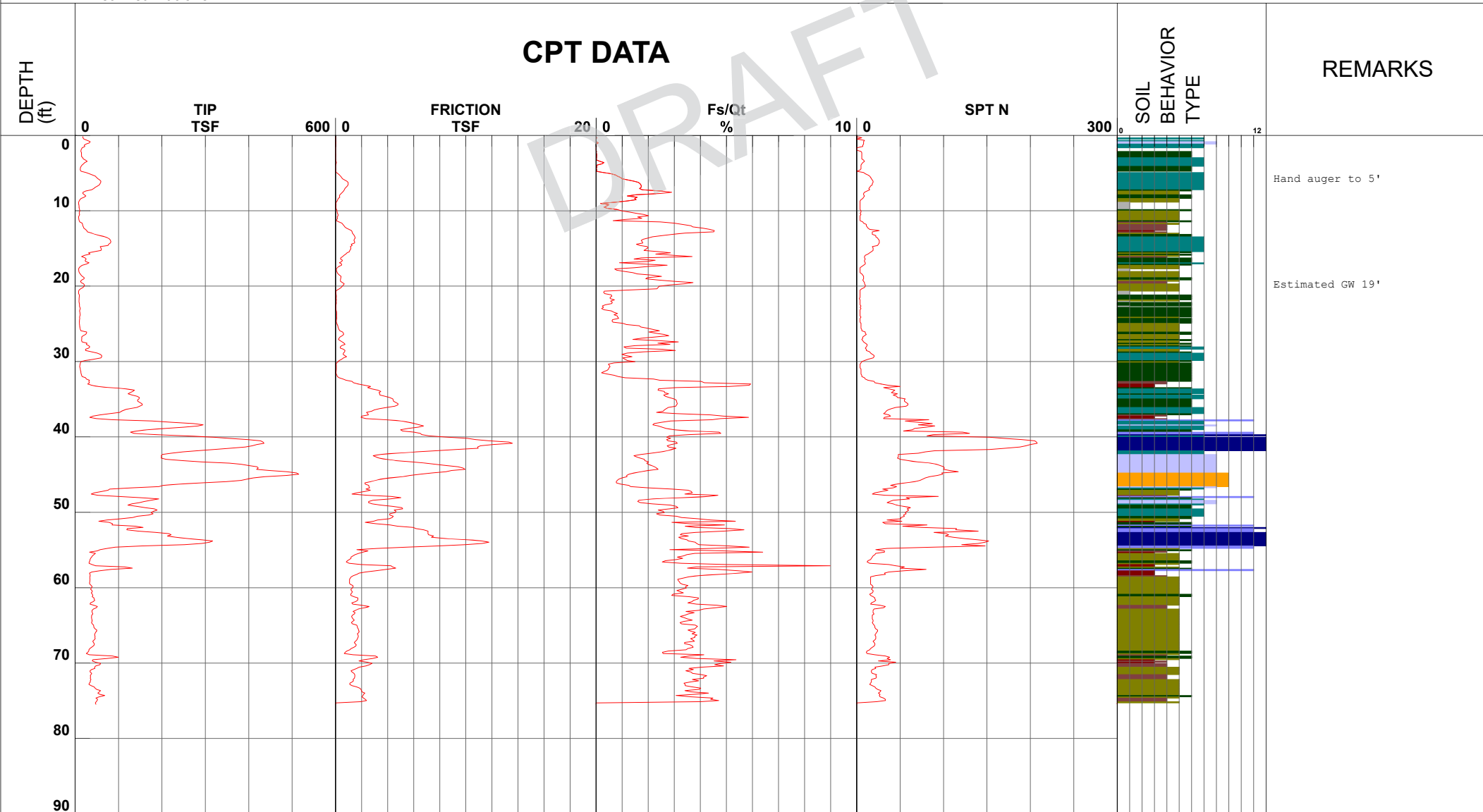
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-18 Date and Time 11/3/2017 10:27:07 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(169).cpt
 GPS
 Maximum Depth 75.46 ft

Net Area Ratio .8

CPT DATA



- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



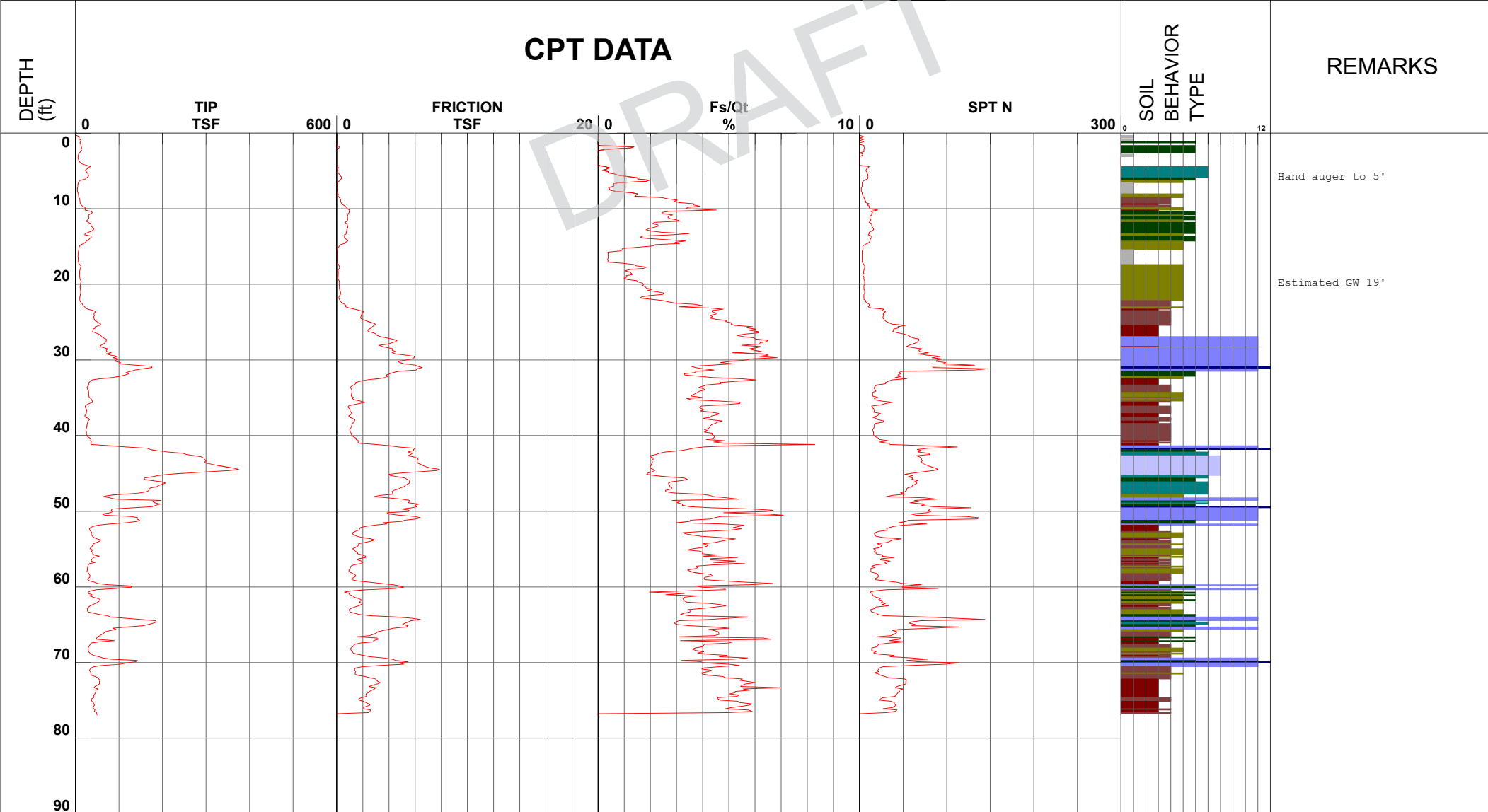
Ninyo & Moore

Project CUSD/Compton High School ReconstructiOperator RC AS
 Job Number 210256003 Cone Number DDG1281
 Hole Number CPT-19 Date and Time 11/4/2017 11:18:54 AM
 EST GW Depth During Test 19.00 ft

Filename SDF(179).cpt
 GPS
 Maximum Depth 76.93 ft

Net Area Ratio .8

CPT DATA



REMARKS

Hand auger to 5'
 Estimated GW 19'

- | | | | |
|----------------------------|-------------------------------|------------------------------|----------------------------------|
| 1 - sensitive fine grained | 4 - silty clay to clay | 7 - silty sand to sandy silt | 10 - gravelly sand to sand |
| 2 - organic material | 5 - clayey silt to silty clay | 8 - sand to silty sand | 11 - very stiff fine grained (*) |
| 3 - clay | 6 - sandy silt to clayey silt | 9 - sand | 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

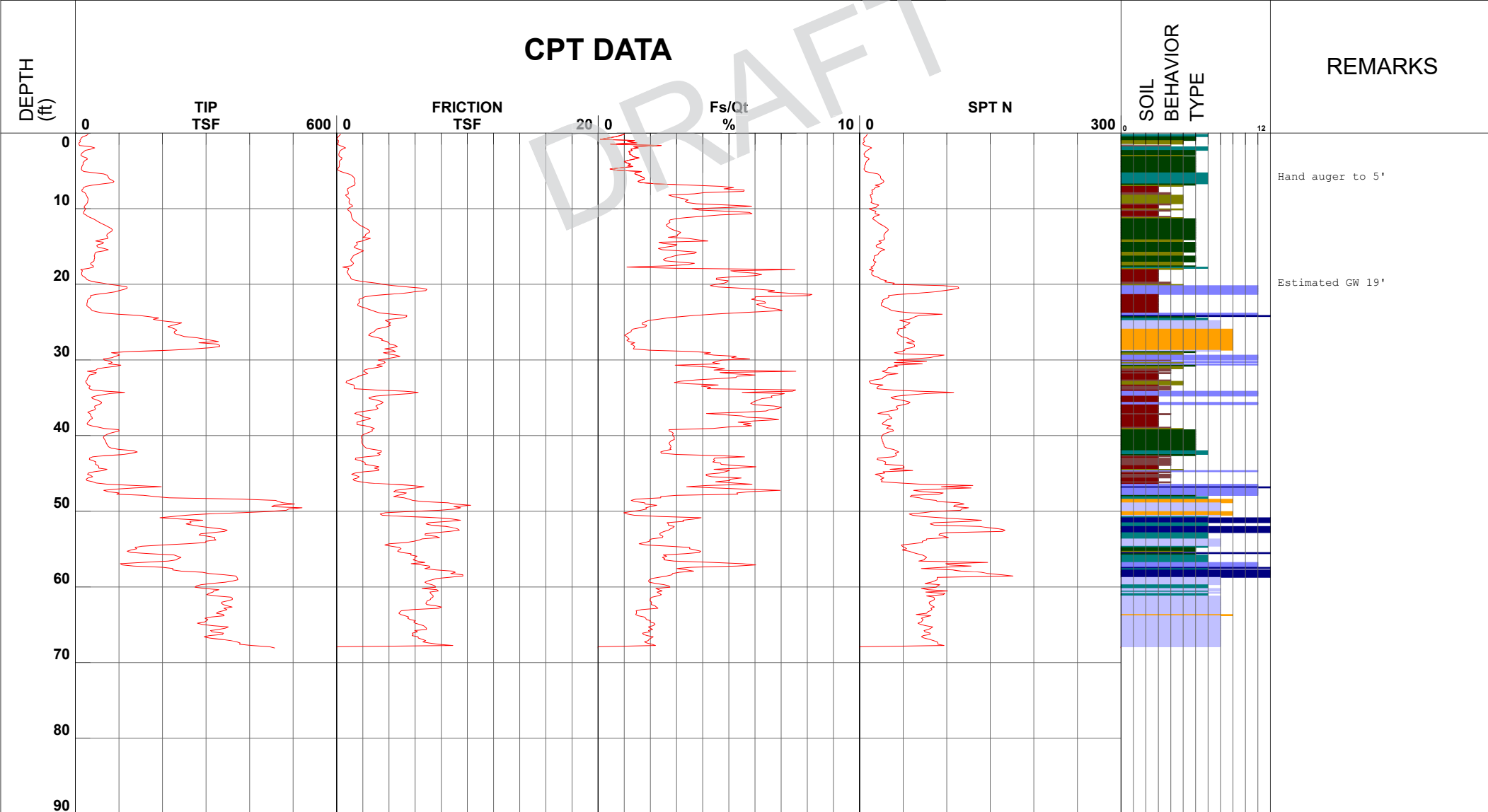
Project CUSD/Compton High School ReconstructiOperator
 Job Number 210256003
 Hole Number CPT-20
 EST GW Depth During Test 19.00 ft

RC AS
 Cone Number DDG1281
 Date and Time 11/4/2017 8:31:15 AM

Filename SDF(177).cpt
 GPS
 Maximum Depth 68.08 ft

Net Area Ratio .8

CPT DATA



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- | | | | |
|------------------------------|---------------------------------|--------------------------------|------------------------------------|
| ■ 1 - sensitive fine grained | ■ 4 - silty clay to clay | ■ 7 - silty sand to sandy silt | ■ 10 - gravelly sand to sand |
| ■ 2 - organic material | ■ 5 - clayey silt to silty clay | ■ 8 - sand to silty sand | ■ 11 - very stiff fine grained (*) |
| ■ 3 - clay | ■ 6 - sandy silt to clayey silt | ■ 9 - sand | ■ 12 - sand to clayey sand (*) |

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983



Ninyo & Moore

Project CUSD/Compton High Reconstruction
 Job Number 210256003
 Hole Number CPT-21
 EST GW Depth During Test

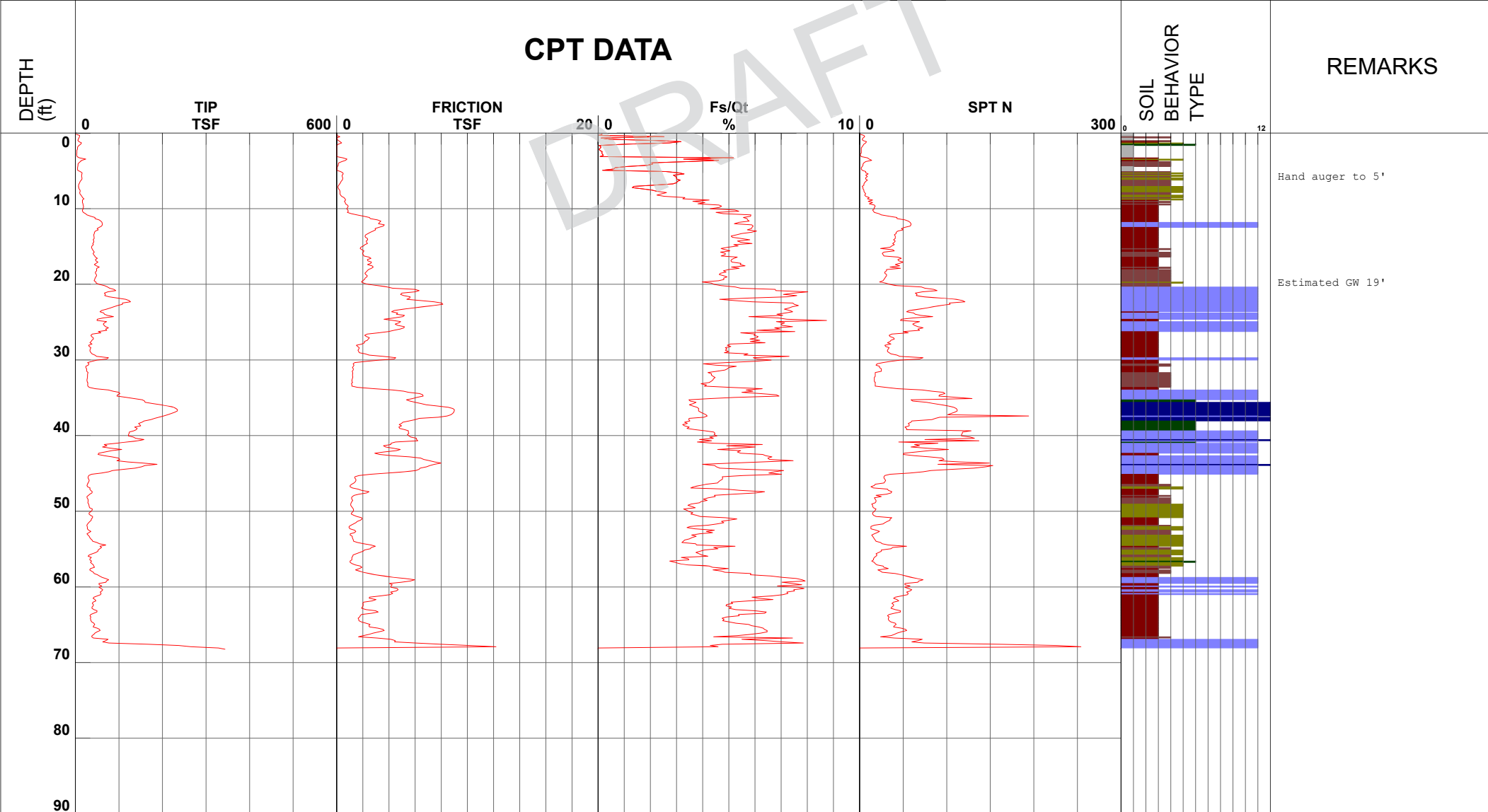
Operator RC AS
 Cone Number DDG1281
 Date and Time 11/11/2017 4:49:52 PM
 19.00 ft

Filename SDF(214).cpt
 GPS
 Maximum Depth 68.24 ft

Net Area Ratio .8

CPT DATA

REMARKS



Hand auger to 5'

Estimated GW 19'

- 1 - sensitive fine grained
- 4 - silty clay to clay
- 7 - silty sand to sandy silt
- 10 - gravelly sand to sand
- 2 - organic material
- 5 - clayey silt to silty clay
- 8 - sand to silty sand
- 11 - very stiff fine grained (*)
- 3 - clay
- 6 - sandy silt to clayey silt
- 9 - sand
- 12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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APPENDIX C

Laboratory Testing

APPENDIX C

LABORATORY TESTING

Classification

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

Gradation Analysis

Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D 422. The grain-size distribution curves are shown on Figures C-1 through C-5. The test results were utilized in evaluating the soil classifications in accordance with the USCS.

Percent Finer than No. 200 Sieve

An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figures C-6 and C-7.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System (USCS). The test results and classifications are shown on Figures C-8 and C-9.

Consolidation Tests

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figures C-10 through C-17.

Direct Shear Tests

Direct shear tests were performed on relatively undisturbed samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures C-18 through C-22.

Expansion Index Tests

The expansion index of selected materials was evaluated in general accordance with Uniform Building Code (UBC) Standard No. 18-2 (ASTM D 4829). Specimens were molded under a specified compactive energy at approximately 50 percent saturation (plus or minus 1 percent). The prepared 1-inch thick by 4-inch diameter specimens were loaded with a surcharge of 144 pounds per square foot and were inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The results of these tests are presented on Figure C-23.

R-Value

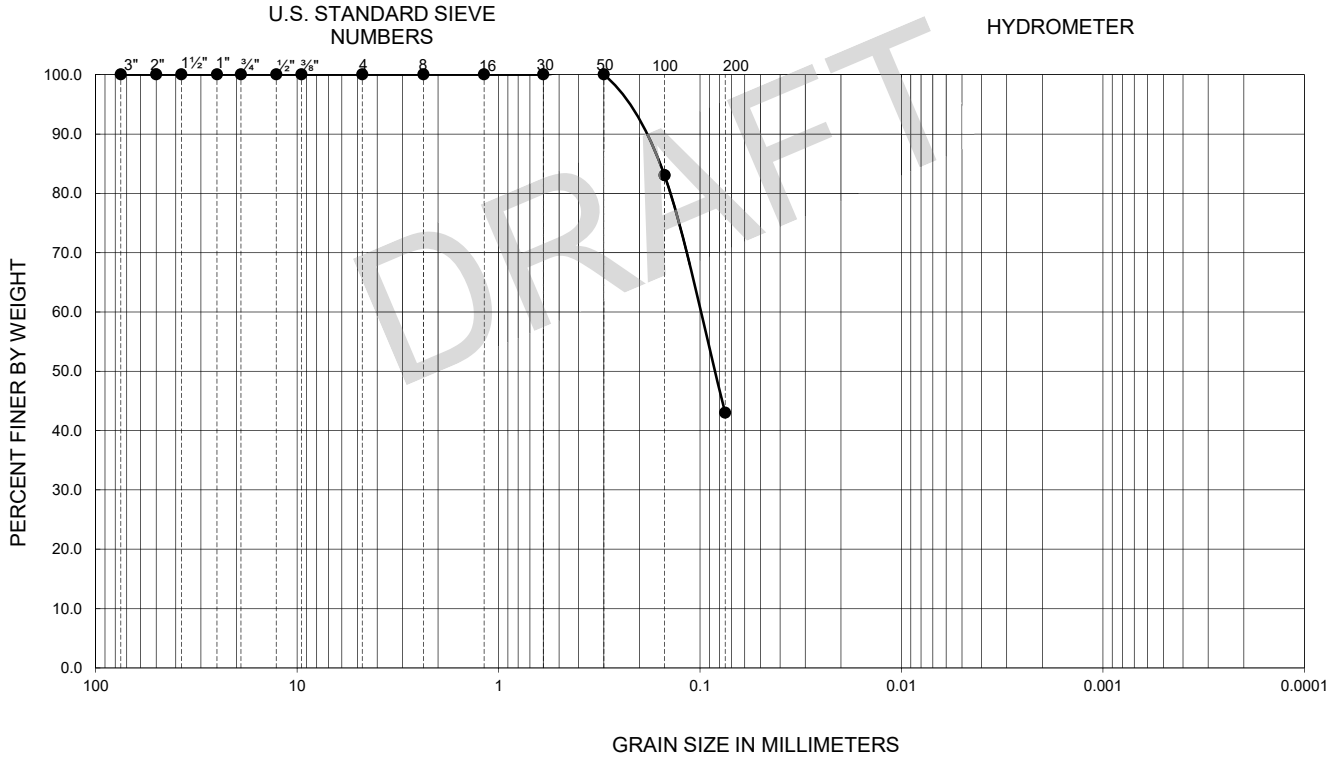
The resistance value, or R-value, for site soils was evaluated in general accordance with California Test (CT) 301. The sample was prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-value is reported as the lesser or more conservative of the two calculated results. The test results are shown on Figure C-24.

Soil Corrosivity Tests

Soil pH, and resistivity tests were performed on a representative sample in general accordance with CT 643. The soluble sulfate and chloride contents of selected samples were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure C-25.

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GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (percent)	USCS
●	B-1	40.0-41.5	--	--	--	--	--	--	--	--	43	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

FIGURE C-1

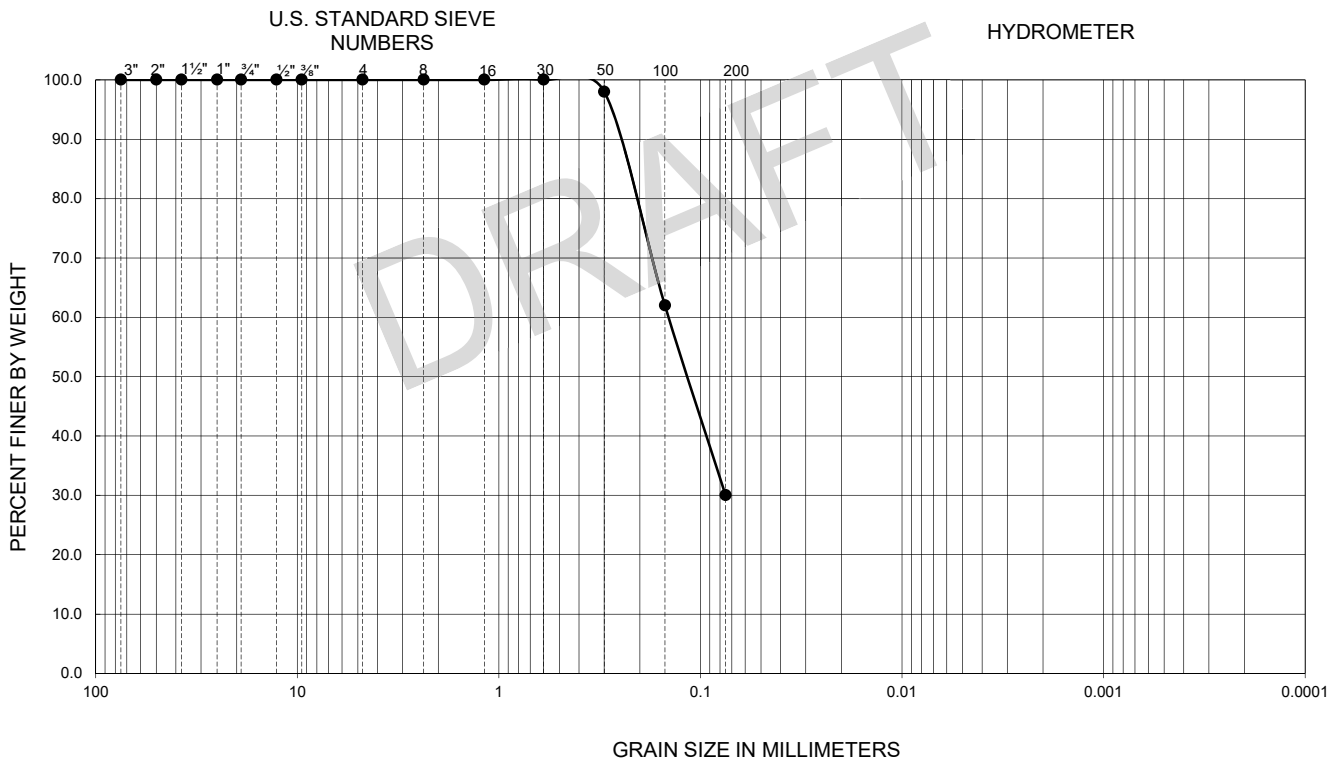
GRADATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (percent)	USCS
●	B-2	25.0-26.5	--	--	--	--	--	--	--	--	30	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

FIGURE C-2

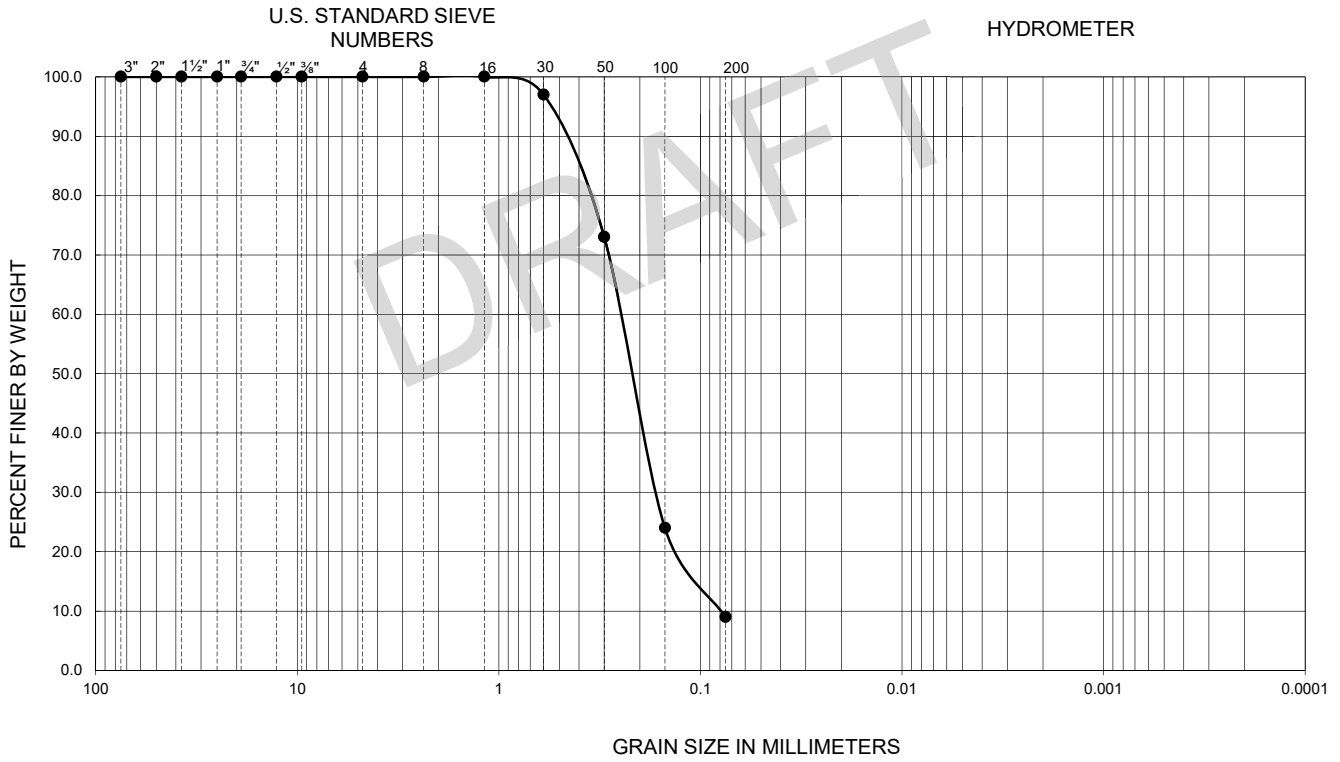
GRADATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (percent)	USCS
●	B-3	40.0-41.5	--	--	--	0.08	0.16	0.24	3.0	1.3	9	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

FIGURE C-3

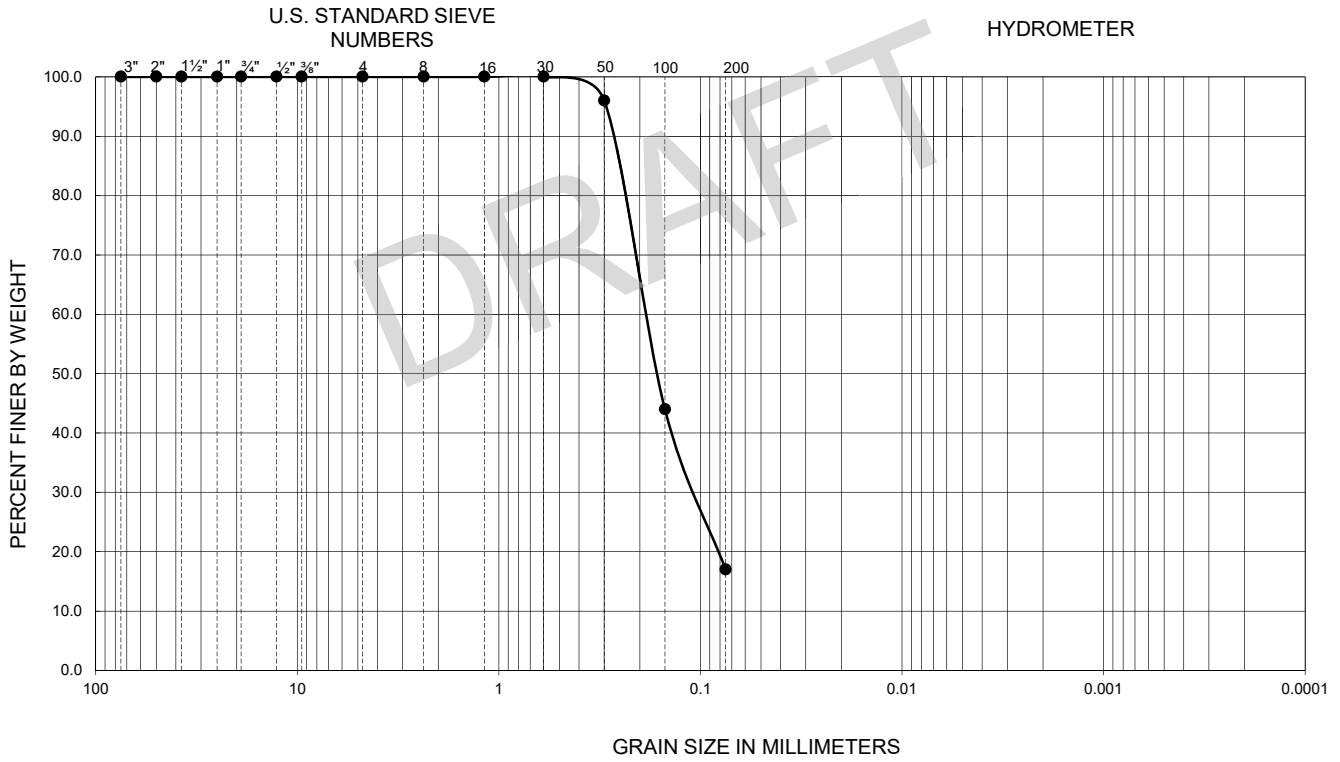
GRADATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (percent)	USCS
●	B-13	25.0-26.5	--	--	--	--	--	--	--	--	17	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

FIGURE C-4

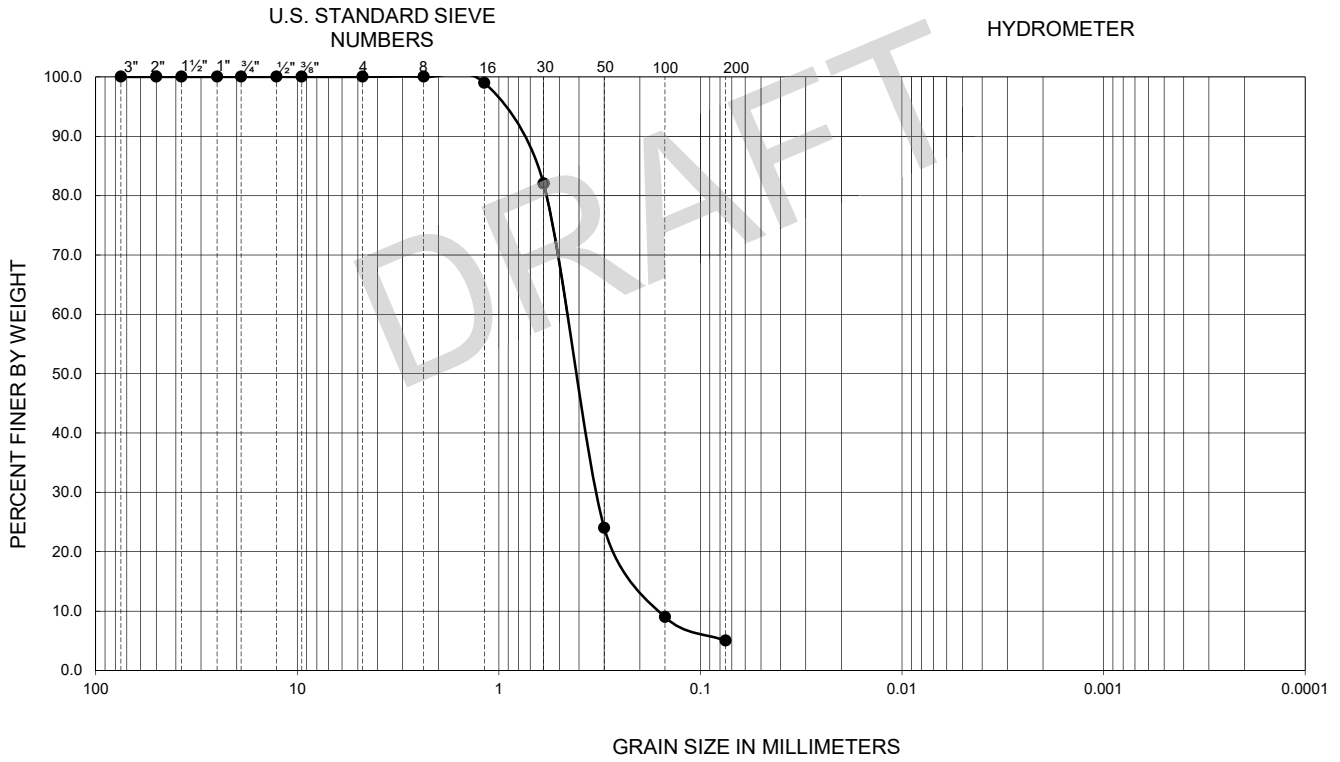
GRADATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-2	30.0-31.5	SILTY SAND	100	28	SM
B-3	15.0-16.5	LEAN CLAY	100	57	CL
B-3	45.5-46.5	POORLY GRADED SAND WITH SILT	100	5	SP-SM
B-10	25.0-26.5	CLAYEY SAND	100	36	SC
B-11	30.0-31.5	POORLY GRADED SAND	98	4	SP
B-13	15.0-16.5	SILT	100	82	ML
B-13	30.0-31.5	SILTY SAND	100	27	SM
B-14	15.0-16.5	SILT	94	75	ML
B-16	10.0-11.5	LEAN CLAY	100	81	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE C-6



NO. 200 SIEVE ANALYSIS TEST RESULTS

COMPTON HIGHT SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-17	15.0-16.5	LEAN CLAY	95	79	CL
B-18	30.0-31.5	SILTY SAND	100	16	SM
B-19	30.0-31.5	POORLY GRADED SAND WITH SILT	100	10	SP-SM
B-19	35.0-36.5	SILTY SAND	100	27	SM
B-19	65.0-66.5	POORLY GRADED SAND WITH SILT	100	5	SP-SM
B-20	15.0-17.0	SILT	100	82	ML

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE C-7



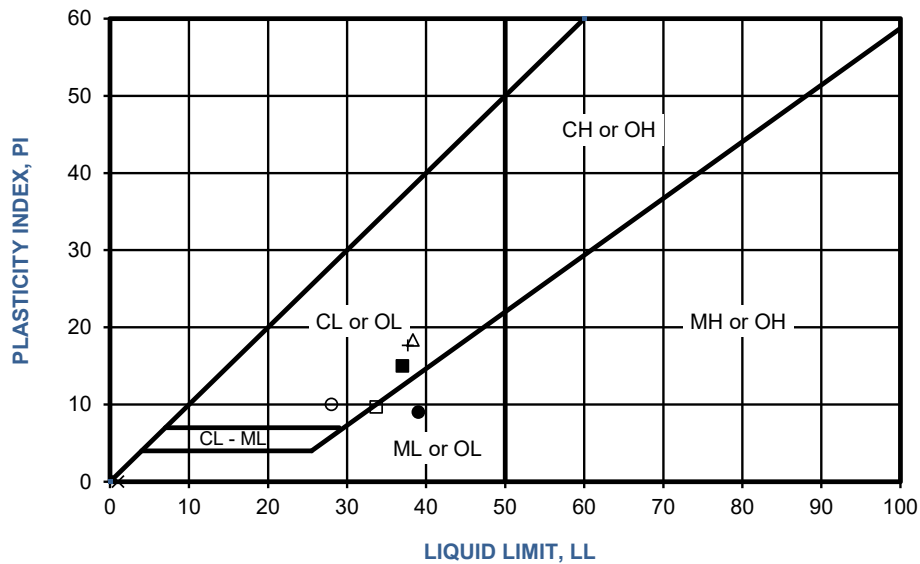
NO. 200 SIEVE ANALYSIS TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
●	B-1	15.0-16.5	39	30	9	ML	ML
■	B-2	10.0-11.5	37	22	15	CL	CL
◆	B-2	15.0-16.5	NP	NP	NP	ML	ML
○	B-3	20.0-21.5	28	18	10	CL	CL
□	B-10	0.0-3.0	34	24	10	ML	ML
△	B-18	20.0-25.0	38	20	18	CL	CL
×	B-18	40.0-41.5	NP	NP	NP	ML	ML
+	B-19	20.0-22.0	38	20	18	CL	CL

NP - INDICATES NON-PLASTIC



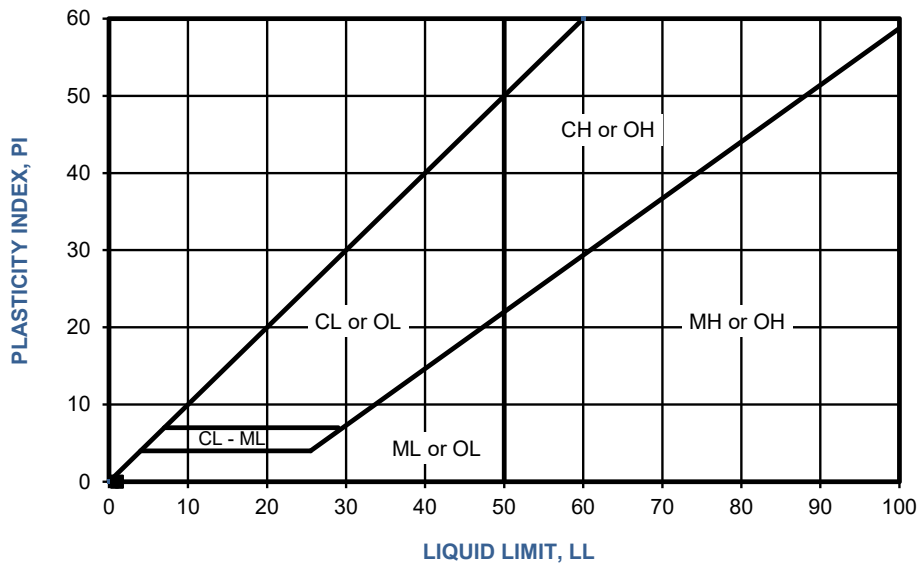
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

FIGURE C-8

SYMBOL	LOCATION	DEPTH (ft)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION (Fraction Finer Than No. 40 Sieve)	USCS
•	B-19	35.0-36.5	NP	NP	NP	ML	ML

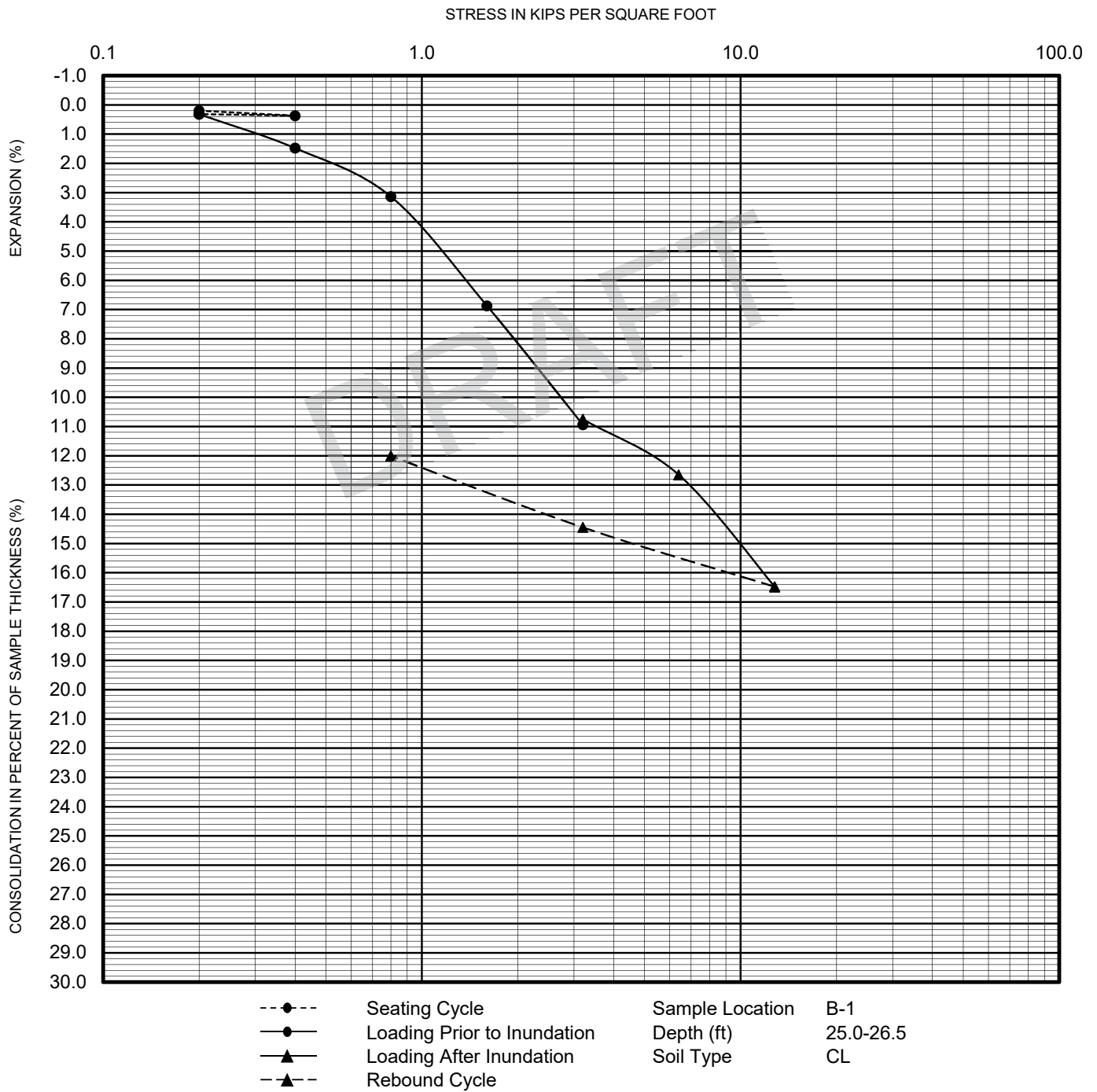
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NP - INDICATES NON-PLASTIC



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4318

FIGURE C-9



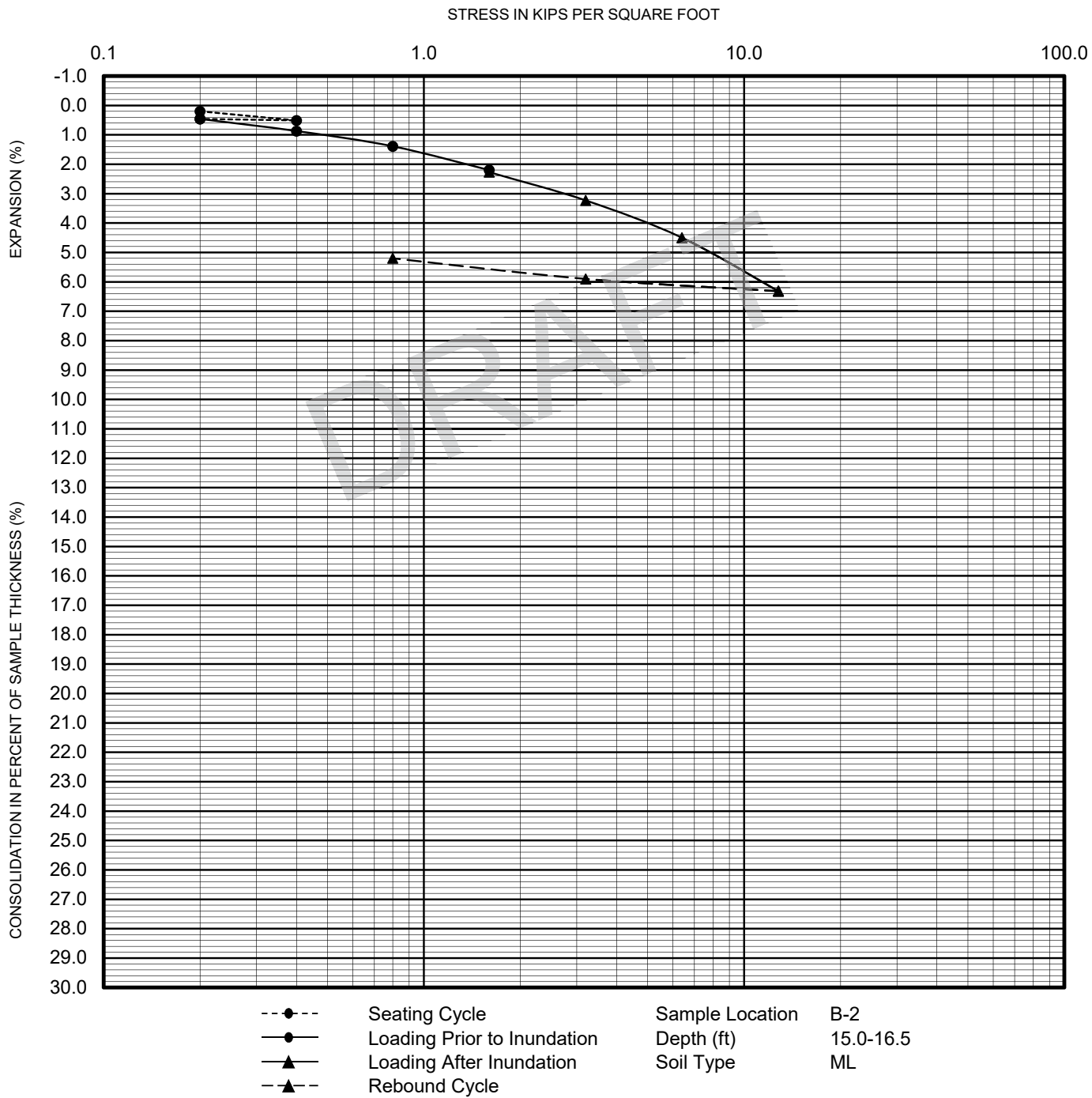
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-10

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



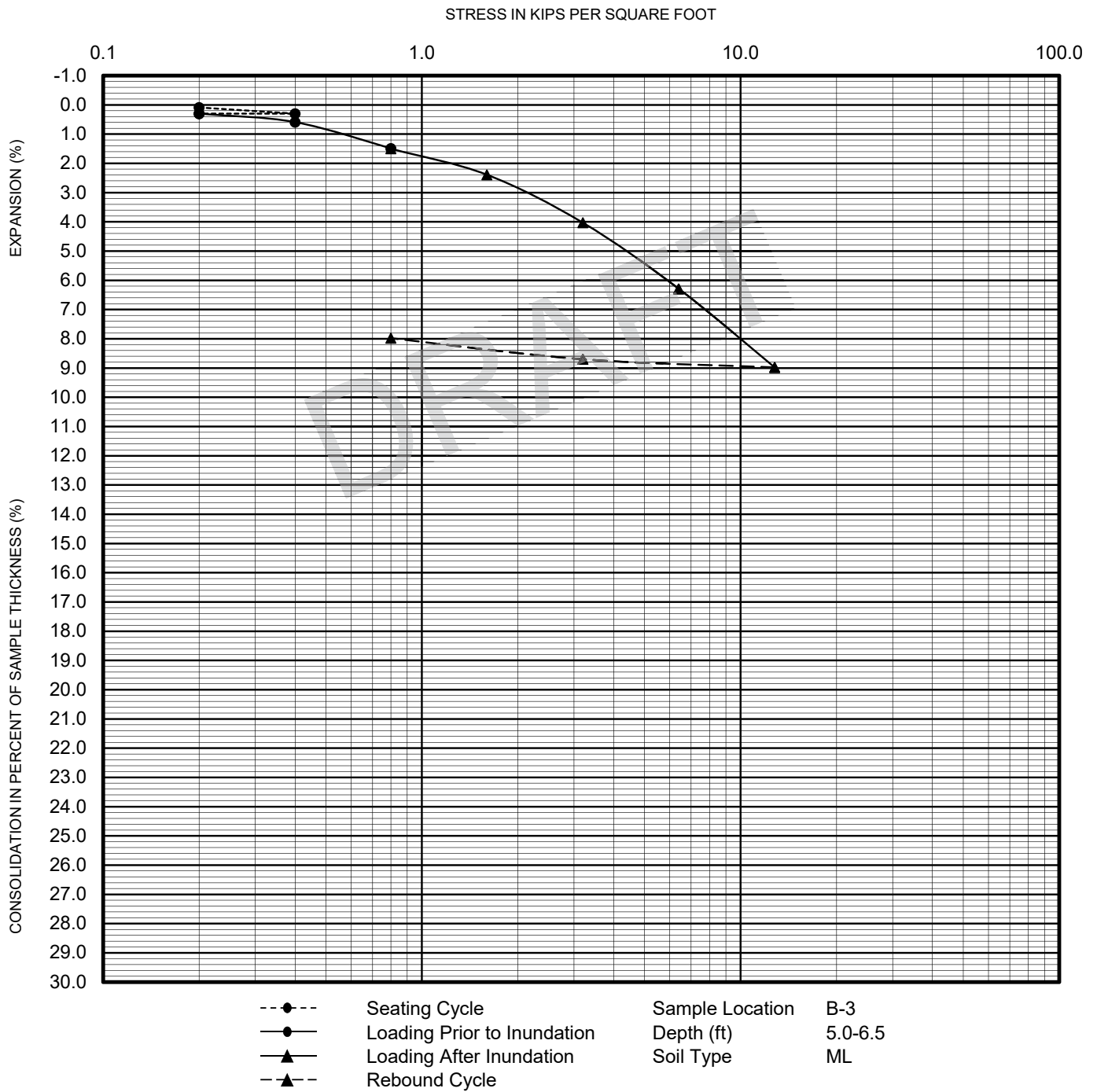
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-11



CONSOLIDATION TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

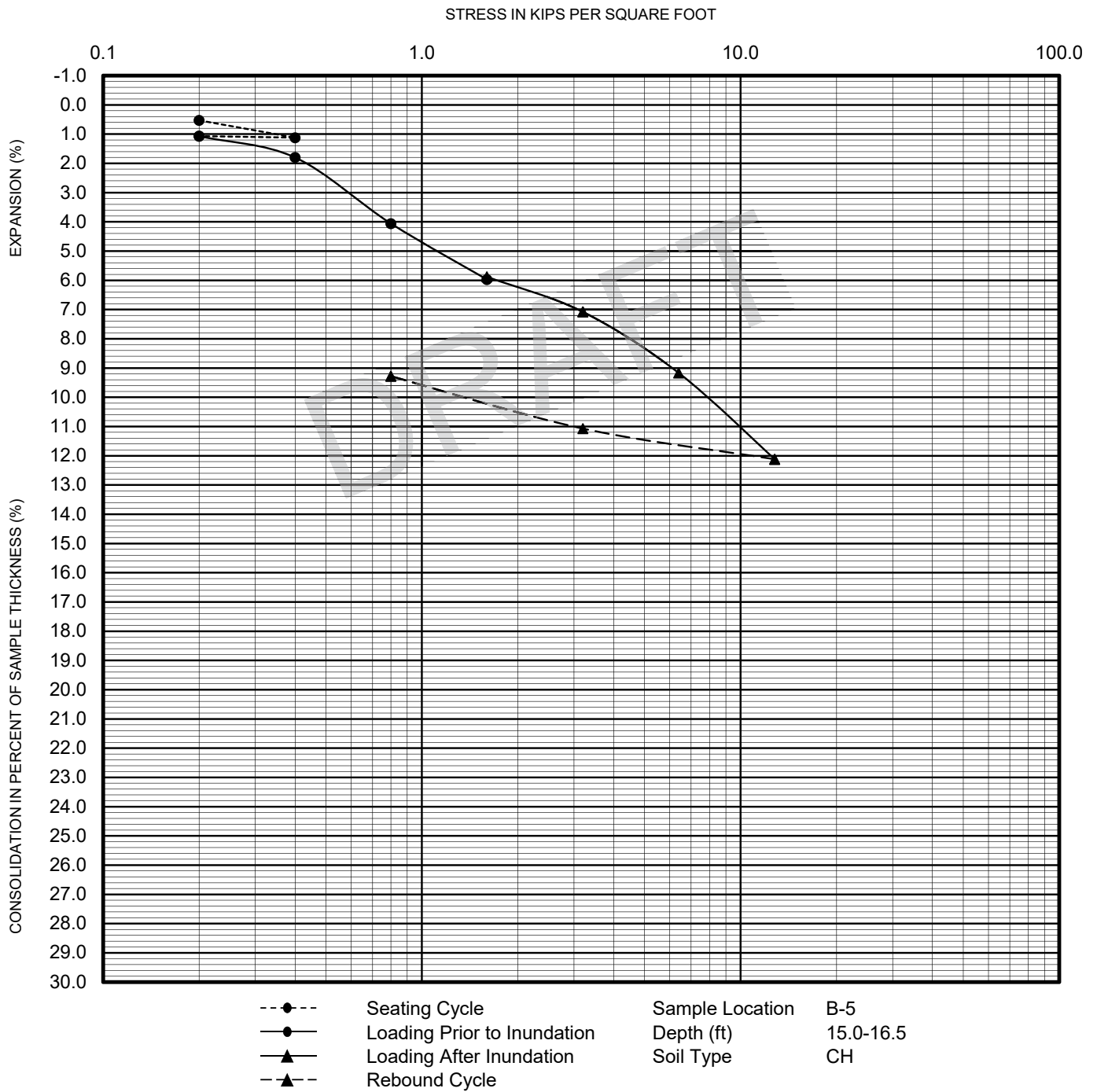
FIGURE C-12

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18



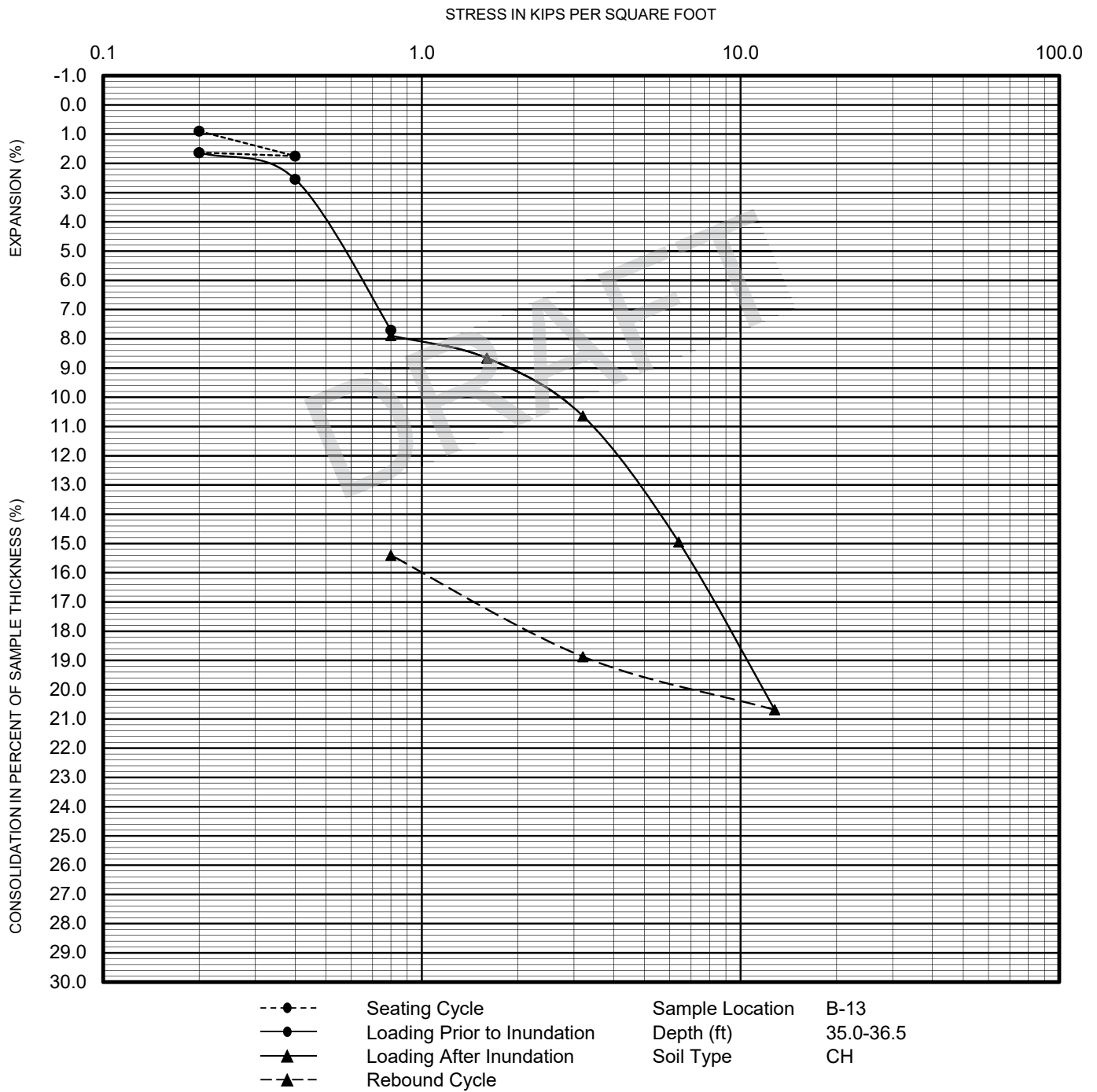
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-13

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



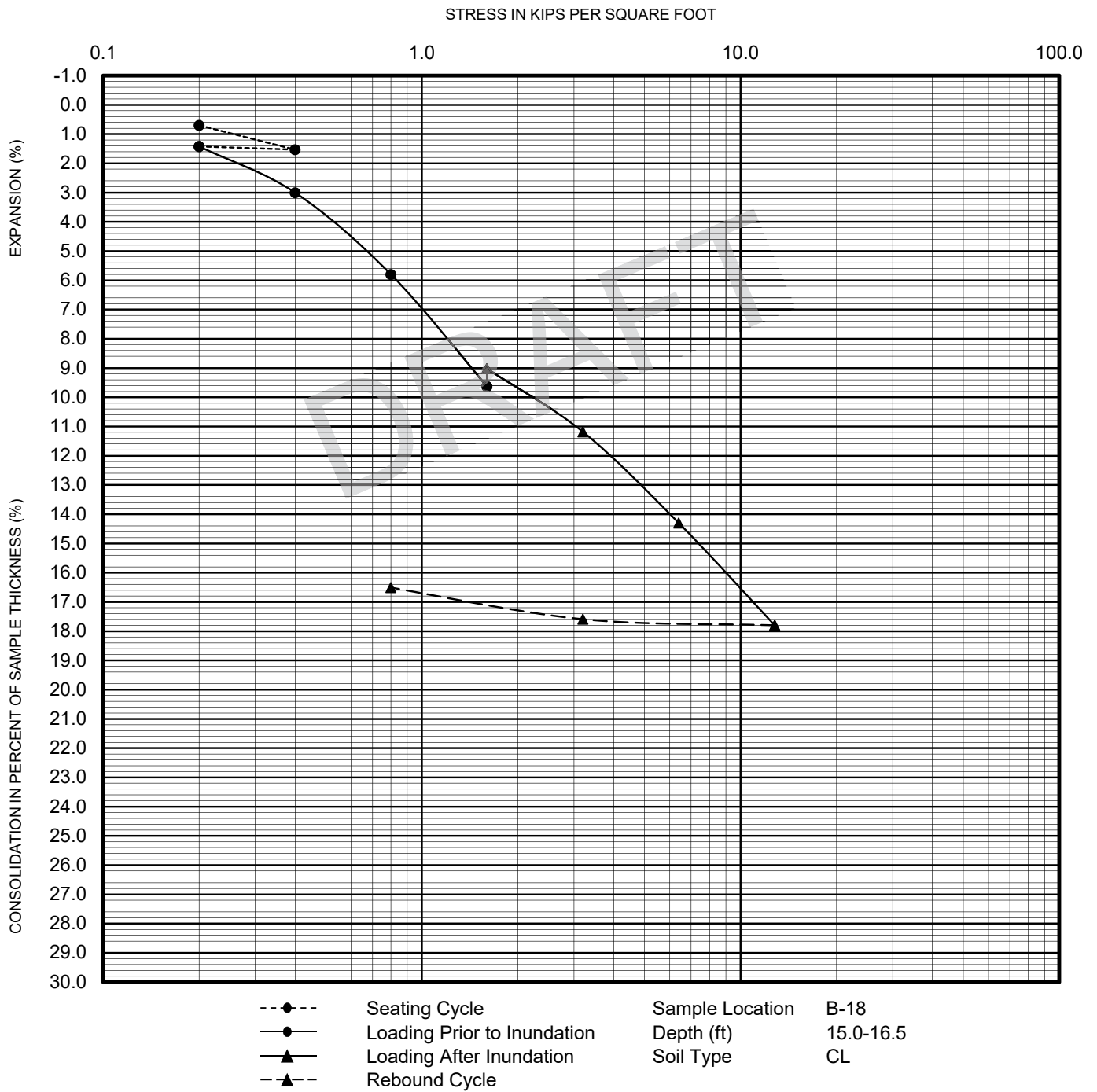
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-14

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



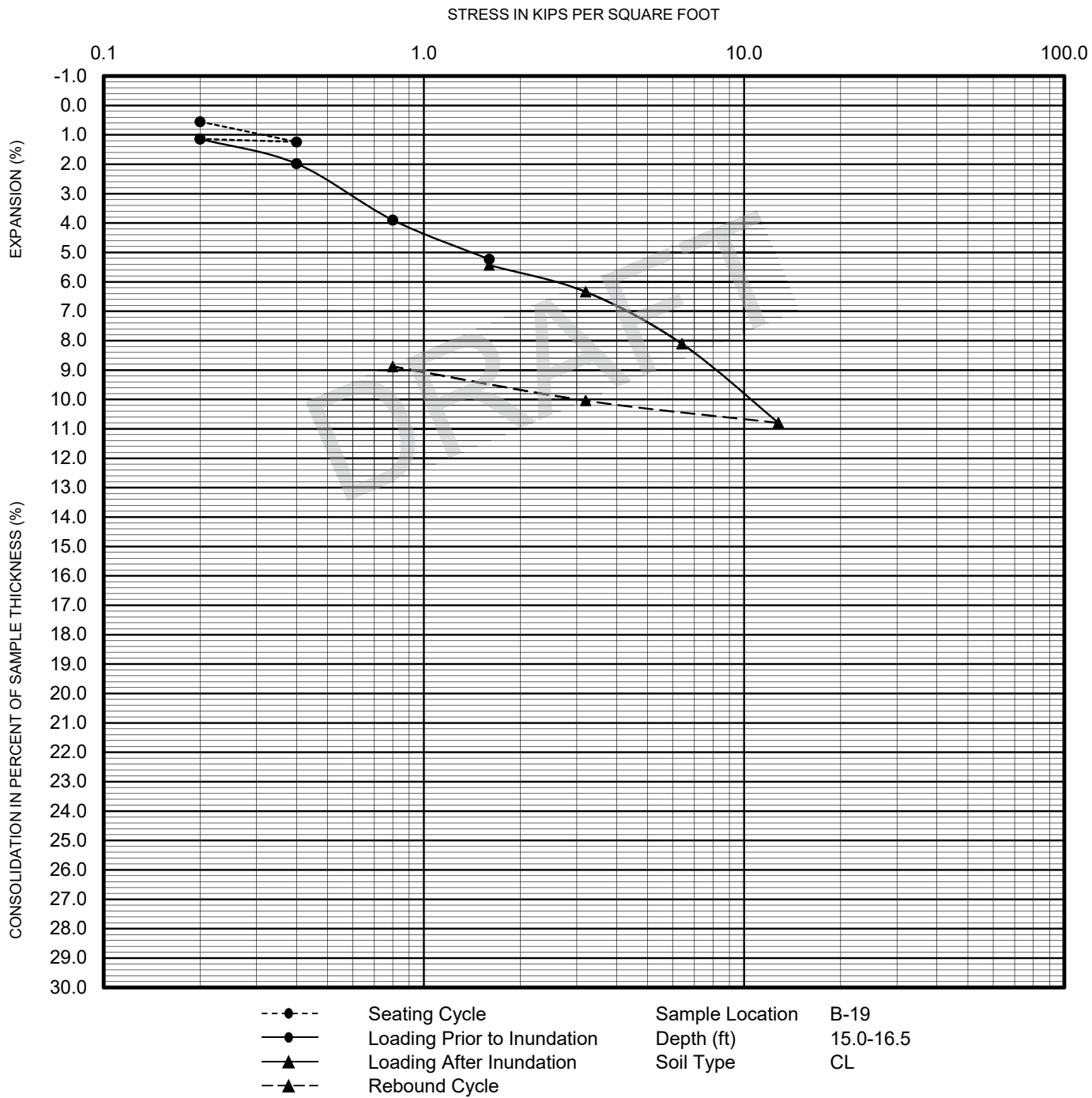
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-15

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
 COMPTON, CALIFORNIA



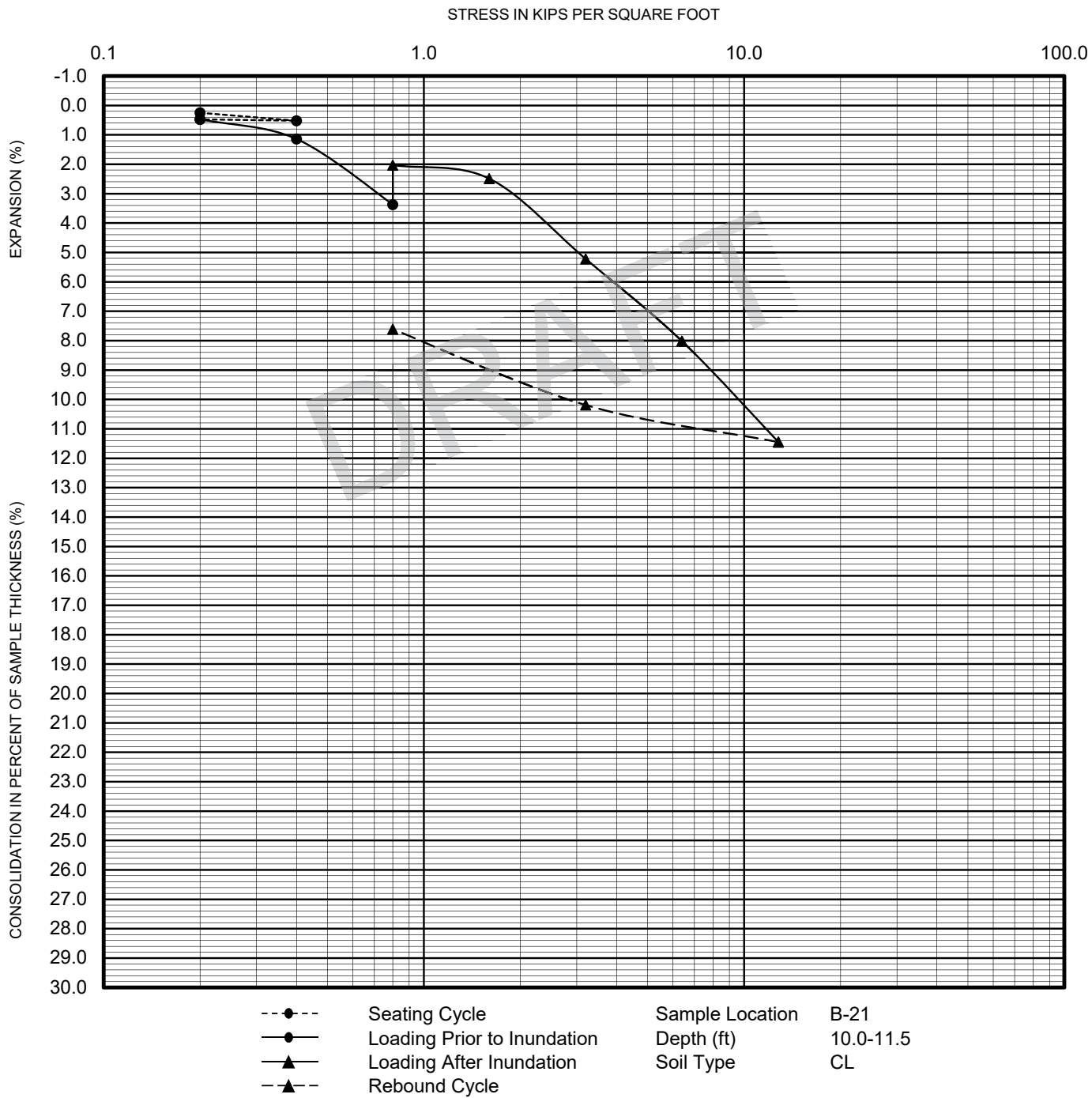
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-16

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



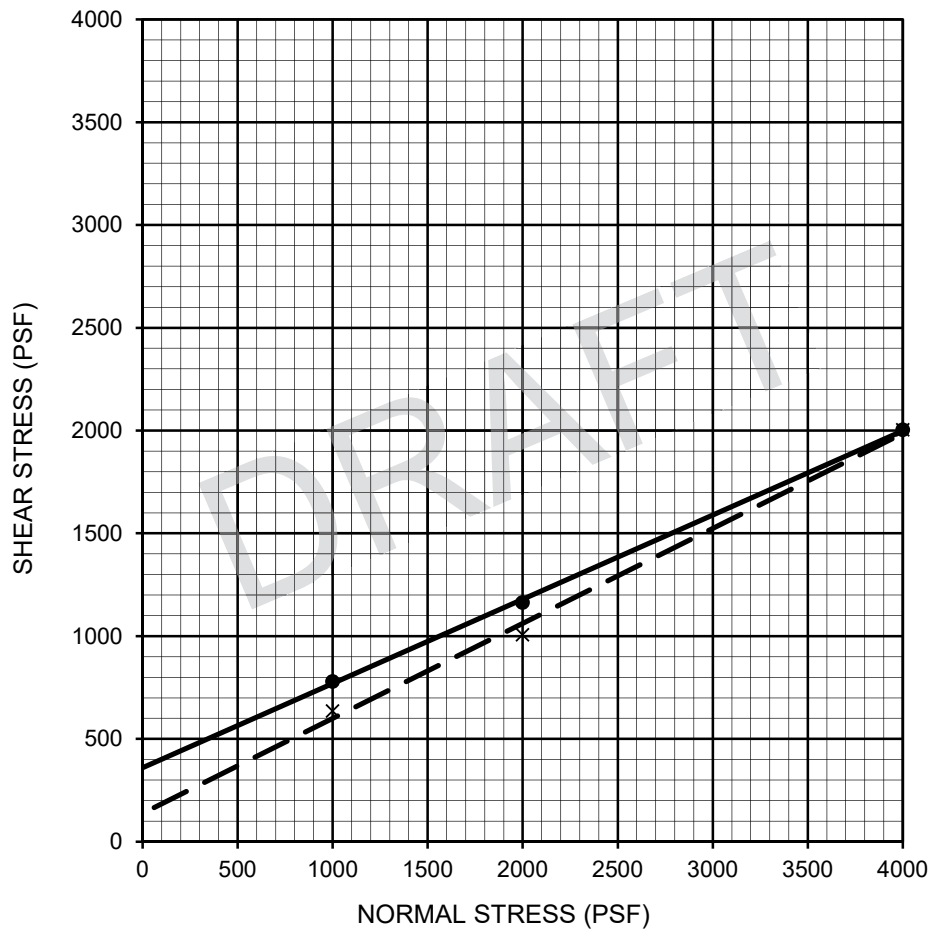
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

FIGURE C-17

CONSOLIDATION TEST RESULTS



COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
LEAN CLAY	—●—	B-7	5.0-6.5	Peak	360	22	CL
LEAN CLAY	- - X - -	B-7	5.0-6.5	Ultimate	138	25	CL

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

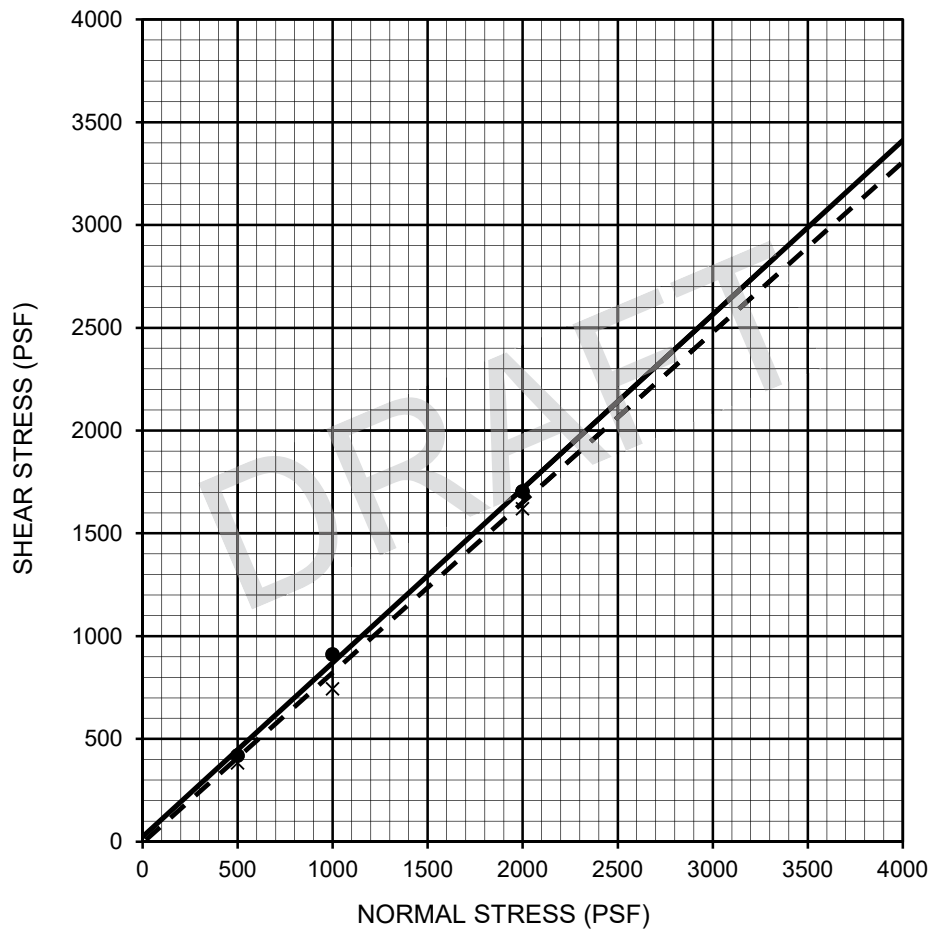
FIGURE C-18



DIRECT SHEAR TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
POORLY GRADED SAND	—●—	B-9	5.0-6.5	Peak	24	40	SP
POORLY GRADED SAND	- - X - -	B-9	5.0-6.5	Ultimate	0	40	SP

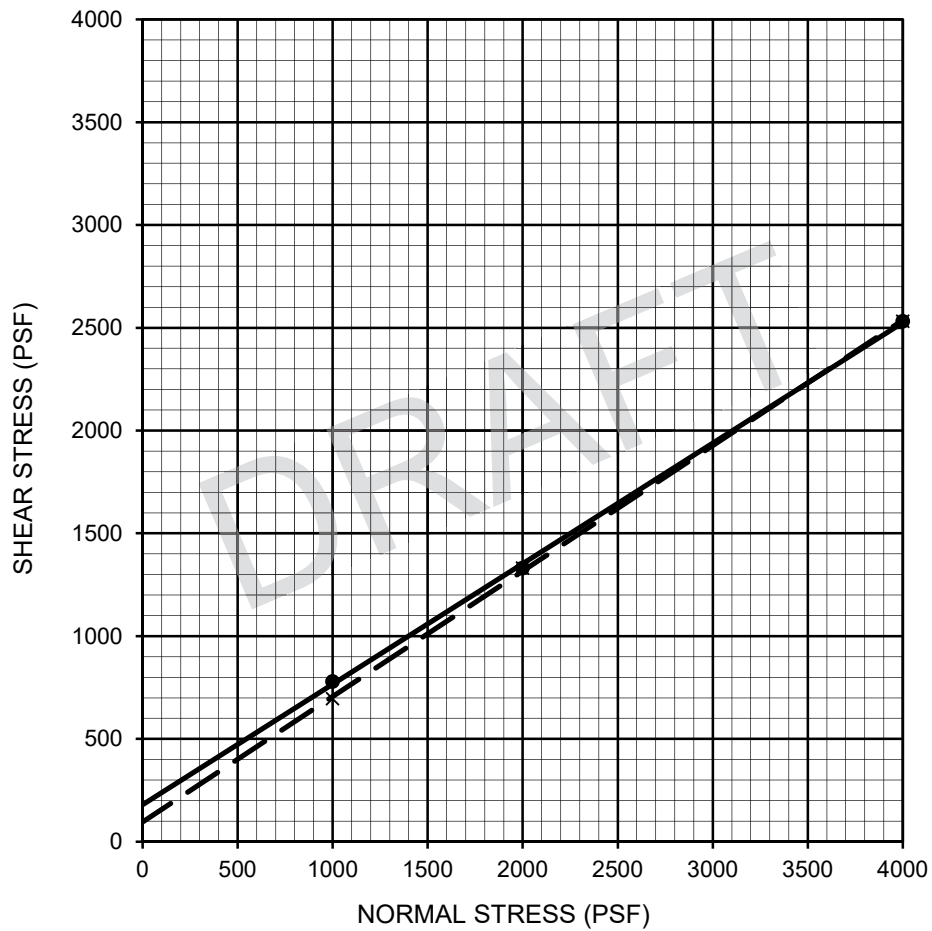
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE C-19



DIRECT SHEAR TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
LEAN CLAY	—●—	B-10	10.0-11.5	Peak	180	30	CL
LEAN CLAY	- - X - -	B-10	10.0-11.5	Ultimate	96	31	CL

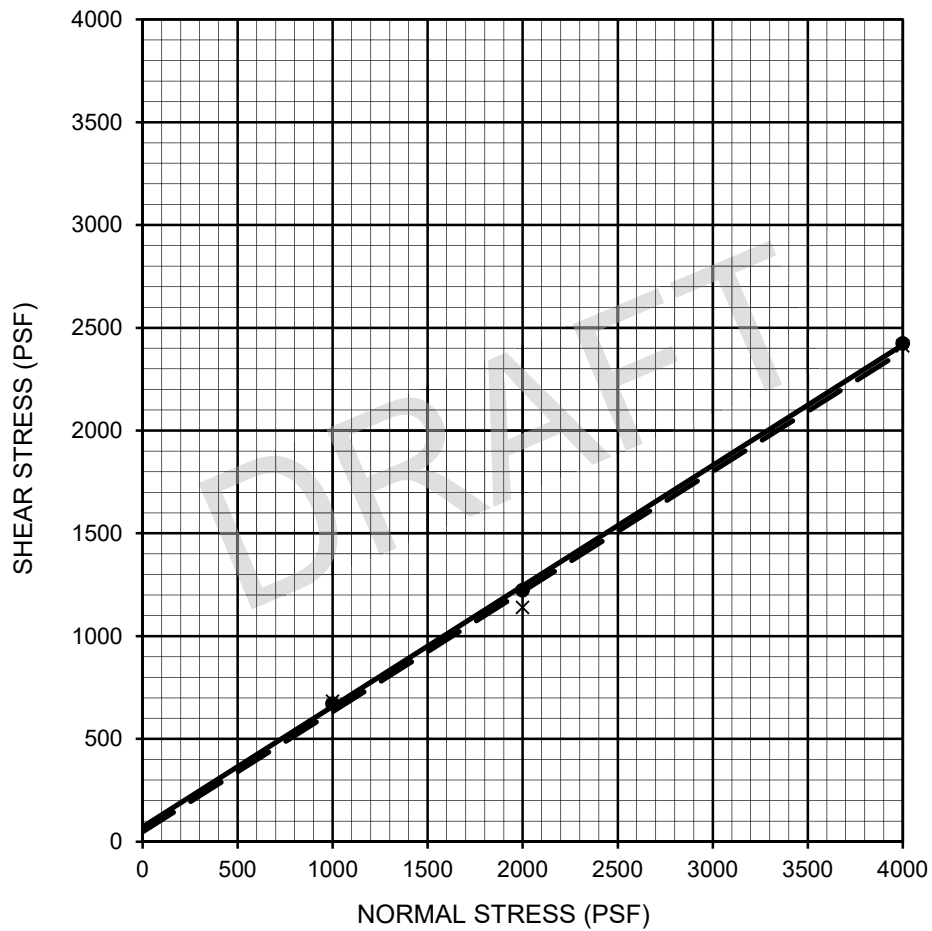
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE C-20



DIRECT SHEAR TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILT	—●—	B-13	15.0-16.5	Peak	72	30	ML
SILT	- - X - -	B-13	15.0-16.5	Ultimate	48	30	ML

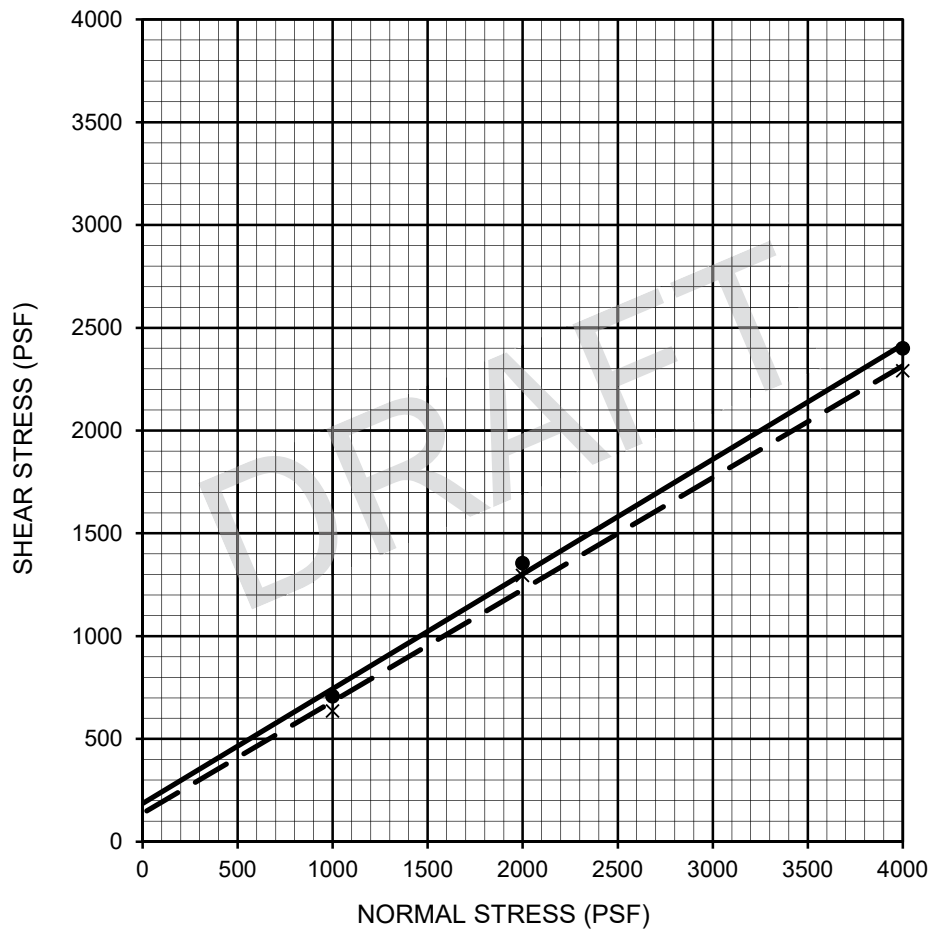
PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE C-21



DIRECT SHEAR TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
SILTY SAND	—●—	B-19	5.0-6.5	Peak	186	29	SM
SILTY SAND	- - X - -	B-19	5.0-6.5	Ultimate	138	29	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

FIGURE C-22



DIRECT SHEAR TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

DRAFT

SAMPLE LOCATION	SAMPLE DEPTH (ft)	INITIAL MOISTURE (percent)	COMPACTED DRY DENSITY (pcf)	FINAL MOISTURE (percent)	VOLUMETRIC SWELL (in)	EXPANSION INDEX	POTENTIAL EXPANSION
B-10	0.0-3.0	12.5	101.1	23.0	0.030	30	Low

PERFORMED IN GENERAL ACCORDANCE WITH

UBC STANDARD 18-2

ASTM D 4829

FIGURE C-23



EXPANSION INDEX TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

DRAFT

SAMPLE LOCATION	SAMPLE DEPTH (ft)	SOIL TYPE	R-VALUE
B-12	1.0-5.0	SM	75
B-15	0.5-5.0	CL	16

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2844/CT 301

FIGURE C-24

R-VALUE TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

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SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH ¹	RESISTIVITY ¹ (ohm-cm)	SULFATE CONTENT ²		CHLORIDE CONTENT ³ (ppm)
				(ppm)	(%)	
B-5	0.0-5.0	7.4	1,947	30	0.003	40
B-16	0.5-5.0	7.1	1,869	10	0.001	30

¹ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

² PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

³ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

FIGURE C-25



CORROSIVITY TEST RESULTS

COMPTON HIGH SCHOOL
COMPTON, CALIFORNIA

210256003 | 1/18

DRAFT

APPENDIX D

Liquefaction Analysis Results

LIQUEFACTION ANALYSIS REPORT

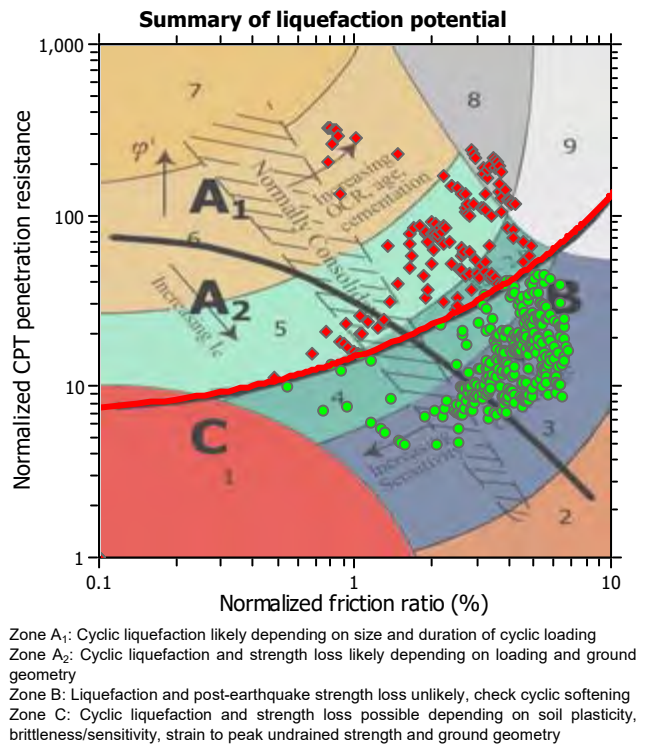
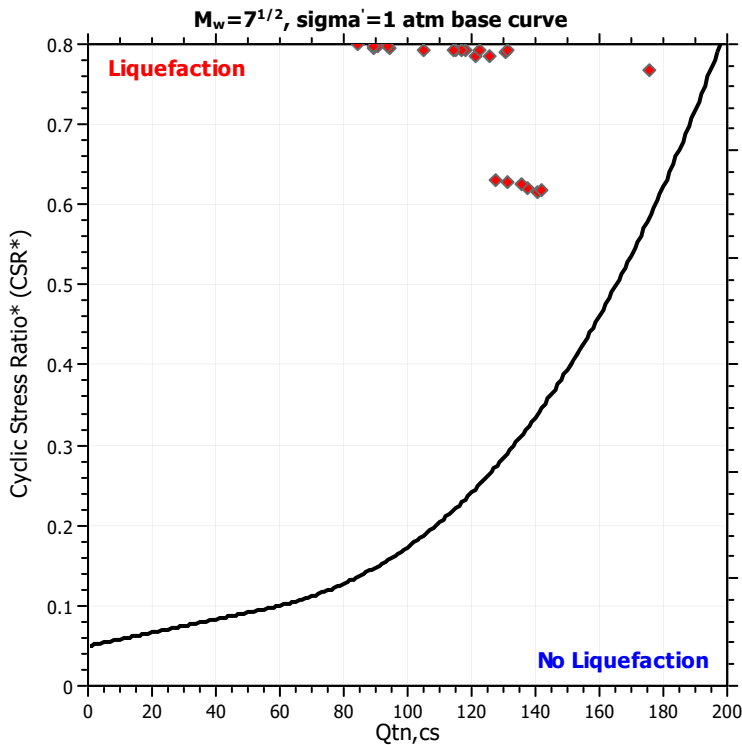
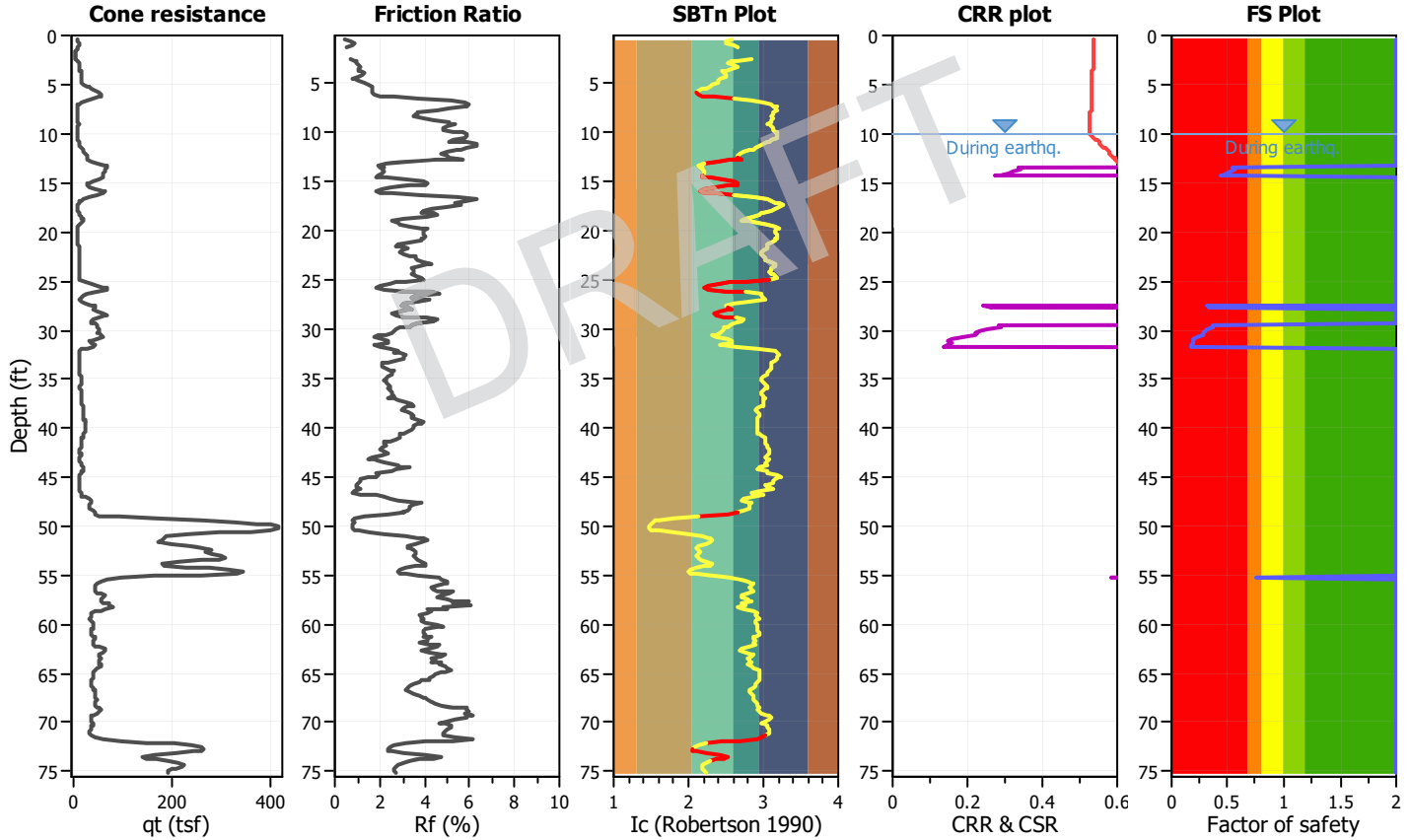
Project title : 210256003 - Compton HS

Location : Compton, CA

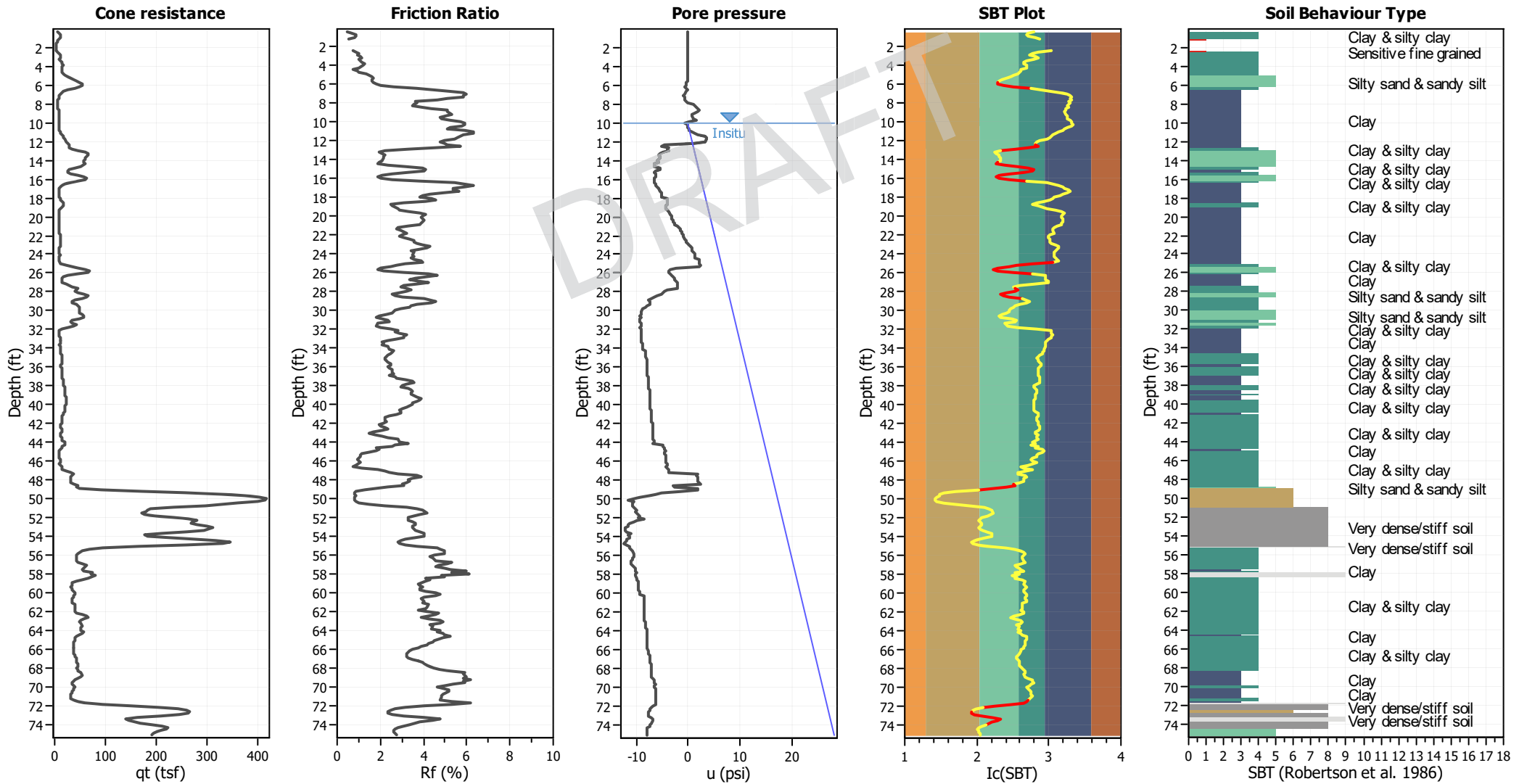
CPT file : CPT-01

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



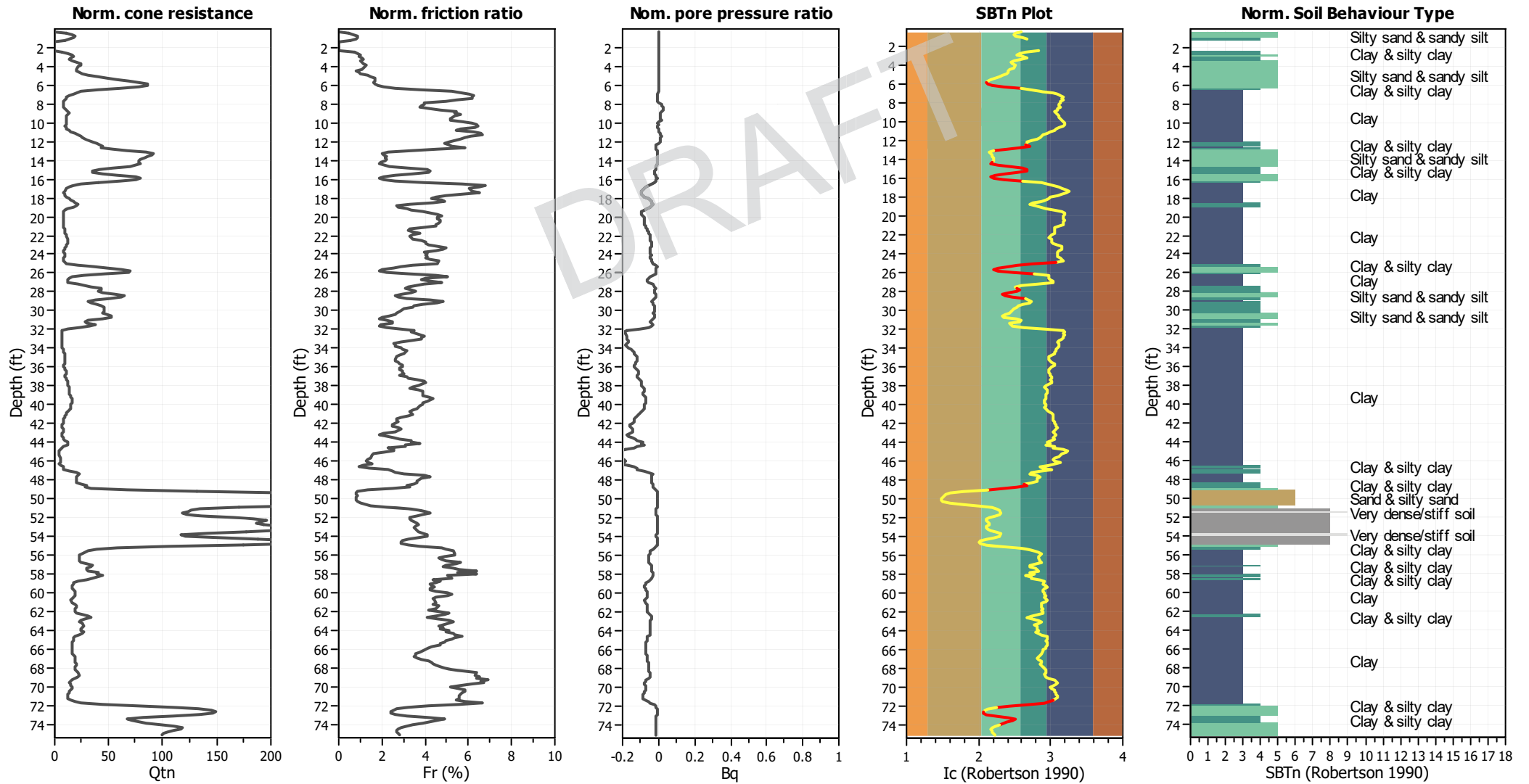
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



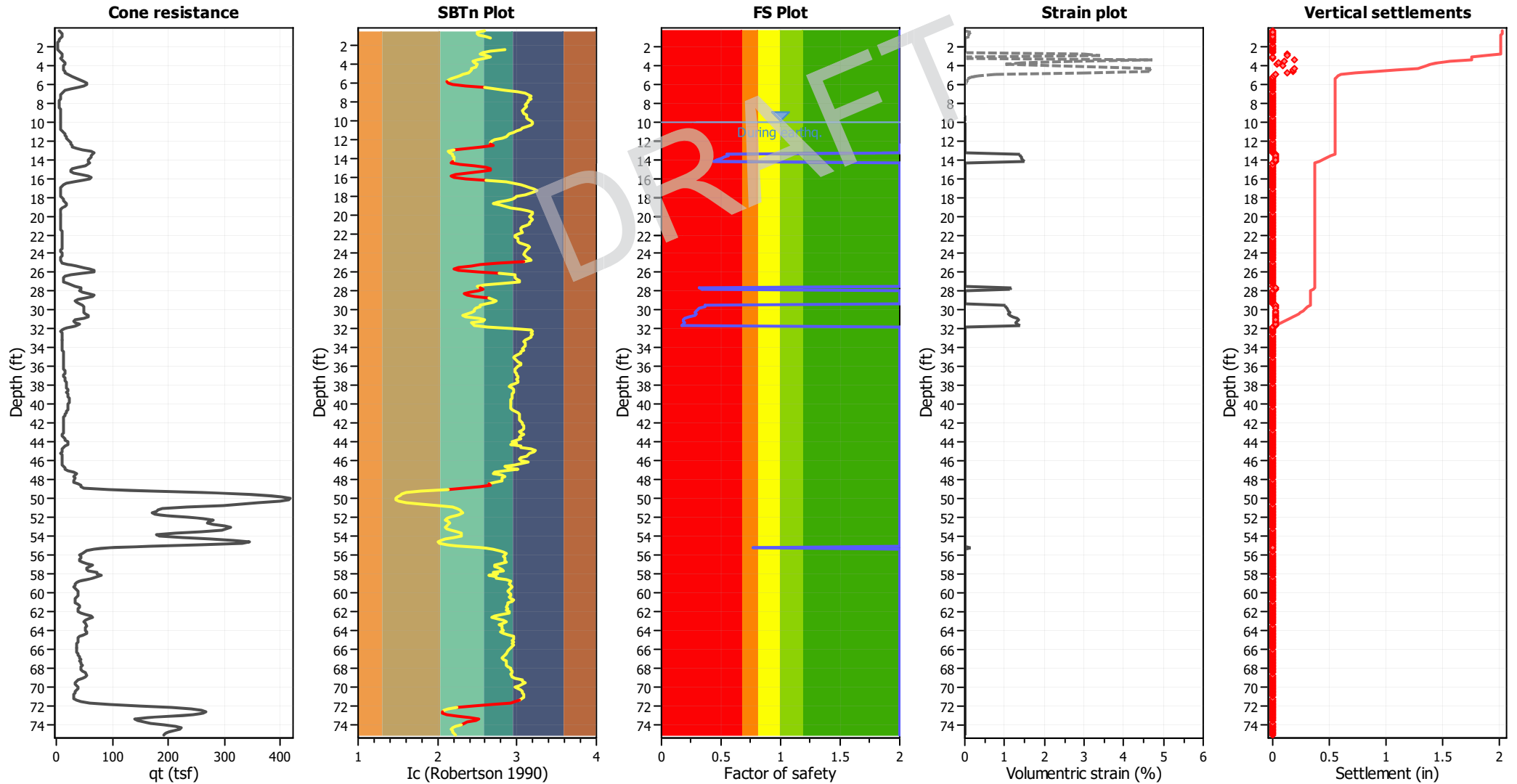
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.49	2.58	11.16	3.23	36.08	10	165	0.54	0.085	0.20	9.27	0.16	0.006
0.66	2.51	15.64	2.81	43.99	11	210	0.54	0.059	0.12	9.27	0.09	0.004
0.82	2.50	18.31	2.74	50.24	13	242	0.54	0.055	0.09	9.27	0.07	0.003
0.98	2.51	17.76	2.83	50.35	13	240	0.54	0.091	0.15	9.27	0.12	0.005
1.15	2.61	13.14	3.38	44.47	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.31	2.66	9.70	3.73	36.23	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	2.84	7.10	5.13	36.42	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	2.66	12.07	3.70	44.72	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	2.57	16.08	3.16	50.75	14	234	0.53	2.429	3.88	9.27	2.99	0.122
2.95	2.54	17.03	2.97	50.51	13	237	0.53	2.704	4.43	9.27	3.41	0.131
3.12	2.61	15.08	3.38	51.02	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.28	2.66	13.79	3.73	51.40	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.45	2.59	15.65	3.25	50.86	14	232	0.53	6.004	9.47	9.27	4.74	0.193
3.61	2.50	20.24	2.75	55.65	14	268	0.53	2.392	3.57	9.27	2.72	0.104
3.77	2.45	23.81	2.52	60.08	15	296	0.53	1.366	1.91	9.27	1.45	0.056
3.94	2.47	24.66	2.62	64.63	16	315	0.53	1.065	1.35	9.27	1.02	0.042
4.10	2.50	21.80	2.78	60.52	16	290	0.53	2.174	2.93	9.27	2.21	0.085
4.27	2.49	20.50	2.71	55.59	14	268	0.53	4.556	6.84	9.27	4.67	0.191
4.43	2.42	20.71	2.41	49.88	12	249	0.53	9.596	17.03	9.27	4.66	0.179
4.59	2.42	23.10	2.39	55.14	14	277	0.53	4.793	7.56	9.27	4.65	0.179
4.76	2.40	25.77	2.32	59.77	15	302	0.53	2.823	4.08	9.27	3.05	0.124
4.92	2.39	31.37	2.29	71.79	18	364	0.53	0.903	1.05	9.27	0.78	0.030
5.09	2.33	40.09	2.03	81.57	19	427	0.53	0.404	0.42	9.27	0.31	0.013
5.25	2.29	48.80	1.91	93.33	22	496	0.53	0.211	0.19	9.27	0.14	0.005
5.41	2.23	58.11	1.75	101.65	23	550	0.53	0.146	0.12	9.27	0.09	0.003
5.58	2.18	68.21	1.61	110.08	25	602	0.53	0.110	0.09	9.27	0.06	0.003
5.74	2.13	78.48	1.51	118.70	26	653	0.53	0.088	0.06	9.27	0.05	0.002
5.91	2.11	85.48	1.48	126.36	27	695	0.53	0.076	0.05	9.27	0.04	0.002
6.07	2.13	86.26	1.51	130.15	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.20	78.48	1.66	130.19	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.35	60.79	2.13	129.66	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.59	39.84	3.28	130.67	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.85	24.40	5.20	126.90	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	3.00	16.88	6.80	114.78	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	3.10	12.90	7.95	102.62	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	3.14	11.33	8.46	95.86	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	3.17	10.41	8.85	92.18	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	3.15	9.86	8.63	85.13	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	3.17	8.68	8.88	77.09	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	3.14	8.14	8.42	68.52	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	3.14	8.09	8.47	68.49	0	0	0.53	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)
8.20	3.12	8.35	8.21	68.62	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	3.11	8.51	8.07	68.68	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	3.13	8.87	8.25	73.18	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	3.10	10.31	7.92	81.65	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	3.09	11.84	7.83	92.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	3.06	12.89	7.47	96.29	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	3.09	12.33	7.80	96.19	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	3.12	10.97	8.12	89.10	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	3.12	10.38	8.23	85.37	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	3.12	10.36	8.24	85.36	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	3.15	10.38	8.56	88.86	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.48												

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)
10.01	92.18	2.00	0.00	0.85	0.00	10.17	91.97	2.00	0.00	0.84	0.00
10.34	91.93	2.00	0.00	0.84	0.00	10.50	92.06	2.00	0.00	0.84	0.00
10.66	92.63	2.00	0.00	0.84	0.00	10.83	96.27	2.00	0.00	0.83	0.00
10.99	111.91	2.00	0.00	0.83	0.00	11.16	125.71	2.00	0.00	0.83	0.00
11.32	135.61	2.00	0.00	0.83	0.00	11.48	135.11	2.00	0.00	0.82	0.00
11.65	136.96	2.00	0.00	0.82	0.00	11.81	140.97	2.00	0.00	0.82	0.00
11.98	145.69	2.00	0.00	0.82	0.00	12.14	150.66	2.00	0.00	0.81	0.00
12.30	158.76	2.00	0.00	0.81	0.00	12.47	164.45	2.00	0.00	0.81	0.00
12.63	171.90	2.00	0.00	0.81	0.00	12.80	165.79	2.00	0.00	0.80	0.00
12.96	153.70	2.00	0.00	0.80	0.00	13.12	142.79	2.00	0.00	0.80	0.00
13.29	139.75	2.00	0.00	0.80	0.00	13.45	140.75	0.55	1.40	0.79	0.03
13.62	141.60	0.56	1.39	0.79	0.03	13.78	137.70	0.52	1.42	0.79	0.03
13.94	135.42	0.50	1.44	0.79	0.03	14.11	131.47	0.46	1.47	0.78	0.03
14.27	127.67	0.43	1.50	0.78	0.03	14.44	125.72	2.00	0.00	0.78	0.00
14.60	130.58	2.00	0.00	0.78	0.00	14.76	136.53	2.00	0.00	0.77	0.00
14.93	138.38	2.00	0.00	0.77	0.00	15.09	132.39	2.00	0.00	0.77	0.00
15.26	129.79	2.00	0.00	0.77	0.00	15.42	128.46	2.00	0.00	0.76	0.00
15.58	126.51	2.00	0.00	0.76	0.00	15.75	128.09	2.00	0.00	0.76	0.00
15.91	126.58	2.00	0.00	0.76	0.00	16.08	127.51	2.00	0.00	0.75	0.00
16.24	128.47	2.00	0.00	0.75	0.00	16.40	134.53	2.00	0.00	0.75	0.00
16.57	133.03	2.00	0.00	0.75	0.00	16.73	120.91	2.00	0.00	0.74	0.00
16.90	105.07	2.00	0.00	0.74	0.00	17.06	93.15	2.00	0.00	0.74	0.00
17.23	86.02	2.00	0.00	0.74	0.00	17.39	85.41	2.00	0.00	0.73	0.00
17.55	82.55	2.00	0.00	0.73	0.00	17.72	79.54	2.00	0.00	0.73	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)
17.88	79.70	2.00	0.00	0.73	0.00	18.05	86.30	2.00	0.00	0.72	0.00
18.21	97.83	2.00	0.00	0.72	0.00	18.37	105.29	2.00	0.00	0.72	0.00
18.54	104.01	2.00	0.00	0.72	0.00	18.70	93.94	2.00	0.00	0.71	0.00
18.87	84.61	2.00	0.00	0.71	0.00	19.03	79.90	2.00	0.00	0.71	0.00
19.19	74.79	2.00	0.00	0.71	0.00	19.36	67.38	2.00	0.00	0.70	0.00
19.52	66.79	2.00	0.00	0.70	0.00	19.69	70.00	2.00	0.00	0.70	0.00
19.85	73.55	2.00	0.00	0.70	0.00	20.01	73.62	2.00	0.00	0.69	0.00
20.18	73.47	2.00	0.00	0.69	0.00	20.34	73.20	2.00	0.00	0.69	0.00
20.51	73.01	2.00	0.00	0.69	0.00	20.67	72.91	2.00	0.00	0.68	0.00
20.83	72.92	2.00	0.00	0.68	0.00	21.00	72.78	2.00	0.00	0.68	0.00
21.16	69.48	2.00	0.00	0.68	0.00	21.33	65.88	2.00	0.00	0.67	0.00
21.49	65.80	2.00	0.00	0.67	0.00	21.65	69.39	2.00	0.00	0.67	0.00
21.82	72.71	2.00	0.00	0.67	0.00	21.98	72.66	2.00	0.00	0.66	0.00
22.15	72.52	2.00	0.00	0.66	0.00	22.31	75.65	2.00	0.00	0.66	0.00
22.47	78.65	2.00	0.00	0.66	0.00	22.64	81.48	2.00	0.00	0.65	0.00
22.80	81.32	2.00	0.00	0.65	0.00	22.97	81.14	2.00	0.00	0.65	0.00
23.13	80.81	2.00	0.00	0.65	0.00	23.30	80.33	2.00	0.00	0.64	0.00
23.46	77.10	2.00	0.00	0.64	0.00	23.62	73.98	2.00	0.00	0.64	0.00
23.79	70.83	2.00	0.00	0.64	0.00	23.95	74.00	2.00	0.00	0.63	0.00
24.12	73.92	2.00	0.00	0.63	0.00	24.28	73.74	2.00	0.00	0.63	0.00
24.44	70.29	2.00	0.00	0.63	0.00	24.61	69.91	2.00	0.00	0.62	0.00
24.77	72.81	2.00	0.00	0.62	0.00	24.94	82.03	2.00	0.00	0.62	0.00
25.10	96.57	2.00	0.00	0.62	0.00	25.26	108.79	2.00	0.00	0.61	0.00
25.43	114.05	2.00	0.00	0.61	0.00	25.59	115.26	2.00	0.00	0.61	0.00
25.76	118.39	2.00	0.00	0.61	0.00	25.92	125.10	2.00	0.00	0.60	0.00
26.08	128.58	2.00	0.00	0.60	0.00	26.25	121.83	2.00	0.00	0.60	0.00
26.41	103.74	2.00	0.00	0.60	0.00	26.58	85.49	2.00	0.00	0.59	0.00
26.74	80.23	2.00	0.00	0.59	0.00	26.90	82.69	2.00	0.00	0.59	0.00
27.07	89.88	2.00	0.00	0.59	0.00	27.23	103.01	2.00	0.00	0.58	0.00
27.40	112.65	2.00	0.00	0.58	0.00	27.56	120.94	0.31	1.16	0.58	0.02
27.72	125.93	0.34	1.12	0.58	0.02	27.89	126.93	2.00	0.00	0.57	0.00
28.05	128.04	2.00	0.00	0.57	0.00	28.22	131.78	2.00	0.00	0.57	0.00
28.38	132.82	2.00	0.00	0.57	0.00	28.54	134.25	2.00	0.00	0.56	0.00
28.71	130.76	2.00	0.00	0.56	0.00	28.87	135.71	2.00	0.00	0.56	0.00
29.04	135.23	2.00	0.00	0.56	0.00	29.20	134.11	2.00	0.00	0.55	0.00
29.36	131.06	2.00	0.00	0.55	0.00	29.53	130.35	0.36	1.03	0.55	0.02
29.69	130.95	0.36	1.03	0.55	0.02	29.86	122.78	0.32	1.08	0.54	0.02
30.02	117.87	0.29	1.11	0.54	0.02	30.19	114.73	0.28	1.13	0.54	0.02
30.35	116.66	0.29	1.11	0.54	0.02	30.51	114.27	0.28	1.12	0.53	0.02
30.68	105.03	0.24	1.19	0.53	0.02	30.84	94.29	0.20	1.30	0.53	0.02
31.01	89.63	0.18	1.35	0.53	0.03	31.17	90.62	0.19	1.33	0.52	0.03
31.33	93.77	0.20	1.29	0.52	0.02	31.50	89.45	0.18	1.33	0.52	0.03
31.66	84.48	0.17	1.39	0.52	0.03	31.83	79.10	2.00	0.00	0.51	0.00
31.99	70.09	2.00	0.00	0.51	0.00	32.15	60.95	2.00	0.00	0.51	0.00
32.32	57.56	2.00	0.00	0.51	0.00	32.48	60.67	2.00	0.00	0.50	0.00
32.65	63.39	2.00	0.00	0.50	0.00	32.81	63.48	2.00	0.00	0.50	0.00
32.97	63.40	2.00	0.00	0.50	0.00	33.14	60.64	2.00	0.00	0.49	0.00
33.30	57.65	2.00	0.00	0.49	0.00	33.47	54.33	2.00	0.00	0.49	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)
33.63	54.18	2.00	0.00	0.49	0.00	33.79	54.15	2.00	0.00	0.48	0.00
33.96	57.41	2.00	0.00	0.48	0.00	34.12	60.57	2.00	0.00	0.48	0.00
34.29	63.40	2.00	0.00	0.48	0.00	34.45	63.39	2.00	0.00	0.47	0.00
34.61	63.34	2.00	0.00	0.47	0.00	34.78	63.32	2.00	0.00	0.47	0.00
34.94	63.25	2.00	0.00	0.47	0.00	35.11	63.16	2.00	0.00	0.46	0.00
35.27	63.09	2.00	0.00	0.46	0.00	35.43	63.01	2.00	0.00	0.46	0.00
35.60	62.91	2.00	0.00	0.46	0.00	35.76	62.78	2.00	0.00	0.45	0.00
35.93	62.69	2.00	0.00	0.45	0.00	36.09	62.67	2.00	0.00	0.45	0.00
36.26	65.31	2.00	0.00	0.45	0.00	36.42	67.80	2.00	0.00	0.44	0.00
36.58	67.71	2.00	0.00	0.44	0.00	36.75	67.62	2.00	0.00	0.44	0.00
36.91	64.98	2.00	0.00	0.44	0.00	37.08	67.43	2.00	0.00	0.43	0.00
37.24	69.80	2.00	0.00	0.43	0.00	37.40	76.53	2.00	0.00	0.43	0.00
37.57	80.62	2.00	0.00	0.43	0.00	37.73	82.52	2.00	0.00	0.42	0.00
37.90	80.34	2.00	0.00	0.42	0.00	38.06	80.13	2.00	0.00	0.42	0.00
38.22	79.96	2.00	0.00	0.42	0.00	38.39	83.83	2.00	0.00	0.41	0.00
38.55	85.64	2.00	0.00	0.41	0.00	38.72	85.52	2.00	0.00	0.41	0.00
38.88	85.39	2.00	0.00	0.41	0.00	39.04	87.07	2.00	0.00	0.40	0.00
39.21	92.21	2.00	0.00	0.40	0.00	39.37	95.44	2.00	0.00	0.40	0.00
39.54	95.24	2.00	0.00	0.40	0.00	39.70	93.43	2.00	0.00	0.39	0.00
39.86	89.88	2.00	0.00	0.39	0.00	40.03	88.04	2.00	0.00	0.39	0.00
40.19	86.15	2.00	0.00	0.39	0.00	40.36	84.19	2.00	0.00	0.38	0.00
40.52	80.34	2.00	0.00	0.38	0.00	40.68	76.34	2.00	0.00	0.38	0.00
40.85	74.25	2.00	0.00	0.38	0.00	41.01	72.05	2.00	0.00	0.37	0.00
41.18	67.49	2.00	0.00	0.37	0.00	41.34	62.62	2.00	0.00	0.37	0.00
41.50	60.02	2.00	0.00	0.37	0.00	41.67	59.94	2.00	0.00	0.36	0.00
41.83	59.83	2.00	0.00	0.36	0.00	42.00	57.03	2.00	0.00	0.36	0.00
42.16	54.07	2.00	0.00	0.36	0.00	42.32	53.99	2.00	0.00	0.35	0.00
42.49	56.75	2.00	0.00	0.35	0.00	42.65	59.40	2.00	0.00	0.35	0.00
42.82	56.74	2.00	0.00	0.35	0.00	42.98	50.91	2.00	0.00	0.34	0.00
43.15	47.55	2.00	0.00	0.34	0.00	43.31	50.66	2.00	0.00	0.34	0.00
43.47	56.56	2.00	0.00	0.34	0.00	43.64	61.70	2.00	0.00	0.33	0.00
43.80	68.48	2.00	0.00	0.33	0.00	43.97	76.50	2.00	0.00	0.33	0.00
44.13	80.18	2.00	0.00	0.33	0.00	44.29	74.38	2.00	0.00	0.32	0.00
44.46	63.65	2.00	0.00	0.32	0.00	44.62	53.35	2.00	0.00	0.32	0.00
44.79	49.60	2.00	0.00	0.32	0.00	44.95	45.81	2.00	0.00	0.31	0.00
45.11	42.50	2.00	0.00	0.31	0.00	45.28	38.81	2.00	0.00	0.31	0.00
45.44	38.93	2.00	0.00	0.31	0.00	45.61	38.98	2.00	0.00	0.30	0.00
45.77	39.31	2.00	0.00	0.30	0.00	45.93	39.37	2.00	0.00	0.30	0.00
46.10	39.24	2.00	0.00	0.30	0.00	46.26	38.77	2.00	0.00	0.29	0.00
46.43	39.43	2.00	0.00	0.29	0.00	46.59	39.67	2.00	0.00	0.29	0.00
46.75	46.94	2.00	0.00	0.29	0.00	46.92	55.53	2.00	0.00	0.28	0.00
47.08	69.15	2.00	0.00	0.28	0.00	47.25	82.58	2.00	0.00	0.28	0.00
47.41	94.26	2.00	0.00	0.28	0.00	47.57	103.44	2.00	0.00	0.27	0.00
47.74	103.56	2.00	0.00	0.27	0.00	47.90	100.43	2.00	0.00	0.27	0.00
48.07	96.20	2.00	0.00	0.27	0.00	48.23	96.11	2.00	0.00	0.26	0.00
48.39	103.11	2.00	0.00	0.26	0.00	48.56	105.51	2.00	0.00	0.26	0.00
48.72	105.74	2.00	0.00	0.26	0.00	48.89	97.50	2.00	0.00	0.25	0.00
49.05	100.43	2.00	0.00	0.25	0.00	49.22	143.63	2.00	0.00	0.25	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)
49.38	202.45	2.00	0.00	0.25	0.00	49.54	257.82	2.00	0.00	0.24	0.00
49.71	292.96	2.00	0.00	0.24	0.00	49.87	314.78	2.00	0.00	0.24	0.00
50.04	325.87	2.00	0.00	0.24	0.00	50.20	323.71	2.00	0.00	0.23	0.00
50.36	311.06	2.00	0.00	0.23	0.00	50.53	279.33	2.00	0.00	0.23	0.00
50.69	246.82	2.00	0.00	0.23	0.00	50.86	220.70	2.00	0.00	0.22	0.00
51.02	220.23	2.00	0.00	0.22	0.00	51.18	228.94	2.00	0.00	0.22	0.00
51.35	235.18	2.00	0.00	0.22	0.00	51.51	234.90	2.00	0.00	0.21	0.00
51.68	230.12	2.00	0.00	0.21	0.00	51.84	235.61	2.00	0.00	0.21	0.00
52.00	253.45	2.00	0.00	0.21	0.00	52.17	273.82	2.00	0.00	0.20	0.00
52.33	286.88	2.00	0.00	0.20	0.00	52.50	287.42	2.00	0.00	0.20	0.00
52.66	288.70	2.00	0.00	0.20	0.00	52.82	296.94	2.00	0.00	0.19	0.00
52.99	308.75	2.00	0.00	0.19	0.00	53.15	313.31	2.00	0.00	0.19	0.00
53.32	305.88	2.00	0.00	0.19	0.00	53.48	280.57	2.00	0.00	0.18	0.00
53.64	250.51	2.00	0.00	0.18	0.00	53.81	230.99	2.00	0.00	0.18	0.00
53.97	235.08	2.00	0.00	0.18	0.00	54.14	252.86	2.00	0.00	0.17	0.00
54.30	272.80	2.00	0.00	0.17	0.00	54.46	294.55	2.00	0.00	0.17	0.00
54.63	311.31	2.00	0.00	0.17	0.00	54.79	302.46	2.00	0.00	0.16	0.00
54.96	260.21	2.00	0.00	0.16	0.00	55.12	207.88	2.00	0.00	0.16	0.00
55.28	175.68	0.76	0.14	0.16	0.00	55.45	151.63	2.00	0.00	0.15	0.00
55.61	140.23	2.00	0.00	0.15	0.00	55.78	130.75	2.00	0.00	0.15	0.00
55.94	124.21	2.00	0.00	0.15	0.00	56.11	119.15	2.00	0.00	0.14	0.00
56.27	116.95	2.00	0.00	0.14	0.00	56.43	116.87	2.00	0.00	0.14	0.00
56.60	118.72	2.00	0.00	0.14	0.00	56.76	132.46	2.00	0.00	0.13	0.00
56.93	141.33	2.00	0.00	0.13	0.00	57.09	145.23	2.00	0.00	0.13	0.00
57.25	139.39	2.00	0.00	0.13	0.00	57.42	139.83	2.00	0.00	0.12	0.00
57.58	142.27	2.00	0.00	0.12	0.00	57.75	154.90	2.00	0.00	0.12	0.00
57.91	163.19	2.00	0.00	0.12	0.00	58.07	174.29	2.00	0.00	0.11	0.00
58.24	162.54	2.00	0.00	0.11	0.00	58.40	148.60	2.00	0.00	0.11	0.00
58.57	125.22	2.00	0.00	0.11	0.00	58.73	111.80	2.00	0.00	0.10	0.00
58.89	101.36	2.00	0.00	0.10	0.00	59.06	96.86	2.00	0.00	0.10	0.00
59.22	95.56	2.00	0.00	0.10	0.00	59.39	95.40	2.00	0.00	0.09	0.00
59.55	95.37	2.00	0.00	0.09	0.00	59.71	97.54	2.00	0.00	0.09	0.00
59.88	103.84	2.00	0.00	0.09	0.00	60.04	111.69	2.00	0.00	0.08	0.00
60.21	114.39	2.00	0.00	0.08	0.00	60.37	109.41	2.00	0.00	0.08	0.00
60.53	101.24	2.00	0.00	0.08	0.00	60.70	96.77	2.00	0.00	0.07	0.00
60.86	95.49	2.00	0.00	0.07	0.00	61.03	97.60	2.00	0.00	0.07	0.00
61.19	102.89	2.00	0.00	0.07	0.00	61.35	108.76	2.00	0.00	0.06	0.00
61.52	107.65	2.00	0.00	0.06	0.00	61.68	104.55	2.00	0.00	0.06	0.00
61.85	100.36	2.00	0.00	0.06	0.00	62.01	105.29	2.00	0.00	0.05	0.00
62.17	115.59	2.00	0.00	0.05	0.00	62.34	125.83	2.00	0.00	0.05	0.00
62.50	130.07	2.00	0.00	0.05	0.00	62.67	126.99	2.00	0.00	0.04	0.00
62.83	125.89	2.00	0.00	0.04	0.00	63.00	125.29	2.00	0.00	0.04	0.00
63.16	125.17	2.00	0.00	0.04	0.00	63.32	125.82	2.00	0.00	0.03	0.00
63.49	122.97	2.00	0.00	0.03	0.00	63.65	122.12	2.00	0.00	0.03	0.00
63.82	119.41	2.00	0.00	0.03	0.00	63.98	125.22	2.00	0.00	0.02	0.00
64.14	128.23	2.00	0.00	0.02	0.00	64.31	129.76	2.00	0.00	0.02	0.00
64.47	123.93	2.00	0.00	0.02	0.00	64.64	117.57	2.00	0.00	0.01	0.00
64.80	111.31	2.00	0.00	0.01	0.00	64.96	108.46	2.00	0.00	0.01	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)
65.13	105.59	2.00	0.00	0.01	0.00	65.29	103.53	2.00	0.00	0.00	0.00
65.46	100.56	2.00	0.00	0.00	0.00	65.62	98.48	2.00	0.00	0.00	0.00
65.78	95.42	2.00	0.00	0.00	0.00	65.95	93.27	2.00	0.00	0.00	0.00
66.11	91.21	2.00	0.00	0.00	0.00	66.28	90.07	2.00	0.00	0.00	0.00
66.44	88.94	2.00	0.00	0.00	0.00	66.60	89.94	2.00	0.00	0.00	0.00
66.77	91.97	2.00	0.00	0.00	0.00	66.93	94.96	2.00	0.00	0.00	0.00
67.10	97.87	2.00	0.00	0.00	0.00	67.26	100.67	2.00	0.00	0.00	0.00
67.42	103.39	2.00	0.00	0.00	0.00	67.59	106.04	2.00	0.00	0.00	0.00
67.75	107.71	2.00	0.00	0.00	0.00	67.92	108.43	2.00	0.00	0.00	0.00
68.08	109.09	2.00	0.00	0.00	0.00	68.24	113.17	2.00	0.00	0.00	0.00
68.41	121.13	2.00	0.00	0.00	0.00	68.57	133.10	2.00	0.00	0.00	0.00
68.74	136.76	2.00	0.00	0.00	0.00	68.90	134.94	2.00	0.00	0.00	0.00
69.07	125.24	2.00	0.00	0.00	0.00	69.23	118.93	2.00	0.00	0.00	0.00
69.39	112.23	2.00	0.00	0.00	0.00	69.56	109.46	2.00	0.00	0.00	0.00
69.72	106.03	2.00	0.00	0.00	0.00	69.89	105.10	2.00	0.00	0.00	0.00
70.05	103.15	2.00	0.00	0.00	0.00	70.21	105.74	2.00	0.00	0.00	0.00
70.38	105.63	2.00	0.00	0.00	0.00	70.54	103.73	2.00	0.00	0.00	0.00
70.71	99.99	2.00	0.00	0.00	0.00	70.87	97.08	2.00	0.00	0.00	0.00
71.03	95.05	2.00	0.00	0.00	0.00	71.20	95.93	2.00	0.00	0.00	0.00
71.36	101.47	2.00	0.00	0.00	0.00	71.53	117.06	2.00	0.00	0.00	0.00
71.69	143.51	2.00	0.00	0.00	0.00	71.85	169.75	2.00	0.00	0.00	0.00
72.02	184.30	2.00	0.00	0.00	0.00	72.18	194.11	2.00	0.00	0.00	0.00
72.35	201.81	2.00	0.00	0.00	0.00	72.51	206.59	2.00	0.00	0.00	0.00
72.67	207.34	2.00	0.00	0.00	0.00	72.84	204.63	2.00	0.00	0.00	0.00
73.00	200.12	2.00	0.00	0.00	0.00	73.17	193.73	2.00	0.00	0.00	0.00
73.33	191.15	2.00	0.00	0.00	0.00	73.49	192.31	2.00	0.00	0.00	0.00
73.66	188.68	2.00	0.00	0.00	0.00	73.82	188.59	2.00	0.00	0.00	0.00
73.99	189.01	2.00	0.00	0.00	0.00	74.15	192.95	2.00	0.00	0.00	0.00
74.31	193.02	2.00	0.00	0.00	0.00	74.48	187.70	2.00	0.00	0.00	0.00
74.64	179.38	2.00	0.00	0.00	0.00	74.81	173.22	2.00	0.00	0.00	0.00
74.97	170.94	2.00	0.00	0.00	0.00	75.13	171.40	2.00	0.00	0.00	0.00

Total estimated settlement: 0.55

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

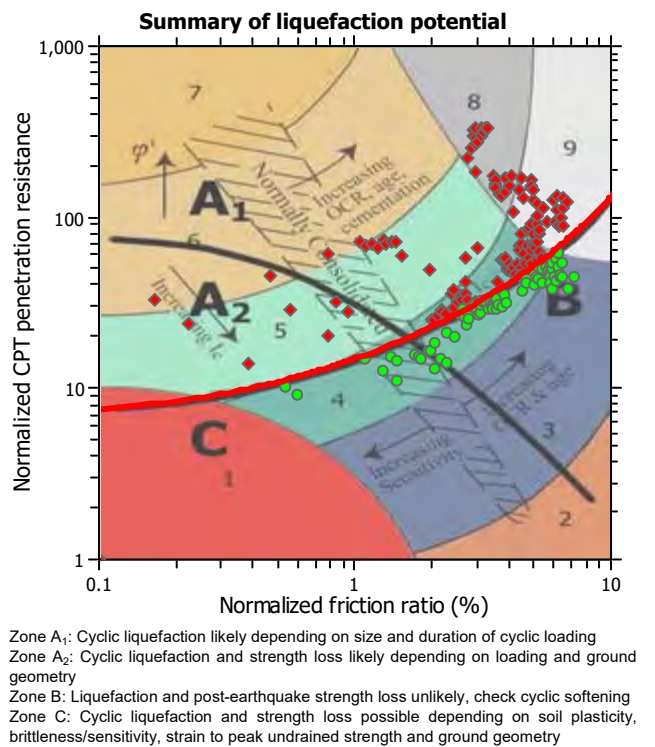
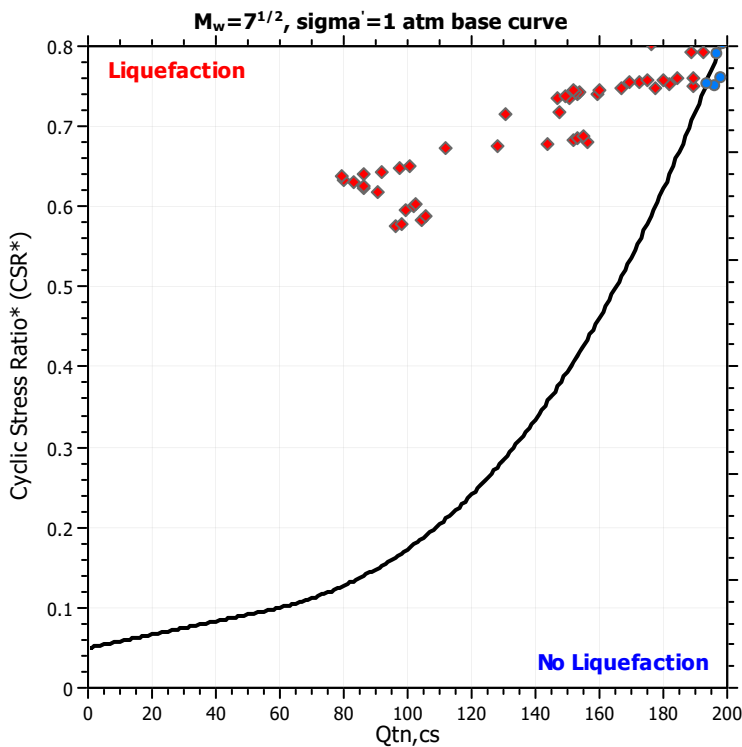
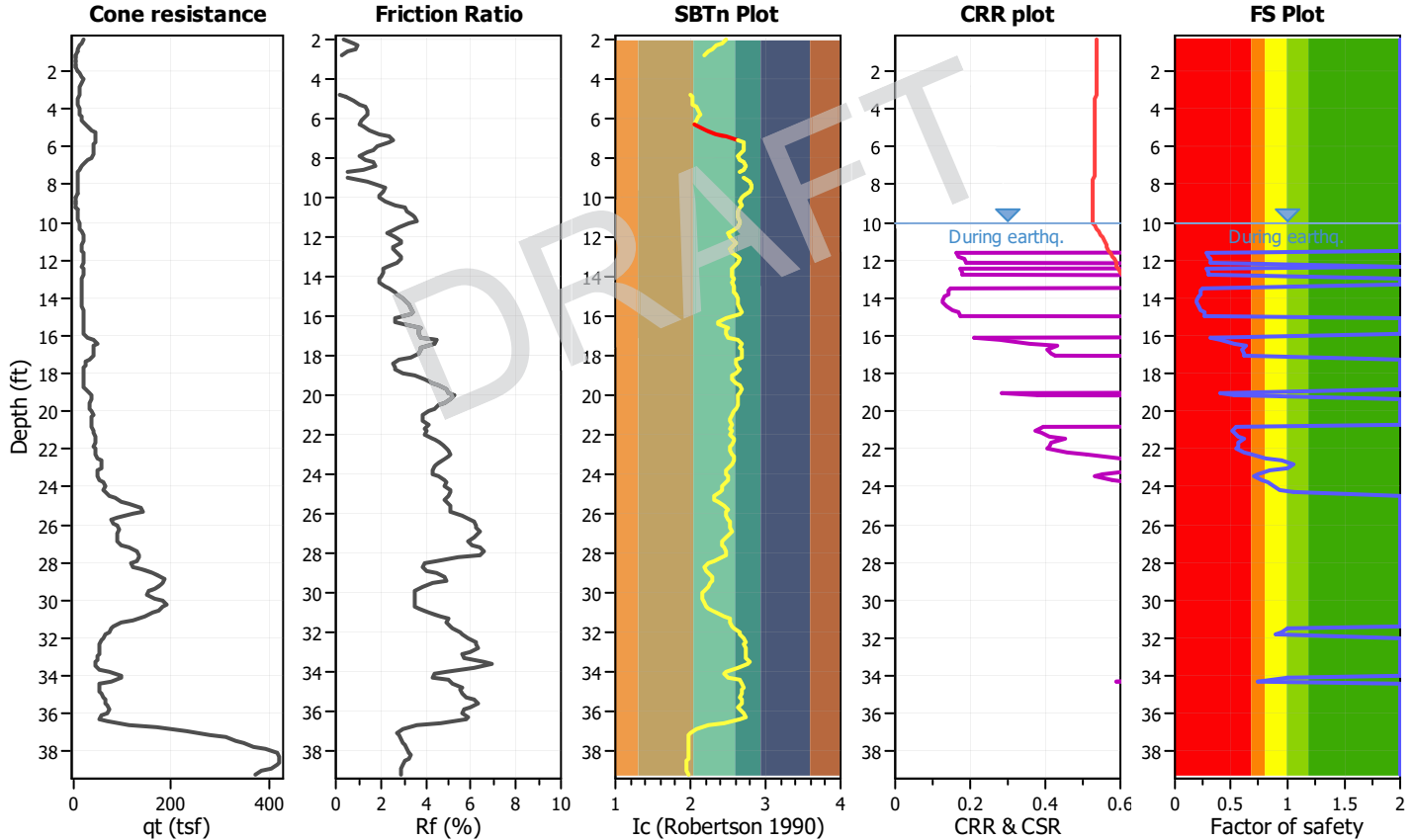
Project title : 210256003 - Compton HS

Location : Compton, CA

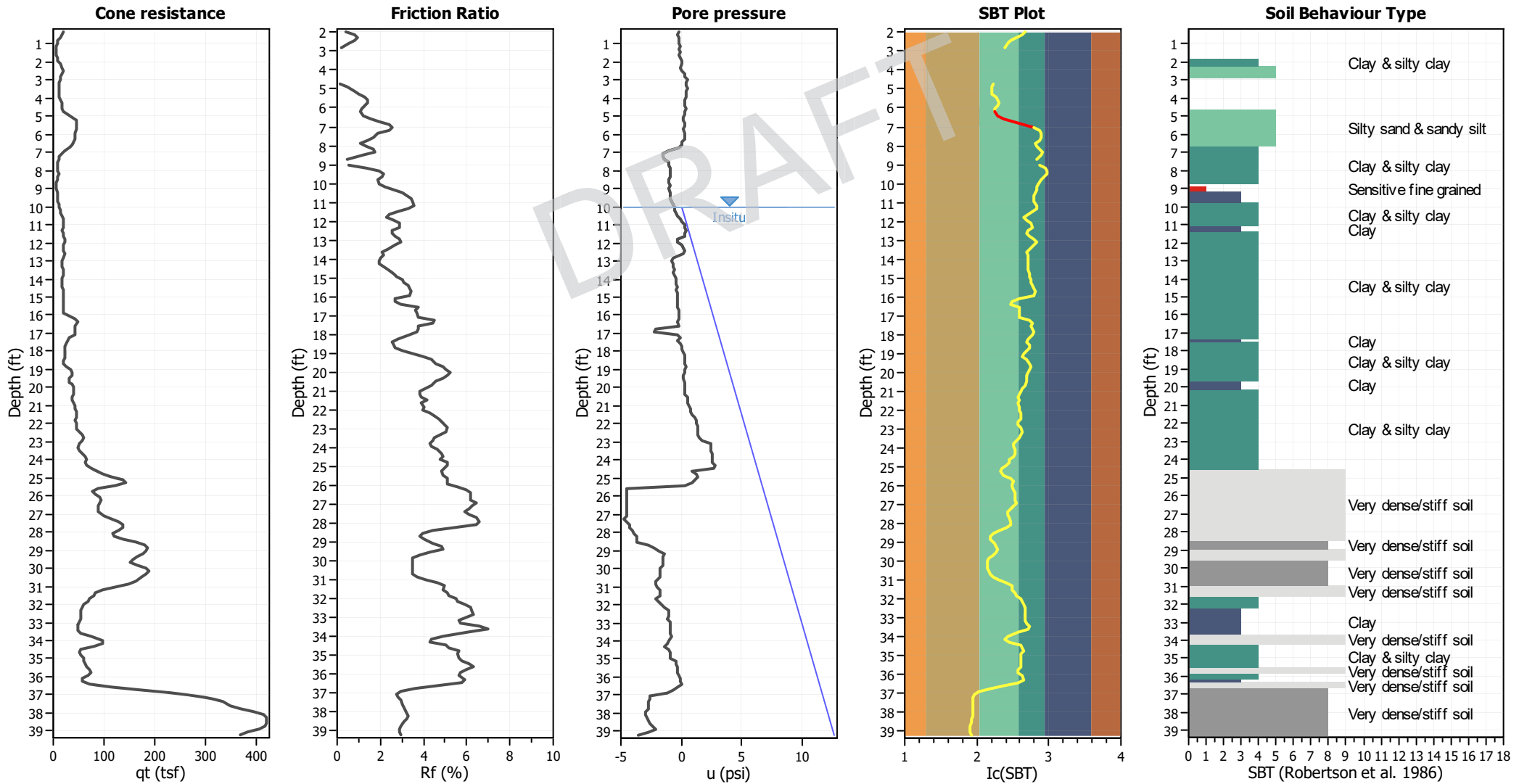
CPT file : CPT-02

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



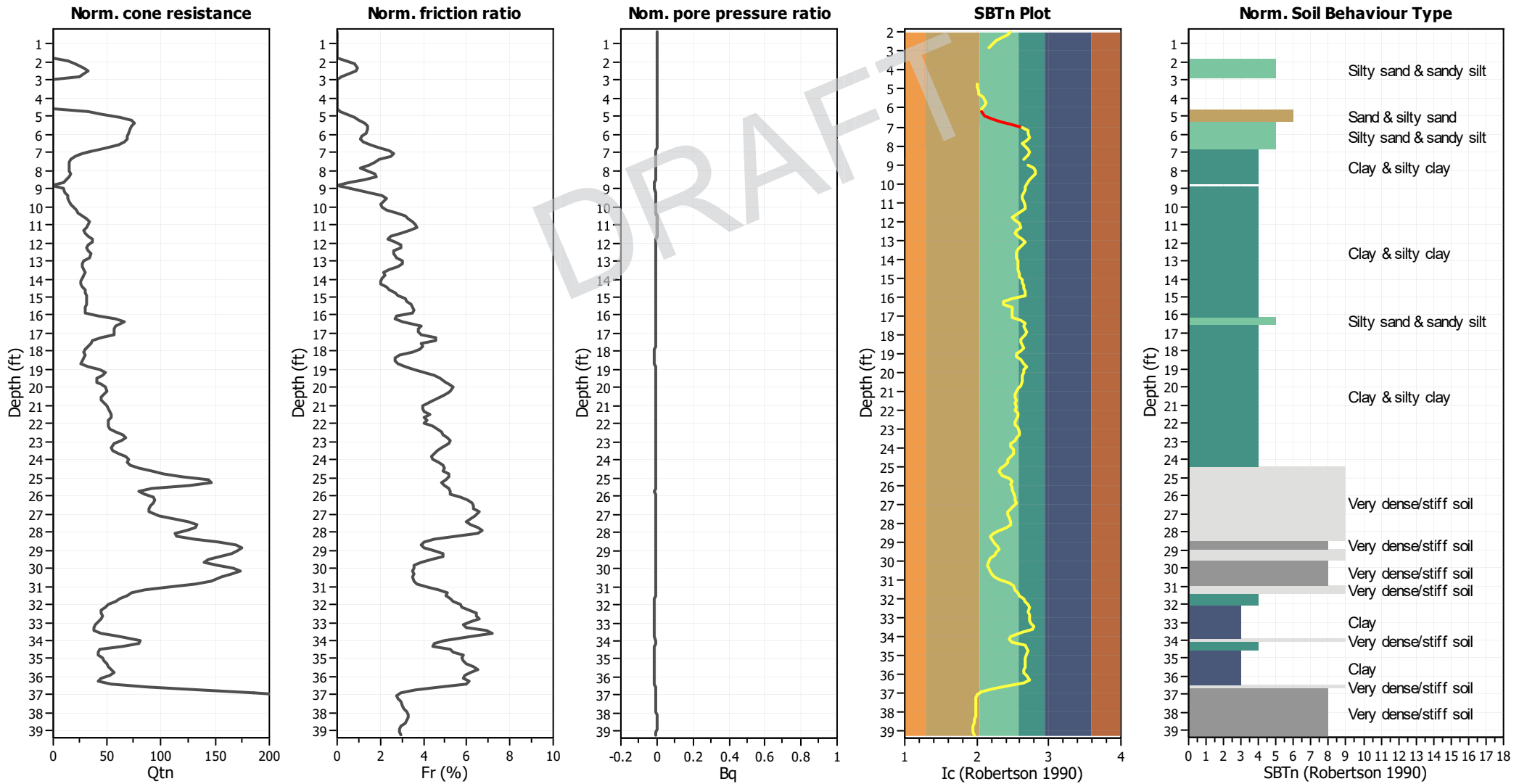
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



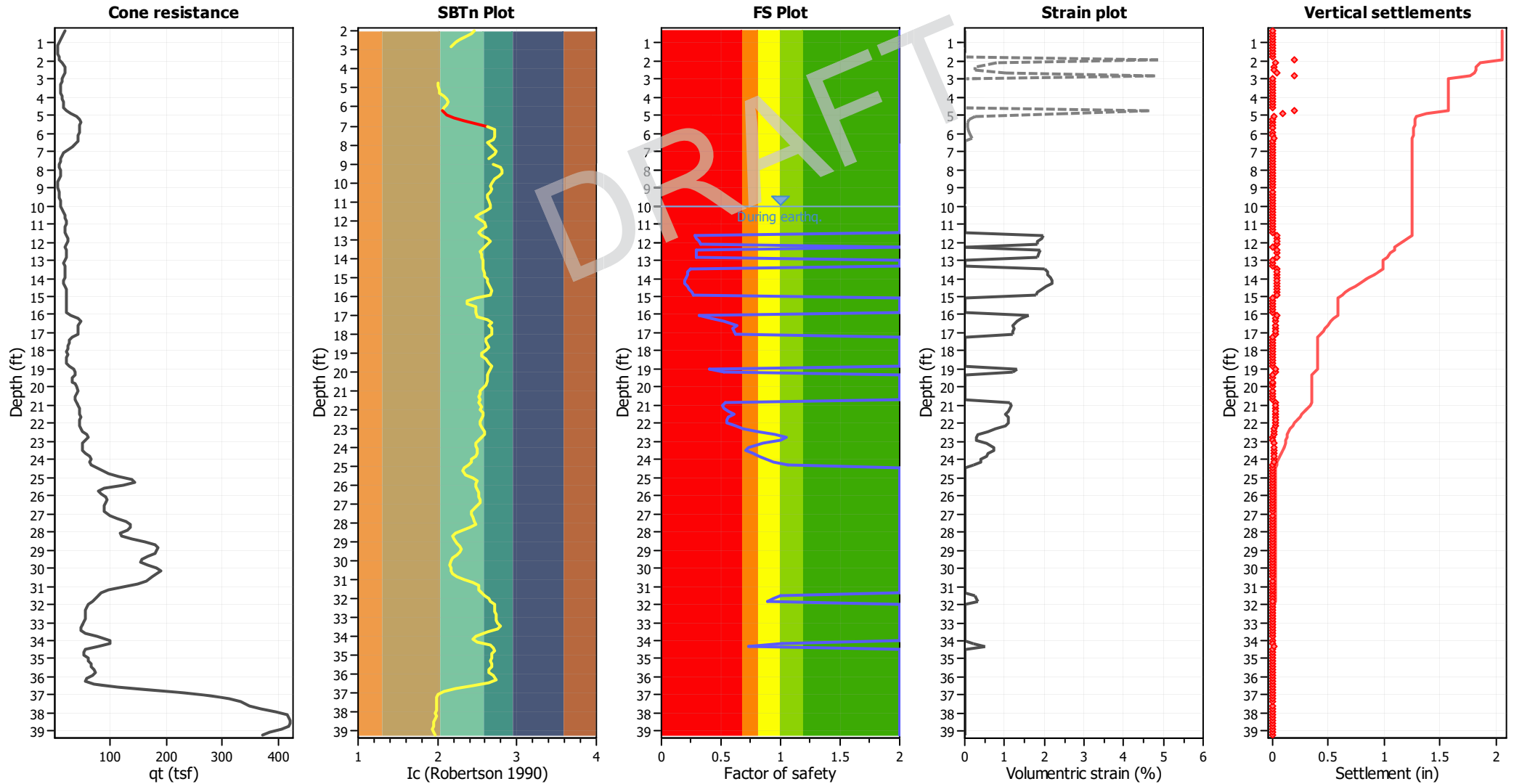
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.97	2.46	13.89	2.59	35.95	9	176	0.54	5.371	13.81	9.27	4.85	0.198
2.13	2.43	20.47	2.44	49.90	12	249	0.54	0.576	1.02	9.27	0.79	0.030
2.30	2.35	28.32	2.10	59.57	14	309	0.54	0.212	0.32	9.27	0.25	0.010
2.46	2.28	31.74	1.88	59.65	14	318	0.54	0.226	0.35	9.27	0.27	0.010
2.62	2.23	28.84	1.74	50.29	11	272	0.54	0.684	1.33	9.27	1.03	0.040
2.79	2.17	23.74	1.00	23.74	5	208	0.53	6.125	30.21	9.27	4.79	0.195
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.76	2.00	32.65	1.00	32.65	7	231	0.53	19.834	72.30	9.27	4.64	0.189
4.92	2.01	46.03	1.00	46.03	10	330	0.53	1.404	3.37	9.27	2.51	0.097
5.09	2.02	61.43	1.32	81.31	17	443	0.53	0.286	0.35	9.27	0.26	0.010
5.25	2.03	72.13	1.34	96.92	20	529	0.53	0.139	0.14	9.27	0.10	0.004
5.41	2.08	74.53	1.42	105.79	23	581	0.53	0.104	0.09	9.27	0.07	0.003
5.58	2.11	72.74	1.47	107.15	23	589	0.53	0.107	0.09	9.27	0.07	0.003
5.74	2.13	70.85	1.50	106.55	23	586	0.53	0.118	0.10	9.27	0.07	0.003
5.91	2.11	69.44	1.47	101.96	22	561	0.53	0.152	0.13	9.27	0.10	0.004
6.07	2.08	69.06	1.41	97.64	21	537	0.53	0.199	0.19	9.27	0.14	0.005
6.23	2.06	68.34	1.39	95.27	20	523	0.53	0.241	0.24	9.27	0.17	0.007
6.40	2.11	65.70	1.47	96.43	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.20	59.74	1.67	99.48	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.33	49.54	2.05	101.47	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.48	37.46	2.69	100.89	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.62	26.46	3.47	91.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.71	19.54	4.07	79.60	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.71	16.47	4.09	67.34	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.72	15.07	4.16	62.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.70	14.47	3.97	57.38	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.63	14.51	3.53	51.18	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.66	15.25	3.75	57.11	0	0	0.53	0.000	0.00	9.27	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)
8.20	2.70	15.61	4.01	62.55	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.74	14.74	4.27	62.87	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.72	12.48	4.15	51.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.65	10.00	3.62	36.20	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.71	8.96	4.05	36.31	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.80	10.98	4.75	52.22	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.81	13.01	4.88	63.46	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.81	14.07	4.85	68.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.78	14.75	4.61	67.99	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.72	16.18	4.17	67.45	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.81												

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)
10.01	71.40	2.00	0.00	0.85	0.00	10.17	78.97	2.00	0.00	0.84	0.00
10.34	89.58	2.00	0.00	0.84	0.00	10.50	101.65	2.00	0.00	0.84	0.00
10.66	109.43	2.00	0.00	0.84	0.00	10.83	117.16	2.00	0.00	0.83	0.00
10.99	117.53	2.00	0.00	0.83	0.00	11.16	115.54	2.00	0.00	0.83	0.00
11.32	107.47	2.00	0.00	0.83	0.00	11.48	100.81	2.00	0.00	0.82	0.00
11.65	96.44	0.28	1.98	0.82	0.04	11.81	98.22	0.29	1.94	0.82	0.04
11.98	104.46	0.32	1.84	0.82	0.04	12.14	105.78	0.32	1.82	0.81	0.03
12.30	103.37	2.00	0.00	0.81	0.00	12.47	99.43	0.29	1.90	0.81	0.04
12.63	101.70	0.30	1.86	0.81	0.04	12.80	102.47	0.30	1.84	0.80	0.04
12.96	101.09	2.00	0.00	0.80	0.00	13.12	98.82	2.00	0.00	0.80	0.00
13.29	95.20	2.00	0.00	0.80	0.00	13.45	90.42	0.24	2.02	0.79	0.04
13.62	86.17	0.22	2.09	0.79	0.04	13.78	86.25	0.22	2.08	0.79	0.04
13.94	83.04	0.21	2.14	0.79	0.04	14.11	79.74	0.20	2.21	0.78	0.05
14.27	79.47	0.20	2.21	0.78	0.04	14.44	85.97	0.22	2.06	0.78	0.04
14.60	91.58	0.24	1.95	0.78	0.04	14.76	97.64	0.26	1.85	0.77	0.04
14.93	100.40	0.27	1.80	0.77	0.04	15.09	106.18	2.00	0.00	0.77	0.00
15.26	108.58	2.00	0.00	0.77	0.00	15.42	111.28	2.00	0.00	0.76	0.00
15.58	111.41	2.00	0.00	0.76	0.00	15.75	111.72	2.00	0.00	0.76	0.00
15.91	110.98	2.00	0.00	0.76	0.00	16.08	111.75	0.31	1.61	0.75	0.03
16.24	128.39	0.41	1.43	0.75	0.03	16.40	143.77	0.53	1.30	0.75	0.02
16.57	156.07	0.64	1.19	0.75	0.02	16.73	151.92	0.60	1.23	0.74	0.02
16.90	153.30	0.61	1.21	0.74	0.02	17.06	154.78	0.62	1.19	0.74	0.02
17.23	153.28	2.00	0.00	0.74	0.00	17.39	140.48	2.00	0.00	0.73	0.00
17.55	124.95	2.00	0.00	0.73	0.00	17.72	121.45	2.00	0.00	0.73	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)
17.88	117.02	2.00	0.00	0.73	0.00	18.05	109.55	2.00	0.00	0.72	0.00
18.21	100.49	2.00	0.00	0.72	0.00	18.37	94.95	2.00	0.00	0.72	0.00
18.54	93.02	2.00	0.00	0.72	0.00	18.70	93.26	2.00	0.00	0.71	0.00
18.87	108.43	2.00	0.00	0.71	0.00	19.03	130.41	0.40	1.33	0.71	0.03
19.19	147.41	0.53	1.20	0.71	0.02	19.36	152.18	2.00	0.00	0.70	0.00
19.52	150.53	2.00	0.00	0.70	0.00	19.69	154.55	2.00	0.00	0.70	0.00
19.85	164.26	2.00	0.00	0.70	0.00	20.01	175.31	2.00	0.00	0.69	0.00
20.18	175.41	2.00	0.00	0.69	0.00	20.34	166.04	2.00	0.00	0.69	0.00
20.51	155.05	2.00	0.00	0.69	0.00	20.67	150.77	2.00	0.00	0.68	0.00
20.83	150.35	0.54	1.14	0.68	0.02	21.00	146.94	0.51	1.16	0.68	0.02
21.16	149.24	0.53	1.14	0.68	0.02	21.33	152.96	0.56	1.11	0.67	0.02
21.49	159.17	0.61	1.04	0.67	0.02	21.65	153.60	0.56	1.09	0.67	0.02
21.82	152.69	0.55	1.10	0.67	0.02	21.98	151.94	0.55	1.10	0.66	0.02
22.15	159.83	0.62	1.02	0.66	0.02	22.31	166.57	0.68	0.79	0.66	0.02
22.47	177.55	0.80	0.58	0.66	0.01	22.64	189.61	0.95	0.32	0.65	0.01
22.80	196.47	1.05	0.31	0.65	0.01	22.97	193.52	1.00	0.31	0.65	0.01
23.13	181.88	0.85	0.55	0.65	0.01	23.30	172.21	0.74	0.73	0.64	0.01
23.46	169.47	0.70	0.75	0.64	0.01	23.62	175.07	0.76	0.57	0.64	0.01
23.79	180.11	0.82	0.55	0.64	0.01	23.95	184.28	0.87	0.40	0.63	0.01
24.12	189.40	0.94	0.39	0.63	0.01	24.28	198.25	1.06	0.22	0.63	0.00
24.44	211.65	2.00	0.00	0.63	0.00	24.61	224.31	2.00	0.00	0.62	0.00
24.77	246.68	2.00	0.00	0.62	0.00	24.94	269.00	2.00	0.00	0.62	0.00
25.10	291.73	2.00	0.00	0.62	0.00	25.26	290.65	2.00	0.00	0.61	0.00
25.43	269.28	2.00	0.00	0.61	0.00	25.59	232.05	2.00	0.00	0.61	0.00
25.76	216.61	2.00	0.00	0.61	0.00	25.92	224.11	2.00	0.00	0.60	0.00
26.08	248.21	2.00	0.00	0.60	0.00	26.25	261.03	2.00	0.00	0.60	0.00
26.41	262.99	2.00	0.00	0.60	0.00	26.58	260.10	2.00	0.00	0.59	0.00
26.74	257.86	2.00	0.00	0.59	0.00	26.90	264.80	2.00	0.00	0.59	0.00
27.07	274.81	2.00	0.00	0.59	0.00	27.23	288.59	2.00	0.00	0.58	0.00
27.40	301.61	2.00	0.00	0.58	0.00	27.56	316.86	2.00	0.00	0.58	0.00
27.72	327.52	2.00	0.00	0.58	0.00	27.89	322.41	2.00	0.00	0.57	0.00
28.05	300.86	2.00	0.00	0.57	0.00	28.22	271.85	2.00	0.00	0.57	0.00
28.38	259.24	2.00	0.00	0.57	0.00	28.54	267.75	2.00	0.00	0.56	0.00
28.71	279.04	2.00	0.00	0.56	0.00	28.87	291.34	2.00	0.00	0.56	0.00
29.04	303.96	2.00	0.00	0.56	0.00	29.20	312.76	2.00	0.00	0.55	0.00
29.36	301.49	2.00	0.00	0.55	0.00	29.53	269.87	2.00	0.00	0.55	0.00
29.69	248.39	2.00	0.00	0.55	0.00	29.86	248.24	2.00	0.00	0.54	0.00
30.02	263.86	2.00	0.00	0.54	0.00	30.19	268.96	2.00	0.00	0.54	0.00
30.35	263.28	2.00	0.00	0.54	0.00	30.51	252.28	2.00	0.00	0.53	0.00
30.68	244.19	2.00	0.00	0.53	0.00	30.84	233.95	2.00	0.00	0.53	0.00
31.01	222.08	2.00	0.00	0.53	0.00	31.17	212.05	2.00	0.00	0.52	0.00
31.33	204.43	2.00	0.00	0.52	0.00	31.50	197.06	1.00	0.24	0.52	0.00
31.66	192.57	0.94	0.31	0.52	0.01	31.83	188.53	0.89	0.32	0.51	0.01
31.99	185.24	2.00	0.00	0.51	0.00	32.15	181.73	2.00	0.00	0.51	0.00
32.32	180.63	2.00	0.00	0.51	0.00	32.48	185.69	2.00	0.00	0.50	0.00
32.65	188.88	2.00	0.00	0.50	0.00	32.81	187.94	2.00	0.00	0.50	0.00
32.97	176.77	2.00	0.00	0.50	0.00	33.14	167.17	2.00	0.00	0.49	0.00
33.30	165.19	2.00	0.00	0.49	0.00	33.47	180.07	2.00	0.00	0.49	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)
33.63	198.85	2.00	0.00	0.49	0.00	33.79	213.32	2.00	0.00	0.48	0.00
33.96	212.29	2.00	0.00	0.48	0.00	34.12	198.56	1.01	0.22	0.48	0.00
34.29	176.22	0.73	0.52	0.48	0.01	34.45	162.77	2.00	0.00	0.47	0.00
34.61	162.10	2.00	0.00	0.47	0.00	34.78	170.37	2.00	0.00	0.47	0.00
34.94	177.62	2.00	0.00	0.47	0.00	35.11	180.82	2.00	0.00	0.46	0.00
35.27	187.49	2.00	0.00	0.46	0.00	35.43	197.06	2.00	0.00	0.46	0.00
35.60	206.68	2.00	0.00	0.46	0.00	35.76	204.34	2.00	0.00	0.45	0.00
35.93	191.48	2.00	0.00	0.45	0.00	36.09	174.69	2.00	0.00	0.45	0.00
36.26	175.99	2.00	0.00	0.45	0.00	36.42	193.80	2.00	0.00	0.44	0.00
36.58	216.33	2.00	0.00	0.44	0.00	36.75	235.43	2.00	0.00	0.44	0.00
36.91	261.80	2.00	0.00	0.44	0.00	37.08	292.94	2.00	0.00	0.43	0.00
37.24	322.38	2.00	0.00	0.43	0.00	37.40	343.16	2.00	0.00	0.43	0.00
37.57	357.37	2.00	0.00	0.43	0.00	37.73	376.02	2.00	0.00	0.42	0.00
37.90	400.52	2.00	0.00	0.42	0.00	38.06	420.20	2.00	0.00	0.42	0.00
38.22	424.94	2.00	0.00	0.42	0.00	38.39	421.50	2.00	0.00	0.41	0.00
38.55	416.23	2.00	0.00	0.41	0.00	38.72	406.88	2.00	0.00	0.41	0.00
38.88	392.33	2.00	0.00	0.41	0.00	39.04	374.56	2.00	0.00	0.40	0.00
39.21	364.67	2.00	0.00	0.40	0.00						

Total estimated settlement: 1.25**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

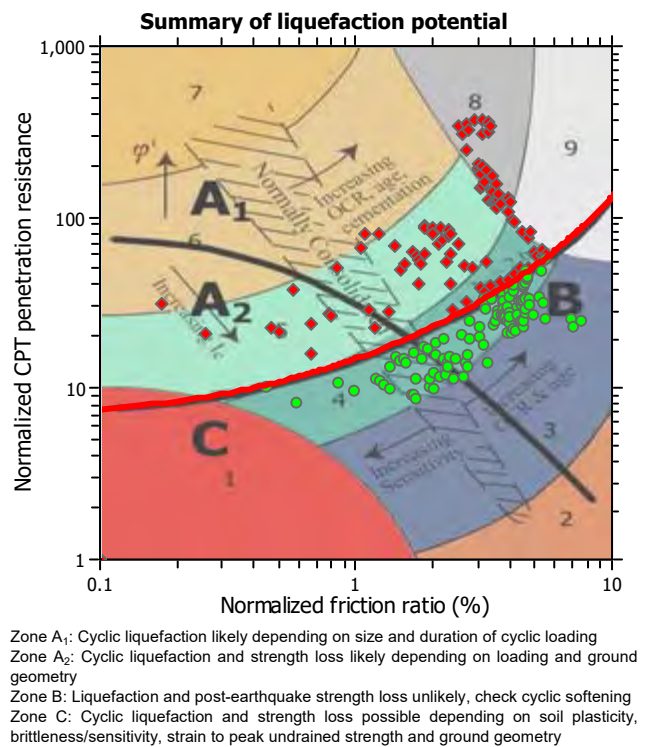
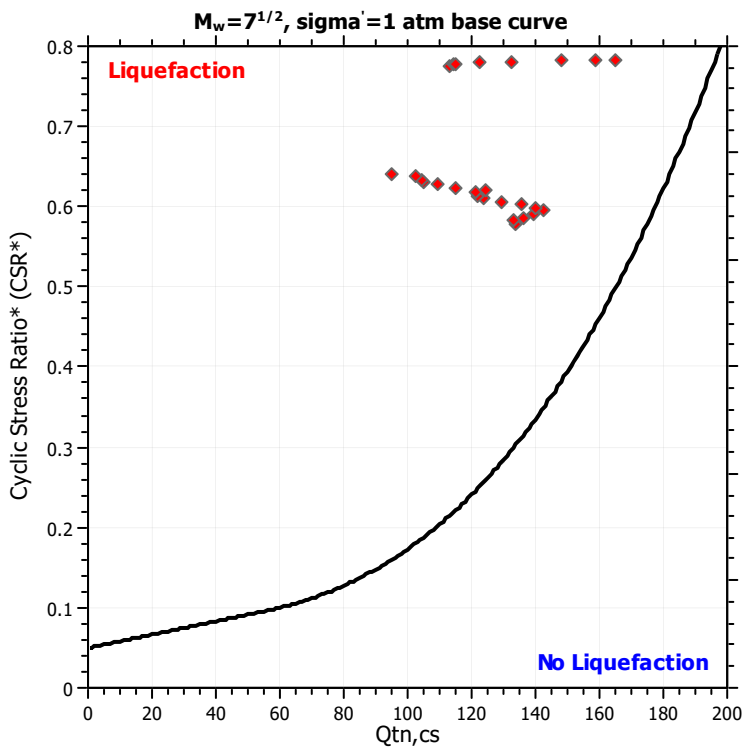
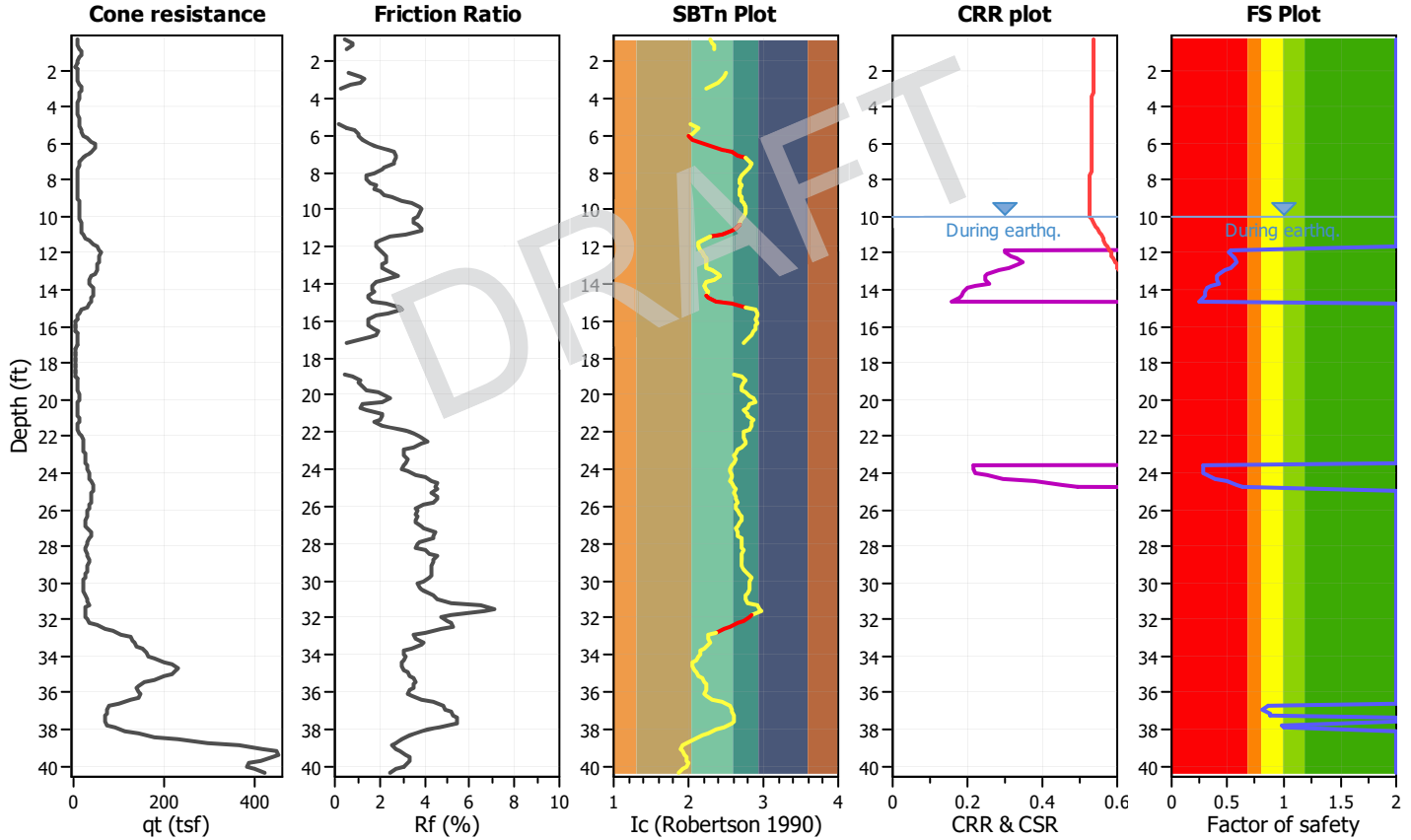
Project title : 210256003 - Compton HS

Location : Compton, CA

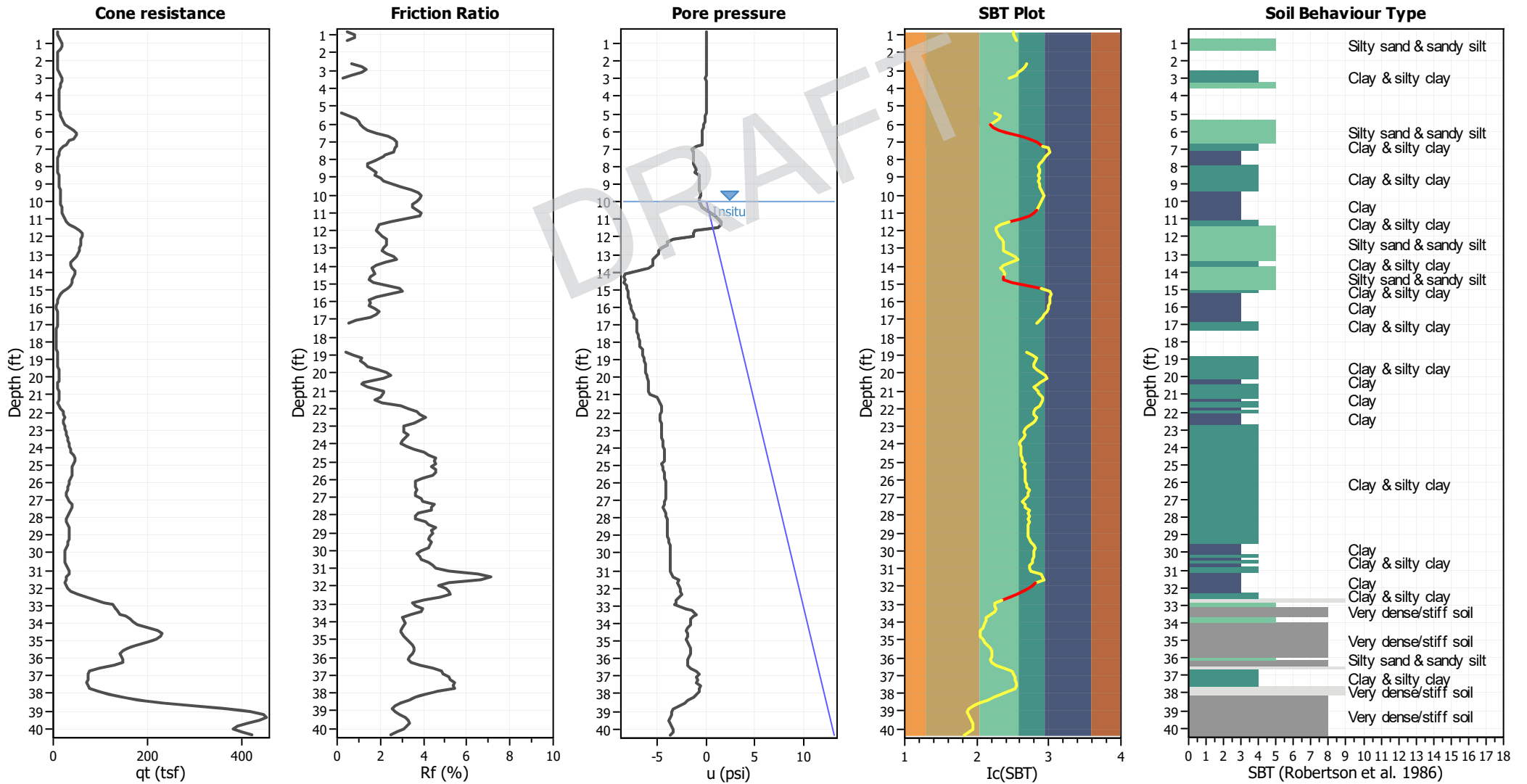
CPT file : CPT-03

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



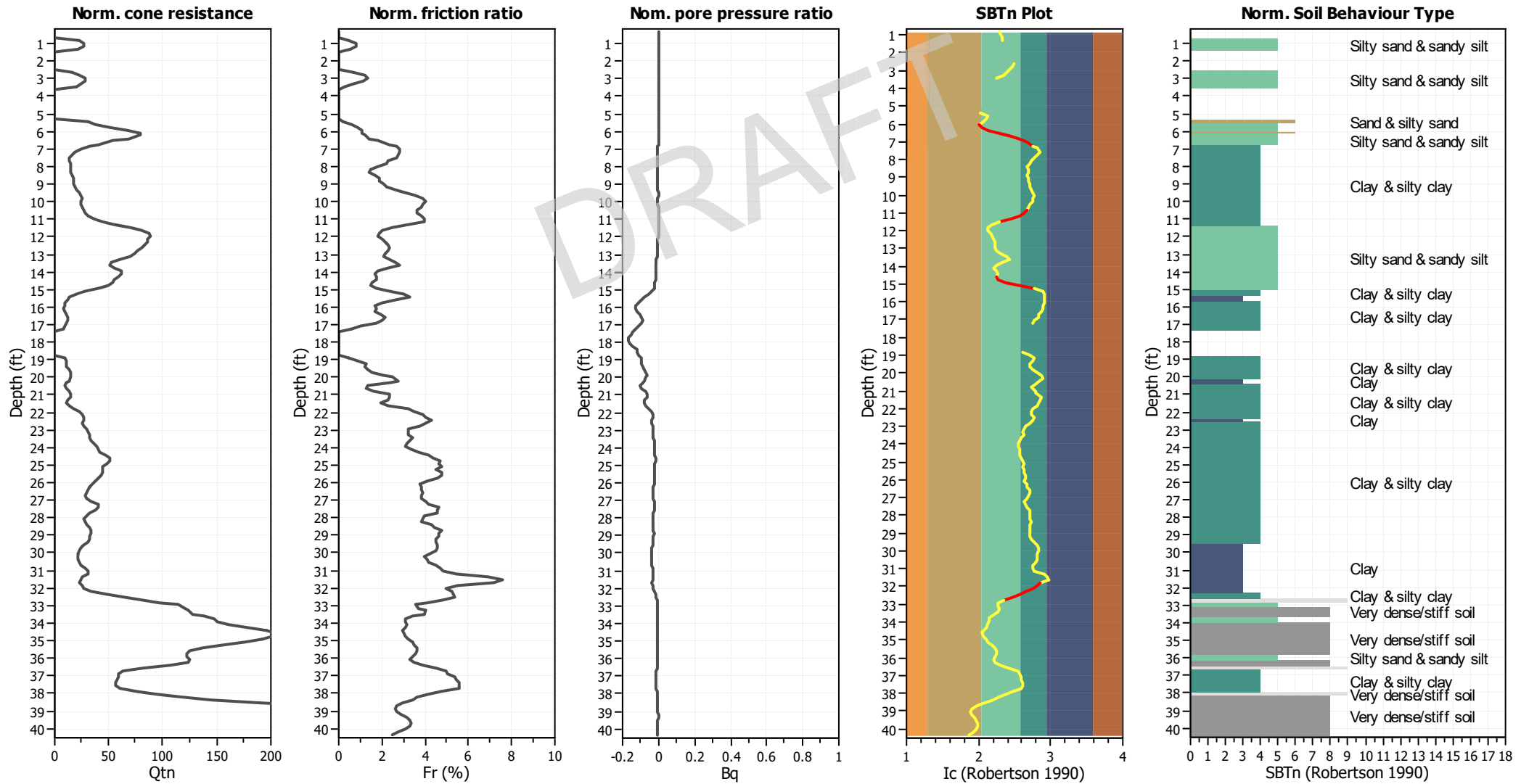
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _v applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



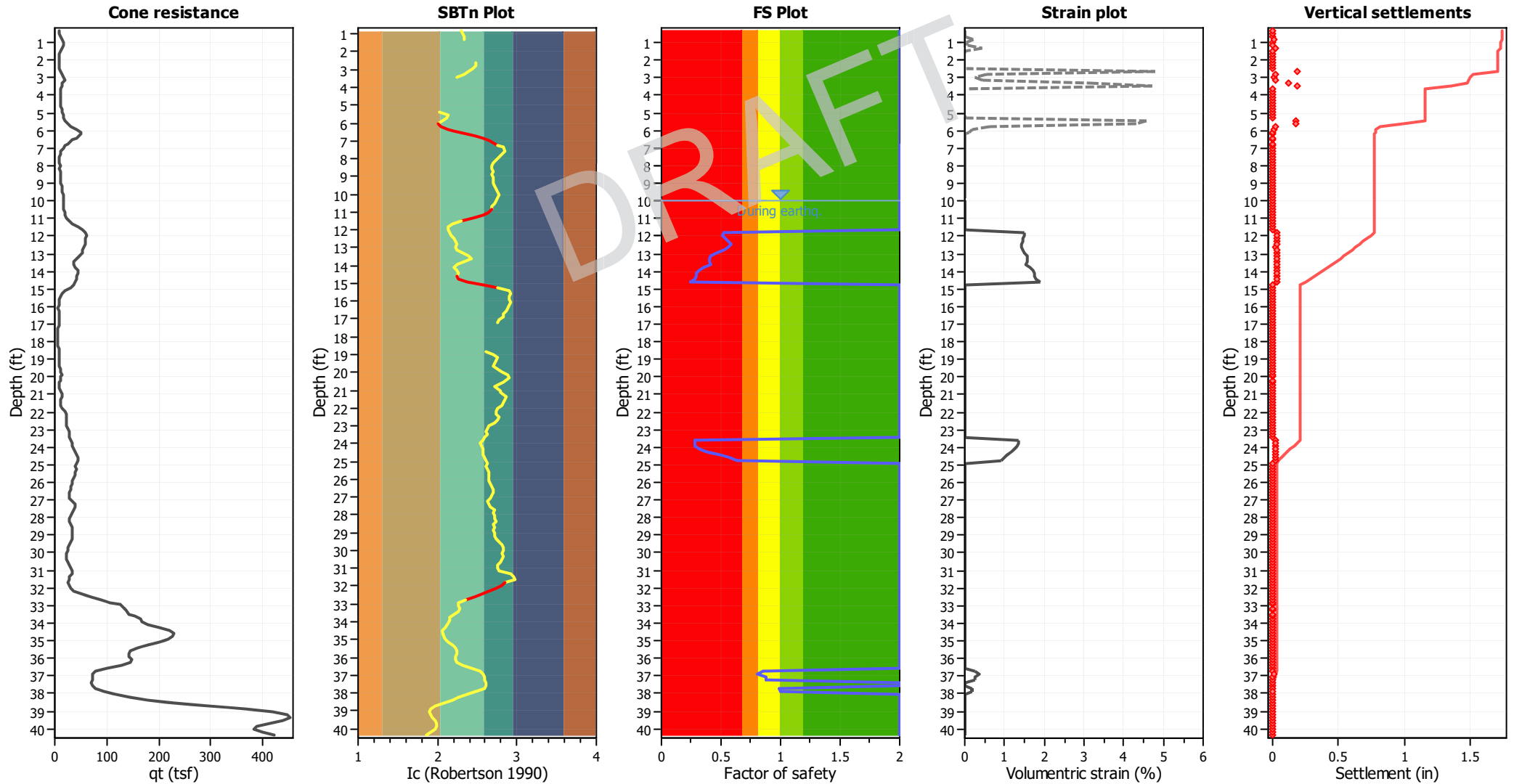
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.82	2.29	22.86	1.00	22.86	5	233	0.54	0.060	0.29	9.27	0.23	0.009
0.98	2.32	27.40	2.00	54.93	13	289	0.54	0.039	0.06	9.27	0.05	0.002
1.15	2.33	26.59	2.07	54.92	13	286	0.54	0.059	0.10	9.27	0.08	0.003
1.31	2.33	21.22	2.06	43.74	10	228	0.54	0.263	0.57	9.27	0.45	0.017
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.62	2.49	16.14	2.72	43.92	11	212	0.54	4.080	8.12	9.27	4.80	0.184
2.79	2.48	22.66	2.66	60.32	15	293	0.53	0.535	0.73	9.27	0.56	0.023
2.95	2.44	27.68	2.47	68.37	17	339	0.53	0.277	0.33	9.27	0.26	0.010
3.12	2.38	28.53	2.24	63.97	16	326	0.53	0.411	0.55	9.27	0.42	0.017
3.28	2.34	23.86	2.08	49.74	12	259	0.53	2.209	4.11	9.27	3.15	0.121
3.45	2.24	20.74	1.00	20.74	5	199	0.53	23.944	133.94	9.27	4.74	0.193
3.61	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.77	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.09	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.41	2.03	30.98	1.00	30.98	7	227	0.53	44.104	169.07	9.27	4.59	0.176
5.58	2.14	37.34	1.52	56.85	12	312	0.53	3.337	5.88	9.27	4.33	0.177
5.74	2.11	50.50	1.47	74.14	16	408	0.53	0.645	0.84	9.27	0.61	0.024
5.91	2.06	66.87	1.38	92.55	20	508	0.53	0.227	0.23	9.27	0.17	0.007
6.07	2.01	79.01	1.32	103.97	22	566	0.53	0.153	0.14	9.27	0.10	0.004
6.23	2.04	79.05	1.36	107.65	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.13	68.16	1.52	103.67	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.28	53.53	1.89	101.36	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.45	40.87	2.52	102.89	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.57	31.90	3.13	99.73	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.67	24.70	3.75	92.65	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.75	19.12	4.39	83.84	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.82	15.52	4.96	76.95	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.85	13.90	5.25	73.03	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.81	14.04	4.86	68.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.79	14.57	4.67	68.05	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.74	14.66	4.29	62.89	0	0	0.53	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)
8.20	2.70	14.33	4.01	57.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.68	14.91	3.84	57.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.69	15.91	3.92	62.44	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.70	16.81	4.00	67.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.68	17.39	3.85	66.99	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.69	18.07	3.95	71.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.69	19.13	3.95	75.52	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.71	20.51	4.06	83.25	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.71	22.80	4.10	93.50	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.73	24.23	4.25	103.09	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.75	24.86	4.39	109.19	0	0	0.53	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)
10.01	109.53	2.00	0.00	0.85	0.00	10.17	109.32	2.00	0.00	0.84	0.00
10.34	109.01	2.00	0.00	0.84	0.00	10.50	108.40	2.00	0.00	0.84	0.00
10.66	110.72	2.00	0.00	0.84	0.00	10.83	118.33	2.00	0.00	0.83	0.00
10.99	129.65	2.00	0.00	0.83	0.00	11.16	139.12	2.00	0.00	0.83	0.00
11.32	137.71	2.00	0.00	0.83	0.00	11.48	134.16	2.00	0.00	0.82	0.00
11.65	131.08	2.00	0.00	0.82	0.00	11.81	133.46	0.52	1.51	0.82	0.03
11.98	133.17	0.51	1.51	0.82	0.03	12.14	136.04	0.54	1.48	0.81	0.03
12.30	139.17	0.56	1.45	0.81	0.03	12.47	142.27	0.58	1.42	0.81	0.03
12.63	139.96	0.56	1.43	0.81	0.03	12.80	135.81	0.52	1.46	0.80	0.03
12.96	129.67	0.47	1.52	0.80	0.03	13.12	123.45	0.42	1.57	0.80	0.03
13.29	121.92	0.41	1.58	0.80	0.03	13.45	121.53	0.40	1.58	0.79	0.03
13.62	124.18	0.42	1.55	0.79	0.03	13.78	115.11	0.36	1.64	0.79	0.03
13.94	109.48	0.32	1.71	0.79	0.03	14.11	104.91	0.30	1.76	0.78	0.04
14.27	104.60	0.29	1.76	0.78	0.03	14.44	102.19	0.28	1.79	0.78	0.04
14.60	95.02	0.25	1.89	0.78	0.04	14.76	90.02	2.00	0.00	0.77	0.00
14.93	88.36	2.00	0.00	0.77	0.00	15.09	89.97	2.00	0.00	0.77	0.00
15.26	88.32	2.00	0.00	0.77	0.00	15.42	79.97	2.00	0.00	0.76	0.00
15.58	67.50	2.00	0.00	0.76	0.00	15.75	57.39	2.00	0.00	0.76	0.00
15.91	51.44	2.00	0.00	0.76	0.00	16.08	51.44	2.00	0.00	0.75	0.00
16.24	51.25	2.00	0.00	0.75	0.00	16.40	56.88	2.00	0.00	0.75	0.00
16.57	61.73	2.00	0.00	0.75	0.00	16.73	61.29	2.00	0.00	0.74	0.00
16.90	56.08	2.00	0.00	0.74	0.00	17.06	43.54	2.00	0.00	0.74	0.00
17.23	35.15	2.00	0.00	0.74	0.00	17.39	-1.00	2.00	0.00	0.73	0.00
17.55	-1.00	2.00	0.00	0.73	0.00	17.72	-1.00	2.00	0.00	0.73	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)
17.88	-1.00	2.00	0.00	0.73	0.00	18.05	-1.00	2.00	0.00	0.72	0.00
18.21	-1.00	2.00	0.00	0.72	0.00	18.37	-1.00	2.00	0.00	0.72	0.00
18.54	-1.00	2.00	0.00	0.72	0.00	18.70	-1.00	2.00	0.00	0.71	0.00
18.87	34.55	2.00	0.00	0.71	0.00	19.03	42.66	2.00	0.00	0.71	0.00
19.19	49.27	2.00	0.00	0.71	0.00	19.36	49.04	2.00	0.00	0.70	0.00
19.52	54.03	2.00	0.00	0.70	0.00	19.69	58.51	2.00	0.00	0.70	0.00
19.85	67.25	2.00	0.00	0.70	0.00	20.01	71.67	2.00	0.00	0.69	0.00
20.18	72.27	2.00	0.00	0.69	0.00	20.34	64.38	2.00	0.00	0.69	0.00
20.51	49.05	2.00	0.00	0.69	0.00	20.67	48.85	2.00	0.00	0.68	0.00
20.83	58.13	2.00	0.00	0.68	0.00	21.00	70.59	2.00	0.00	0.68	0.00
21.16	70.55	2.00	0.00	0.68	0.00	21.33	63.46	2.00	0.00	0.67	0.00
21.49	58.90	2.00	0.00	0.67	0.00	21.65	66.92	2.00	0.00	0.67	0.00
21.82	86.32	2.00	0.00	0.67	0.00	21.98	100.61	2.00	0.00	0.66	0.00
22.15	111.50	2.00	0.00	0.66	0.00	22.31	115.47	2.00	0.00	0.66	0.00
22.47	118.09	2.00	0.00	0.66	0.00	22.64	113.21	2.00	0.00	0.65	0.00
22.80	110.04	2.00	0.00	0.65	0.00	22.97	105.84	2.00	0.00	0.65	0.00
23.13	108.90	2.00	0.00	0.65	0.00	23.30	110.25	2.00	0.00	0.64	0.00
23.46	114.46	2.00	0.00	0.64	0.00	23.62	113.38	0.28	1.35	0.64	0.03
23.79	114.14	0.28	1.34	0.64	0.03	23.95	114.95	0.28	1.32	0.63	0.03
24.12	122.27	0.32	1.25	0.63	0.03	24.28	132.36	0.38	1.17	0.63	0.02
24.44	147.85	0.49	1.06	0.63	0.02	24.61	158.55	0.58	0.97	0.62	0.02
24.77	164.76	0.63	0.92	0.62	0.02	24.94	159.20	2.00	0.00	0.62	0.00
25.10	155.68	2.00	0.00	0.62	0.00	25.26	151.63	2.00	0.00	0.61	0.00
25.43	155.00	2.00	0.00	0.61	0.00	25.59	153.41	2.00	0.00	0.61	0.00
25.76	146.08	2.00	0.00	0.61	0.00	25.92	133.14	2.00	0.00	0.60	0.00
26.08	122.90	2.00	0.00	0.60	0.00	26.25	120.01	2.00	0.00	0.60	0.00
26.41	118.21	2.00	0.00	0.60	0.00	26.58	116.94	2.00	0.00	0.59	0.00
26.74	114.84	2.00	0.00	0.59	0.00	26.90	116.01	2.00	0.00	0.59	0.00
27.07	126.92	2.00	0.00	0.59	0.00	27.23	137.69	2.00	0.00	0.58	0.00
27.40	148.39	2.00	0.00	0.58	0.00	27.56	142.75	2.00	0.00	0.58	0.00
27.72	133.53	2.00	0.00	0.58	0.00	27.89	118.29	2.00	0.00	0.57	0.00
28.05	113.23	2.00	0.00	0.57	0.00	28.22	112.81	2.00	0.00	0.57	0.00
28.38	123.18	2.00	0.00	0.57	0.00	28.54	130.31	2.00	0.00	0.56	0.00
28.71	137.89	2.00	0.00	0.56	0.00	28.87	135.72	2.00	0.00	0.56	0.00
29.04	134.19	2.00	0.00	0.56	0.00	29.20	130.86	2.00	0.00	0.55	0.00
29.36	127.93	2.00	0.00	0.55	0.00	29.53	123.84	2.00	0.00	0.55	0.00
29.69	117.67	2.00	0.00	0.55	0.00	29.86	112.70	2.00	0.00	0.54	0.00
30.02	106.97	2.00	0.00	0.54	0.00	30.19	102.91	2.00	0.00	0.54	0.00
30.35	104.69	2.00	0.00	0.54	0.00	30.51	107.94	2.00	0.00	0.53	0.00
30.68	117.74	2.00	0.00	0.53	0.00	30.84	127.77	2.00	0.00	0.53	0.00
31.01	133.21	2.00	0.00	0.53	0.00	31.17	143.44	2.00	0.00	0.52	0.00
31.33	148.39	2.00	0.00	0.52	0.00	31.50	153.79	2.00	0.00	0.52	0.00
31.66	142.57	2.00	0.00	0.52	0.00	31.83	132.25	2.00	0.00	0.51	0.00
31.99	128.24	2.00	0.00	0.51	0.00	32.15	146.05	2.00	0.00	0.51	0.00
32.32	172.50	2.00	0.00	0.51	0.00	32.48	199.00	2.00	0.00	0.50	0.00
32.65	209.65	2.00	0.00	0.50	0.00	32.81	208.12	2.00	0.00	0.50	0.00
32.97	210.04	2.00	0.00	0.50	0.00	33.14	220.98	2.00	0.00	0.49	0.00
33.30	235.40	2.00	0.00	0.49	0.00	33.47	237.49	2.00	0.00	0.49	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)
33.63	232.16	2.00	0.00	0.49	0.00	33.79	227.78	2.00	0.00	0.48	0.00
33.96	231.83	2.00	0.00	0.48	0.00	34.12	243.99	2.00	0.00	0.48	0.00
34.29	258.61	2.00	0.00	0.48	0.00	34.45	272.98	2.00	0.00	0.47	0.00
34.61	281.07	2.00	0.00	0.47	0.00	34.78	282.90	2.00	0.00	0.47	0.00
34.94	278.62	2.00	0.00	0.47	0.00	35.11	267.91	2.00	0.00	0.46	0.00
35.27	252.34	2.00	0.00	0.46	0.00	35.43	235.63	2.00	0.00	0.46	0.00
35.60	223.22	2.00	0.00	0.46	0.00	35.76	217.02	2.00	0.00	0.45	0.00
35.93	213.55	2.00	0.00	0.45	0.00	36.09	213.64	2.00	0.00	0.45	0.00
36.26	218.36	2.00	0.00	0.45	0.00	36.42	214.48	2.00	0.00	0.44	0.00
36.58	201.83	2.00	0.00	0.44	0.00	36.75	188.33	0.85	0.27	0.44	0.01
36.91	184.13	0.80	0.36	0.44	0.01	37.08	190.65	0.88	0.26	0.43	0.01
37.24	190.63	0.88	0.26	0.43	0.01	37.40	190.90	2.00	0.00	0.43	0.00
37.57	192.05	2.00	0.00	0.43	0.00	37.73	198.88	0.99	0.20	0.42	0.00
37.90	199.81	1.00	0.20	0.42	0.00	38.06	206.85	2.00	0.00	0.42	0.00
38.22	218.35	2.00	0.00	0.42	0.00	38.39	237.68	2.00	0.00	0.41	0.00
38.55	267.19	2.00	0.00	0.41	0.00	38.72	311.80	2.00	0.00	0.41	0.00
38.88	364.73	2.00	0.00	0.41	0.00	39.04	410.61	2.00	0.00	0.40	0.00
39.21	442.56	2.00	0.00	0.40	0.00	39.37	456.50	2.00	0.00	0.40	0.00
39.54	450.95	2.00	0.00	0.40	0.00	39.70	430.56	2.00	0.00	0.39	0.00
39.86	405.28	2.00	0.00	0.39	0.00	40.03	391.98	2.00	0.00	0.39	0.00
40.19	390.39	2.00	0.00	0.39	0.00	40.36	396.93	2.00	0.00	0.38	0.00

Total estimated settlement: 0.78

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

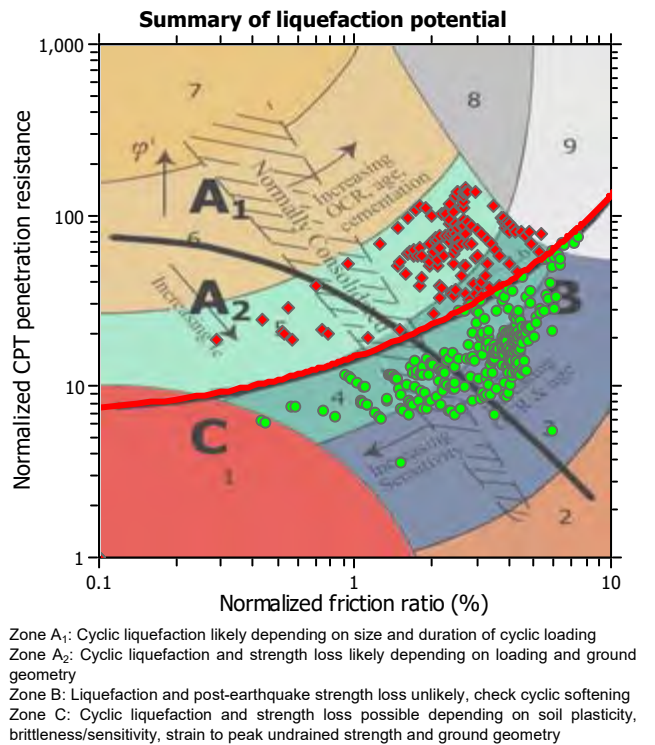
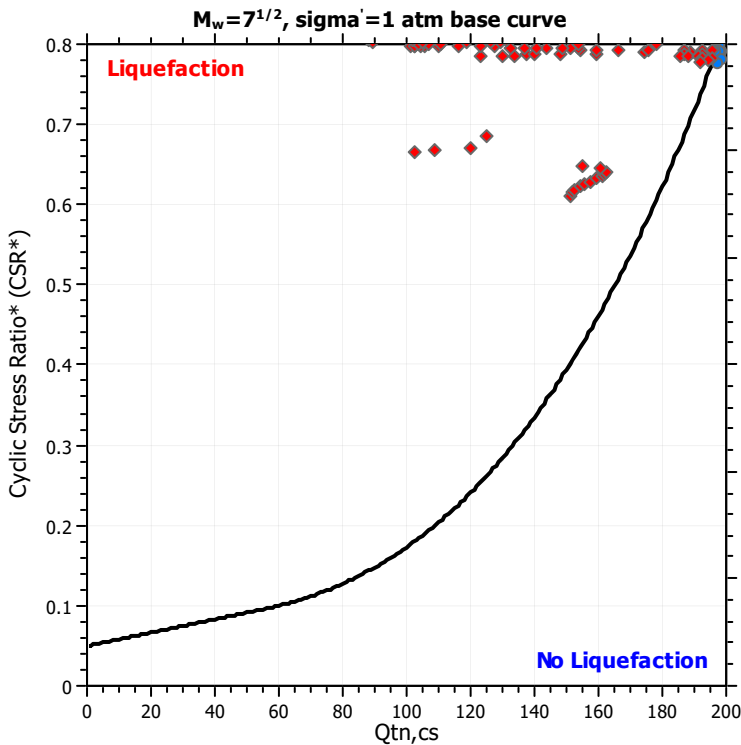
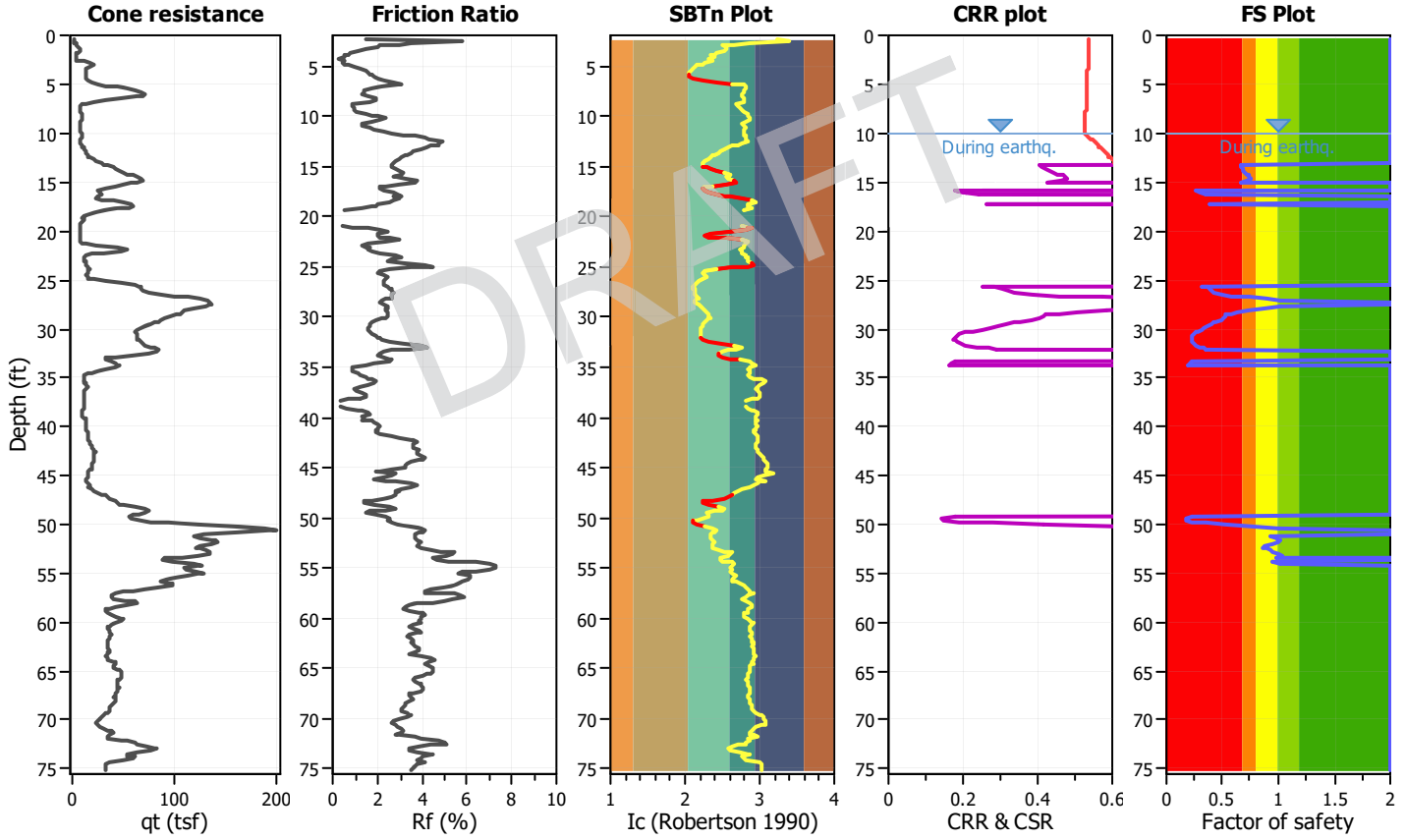
Project title : 210256003 - Compton HS

Location : Compton, CA

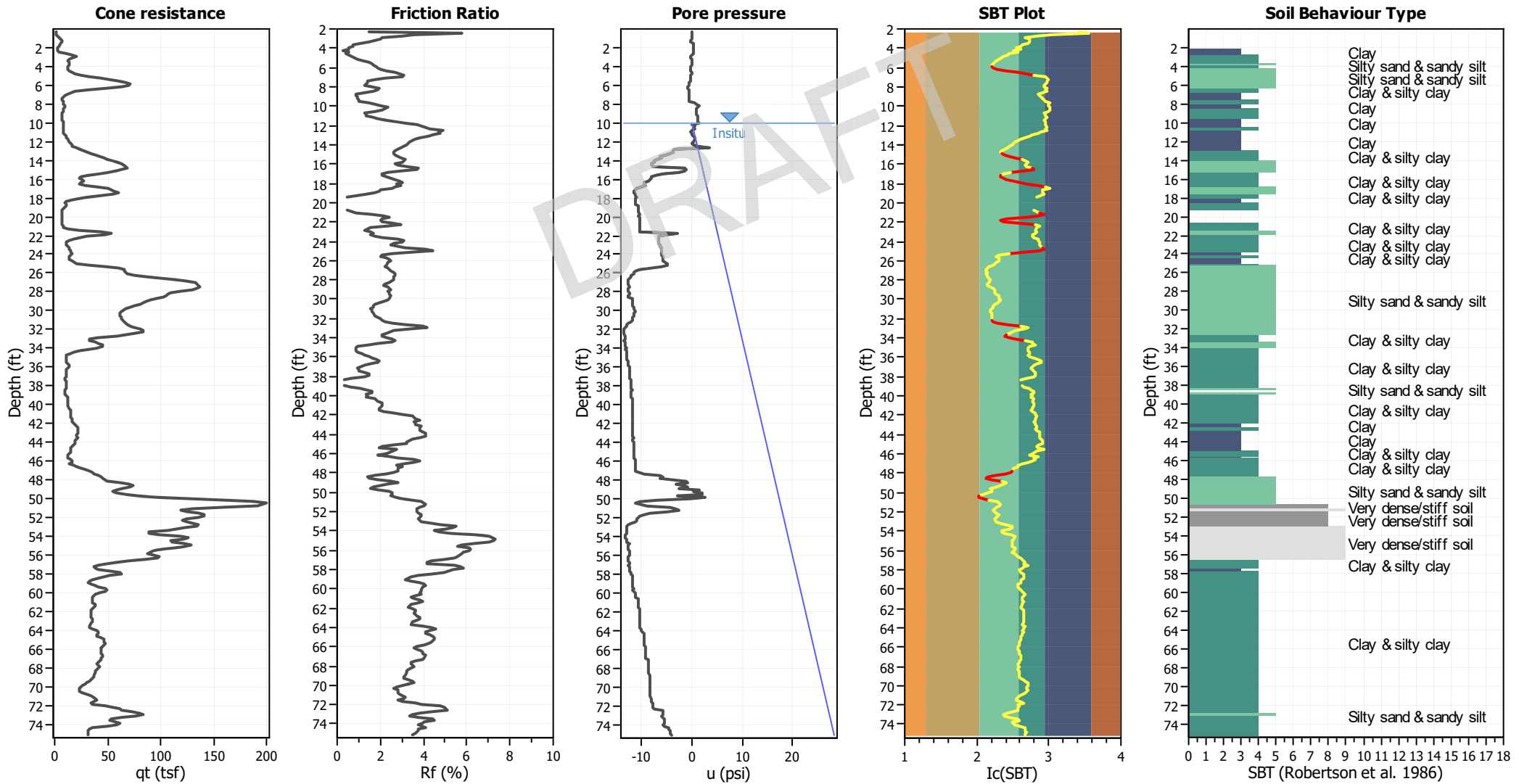
CPT file : CPT-04

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



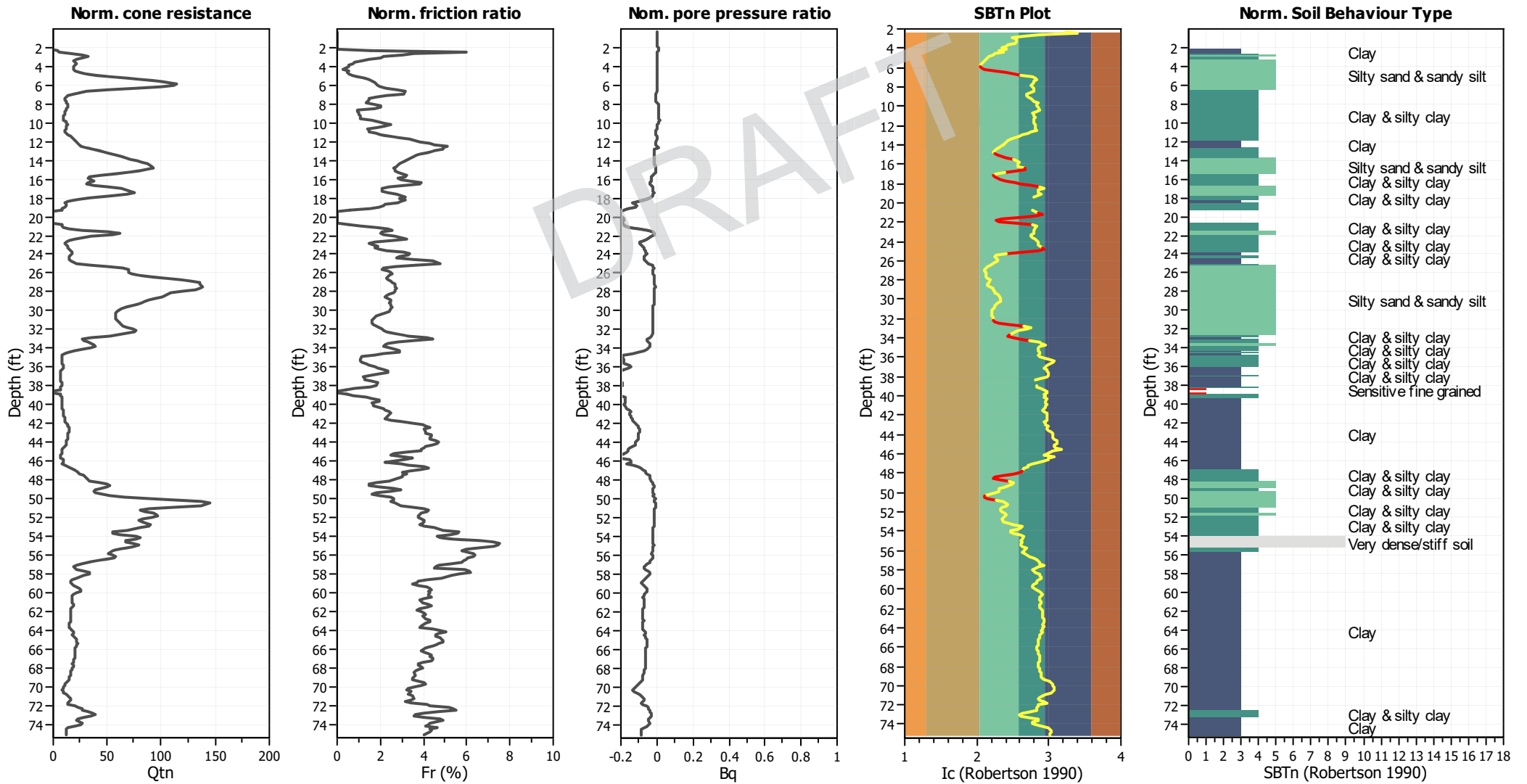
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



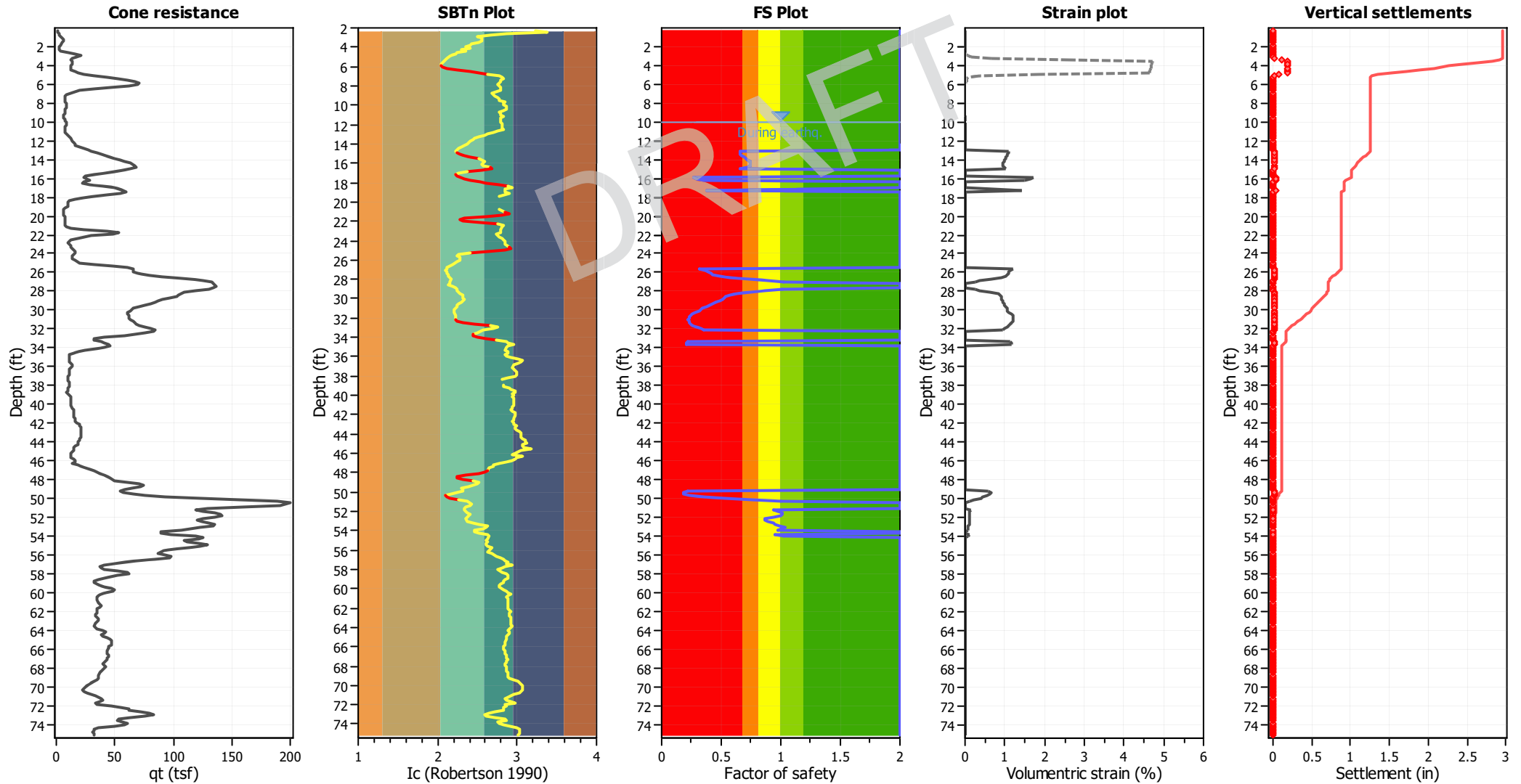
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	3.24	3.54	9.81	34.71	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	3.39	5.40	12.11	65.41	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	2.87	16.52	5.37	88.71	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	2.66	26.41	3.74	98.79	0	0	0.53	0.000	0.00	9.27	0.00	0.000
2.95	2.49	32.77	2.73	89.54	23	431	0.53	0.089	0.08	9.27	0.06	0.002
3.12	2.55	26.49	3.05	80.82	21	376	0.53	0.192	0.18	9.27	0.14	0.006
3.28	2.55	21.60	3.03	65.47	17	305	0.53	0.718	0.86	9.27	0.66	0.025
3.45	2.53	19.23	2.91	55.89	15	264	0.53	2.303	3.36	9.27	2.57	0.105
3.61	2.43	20.56	2.43	49.89	12	249	0.53	4.295	7.60	9.27	4.72	0.181
3.77	2.40	21.46	2.32	49.81	12	252	0.53	4.672	8.40	9.27	4.71	0.181
3.94	2.35	20.69	2.11	43.71	11	227	0.53	13.456	29.14	9.27	4.70	0.192
4.10	2.40	18.86	2.32	43.69	11	221	0.53	20.087	42.30	9.27	4.69	0.180
4.27	2.31	18.52	1.00	18.52	4	192	0.53	94.999	589.65	9.27	4.67	0.191
4.43	2.36	20.22	2.16	43.69	11	225	0.53	23.317	50.18	9.27	4.66	0.179
4.59	2.25	24.55	1.00	24.55	6	238	0.53	16.598	75.57	9.27	4.65	0.179
4.76	2.23	29.04	1.73	50.32	11	273	0.53	6.057	11.80	9.27	4.64	0.189
4.92	2.17	38.29	1.59	60.83	14	333	0.53	1.564	2.50	9.27	1.86	0.071
5.09	2.12	51.71	1.49	77.29	17	425	0.53	0.405	0.50	9.27	0.37	0.015
5.25	2.10	68.62	1.45	99.58	22	548	0.53	0.135	0.12	9.27	0.09	0.004
5.41	2.08	83.70	1.42	118.61	25	652	0.53	0.076	0.06	9.27	0.04	0.002
5.58	2.06	96.49	1.39	133.75	28	734	0.53	0.056	0.04	9.27	0.03	0.001
5.74	2.05	106.11	1.37	145.44	31	797	0.53	0.047	0.03	9.27	0.02	0.001
5.91	2.04	113.86	1.36	154.55	33	846	0.53	0.043	0.02	9.27	0.02	0.001
6.07	2.06	111.22	1.39	154.87	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.12	99.36	1.49	147.56	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.24	75.62	1.77	133.72	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.42	51.13	2.38	121.83	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.62	30.82	3.45	106.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.78	19.02	4.61	87.77	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.81	13.92	4.90	68.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.82	11.66	5.00	58.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.80	10.90	4.79	52.24	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.79	11.05	4.73	52.20	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.77	11.42	4.56	52.10	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.76	11.68	4.45	52.03	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.77	12.81	4.52	57.93	0	0	0.53	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)
8.20	2.80	13.28	4.77	63.37	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.79	13.38	4.74	63.34	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.80	12.13	4.79	58.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.69	11.52	3.89	44.85	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.70	11.24	4.00	44.92	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.72	10.91	4.12	45.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.75	10.36	4.35	45.13	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.78	9.87	4.58	45.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.78	9.75	4.64	45.25	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.85	10.01	5.24	52.44	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.83	11.50	5.07	58.31	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.70												

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)
10.01	63.60	2.00	0.00	0.85	0.00	10.17	68.57	2.00	0.00	0.84	0.00
10.34	63.77	2.00	0.00	0.84	0.00	10.50	58.29	2.00	0.00	0.84	0.00
10.66	52.09	2.00	0.00	0.84	0.00	10.83	52.18	2.00	0.00	0.83	0.00
10.99	52.23	2.00	0.00	0.83	0.00	11.16	58.25	2.00	0.00	0.83	0.00
11.32	63.34	2.00	0.00	0.83	0.00	11.48	72.45	2.00	0.00	0.82	0.00
11.65	80.58	2.00	0.00	0.82	0.00	11.81	91.40	2.00	0.00	0.82	0.00
11.98	101.26	2.00	0.00	0.82	0.00	12.14	110.20	2.00	0.00	0.81	0.00
12.30	115.69	2.00	0.00	0.81	0.00	12.47	126.62	2.00	0.00	0.81	0.00
12.63	134.86	2.00	0.00	0.81	0.00	12.80	145.07	2.00	0.00	0.80	0.00
12.96	149.14	2.00	0.00	0.80	0.00	13.12	151.45	0.66	1.09	0.80	0.02
13.29	151.95	0.66	1.08	0.80	0.02	13.45	152.47	0.66	1.07	0.79	0.02
13.62	154.16	0.68	1.05	0.79	0.02	13.78	155.69	0.69	1.04	0.79	0.02
13.94	157.55	0.71	1.02	0.79	0.02	14.11	159.16	0.72	1.00	0.78	0.02
14.27	161.19	0.74	0.98	0.78	0.02	14.44	161.66	0.74	0.97	0.78	0.02
14.60	162.52	0.75	0.96	0.78	0.02	14.76	160.43	0.72	0.97	0.77	0.02
14.93	155.21	0.66	1.02	0.77	0.02	15.09	148.56	2.00	0.00	0.77	0.00
15.26	142.48	2.00	0.00	0.77	0.00	15.42	135.34	2.00	0.00	0.76	0.00
15.58	125.33	2.00	0.00	0.76	0.00	15.75	110.24	2.00	0.00	0.76	0.00
15.91	102.27	0.27	1.74	0.76	0.03	16.08	108.56	0.30	1.65	0.75	0.03
16.24	119.74	0.36	1.52	0.75	0.03	16.40	122.61	2.00	0.00	0.75	0.00
16.57	118.26	2.00	0.00	0.75	0.00	16.73	113.75	2.00	0.00	0.74	0.00
16.90	114.62	2.00	0.00	0.74	0.00	17.06	118.38	2.00	0.00	0.74	0.00
17.23	125.14	0.38	1.43	0.74	0.03	17.39	134.97	2.00	0.00	0.73	0.00
17.55	140.33	2.00	0.00	0.73	0.00	17.72	132.13	2.00	0.00	0.73	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)
17.88	119.07	2.00	0.00	0.73	0.00	18.05	99.69	2.00	0.00	0.72	0.00
18.21	90.27	2.00	0.00	0.72	0.00	18.37	75.94	2.00	0.00	0.72	0.00
18.54	68.76	2.00	0.00	0.72	0.00	18.70	63.82	2.00	0.00	0.71	0.00
18.87	63.65	2.00	0.00	0.71	0.00	19.03	59.20	2.00	0.00	0.71	0.00
19.19	49.15	2.00	0.00	0.71	0.00	19.36	34.38	2.00	0.00	0.70	0.00
19.52	-1.00	2.00	0.00	0.70	0.00	19.69	-1.00	2.00	0.00	0.70	0.00
19.85	-1.00	2.00	0.00	0.70	0.00	20.01	-1.00	2.00	0.00	0.69	0.00
20.18	-1.00	2.00	0.00	0.69	0.00	20.34	-1.00	2.00	0.00	0.69	0.00
20.51	-1.00	2.00	0.00	0.69	0.00	20.67	-1.00	2.00	0.00	0.68	0.00
20.83	34.15	2.00	0.00	0.68	0.00	21.00	42.20	2.00	0.00	0.68	0.00
21.16	53.95	2.00	0.00	0.68	0.00	21.33	69.74	2.00	0.00	0.67	0.00
21.49	91.78	2.00	0.00	0.67	0.00	21.65	106.73	2.00	0.00	0.67	0.00
21.82	114.74	2.00	0.00	0.67	0.00	21.98	111.35	2.00	0.00	0.66	0.00
22.15	102.58	2.00	0.00	0.66	0.00	22.31	91.64	2.00	0.00	0.66	0.00
22.47	72.38	2.00	0.00	0.66	0.00	22.64	57.12	2.00	0.00	0.65	0.00
22.80	52.41	2.00	0.00	0.65	0.00	22.97	56.84	2.00	0.00	0.65	0.00
23.13	60.75	2.00	0.00	0.65	0.00	23.30	60.22	2.00	0.00	0.64	0.00
23.46	63.96	2.00	0.00	0.64	0.00	23.62	70.78	2.00	0.00	0.64	0.00
23.79	83.21	2.00	0.00	0.64	0.00	23.95	88.52	2.00	0.00	0.63	0.00
24.12	85.93	2.00	0.00	0.63	0.00	24.28	77.38	2.00	0.00	0.63	0.00
24.44	74.21	2.00	0.00	0.63	0.00	24.61	83.38	2.00	0.00	0.62	0.00
24.77	98.66	2.00	0.00	0.62	0.00	24.94	114.73	2.00	0.00	0.62	0.00
25.10	121.66	2.00	0.00	0.62	0.00	25.26	120.41	2.00	0.00	0.61	0.00
25.43	119.99	2.00	0.00	0.61	0.00	25.59	122.85	0.32	1.20	0.61	0.02
25.76	129.78	0.36	1.15	0.61	0.02	25.92	133.78	0.39	1.11	0.60	0.02
26.08	137.59	0.41	1.08	0.60	0.02	26.25	140.01	0.43	1.06	0.60	0.02
26.41	148.16	0.49	1.01	0.60	0.02	26.58	159.28	0.58	0.92	0.59	0.02
26.74	174.67	0.73	0.66	0.59	0.01	26.90	188.61	0.89	0.36	0.59	0.01
27.07	198.53	1.02	0.27	0.59	0.01	27.23	203.38	2.00	0.00	0.58	0.00
27.40	206.13	2.00	0.00	0.58	0.00	27.56	204.98	2.00	0.00	0.58	0.00
27.72	198.25	1.02	0.27	0.58	0.01	27.89	187.00	0.87	0.36	0.57	0.01
28.05	175.87	0.74	0.63	0.57	0.01	28.22	166.03	0.64	0.83	0.57	0.02
28.38	159.31	0.57	0.88	0.57	0.02	28.54	154.41	0.53	0.92	0.56	0.02
28.71	153.78	0.53	0.92	0.56	0.02	28.87	151.50	0.51	0.93	0.56	0.02
29.04	148.62	0.48	0.94	0.56	0.02	29.20	143.53	0.45	0.96	0.55	0.02
29.36	140.69	0.43	0.98	0.55	0.02	29.53	136.64	0.40	0.99	0.55	0.02
29.69	132.69	0.37	1.01	0.55	0.02	29.86	127.40	0.34	1.04	0.54	0.02
30.02	123.33	0.32	1.07	0.54	0.02	30.19	116.19	0.28	1.12	0.54	0.02
30.35	110.23	0.26	1.16	0.54	0.02	30.51	105.73	0.24	1.19	0.53	0.02
30.68	104.13	0.23	1.20	0.53	0.02	30.84	102.53	0.23	1.21	0.53	0.02
31.01	101.06	0.22	1.22	0.53	0.02	31.17	102.52	0.23	1.20	0.52	0.02
31.33	103.91	0.23	1.18	0.52	0.02	31.50	106.63	0.24	1.15	0.52	0.02
31.66	110.74	0.26	1.11	0.52	0.02	31.83	118.66	0.29	1.05	0.51	0.02
31.99	126.23	0.33	0.99	0.51	0.02	32.15	130.98	0.36	0.95	0.51	0.02
32.32	132.90	2.00	0.00	0.51	0.00	32.48	134.83	2.00	0.00	0.50	0.00
32.65	135.81	2.00	0.00	0.50	0.00	32.81	131.78	2.00	0.00	0.50	0.00
32.97	121.43	2.00	0.00	0.50	0.00	33.14	109.46	2.00	0.00	0.49	0.00
33.30	102.10	0.22	1.13	0.49	0.02	33.47	97.36	0.20	1.17	0.49	0.02

:: 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)
33.63	96.45	0.20	1.17	0.49	0.02	33.79	96.15	2.00	0.00	0.48	0.00
33.96	97.04	2.00	0.00	0.48	0.00	34.12	94.06	2.00	0.00	0.48	0.00
34.29	86.91	2.00	0.00	0.48	0.00	34.45	75.57	2.00	0.00	0.47	0.00
34.61	60.29	2.00	0.00	0.47	0.00	34.78	50.50	2.00	0.00	0.47	0.00
34.94	42.28	2.00	0.00	0.47	0.00	35.11	42.24	2.00	0.00	0.46	0.00
35.27	42.20	2.00	0.00	0.46	0.00	35.43	42.17	2.00	0.00	0.46	0.00
35.60	46.43	2.00	0.00	0.46	0.00	35.76	50.15	2.00	0.00	0.45	0.00
35.93	53.57	2.00	0.00	0.45	0.00	36.09	53.58	2.00	0.00	0.45	0.00
36.26	53.46	2.00	0.00	0.45	0.00	36.42	53.26	2.00	0.00	0.44	0.00
36.58	53.24	2.00	0.00	0.44	0.00	36.75	49.82	2.00	0.00	0.44	0.00
36.91	46.02	2.00	0.00	0.44	0.00	37.08	41.73	2.00	0.00	0.43	0.00
37.24	41.65	2.00	0.00	0.43	0.00	37.40	41.60	2.00	0.00	0.43	0.00
37.57	45.80	2.00	0.00	0.43	0.00	37.73	49.57	2.00	0.00	0.42	0.00
37.90	49.52	2.00	0.00	0.42	0.00	38.06	45.72	2.00	0.00	0.42	0.00
38.22	36.58	2.00	0.00	0.42	0.00	38.39	30.40	2.00	0.00	0.41	0.00
38.55	-1.00	2.00	0.00	0.41	0.00	38.72	-1.00	2.00	0.00	0.41	0.00
38.88	30.33	2.00	0.00	0.41	0.00	39.04	36.55	2.00	0.00	0.40	0.00
39.21	45.58	2.00	0.00	0.40	0.00	39.37	49.24	2.00	0.00	0.40	0.00
39.54	52.55	2.00	0.00	0.40	0.00	39.70	52.49	2.00	0.00	0.39	0.00
39.86	49.09	2.00	0.00	0.39	0.00	40.03	49.02	2.00	0.00	0.39	0.00
40.19	48.99	2.00	0.00	0.39	0.00	40.36	55.40	2.00	0.00	0.38	0.00
40.52	58.23	2.00	0.00	0.38	0.00	40.68	60.90	2.00	0.00	0.38	0.00
40.85	60.83	2.00	0.00	0.38	0.00	41.01	60.76	2.00	0.00	0.37	0.00
41.18	60.69	2.00	0.00	0.37	0.00	41.34	60.62	2.00	0.00	0.37	0.00
41.50	60.55	2.00	0.00	0.37	0.00	41.67	63.05	2.00	0.00	0.36	0.00
41.83	70.04	2.00	0.00	0.36	0.00	42.00	76.29	2.00	0.00	0.36	0.00
42.16	83.85	2.00	0.00	0.36	0.00	42.32	87.26	2.00	0.00	0.35	0.00
42.49	90.55	2.00	0.00	0.35	0.00	42.65	88.67	2.00	0.00	0.35	0.00
42.82	88.55	2.00	0.00	0.35	0.00	42.98	88.44	2.00	0.00	0.34	0.00
43.15	90.07	2.00	0.00	0.34	0.00	43.31	89.93	2.00	0.00	0.34	0.00
43.47	89.79	2.00	0.00	0.34	0.00	43.64	88.02	2.00	0.00	0.33	0.00
43.80	87.91	2.00	0.00	0.33	0.00	43.97	87.75	2.00	0.00	0.33	0.00
44.13	87.64	2.00	0.00	0.33	0.00	44.29	84.09	2.00	0.00	0.32	0.00
44.46	76.59	2.00	0.00	0.32	0.00	44.62	72.40	2.00	0.00	0.32	0.00
44.79	70.22	2.00	0.00	0.32	0.00	44.95	70.11	2.00	0.00	0.31	0.00
45.11	63.64	2.00	0.00	0.31	0.00	45.28	56.06	2.00	0.00	0.31	0.00
45.44	53.15	2.00	0.00	0.31	0.00	45.61	60.45	2.00	0.00	0.30	0.00
45.77	65.71	2.00	0.00	0.30	0.00	45.93	63.45	2.00	0.00	0.30	0.00
46.10	58.58	2.00	0.00	0.30	0.00	46.26	60.81	2.00	0.00	0.29	0.00
46.43	71.76	2.00	0.00	0.29	0.00	46.59	84.36	2.00	0.00	0.29	0.00
46.75	93.61	2.00	0.00	0.29	0.00	46.92	96.17	2.00	0.00	0.28	0.00
47.08	95.35	2.00	0.00	0.28	0.00	47.25	93.12	2.00	0.00	0.28	0.00
47.41	98.58	2.00	0.00	0.28	0.00	47.57	100.28	2.00	0.00	0.27	0.00
47.74	102.33	2.00	0.00	0.27	0.00	47.90	100.43	2.00	0.00	0.27	0.00
48.07	96.65	2.00	0.00	0.27	0.00	48.23	92.55	2.00	0.00	0.26	0.00
48.39	90.27	2.00	0.00	0.26	0.00	48.56	92.95	2.00	0.00	0.26	0.00
48.72	102.00	2.00	0.00	0.26	0.00	48.89	111.76	2.00	0.00	0.25	0.00
49.05	113.68	2.00	0.00	0.25	0.00	49.22	101.71	0.22	0.58	0.25	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)
49.38	87.99	0.18	0.64	0.25	0.01	49.54	89.19	0.18	0.63	0.24	0.01
49.71	104.77	0.23	0.54	0.24	0.01	49.87	129.40	0.35	0.45	0.24	0.01
50.04	153.45	0.52	0.39	0.24	0.01	50.20	178.27	0.76	0.21	0.23	0.00
50.36	197.84	1.00	0.11	0.23	0.00	50.53	211.91	2.00	0.00	0.23	0.00
50.69	214.01	2.00	0.00	0.23	0.00	50.86	205.65	2.00	0.00	0.22	0.00
51.02	195.87	2.00	0.00	0.22	0.00	51.18	192.46	0.94	0.13	0.22	0.00
51.35	195.42	0.98	0.10	0.22	0.00	51.51	197.67	1.01	0.10	0.21	0.00
51.68	198.07	1.02	0.10	0.21	0.00	51.84	197.11	1.00	0.10	0.21	0.00
52.00	192.59	0.94	0.12	0.21	0.00	52.17	186.73	0.87	0.13	0.20	0.00
52.33	185.94	0.86	0.13	0.20	0.00	52.50	188.36	0.89	0.12	0.20	0.00
52.66	191.44	0.93	0.12	0.20	0.00	52.82	192.49	0.95	0.12	0.19	0.00
52.99	195.63	0.99	0.09	0.19	0.00	53.15	198.63	1.04	0.09	0.19	0.00
53.32	194.31	0.98	0.09	0.19	0.00	53.48	192.19	2.00	0.00	0.18	0.00
53.64	189.00	2.00	0.00	0.18	0.00	53.81	191.71	0.95	0.11	0.18	0.00
53.97	197.49	1.03	0.08	0.18	0.00	54.14	206.92	2.00	0.00	0.17	0.00
54.30	217.02	2.00	0.00	0.17	0.00	54.46	230.32	2.00	0.00	0.17	0.00
54.63	246.10	2.00	0.00	0.17	0.00	54.79	263.69	2.00	0.00	0.16	0.00
54.96	269.92	2.00	0.00	0.16	0.00	55.12	259.00	2.00	0.00	0.16	0.00
55.28	232.91	2.00	0.00	0.16	0.00	55.45	206.74	2.00	0.00	0.15	0.00
55.61	193.70	2.00	0.00	0.15	0.00	55.78	197.05	2.00	0.00	0.15	0.00
55.94	204.88	2.00	0.00	0.15	0.00	56.11	209.17	2.00	0.00	0.14	0.00
56.27	201.65	2.00	0.00	0.14	0.00	56.43	186.34	2.00	0.00	0.14	0.00
56.60	167.19	2.00	0.00	0.14	0.00	56.76	150.73	2.00	0.00	0.13	0.00
56.93	132.36	2.00	0.00	0.13	0.00	57.09	114.52	2.00	0.00	0.13	0.00
57.25	106.19	2.00	0.00	0.13	0.00	57.42	107.10	2.00	0.00	0.12	0.00
57.58	125.48	2.00	0.00	0.12	0.00	57.75	145.08	2.00	0.00	0.12	0.00
57.91	158.67	2.00	0.00	0.12	0.00	58.07	152.79	2.00	0.00	0.11	0.00
58.24	135.16	2.00	0.00	0.11	0.00	58.40	114.34	2.00	0.00	0.11	0.00
58.57	98.58	2.00	0.00	0.11	0.00	58.73	90.34	2.00	0.00	0.10	0.00
58.89	87.79	2.00	0.00	0.10	0.00	59.06	90.11	2.00	0.00	0.10	0.00
59.22	96.96	2.00	0.00	0.10	0.00	59.39	105.44	2.00	0.00	0.09	0.00
59.55	115.01	2.00	0.00	0.09	0.00	59.71	117.65	2.00	0.00	0.09	0.00
59.88	114.67	2.00	0.00	0.09	0.00	60.04	106.99	2.00	0.00	0.08	0.00
60.21	101.75	2.00	0.00	0.08	0.00	60.37	99.50	2.00	0.00	0.08	0.00
60.53	98.27	2.00	0.00	0.08	0.00	60.70	94.89	2.00	0.00	0.07	0.00
60.86	92.53	2.00	0.00	0.07	0.00	61.03	94.69	2.00	0.00	0.07	0.00
61.19	100.01	2.00	0.00	0.07	0.00	61.35	101.99	2.00	0.00	0.06	0.00
61.52	97.65	2.00	0.00	0.06	0.00	61.68	92.02	2.00	0.00	0.06	0.00
61.85	89.62	2.00	0.00	0.06	0.00	62.01	91.81	2.00	0.00	0.05	0.00
62.17	92.82	2.00	0.00	0.05	0.00	62.34	92.69	2.00	0.00	0.05	0.00
62.50	91.49	2.00	0.00	0.05	0.00	62.67	92.50	2.00	0.00	0.04	0.00
62.83	94.62	2.00	0.00	0.04	0.00	63.00	96.63	2.00	0.00	0.04	0.00
63.16	95.40	2.00	0.00	0.04	0.00	63.32	92.02	2.00	0.00	0.03	0.00
63.49	88.56	2.00	0.00	0.03	0.00	63.65	88.52	2.00	0.00	0.03	0.00
63.82	96.01	2.00	0.00	0.03	0.00	63.98	106.05	2.00	0.00	0.02	0.00
64.14	111.58	2.00	0.00	0.02	0.00	64.31	107.79	2.00	0.00	0.02	0.00
64.47	102.81	2.00	0.00	0.02	0.00	64.64	103.70	2.00	0.00	0.01	0.00
64.80	110.23	2.00	0.00	0.01	0.00	64.96	114.62	2.00	0.00	0.01	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)
65.13	116.24	2.00	0.00	0.01	0.00	65.29	116.11	2.00	0.00	0.00	0.00
65.46	115.10	2.00	0.00	0.00	0.00	65.62	112.32	2.00	0.00	0.00	0.00
65.78	107.66	2.00	0.00	0.00	0.00	65.95	102.82	2.00	0.00	0.00	0.00
66.11	100.77	2.00	0.00	0.00	0.00	66.28	101.64	2.00	0.00	0.00	0.00
66.44	104.40	2.00	0.00	0.00	0.00	66.60	106.16	2.00	0.00	0.00	0.00
66.77	106.04	2.00	0.00	0.00	0.00	66.93	105.91	2.00	0.00	0.00	0.00
67.10	104.87	2.00	0.00	0.00	0.00	67.26	101.92	2.00	0.00	0.00	0.00
67.42	96.99	2.00	0.00	0.00	0.00	67.59	93.86	2.00	0.00	0.00	0.00
67.75	94.80	2.00	0.00	0.00	0.00	67.92	96.70	2.00	0.00	0.00	0.00
68.08	96.59	2.00	0.00	0.00	0.00	68.24	93.49	2.00	0.00	0.00	0.00
68.41	90.28	2.00	0.00	0.00	0.00	68.57	88.06	2.00	0.00	0.00	0.00
68.74	86.85	2.00	0.00	0.00	0.00	68.90	85.69	2.00	0.00	0.00	0.00
69.07	84.50	2.00	0.00	0.00	0.00	69.23	83.23	2.00	0.00	0.00	0.00
69.39	82.97	2.00	0.00	0.00	0.00	69.56	81.83	2.00	0.00	0.00	0.00
69.72	80.59	2.00	0.00	0.00	0.00	69.89	75.71	2.00	0.00	0.00	0.00
70.05	70.49	2.00	0.00	0.00	0.00	70.21	66.29	2.00	0.00	0.00	0.00
70.38	64.80	2.00	0.00	0.00	0.00	70.54	67.57	2.00	0.00	0.00	0.00
70.71	70.34	2.00	0.00	0.00	0.00	70.87	75.33	2.00	0.00	0.00	0.00
71.03	81.27	2.00	0.00	0.00	0.00	71.20	86.78	2.00	0.00	0.00	0.00
71.36	86.76	2.00	0.00	0.00	0.00	71.53	81.23	2.00	0.00	0.00	0.00
71.69	79.78	2.00	0.00	0.00	0.00	71.85	88.25	2.00	0.00	0.00	0.00
72.02	105.42	2.00	0.00	0.00	0.00	72.18	122.29	2.00	0.00	0.00	0.00
72.35	133.17	2.00	0.00	0.00	0.00	72.51	135.82	2.00	0.00	0.00	0.00
72.67	135.36	2.00	0.00	0.00	0.00	72.84	131.06	2.00	0.00	0.00	0.00
73.00	126.98	2.00	0.00	0.00	0.00	73.17	120.49	2.00	0.00	0.00	0.00
73.33	116.54	2.00	0.00	0.00	0.00	73.49	115.87	2.00	0.00	0.00	0.00
73.66	116.49	2.00	0.00	0.00	0.00	73.82	117.89	2.00	0.00	0.00	0.00
73.99	114.71	2.00	0.00	0.00	0.00	74.15	104.03	2.00	0.00	0.00	0.00
74.31	92.80	2.00	0.00	0.00	0.00	74.48	84.85	2.00	0.00	0.00	0.00
74.64	84.77	2.00	0.00	0.00	0.00	74.81	83.65	2.00	0.00	0.00	0.00
74.97	82.54	2.00	0.00	0.00	0.00	75.13	81.41	2.00	0.00	0.00	0.00

Total estimated settlement: 1.25

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

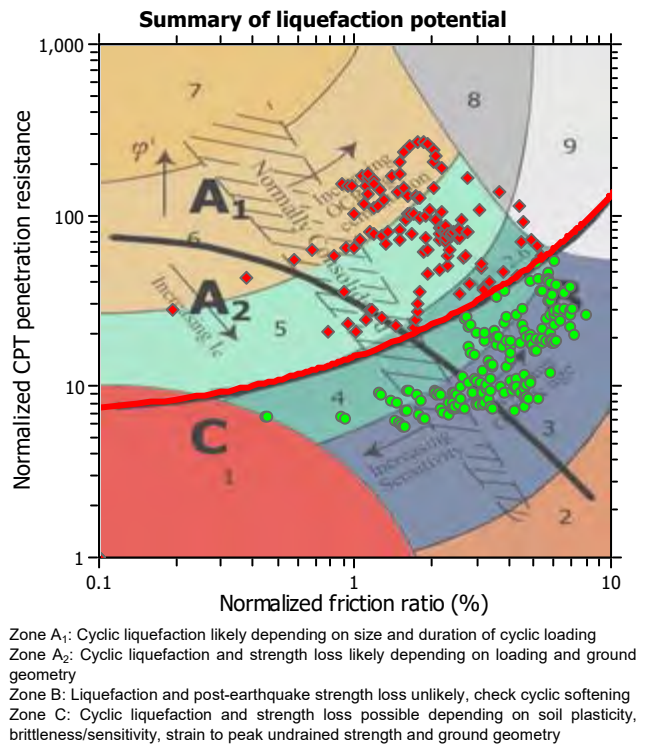
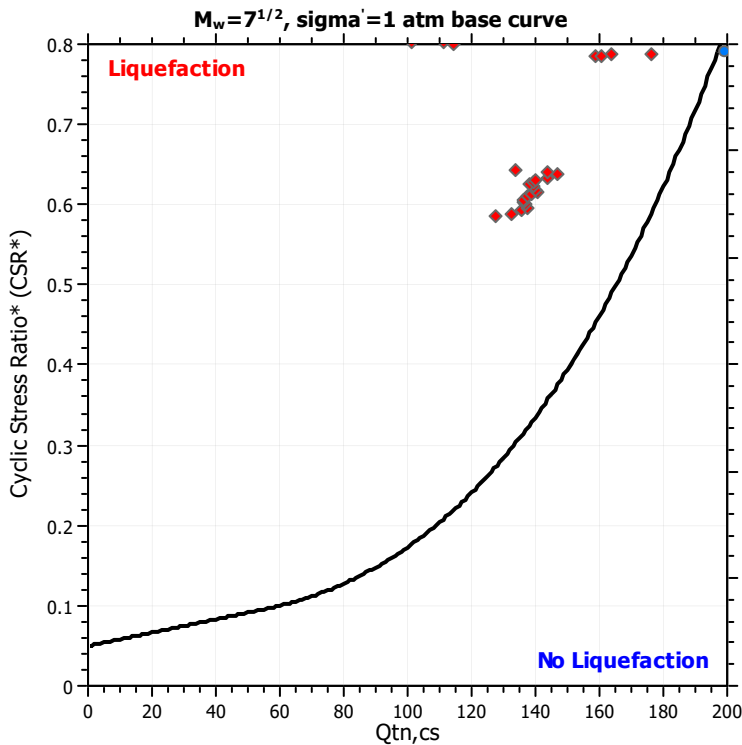
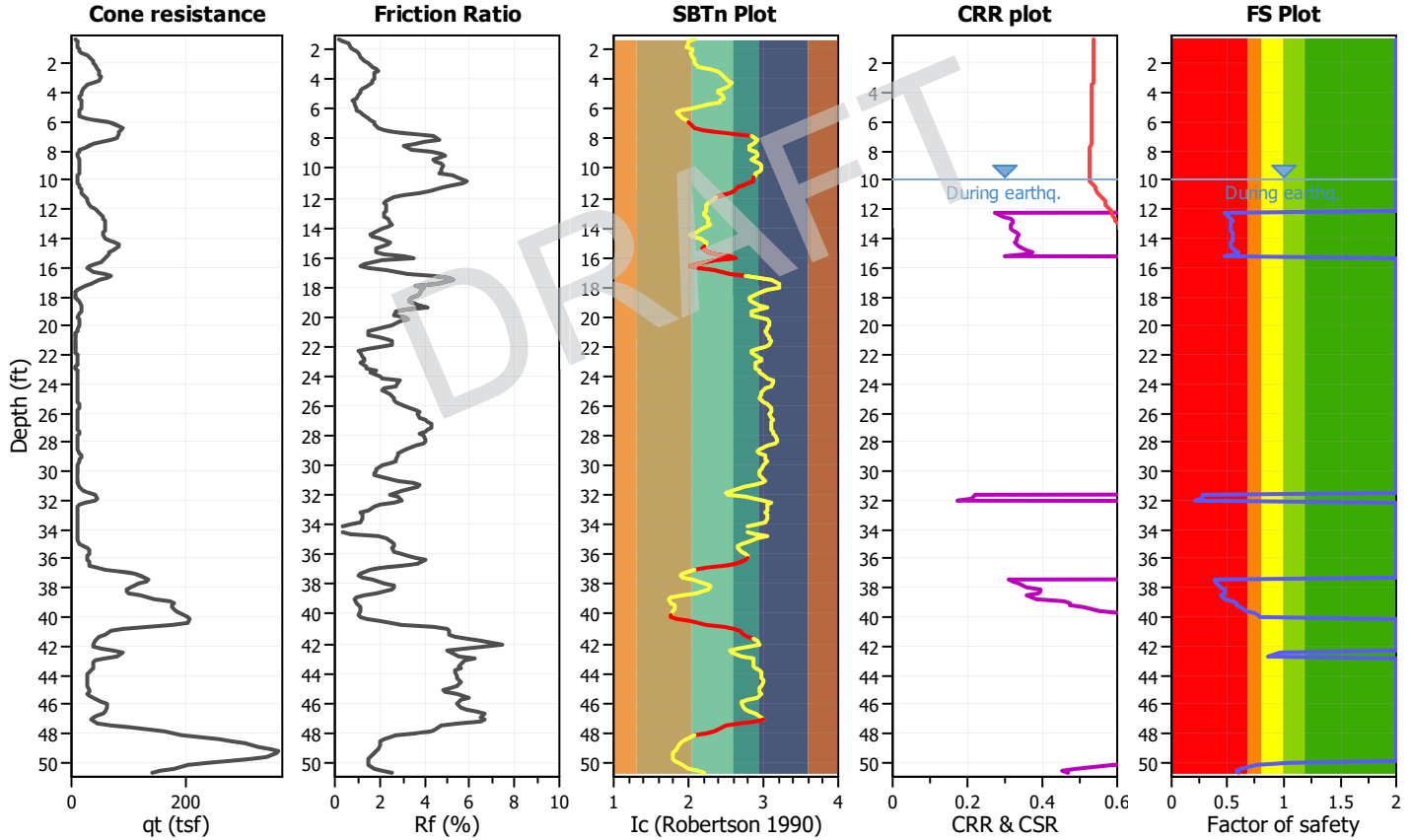
Project title : 210256003 - Compton HS

Location : Compton, CA

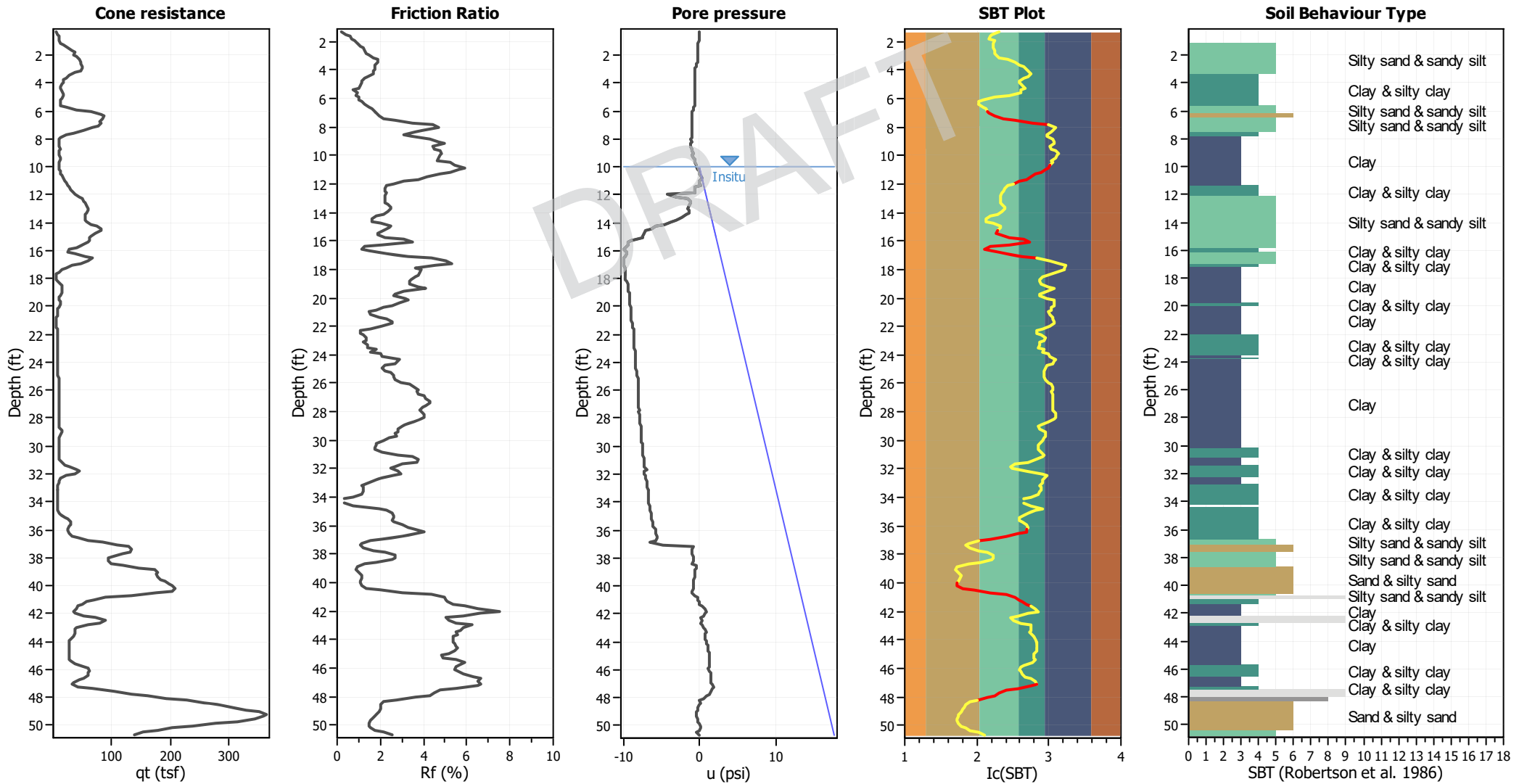
CPT file : CPT-05

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



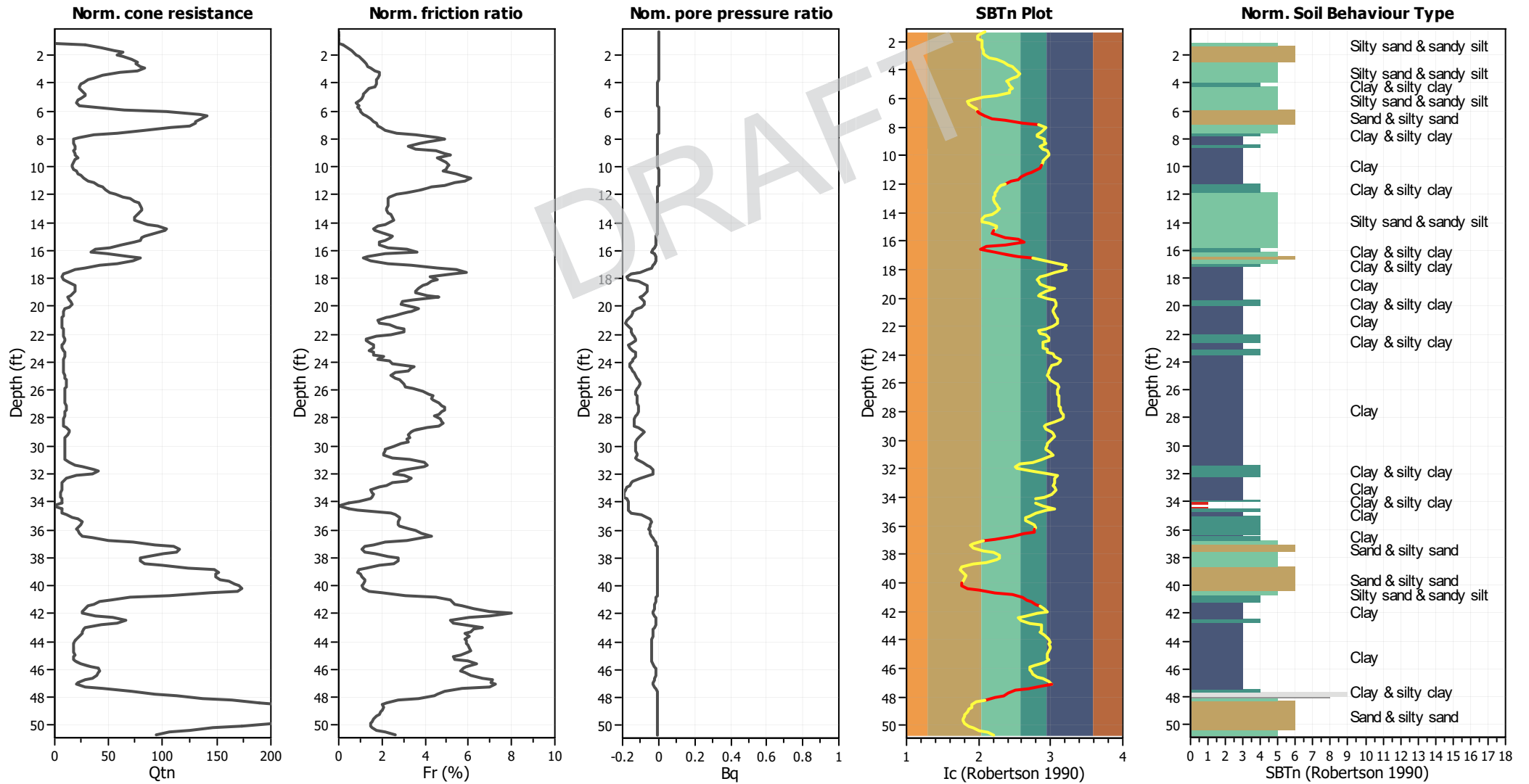
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _v applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



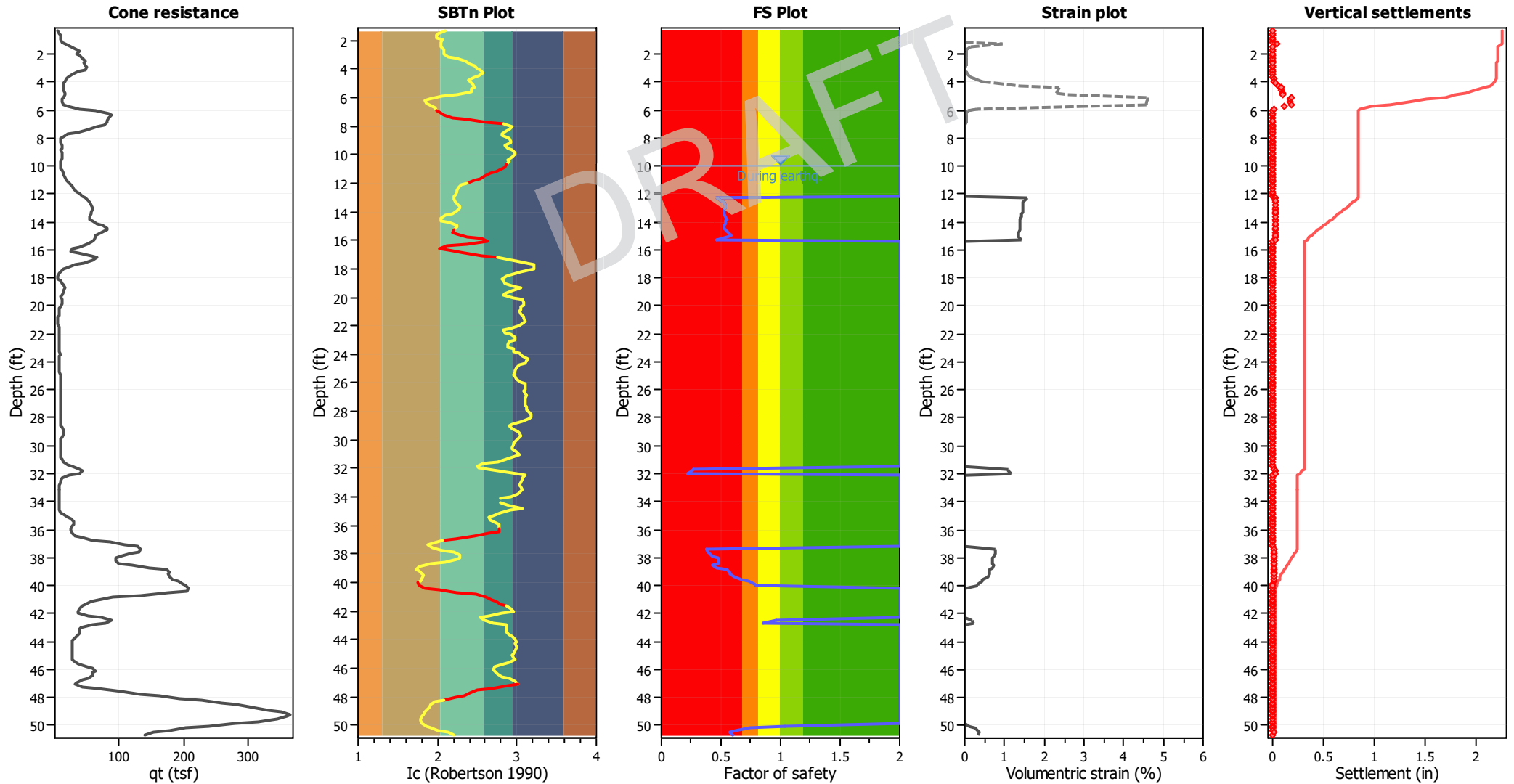
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.31	2.09	27.70	1.00	27.70	6	219	0.54	0.282	1.20	9.27	0.95	0.036
1.48	2.01	42.62	1.00	42.62	9	303	0.54	0.077	0.20	9.27	0.16	0.007
1.64	1.99	55.14	1.29	70.96	15	384	0.54	0.039	0.06	9.27	0.04	0.002
1.80	1.98	62.52	1.27	79.63	16	429	0.54	0.034	0.04	9.27	0.03	0.001
1.97	2.05	57.95	1.38	79.69	17	437	0.54	0.039	0.05	9.27	0.04	0.002
2.13	2.04	63.72	1.36	86.85	18	475	0.54	0.035	0.04	9.27	0.03	0.001
2.30	2.04	71.47	1.35	96.62	20	528	0.54	0.030	0.03	9.27	0.02	0.001
2.46	2.04	76.92	1.36	104.85	22	574	0.54	0.028	0.02	9.27	0.02	0.001
2.62	2.07	75.67	1.40	106.24	23	583	0.54	0.030	0.03	9.27	0.02	0.001
2.79	2.07	79.24	1.41	111.43	24	612	0.53	0.030	0.02	9.27	0.02	0.001
2.95	2.09	82.76	1.43	118.25	25	650	0.53	0.028	0.02	9.27	0.02	0.001
3.12	2.14	77.12	1.53	118.32	26	650	0.53	0.031	0.02	9.27	0.02	0.001
3.28	2.25	60.61	1.80	109.01	25	587	0.53	0.047	0.04	9.27	0.03	0.001
3.45	2.36	44.95	2.14	96.35	23	498	0.53	0.092	0.08	9.27	0.06	0.002
3.61	2.42	35.83	2.38	85.39	21	428	0.53	0.197	0.18	9.27	0.14	0.005
3.77	2.47	30.52	2.61	79.56	20	389	0.53	0.364	0.36	9.27	0.27	0.010
3.94	2.50	27.50	2.78	76.58	20	367	0.53	0.575	0.58	9.27	0.44	0.018
4.10	2.54	24.76	2.96	73.37	19	345	0.53	0.949	0.99	9.27	0.75	0.029
4.27	2.57	22.28	3.14	69.87	19	322	0.53	1.679	1.83	9.27	1.38	0.056
4.43	2.53	22.43	2.91	65.22	17	308	0.53	2.621	3.18	9.27	2.39	0.092
4.59	2.46	25.04	2.58	64.54	16	316	0.53	2.453	3.13	9.27	2.34	0.090
4.76	2.39	28.02	2.28	64.03	16	325	0.53	2.294	3.07	9.27	2.29	0.093
4.92	2.40	27.69	2.31	64.07	16	324	0.53	2.625	3.49	9.27	2.60	0.100
5.09	2.44	24.19	2.48	60.01	15	298	0.53	5.635	7.94	9.27	4.61	0.188
5.25	2.47	21.13	2.63	55.46	14	270	0.53	13.961	21.24	9.27	4.60	0.177
5.41	2.43	20.63	2.42	49.88	12	249	0.53	32.905	58.33	9.27	4.59	0.176
5.58	2.42	22.97	2.40	55.16	14	276	0.53	14.759	23.24	9.27	4.57	0.187
5.74	2.25	35.60	1.80	64.02	15	345	0.53	2.860	4.12	9.27	3.03	0.116
5.91	2.06	64.50	1.39	89.39	19	490	0.53	0.366	0.39	9.27	0.28	0.012
6.07	1.90	102.83	1.19	122.06	24	637	0.53	0.123	0.10	9.27	0.07	0.003
6.23	1.85	134.14	1.14	153.26	30	779	0.53	0.066	0.04	9.27	0.03	0.001
6.40	1.87	140.66	1.16	163.11	32	839	0.53	0.056	0.03	9.27	0.02	0.001
6.56	1.93	135.39	1.21	164.46	33	870	0.53	0.053	0.03	9.27	0.02	0.001
6.73	1.97	130.18	1.26	163.91	34	880	0.53	0.054	0.03	9.27	0.02	0.001
6.89	1.99	130.54	1.29	167.81	35	907	0.53	0.053	0.03	9.27	0.02	0.001
7.05	2.02	124.74	1.32	164.94	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.08	107.53	1.43	153.45	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.20	83.63	1.66	138.57	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.37	57.80	2.21	127.78	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.61	35.99	3.38	121.67	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.83	22.42	5.05	113.30	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.93	17.59	6.00	105.62	0	0	0.53	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)
8.20	2.89	16.98	5.64	95.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.87	16.97	5.44	92.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.81	18.24	4.83	88.09	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.81	19.41	4.89	94.96	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.90	17.84	5.74	102.33	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.92	18.52	5.86	108.51	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.93	18.72	5.96	111.52	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.86	21.01	5.27	110.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.89	19.39	5.58	108.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.94	17.19	6.15	105.71	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.98	15.73	6.53	102.77	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.41												

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)
10.01	102.75	2.00	0.00	0.85	0.00	10.17	105.67	2.00	0.00	0.84	0.00
10.34	111.21	2.00	0.00	0.84	0.00	10.50	122.33	2.00	0.00	0.84	0.00
10.66	132.22	2.00	0.00	0.84	0.00	10.83	143.97	2.00	0.00	0.83	0.00
10.99	149.69	2.00	0.00	0.83	0.00	11.16	152.38	2.00	0.00	0.83	0.00
11.32	152.56	2.00	0.00	0.83	0.00	11.48	146.92	2.00	0.00	0.82	0.00
11.65	141.82	2.00	0.00	0.82	0.00	11.81	131.68	2.00	0.00	0.82	0.00
11.98	126.57	2.00	0.00	0.82	0.00	12.14	124.57	2.00	0.00	0.81	0.00
12.30	127.57	0.47	1.55	0.81	0.03	12.47	132.67	0.50	1.50	0.81	0.03
12.63	135.87	0.53	1.47	0.81	0.03	12.80	137.24	0.54	1.45	0.80	0.03
12.96	136.89	0.53	1.45	0.80	0.03	13.12	136.52	0.53	1.45	0.80	0.03
13.29	136.09	0.52	1.45	0.80	0.03	13.45	137.50	0.53	1.43	0.79	0.03
13.62	138.99	0.54	1.41	0.79	0.03	13.78	140.34	0.55	1.40	0.79	0.03
13.94	139.72	0.54	1.40	0.79	0.03	14.11	139.62	0.54	1.39	0.78	0.03
14.27	138.34	0.52	1.40	0.78	0.03	14.44	139.28	0.53	1.39	0.78	0.03
14.60	140.18	0.53	1.38	0.78	0.03	14.76	143.89	0.56	1.34	0.77	0.03
14.93	147.04	0.59	1.34	0.77	0.03	15.09	143.51	0.55	1.34	0.77	0.03
15.26	133.53	0.47	1.41	0.77	0.03	15.42	121.45	2.00	0.00	0.76	0.00
15.58	111.73	2.00	0.00	0.76	0.00	15.75	110.83	2.00	0.00	0.76	0.00
15.91	115.79	2.00	0.00	0.76	0.00	16.08	118.05	2.00	0.00	0.75	0.00
16.24	104.17	2.00	0.00	0.75	0.00	16.40	100.74	2.00	0.00	0.75	0.00
16.57	106.28	2.00	0.00	0.75	0.00	16.73	109.69	2.00	0.00	0.74	0.00
16.90	117.56	2.00	0.00	0.74	0.00	17.06	124.93	2.00	0.00	0.74	0.00
17.23	125.63	2.00	0.00	0.74	0.00	17.39	114.13	2.00	0.00	0.73	0.00
17.55	96.32	2.00	0.00	0.73	0.00	17.72	77.29	2.00	0.00	0.73	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)
17.88	66.38	2.00	0.00	0.73	0.00	18.05	70.03	2.00	0.00	0.72	0.00
18.21	81.12	2.00	0.00	0.72	0.00	18.37	92.41	2.00	0.00	0.72	0.00
18.54	96.61	2.00	0.00	0.72	0.00	18.70	95.78	2.00	0.00	0.71	0.00
18.87	93.09	2.00	0.00	0.71	0.00	19.03	90.66	2.00	0.00	0.71	0.00
19.19	88.88	2.00	0.00	0.71	0.00	19.36	85.90	2.00	0.00	0.70	0.00
19.52	79.55	2.00	0.00	0.70	0.00	19.69	78.53	2.00	0.00	0.70	0.00
19.85	78.22	2.00	0.00	0.70	0.00	20.01	79.19	2.00	0.00	0.69	0.00
20.18	72.61	2.00	0.00	0.69	0.00	20.34	65.25	2.00	0.00	0.69	0.00
20.51	61.25	2.00	0.00	0.69	0.00	20.67	57.03	2.00	0.00	0.68	0.00
20.83	52.33	2.00	0.00	0.68	0.00	21.00	47.08	2.00	0.00	0.68	0.00
21.16	46.94	2.00	0.00	0.68	0.00	21.33	51.98	2.00	0.00	0.67	0.00
21.49	56.48	2.00	0.00	0.67	0.00	21.65	60.54	2.00	0.00	0.67	0.00
21.82	60.46	2.00	0.00	0.67	0.00	21.98	56.43	2.00	0.00	0.66	0.00
22.15	51.82	2.00	0.00	0.66	0.00	22.31	46.46	2.00	0.00	0.66	0.00
22.47	46.46	2.00	0.00	0.66	0.00	22.64	46.58	2.00	0.00	0.65	0.00
22.80	46.51	2.00	0.00	0.65	0.00	22.97	46.47	2.00	0.00	0.65	0.00
23.13	46.38	2.00	0.00	0.65	0.00	23.30	51.28	2.00	0.00	0.64	0.00
23.46	51.20	2.00	0.00	0.64	0.00	23.62	55.74	2.00	0.00	0.64	0.00
23.79	51.22	2.00	0.00	0.64	0.00	23.95	55.53	2.00	0.00	0.63	0.00
24.12	55.35	2.00	0.00	0.63	0.00	24.28	62.65	2.00	0.00	0.63	0.00
24.44	62.67	2.00	0.00	0.63	0.00	24.61	62.73	2.00	0.00	0.62	0.00
24.77	59.15	2.00	0.00	0.62	0.00	24.94	59.11	2.00	0.00	0.62	0.00
25.10	62.71	2.00	0.00	0.62	0.00	25.26	66.06	2.00	0.00	0.61	0.00
25.43	69.17	2.00	0.00	0.61	0.00	25.59	69.08	2.00	0.00	0.61	0.00
25.76	68.97	2.00	0.00	0.61	0.00	25.92	68.80	2.00	0.00	0.60	0.00
26.08	71.59	2.00	0.00	0.60	0.00	26.25	74.33	2.00	0.00	0.60	0.00
26.41	77.05	2.00	0.00	0.60	0.00	26.58	76.95	2.00	0.00	0.59	0.00
26.74	76.77	2.00	0.00	0.59	0.00	26.90	79.23	2.00	0.00	0.59	0.00
27.07	81.74	2.00	0.00	0.59	0.00	27.23	84.10	2.00	0.00	0.58	0.00
27.40	83.92	2.00	0.00	0.58	0.00	27.56	81.27	2.00	0.00	0.58	0.00
27.72	78.48	2.00	0.00	0.58	0.00	27.89	75.68	2.00	0.00	0.57	0.00
28.05	75.32	2.00	0.00	0.57	0.00	28.22	75.09	2.00	0.00	0.57	0.00
28.38	74.91	2.00	0.00	0.57	0.00	28.54	74.98	2.00	0.00	0.56	0.00
28.71	78.01	2.00	0.00	0.56	0.00	28.87	80.31	2.00	0.00	0.56	0.00
29.04	80.03	2.00	0.00	0.56	0.00	29.20	74.98	2.00	0.00	0.55	0.00
29.36	69.48	2.00	0.00	0.55	0.00	29.53	66.41	2.00	0.00	0.55	0.00
29.69	66.30	2.00	0.00	0.55	0.00	29.86	63.17	2.00	0.00	0.54	0.00
30.02	59.87	2.00	0.00	0.54	0.00	30.19	56.34	2.00	0.00	0.54	0.00
30.35	56.27	2.00	0.00	0.54	0.00	30.51	56.19	2.00	0.00	0.53	0.00
30.68	56.12	2.00	0.00	0.53	0.00	30.84	59.49	2.00	0.00	0.53	0.00
31.01	68.48	2.00	0.00	0.53	0.00	31.17	83.41	2.00	0.00	0.52	0.00
31.33	98.99	2.00	0.00	0.52	0.00	31.50	110.98	2.00	0.00	0.52	0.00
31.66	114.48	0.27	1.08	0.52	0.02	31.83	111.31	0.26	1.10	0.51	0.02
31.99	100.95	0.22	1.19	0.51	0.02	32.15	89.05	2.00	0.00	0.51	0.00
32.32	72.88	2.00	0.00	0.51	0.00	32.48	61.42	2.00	0.00	0.50	0.00
32.65	54.97	2.00	0.00	0.50	0.00	32.81	51.25	2.00	0.00	0.50	0.00
32.97	47.21	2.00	0.00	0.50	0.00	33.14	42.73	2.00	0.00	0.49	0.00
33.30	42.60	2.00	0.00	0.49	0.00	33.47	42.52	2.00	0.00	0.49	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)
33.63	42.55	2.00	0.00	0.49	0.00	33.79	42.61	2.00	0.00	0.48	0.00
33.96	37.54	2.00	0.00	0.48	0.00	34.12	31.06	2.00	0.00	0.48	0.00
34.29	-1.00	2.00	0.00	0.48	0.00	34.45	31.03	2.00	0.00	0.47	0.00
34.61	37.46	2.00	0.00	0.47	0.00	34.78	54.28	2.00	0.00	0.47	0.00
34.94	66.36	2.00	0.00	0.47	0.00	35.11	79.73	2.00	0.00	0.46	0.00
35.27	88.34	2.00	0.00	0.46	0.00	35.43	92.74	2.00	0.00	0.46	0.00
35.60	90.93	2.00	0.00	0.46	0.00	35.76	89.68	2.00	0.00	0.45	0.00
35.93	92.31	2.00	0.00	0.45	0.00	36.09	97.54	2.00	0.00	0.45	0.00
36.26	105.43	2.00	0.00	0.45	0.00	36.42	117.09	2.00	0.00	0.44	0.00
36.58	126.29	2.00	0.00	0.44	0.00	36.75	129.35	2.00	0.00	0.44	0.00
36.91	127.63	2.00	0.00	0.44	0.00	37.08	130.06	2.00	0.00	0.43	0.00
37.24	134.15	2.00	0.00	0.43	0.00	37.40	135.67	0.38	0.78	0.43	0.02
37.57	137.26	0.39	0.77	0.43	0.02	37.73	140.34	0.41	0.75	0.42	0.01
37.90	143.63	0.43	0.73	0.42	0.01	38.06	150.28	0.48	0.70	0.42	0.01
38.22	150.03	0.48	0.70	0.42	0.01	38.39	149.08	0.47	0.70	0.41	0.01
38.55	143.89	0.43	0.71	0.41	0.01	38.72	148.58	0.47	0.69	0.41	0.01
38.88	159.30	0.55	0.63	0.41	0.01	39.04	161.71	0.57	0.61	0.40	0.01
39.21	162.07	0.58	0.61	0.40	0.01	39.37	166.36	0.62	0.58	0.40	0.01
39.54	172.09	0.67	0.45	0.40	0.01	39.70	178.47	0.74	0.43	0.39	0.01
39.86	181.87	0.77	0.33	0.39	0.01	40.03	183.46	0.79	0.33	0.39	0.01
40.19	187.80	2.00	0.00	0.39	0.00	40.36	192.59	2.00	0.00	0.38	0.00
40.52	189.89	2.00	0.00	0.38	0.00	40.68	186.51	2.00	0.00	0.38	0.00
40.85	185.82	2.00	0.00	0.38	0.00	41.01	176.33	2.00	0.00	0.37	0.00
41.18	161.28	2.00	0.00	0.37	0.00	41.34	152.36	2.00	0.00	0.37	0.00
41.50	147.05	2.00	0.00	0.37	0.00	41.67	147.58	2.00	0.00	0.36	0.00
41.83	149.84	2.00	0.00	0.36	0.00	42.00	161.77	2.00	0.00	0.36	0.00
42.16	179.65	2.00	0.00	0.36	0.00	42.32	195.29	2.00	0.00	0.35	0.00
42.49	197.20	0.97	0.17	0.35	0.00	42.65	188.54	0.86	0.21	0.35	0.00
42.82	170.89	2.00	0.00	0.35	0.00	42.98	153.55	2.00	0.00	0.34	0.00
43.15	143.13	2.00	0.00	0.34	0.00	43.31	140.77	2.00	0.00	0.34	0.00
43.47	138.30	2.00	0.00	0.34	0.00	43.64	131.88	2.00	0.00	0.33	0.00
43.80	122.65	2.00	0.00	0.33	0.00	43.97	117.79	2.00	0.00	0.33	0.00
44.13	116.44	2.00	0.00	0.33	0.00	44.29	117.47	2.00	0.00	0.32	0.00
44.46	118.49	2.00	0.00	0.32	0.00	44.62	119.50	2.00	0.00	0.32	0.00
44.79	118.09	2.00	0.00	0.32	0.00	44.95	115.40	2.00	0.00	0.31	0.00
45.11	111.52	2.00	0.00	0.31	0.00	45.28	111.36	2.00	0.00	0.31	0.00
45.44	119.66	2.00	0.00	0.31	0.00	45.61	138.79	2.00	0.00	0.30	0.00
45.77	157.53	2.00	0.00	0.30	0.00	45.93	167.69	2.00	0.00	0.30	0.00
46.10	168.71	2.00	0.00	0.30	0.00	46.26	167.25	2.00	0.00	0.29	0.00
46.43	169.92	2.00	0.00	0.29	0.00	46.59	168.79	2.00	0.00	0.29	0.00
46.75	157.89	2.00	0.00	0.29	0.00	46.92	139.98	2.00	0.00	0.28	0.00
47.08	135.93	2.00	0.00	0.28	0.00	47.25	155.28	2.00	0.00	0.28	0.00
47.41	175.15	2.00	0.00	0.28	0.00	47.57	197.54	2.00	0.00	0.27	0.00
47.74	216.71	2.00	0.00	0.27	0.00	47.90	235.53	2.00	0.00	0.27	0.00
48.07	237.93	2.00	0.00	0.27	0.00	48.23	233.51	2.00	0.00	0.26	0.00
48.39	238.20	2.00	0.00	0.26	0.00	48.56	248.93	2.00	0.00	0.26	0.00
48.72	266.99	2.00	0.00	0.26	0.00	48.89	283.20	2.00	0.00	0.25	0.00
49.05	295.80	2.00	0.00	0.25	0.00	49.22	301.99	2.00	0.00	0.25	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)
49.38	295.01	2.00	0.00	0.25	0.00	49.54	280.44	2.00	0.00	0.24	0.00
49.71	255.42	2.00	0.00	0.24	0.00	49.87	228.38	2.00	0.00	0.24	0.00
50.04	199.56	1.04	0.11	0.24	0.00	50.20	176.23	0.75	0.26	0.23	0.00
50.36	163.73	0.62	0.34	0.23	0.01	50.53	158.93	0.58	0.36	0.23	0.01
50.69	160.82	0.59	0.35	0.23	0.01						

Total estimated settlement: 0.84

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

DRAFT

LIQUEFACTION ANALYSIS REPORT

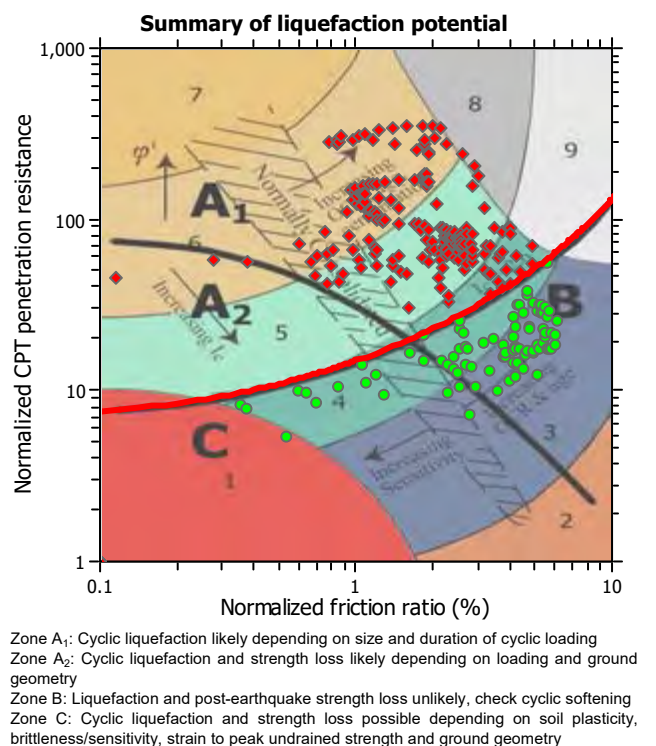
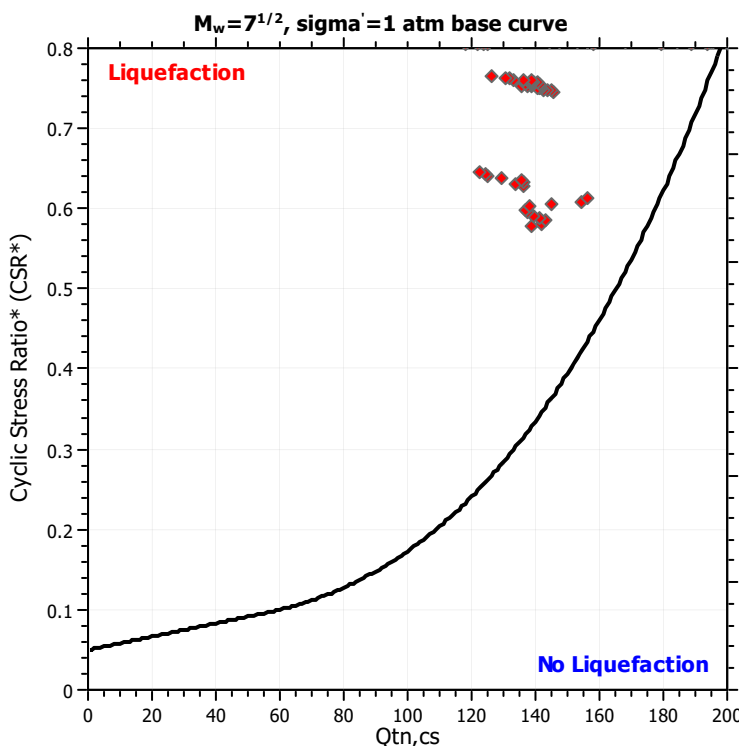
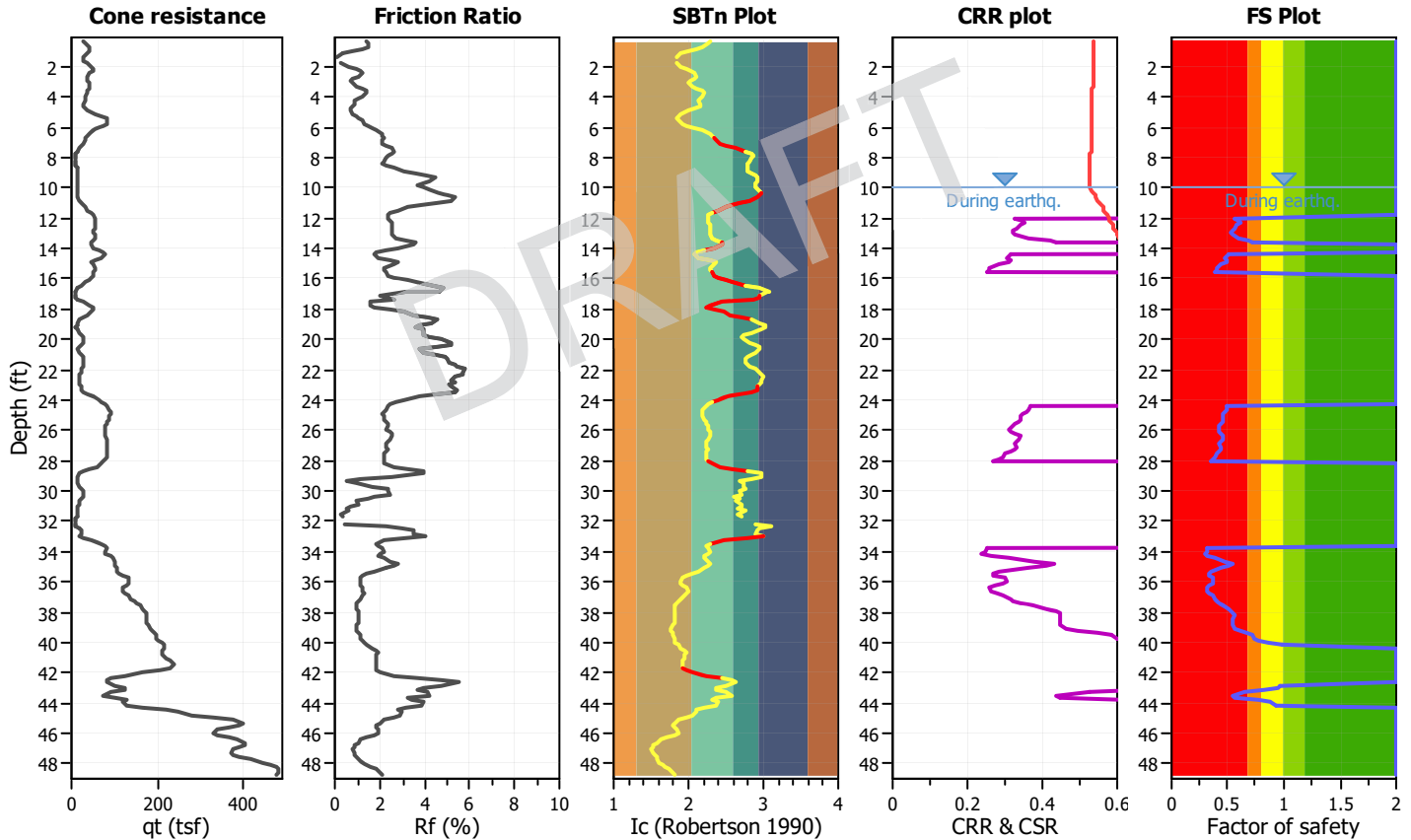
Project title : 210256003 - Compton HS

Location : Compton, CA

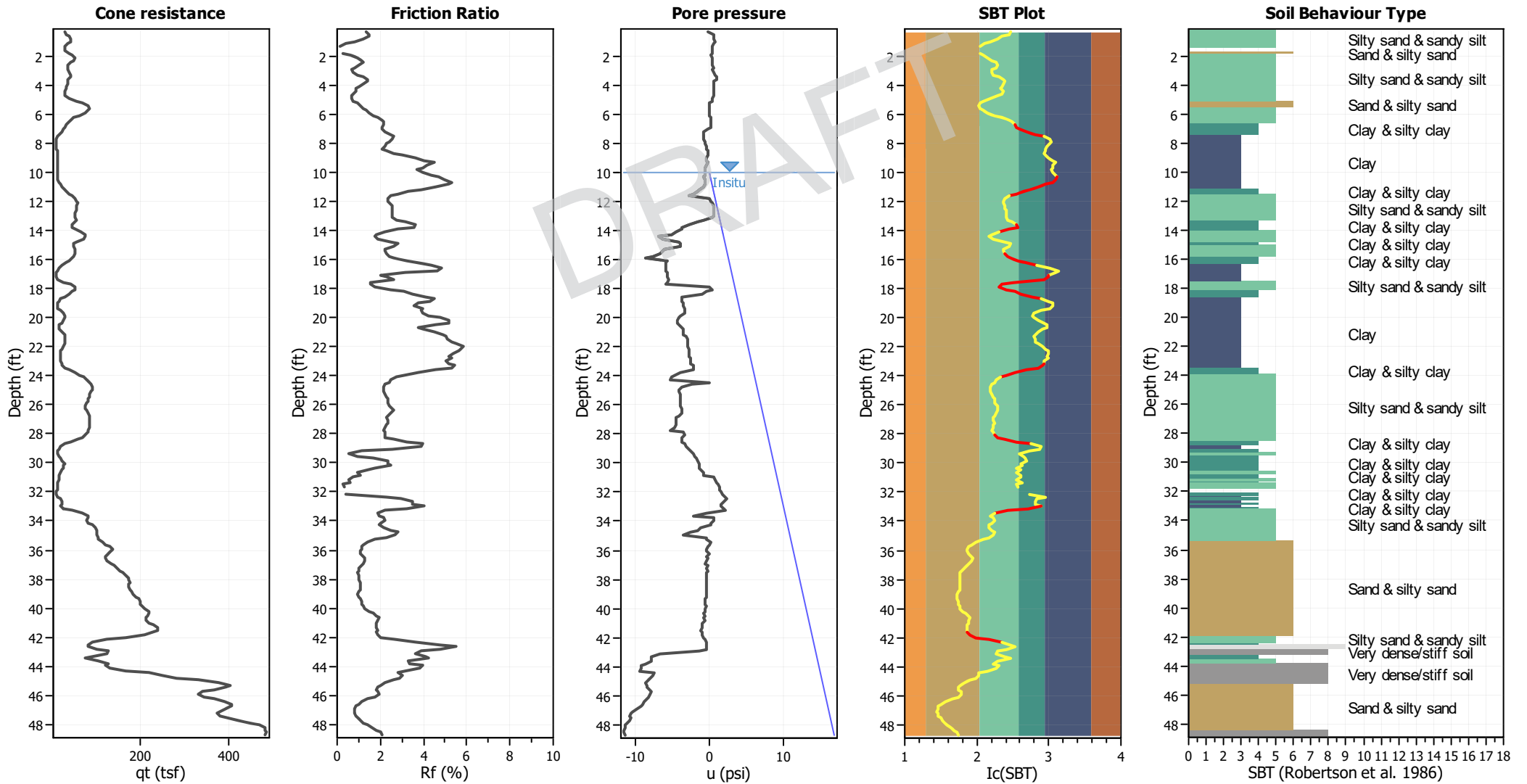
CPT file : CPT-06

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



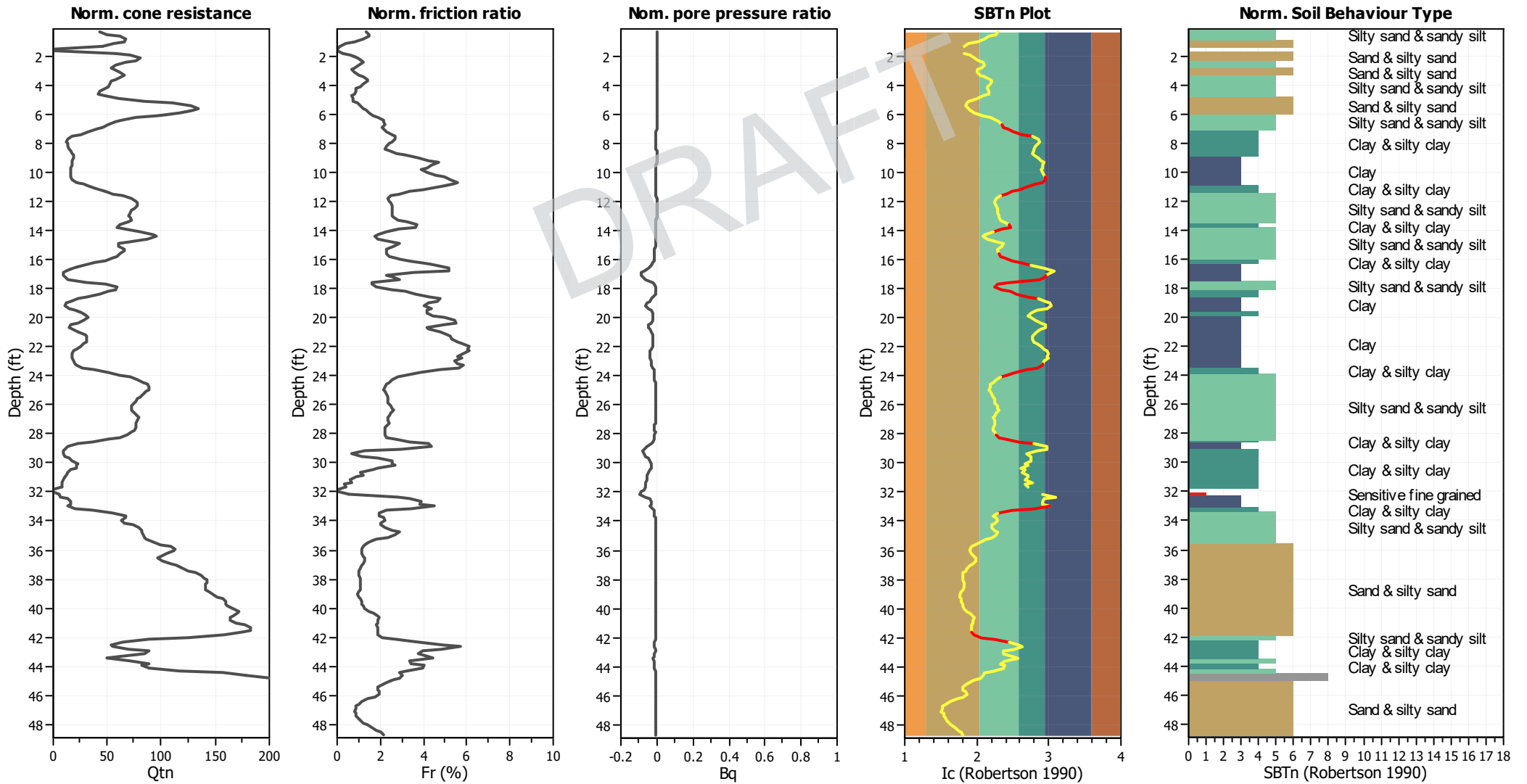
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



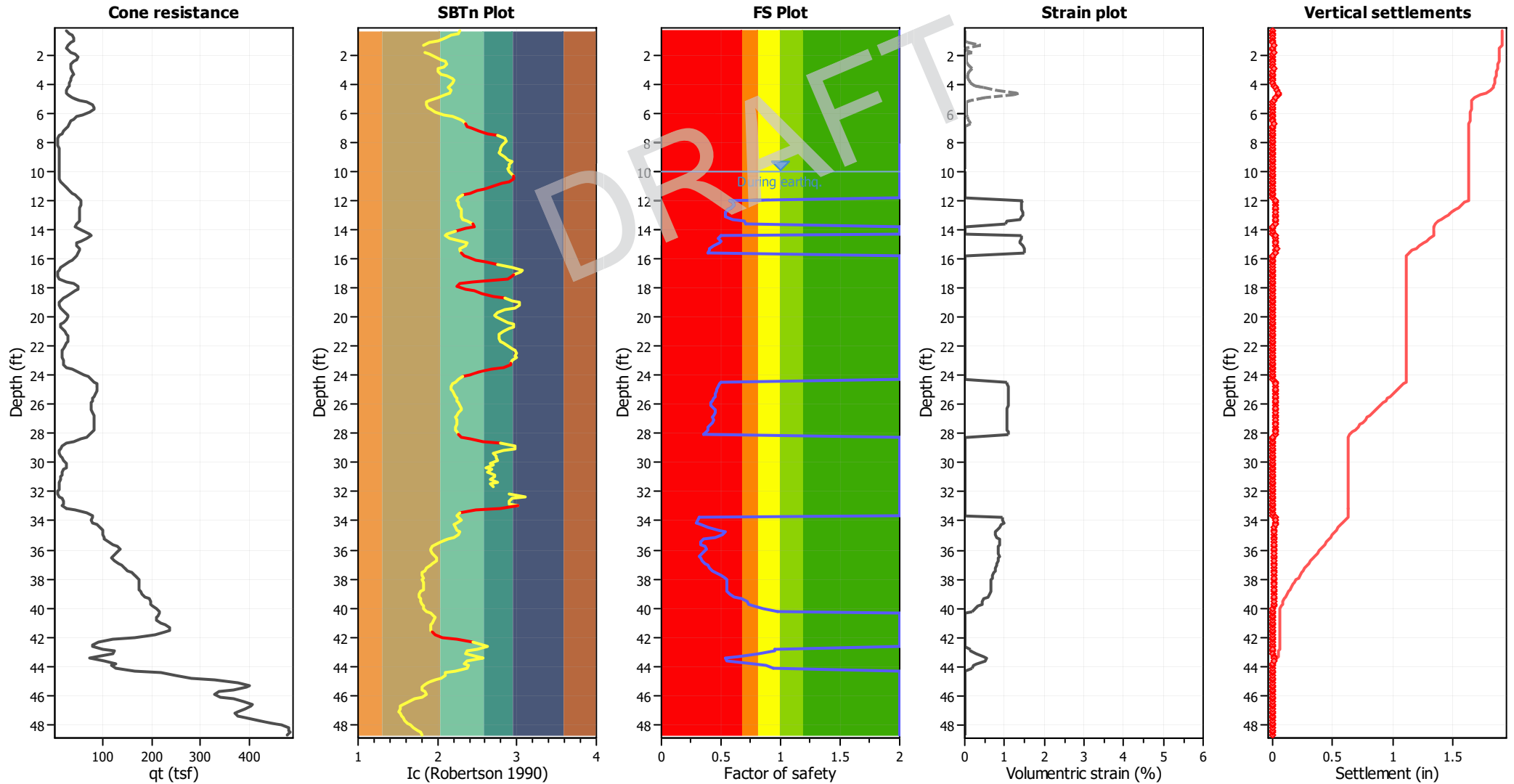
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.28	43.19	1.89	81.55	19	434	0.54	0.003	0.00	9.27	0.00	0.000
0.49	2.26	49.66	1.82	90.60	21	486	0.54	0.005	0.00	9.27	0.00	0.000
0.66	2.18	61.92	1.61	99.89	22	547	0.54	0.005	0.00	9.27	0.00	0.000
0.82	2.10	66.67	1.45	96.76	21	532	0.54	0.008	0.01	9.27	0.01	0.000
0.98	2.00	65.91	1.30	85.73	18	465	0.54	0.013	0.02	9.27	0.01	0.000
1.15	1.89	56.62	1.00	56.62	11	349	0.54	0.040	0.08	9.27	0.06	0.003
1.31	1.83	46.06	1.00	46.06	9	262	0.54	0.191	0.50	9.27	0.39	0.015
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.80	1.84	57.53	1.00	57.53	11	329	0.54	0.123	0.25	9.27	0.19	0.007
1.97	1.90	71.50	1.19	84.92	17	444	0.54	0.046	0.06	9.27	0.04	0.002
2.13	1.97	80.10	1.26	100.95	21	542	0.54	0.029	0.03	9.27	0.02	0.001
2.30	2.04	76.07	1.35	102.59	22	561	0.54	0.030	0.03	9.27	0.02	0.001
2.46	2.09	67.38	1.44	97.02	21	534	0.54	0.039	0.04	9.27	0.03	0.001
2.62	2.11	57.41	1.47	84.35	18	464	0.54	0.072	0.08	9.27	0.06	0.002
2.79	2.07	53.48	1.41	75.28	16	414	0.53	0.134	0.17	9.27	0.13	0.005
2.95	2.01	56.10	1.32	73.93	15	402	0.53	0.175	0.24	9.27	0.18	0.007
3.12	2.01	62.35	1.31	81.76	17	444	0.53	0.128	0.15	9.27	0.12	0.005
3.28	2.05	65.77	1.37	89.94	19	493	0.53	0.094	0.10	9.27	0.08	0.003
3.45	2.12	62.70	1.49	93.20	20	513	0.53	0.090	0.09	9.27	0.07	0.003
3.61	2.19	57.17	1.65	94.17	21	514	0.53	0.099	0.09	9.27	0.07	0.003
3.77	2.21	53.94	1.69	91.08	21	495	0.53	0.127	0.12	9.27	0.09	0.004
3.94	2.18	52.85	1.62	85.64	19	468	0.53	0.181	0.19	9.27	0.14	0.006
4.10	2.15	51.39	1.56	79.91	18	439	0.53	0.274	0.32	9.27	0.24	0.009
4.27	2.14	47.84	1.53	73.27	16	403	0.53	0.482	0.62	9.27	0.47	0.019
4.43	2.17	43.33	1.59	68.96	15	378	0.53	0.775	1.07	9.27	0.80	0.031
4.59	2.16	41.55	1.57	65.21	14	358	0.53	1.214	1.79	9.27	1.34	0.052
4.76	2.09	46.40	1.44	66.85	14	368	0.53	1.141	1.69	9.27	1.26	0.051
4.92	2.00	60.63	1.30	78.63	16	426	0.53	0.522	0.66	9.27	0.50	0.019
5.09	1.89	84.71	1.18	100.25	20	522	0.53	0.205	0.20	9.27	0.15	0.006
5.25	1.86	109.70	1.15	126.39	25	647	0.53	0.094	0.07	9.27	0.05	0.002
5.41	1.85	127.89	1.15	146.89	29	750	0.53	0.062	0.04	9.27	0.03	0.001
5.58	1.88	134.09	1.17	156.70	31	810	0.53	0.052	0.03	9.27	0.02	0.001
5.74	1.91	130.22	1.20	156.67	32	824	0.53	0.053	0.03	9.27	0.02	0.001
5.91	1.97	116.60	1.27	147.68	30	795	0.53	0.062	0.04	9.27	0.03	0.001
6.07	2.08	95.00	1.42	134.78	29	741	0.53	0.081	0.05	9.27	0.04	0.001
6.23	2.18	76.51	1.62	124.01	28	678	0.53	0.116	0.08	9.27	0.06	0.002
6.40	2.28	62.95	1.88	118.29	28	631	0.53	0.163	0.11	9.27	0.08	0.003
6.56	2.31	57.31	1.98	113.69	27	599	0.53	0.216	0.15	9.27	0.11	0.004
6.73	2.35	51.35	2.13	109.17	26	565	0.53	0.300	0.22	9.27	0.16	0.006
6.89	2.38	45.98	2.22	101.85	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.42	40.22	2.41	97.13	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.51	32.81	2.83	92.88	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.64	24.97	3.56	88.93	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.76	17.94	4.47	80.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.85	13.91	5.25	73.02	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.87	12.67	5.42	68.65	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.85	13.19	5.19	68.50	0	0	0.53	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)
8.20	2.82	13.88	4.92	68.29	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.78	14.62	4.65	68.04	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.79	15.52	4.67	72.48	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.78	17.43	4.62	80.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.79	18.59	4.73	87.95	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.84	18.42	5.18	95.34	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.89	17.65	5.61	99.05	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.93	16.99	6.03	102.55	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.91	17.09	5.81	99.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.91	16.64	5.76	95.91	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.89	16.52	5.59	92.40	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.28												

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)
10.01	95.91	2.00	0.00	0.85	0.00	10.17	99.40	2.00	0.00	0.84	0.00
10.34	102.70	2.00	0.00	0.84	0.00	10.50	108.79	2.00	0.00	0.84	0.00
10.66	122.47	2.00	0.00	0.84	0.00	10.83	136.09	2.00	0.00	0.83	0.00
10.99	140.32	2.00	0.00	0.83	0.00	11.16	138.39	2.00	0.00	0.83	0.00
11.32	131.88	2.00	0.00	0.83	0.00	11.48	130.12	2.00	0.00	0.82	0.00
11.65	129.35	2.00	0.00	0.82	0.00	11.81	133.84	2.00	0.00	0.82	0.00
11.98	138.75	0.57	1.46	0.82	0.03	12.14	141.90	0.60	1.43	0.81	0.03
12.30	143.36	0.61	1.41	0.81	0.03	12.47	141.32	0.58	1.43	0.81	0.03
12.63	139.31	0.56	1.44	0.81	0.03	12.80	137.22	0.54	1.45	0.80	0.03
12.96	136.87	0.53	1.45	0.80	0.03	13.12	138.27	0.54	1.43	0.80	0.03
13.29	144.98	0.60	1.37	0.80	0.03	13.45	154.19	0.69	1.06	0.79	0.02
13.62	156.47	0.71	1.03	0.79	0.02	13.78	151.49	2.00	0.00	0.79	0.00
13.94	140.78	2.00	0.00	0.79	0.00	14.11	138.80	2.00	0.00	0.78	0.00
14.27	137.12	2.00	0.00	0.78	0.00	14.44	136.07	0.50	1.42	0.78	0.03
14.60	133.86	0.48	1.43	0.78	0.03	14.76	136.05	0.50	1.41	0.77	0.03
14.93	135.64	0.49	1.41	0.77	0.03	15.09	129.57	0.44	1.45	0.77	0.03
15.26	124.70	0.41	1.50	0.77	0.03	15.42	124.41	0.40	1.49	0.76	0.03
15.58	122.58	0.39	1.51	0.76	0.03	15.75	122.74	2.00	0.00	0.76	0.00
15.91	125.35	2.00	0.00	0.76	0.00	16.08	131.52	2.00	0.00	0.75	0.00
16.24	129.42	2.00	0.00	0.75	0.00	16.40	124.92	2.00	0.00	0.75	0.00
16.57	110.38	2.00	0.00	0.75	0.00	16.83	91.64	2.00	0.00	0.74	0.00
16.90	71.93	2.00	0.00	0.74	0.00	17.06	59.42	2.00	0.00	0.74	0.00
17.23	63.72	2.00	0.00	0.74	0.00	17.39	74.47	2.00	0.00	0.73	0.00
17.55	76.48	2.00	0.00	0.73	0.00	17.72	91.05	2.00	0.00	0.73	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)
17.88	106.54	2.00	0.00	0.73	0.00	18.05	124.48	2.00	0.00	0.72	0.00
18.21	131.98	2.00	0.00	0.72	0.00	18.37	131.35	2.00	0.00	0.72	0.00
18.54	127.13	2.00	0.00	0.72	0.00	18.70	116.53	2.00	0.00	0.71	0.00
18.87	99.38	2.00	0.00	0.71	0.00	19.03	82.99	2.00	0.00	0.71	0.00
19.19	79.76	2.00	0.00	0.71	0.00	19.36	91.10	2.00	0.00	0.70	0.00
19.52	104.21	2.00	0.00	0.70	0.00	19.69	116.81	2.00	0.00	0.70	0.00
19.85	128.79	2.00	0.00	0.70	0.00	20.01	138.02	2.00	0.00	0.69	0.00
20.18	137.74	2.00	0.00	0.69	0.00	20.34	124.48	2.00	0.00	0.69	0.00
20.51	104.18	2.00	0.00	0.69	0.00	20.67	89.33	2.00	0.00	0.68	0.00
20.83	98.50	2.00	0.00	0.68	0.00	21.00	118.40	2.00	0.00	0.68	0.00
21.16	135.10	2.00	0.00	0.68	0.00	21.33	141.01	2.00	0.00	0.67	0.00
21.49	142.39	2.00	0.00	0.67	0.00	21.65	144.19	2.00	0.00	0.67	0.00
21.82	142.94	2.00	0.00	0.67	0.00	21.98	139.01	2.00	0.00	0.66	0.00
22.15	127.31	2.00	0.00	0.66	0.00	22.31	119.94	2.00	0.00	0.66	0.00
22.47	113.87	2.00	0.00	0.66	0.00	22.64	111.57	2.00	0.00	0.65	0.00
22.80	113.34	2.00	0.00	0.65	0.00	22.97	114.74	2.00	0.00	0.65	0.00
23.13	119.92	2.00	0.00	0.65	0.00	23.30	126.71	2.00	0.00	0.64	0.00
23.46	136.75	2.00	0.00	0.64	0.00	23.62	144.44	2.00	0.00	0.64	0.00
23.79	146.91	2.00	0.00	0.64	0.00	23.95	144.31	2.00	0.00	0.63	0.00
24.12	143.95	2.00	0.00	0.63	0.00	24.28	143.41	2.00	0.00	0.63	0.00
24.44	145.84	0.49	1.08	0.63	0.02	24.61	144.85	0.49	1.08	0.62	0.02
24.77	143.75	0.48	1.08	0.62	0.02	24.94	142.31	0.46	1.08	0.62	0.02
25.10	141.66	0.46	1.08	0.62	0.02	25.26	141.00	0.45	1.08	0.61	0.02
25.43	140.42	0.45	1.08	0.61	0.02	25.59	138.79	0.44	1.09	0.61	0.02
25.76	137.20	0.43	1.09	0.61	0.02	25.92	135.67	0.41	1.10	0.60	0.02
26.08	136.60	0.42	1.09	0.60	0.02	26.25	138.80	0.44	1.07	0.60	0.02
26.41	140.99	0.45	1.05	0.60	0.02	26.58	140.70	0.45	1.05	0.59	0.02
26.74	139.36	0.44	1.05	0.59	0.02	26.90	138.04	0.43	1.06	0.59	0.02
27.07	138.91	0.43	1.05	0.59	0.02	27.23	138.58	0.43	1.05	0.58	0.02
27.40	135.99	0.41	1.06	0.58	0.02	27.56	133.42	0.40	1.07	0.58	0.02
27.72	131.99	0.39	1.07	0.58	0.02	27.89	130.33	0.37	1.08	0.57	0.02
28.05	126.23	0.35	1.10	0.57	0.02	28.22	120.87	2.00	0.00	0.57	0.00
28.38	120.47	2.00	0.00	0.57	0.00	28.54	118.57	2.00	0.00	0.56	0.00
28.71	110.87	2.00	0.00	0.56	0.00	28.87	90.67	2.00	0.00	0.56	0.00
29.04	67.40	2.00	0.00	0.56	0.00	29.20	47.37	2.00	0.00	0.55	0.00
29.36	37.61	2.00	0.00	0.55	0.00	29.53	46.98	2.00	0.00	0.55	0.00
29.69	63.23	2.00	0.00	0.55	0.00	29.86	77.93	2.00	0.00	0.54	0.00
30.02	84.90	2.00	0.00	0.54	0.00	30.19	85.20	2.00	0.00	0.54	0.00
30.35	71.42	2.00	0.00	0.54	0.00	30.51	62.25	2.00	0.00	0.53	0.00
30.68	49.77	2.00	0.00	0.53	0.00	30.84	50.20	2.00	0.00	0.53	0.00
31.01	42.22	2.00	0.00	0.53	0.00	31.17	37.20	2.00	0.00	0.52	0.00
31.33	37.32	2.00	0.00	0.52	0.00	31.50	31.04	2.00	0.00	0.52	0.00
31.66	31.00	2.00	0.00	0.52	0.00	31.83	-1.00	2.00	0.00	0.51	0.00
31.99	-1.00	2.00	0.00	0.51	0.00	32.15	30.58	2.00	0.00	0.51	0.00
32.32	56.89	2.00	0.00	0.51	0.00	32.48	77.74	2.00	0.00	0.50	0.00
32.65	89.70	2.00	0.00	0.50	0.00	32.81	89.53	2.00	0.00	0.50	0.00
32.97	89.70	2.00	0.00	0.50	0.00	33.14	93.77	2.00	0.00	0.49	0.00
33.30	96.73	2.00	0.00	0.49	0.00	33.47	106.16	2.00	0.00	0.49	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)
33.63	117.91	2.00	0.00	0.49	0.00	33.79	123.44	0.32	0.95	0.48	0.02
33.96	121.94	0.31	0.96	0.48	0.02	34.12	118.41	0.29	0.98	0.48	0.02
34.29	124.92	0.32	0.93	0.48	0.02	34.45	135.75	0.39	0.86	0.47	0.02
34.61	147.62	0.47	0.80	0.47	0.02	34.78	155.97	0.54	0.76	0.47	0.02
34.94	152.94	0.51	0.77	0.47	0.01	35.11	144.50	0.45	0.80	0.46	0.02
35.27	129.74	0.35	0.87	0.46	0.02	35.43	126.09	0.33	0.89	0.46	0.02
35.60	126.22	0.33	0.88	0.46	0.02	35.76	133.11	0.37	0.84	0.45	0.02
35.93	134.38	0.38	0.83	0.45	0.02	36.09	132.61	0.37	0.83	0.45	0.02
36.26	127.54	0.34	0.86	0.45	0.02	36.42	124.61	0.32	0.87	0.44	0.02
36.58	125.27	0.32	0.86	0.44	0.02	36.75	128.33	0.34	0.84	0.44	0.02
36.91	132.60	0.37	0.81	0.44	0.02	37.08	135.98	0.39	0.79	0.43	0.02
37.24	137.86	0.40	0.78	0.43	0.01	37.40	141.50	0.42	0.76	0.43	0.01
37.57	146.38	0.46	0.73	0.43	0.01	37.73	152.51	0.50	0.70	0.42	0.01
37.90	156.21	0.53	0.68	0.42	0.01	38.06	157.96	0.55	0.67	0.42	0.01
38.22	158.45	0.55	0.65	0.42	0.01	38.39	158.34	0.55	0.65	0.41	0.01
38.55	158.02	0.55	0.66	0.41	0.01	38.72	158.04	0.55	0.66	0.41	0.01
38.88	157.93	0.55	0.65	0.41	0.01	39.04	160.22	0.57	0.62	0.40	0.01
39.21	164.74	0.61	0.59	0.40	0.01	39.37	171.15	0.67	0.46	0.40	0.01
39.54	175.80	0.72	0.44	0.40	0.01	39.70	177.21	0.73	0.43	0.39	0.01
39.86	180.58	0.77	0.34	0.39	0.01	40.03	187.69	0.85	0.24	0.39	0.00
40.19	197.21	0.98	0.18	0.39	0.00	40.36	204.29	2.00	0.00	0.38	0.00
40.52	205.30	2.00	0.00	0.38	0.00	40.68	204.90	2.00	0.00	0.38	0.00
40.85	203.56	2.00	0.00	0.38	0.00	41.01	207.53	2.00	0.00	0.37	0.00
41.18	213.82	2.00	0.00	0.37	0.00	41.34	220.03	2.00	0.00	0.37	0.00
41.50	220.80	2.00	0.00	0.37	0.00	41.67	213.83	2.00	0.00	0.36	0.00
41.83	197.57	2.00	0.00	0.36	0.00	42.00	172.94	2.00	0.00	0.36	0.00
42.16	157.55	2.00	0.00	0.36	0.00	42.32	160.79	2.00	0.00	0.35	0.00
42.49	174.90	2.00	0.00	0.35	0.00	42.65	190.65	2.00	0.00	0.35	0.00
42.82	195.34	0.96	0.16	0.35	0.00	42.98	195.00	0.95	0.16	0.34	0.00
43.15	184.34	0.82	0.28	0.34	0.01	43.31	168.39	0.65	0.48	0.34	0.01
43.47	156.54	0.54	0.55	0.34	0.01	43.64	157.96	0.55	0.52	0.33	0.01
43.80	179.51	0.77	0.29	0.33	0.01	43.97	189.03	0.88	0.20	0.33	0.00
44.13	193.53	0.94	0.19	0.33	0.00	44.29	201.20	2.00	0.00	0.32	0.00
44.46	230.37	2.00	0.00	0.32	0.00	44.62	256.42	2.00	0.00	0.32	0.00
44.79	277.19	2.00	0.00	0.32	0.00	44.95	303.05	2.00	0.00	0.31	0.00
45.11	324.60	2.00	0.00	0.31	0.00	45.28	335.48	2.00	0.00	0.31	0.00
45.44	324.08	2.00	0.00	0.31	0.00	45.61	303.47	2.00	0.00	0.30	0.00
45.77	284.98	2.00	0.00	0.30	0.00	45.93	278.37	2.00	0.00	0.30	0.00
46.10	280.54	2.00	0.00	0.30	0.00	46.26	287.91	2.00	0.00	0.29	0.00
46.43	294.00	2.00	0.00	0.29	0.00	46.59	305.79	2.00	0.00	0.29	0.00
46.75	304.26	2.00	0.00	0.29	0.00	46.92	293.72	2.00	0.00	0.28	0.00
47.08	283.32	2.00	0.00	0.28	0.00	47.25	277.79	2.00	0.00	0.28	0.00
47.41	282.63	2.00	0.00	0.28	0.00	47.57	292.40	2.00	0.00	0.27	0.00
47.74	311.25	2.00	0.00	0.27	0.00	47.90	332.47	2.00	0.00	0.27	0.00
48.07	347.34	2.00	0.00	0.27	0.00	48.23	364.83	2.00	0.00	0.26	0.00
48.39	374.21	2.00	0.00	0.26	0.00	48.56	381.15	2.00	0.00	0.26	0.00
48.72	381.48	2.00	0.00	0.26	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)
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Total estimated settlement: 1.63**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

DRAFT

LIQUEFACTION ANALYSIS REPORT

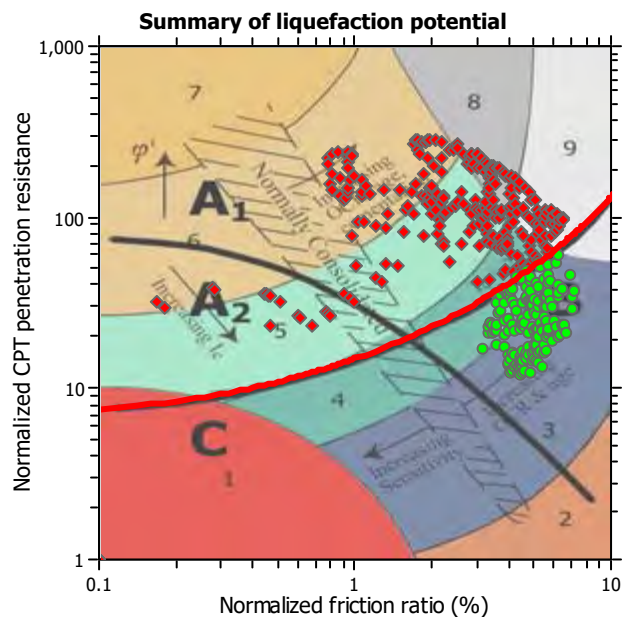
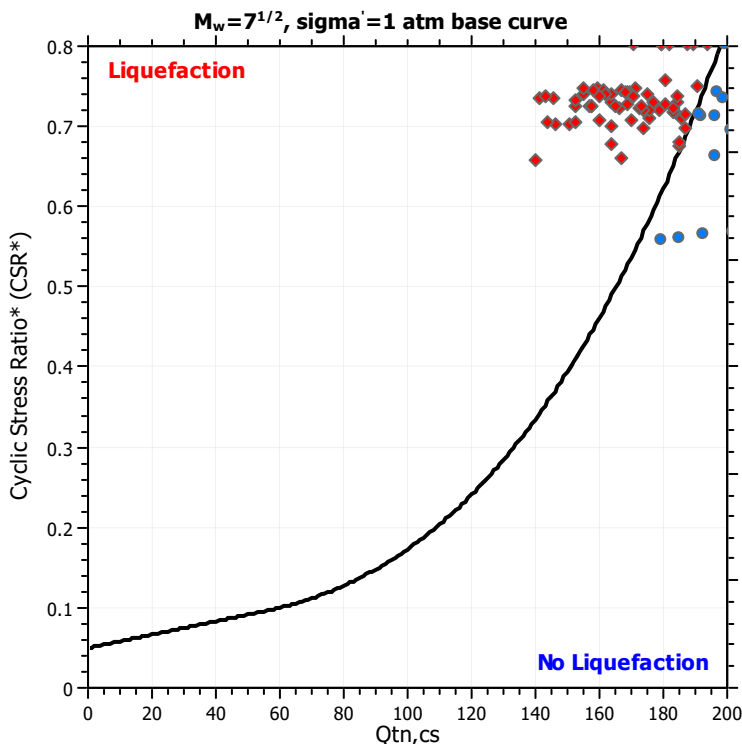
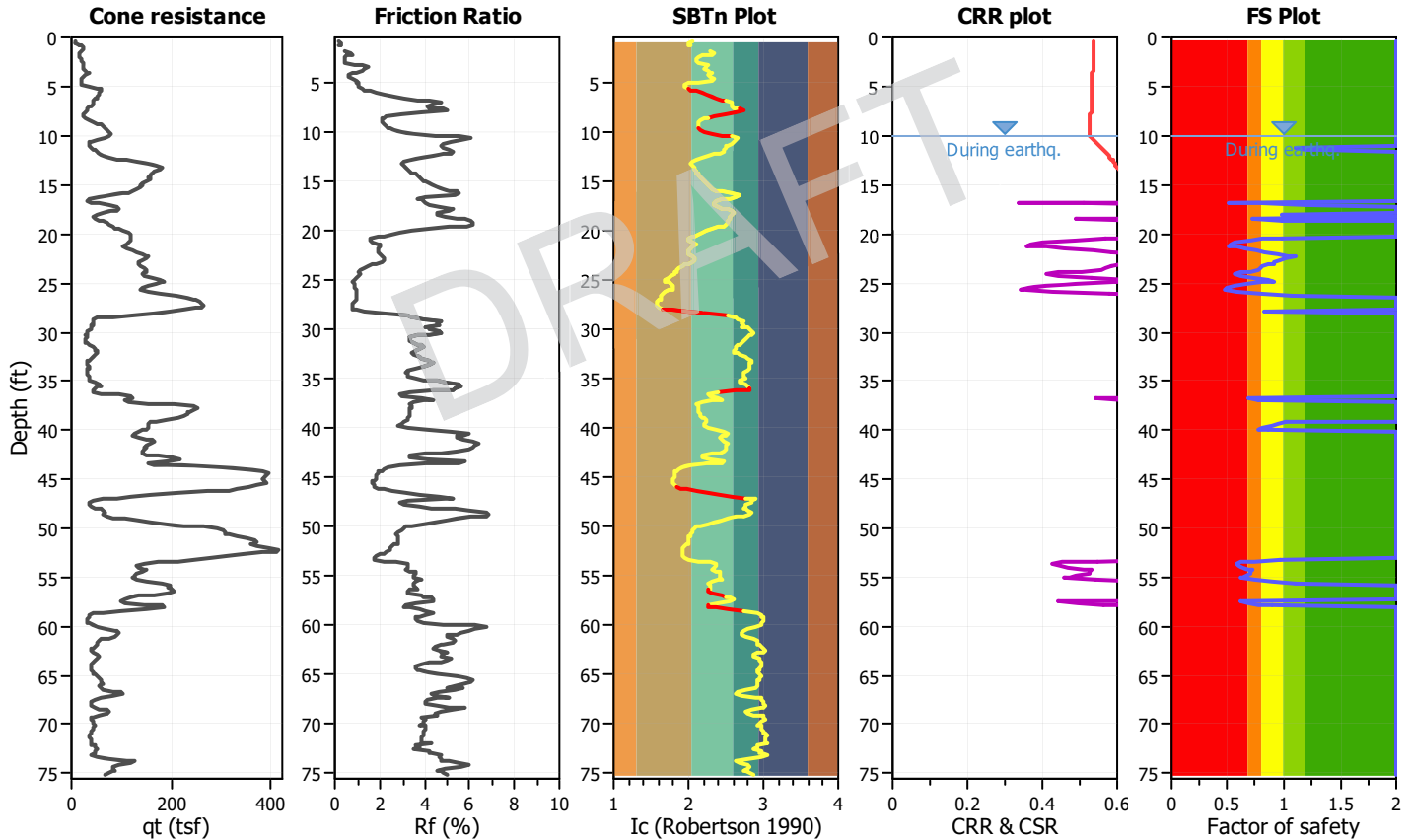
Project title : 210256003 - Compton HS

Location : Compton, CA

CPT file : CPT-07

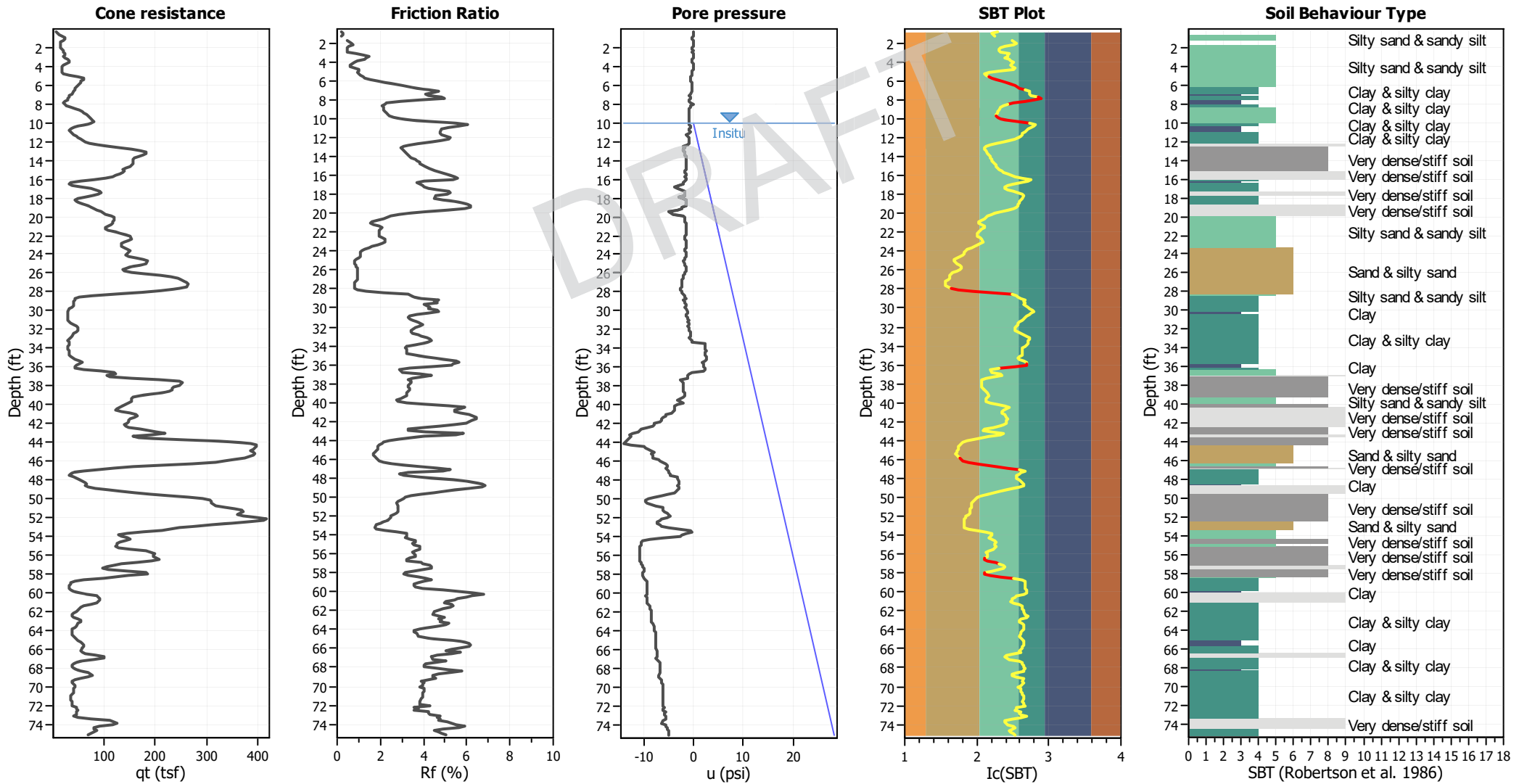
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



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



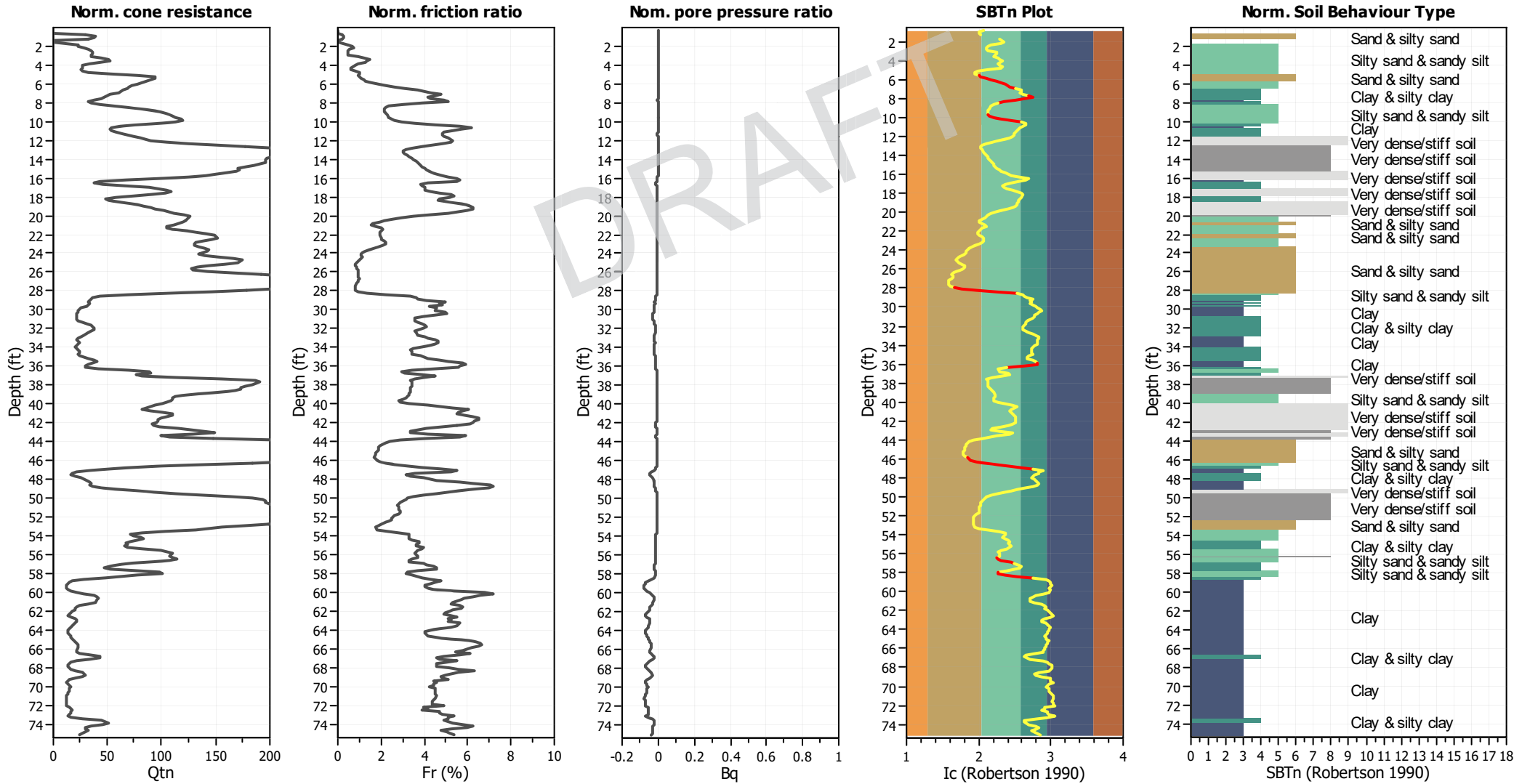
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



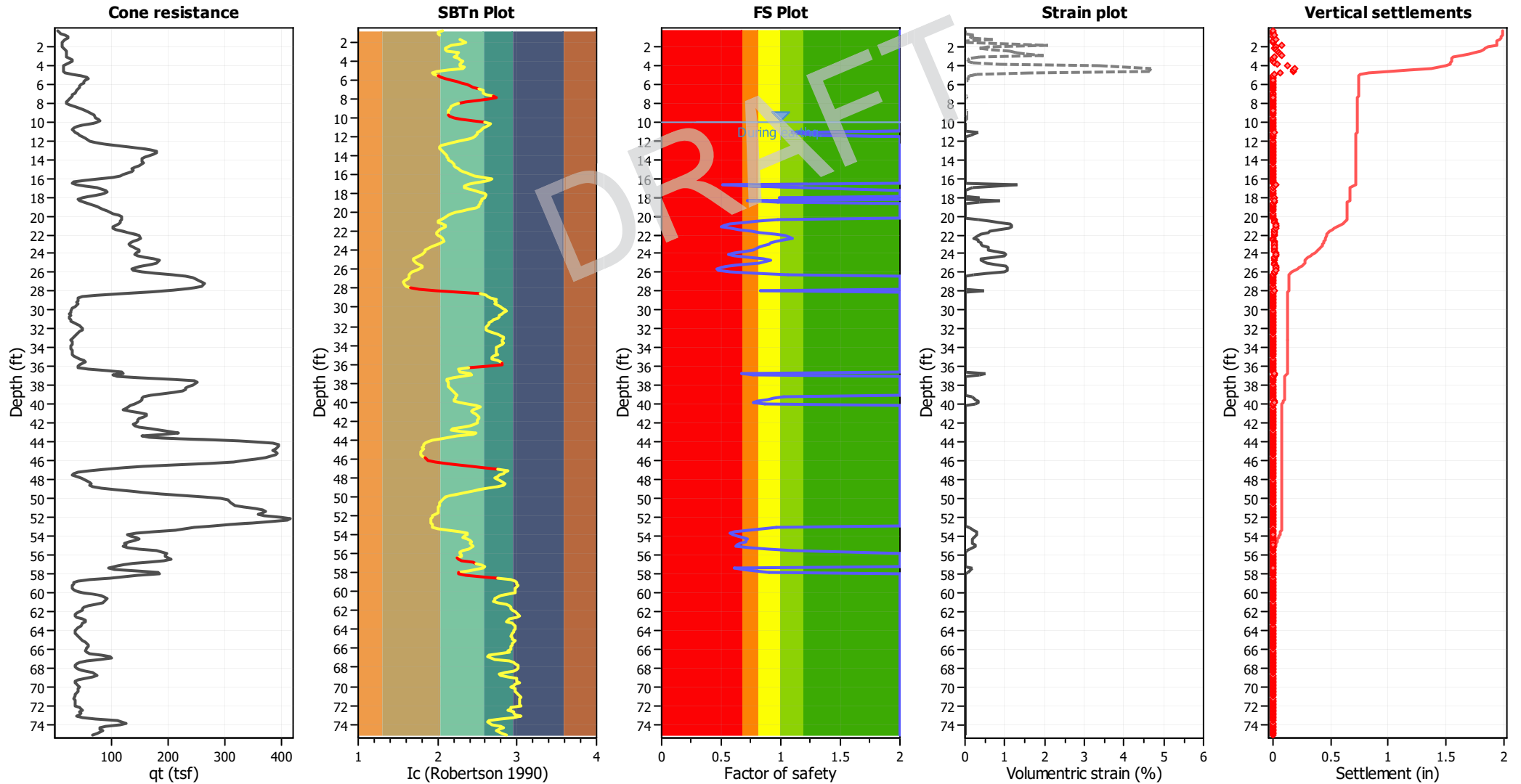
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.82	2.06	29.39	1.00	29.39	6	223	0.54	0.071	0.29	9.27	0.23	0.009
0.98	2.00	38.48	1.00	38.48	8	271	0.54	0.048	0.14	9.27	0.11	0.004
1.15	2.01	37.61	1.00	37.61	8	269	0.54	0.075	0.23	9.27	0.18	0.007
1.31	2.02	31.82	1.00	31.82	7	229	0.54	0.240	0.90	9.27	0.71	0.027
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.80	2.29	23.05	1.00	23.05	5	234	0.54	0.554	2.67	9.27	2.09	0.080
1.97	2.35	23.47	2.12	49.73	12	258	0.54	0.408	0.76	9.27	0.59	0.024
2.13	2.31	27.95	1.97	54.96	13	290	0.54	0.265	0.45	9.27	0.35	0.013
2.30	2.17	31.74	1.61	51.00	11	279	0.54	0.420	0.83	9.27	0.64	0.026
2.46	2.13	34.46	1.00	34.46	8	285	0.54	0.457	1.47	9.27	1.14	0.044
2.62	2.11	35.73	1.00	35.73	8	288	0.54	0.528	1.65	9.27	1.27	0.049
2.79	2.10	35.99	1.00	35.99	8	289	0.53	0.641	1.99	9.27	1.53	0.062
2.95	2.12	34.96	1.00	34.96	8	287	0.53	0.811	2.58	9.27	1.98	0.076
3.12	2.25	35.37	1.81	63.99	15	344	0.53	0.330	0.47	9.27	0.36	0.015
3.28	2.24	44.35	1.77	78.55	18	424	0.53	0.136	0.15	9.27	0.12	0.005
3.45	2.24	51.40	1.77	90.75	21	490	0.53	0.085	0.08	9.27	0.06	0.003
3.61	2.20	52.73	1.67	88.26	20	481	0.53	0.103	0.10	9.27	0.08	0.003
3.77	2.27	42.33	1.85	78.38	18	419	0.53	0.212	0.24	9.27	0.18	0.007
3.94	2.28	33.59	1.90	63.85	15	340	0.53	0.771	1.10	9.27	0.83	0.034
4.10	2.32	27.31	2.01	54.93	13	288	0.53	2.658	4.44	9.27	3.35	0.129
4.27	2.27	26.76	1.87	49.95	12	267	0.53	5.616	10.78	9.27	4.67	0.191
4.43	2.29	26.10	1.91	49.87	12	265	0.53	6.823	13.02	9.27	4.66	0.179
4.59	2.33	26.68	2.06	54.92	13	287	0.53	4.198	6.97	9.27	4.65	0.179
4.76	2.31	32.18	1.98	63.80	15	336	0.53	1.529	2.15	9.27	1.60	0.065
4.92	2.14	52.67	1.52	80.27	18	441	0.53	0.340	0.40	9.27	0.29	0.011
5.09	1.99	77.55	1.28	99.59	21	538	0.53	0.148	0.14	9.27	0.11	0.004
5.25	1.94	94.14	1.23	115.40	23	613	0.53	0.096	0.08	9.27	0.06	0.002
5.41	1.95	94.50	1.24	117.14	24	625	0.53	0.096	0.08	9.27	0.06	0.002
5.58	2.00	89.29	1.30	115.94	24	629	0.53	0.101	0.08	9.27	0.06	0.002
5.74	2.04	85.96	1.35	116.04	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.91	2.10	82.46	1.45	119.96	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.07	2.17	77.68	1.60	124.26	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.24	72.74	1.78	129.47	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.31	69.77	1.97	137.60	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.36	68.21	2.17	148.05	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.44	65.03	2.48	160.99	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.51	59.92	2.82	168.69	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.58	52.67	3.22	169.37	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.58	49.12	3.21	157.82	42	723	0.53	0.113	0.05	9.27	0.03	0.001
7.38	2.57	47.45	3.15	149.43	40	689	0.53	0.143	0.06	9.27	0.04	0.002
7.55	2.60	43.89	3.33	146.25	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.70	37.08	3.96	146.96	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.75	32.62	4.34	141.66	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.64	35.50	3.59	127.33	0	0	0.53	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)
8.20	2.51	42.50	2.80	119.11	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.37	2.35	55.12	2.11	116.27	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.53	2.27	67.85	1.84	125.01	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.69	2.20	80.79	1.66	134.38	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.86	2.17	89.77	1.60	143.33	32	785	0.53	0.134	0.08	9.27	0.05	0.002
9.02	2.14	97.47	1.54	150.25	33	825	0.53	0.117	0.06	9.27	0.04	0.002
9.19	2.14	102.97	1.53	157.22	35	876	0.53	0.100	0.05	9.27	0.04	0.001
9.35	2.13	107.72	1.52	163.62	36	925	0.53	0.088	0.04	9.27	0.03	0.001
9.51	2.13	113.02	1.52	171.39	38	982	0.53	0.076	0.04	9.27	0.02	0.001
9.68	2.13	117.48	1.52	178.59	39	1037	0.53	0.068	0.03	9.27	0.02	0.001
9.84	2.15	119.85	1.56	186.66	0	0	0.53	0.000	0.00	9.27	0.00	0.000
Total estimated settlement: 1.27												

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)
10.01	190.85	2.00	0.00	0.85	0.00	10.17	193.04	2.00	0.00	0.84	0.00
10.34	197.31	2.00	0.00	0.84	0.00	10.50	201.39	2.00	0.00	0.84	0.00
10.66	199.21	2.00	0.00	0.84	0.00	10.83	188.06	2.00	0.00	0.83	0.00
10.99	180.56	2.00	0.00	0.83	0.00	11.16	179.09	1.10	0.31	0.83	0.01
11.32	185.04	1.19	0.22	0.83	0.00	11.48	192.33	1.31	0.15	0.82	0.00
11.65	201.81	2.00	0.00	0.82	0.00	11.81	216.41	2.00	0.00	0.82	0.00
11.98	233.73	2.00	0.00	0.82	0.00	12.14	250.85	2.00	0.00	0.81	0.00
12.30	264.35	2.00	0.00	0.81	0.00	12.47	276.88	2.00	0.00	0.81	0.00
12.63	287.74	2.00	0.00	0.81	0.00	12.80	297.40	2.00	0.00	0.80	0.00
12.96	303.64	2.00	0.00	0.80	0.00	13.12	308.79	2.00	0.00	0.80	0.00
13.29	309.65	2.00	0.00	0.80	0.00	13.45	305.64	2.00	0.00	0.79	0.00
13.62	298.13	2.00	0.00	0.79	0.00	13.78	291.64	2.00	0.00	0.79	0.00
13.94	290.15	2.00	0.00	0.79	0.00	14.11	291.49	2.00	0.00	0.78	0.00
14.27	297.85	2.00	0.00	0.78	0.00	14.44	300.52	2.00	0.00	0.78	0.00
14.60	294.87	2.00	0.00	0.78	0.00	14.76	286.86	2.00	0.00	0.77	0.00
14.93	285.13	2.00	0.00	0.77	0.00	15.09	291.19	2.00	0.00	0.77	0.00
15.26	291.83	2.00	0.00	0.77	0.00	15.42	287.58	2.00	0.00	0.76	0.00
15.58	284.77	2.00	0.00	0.76	0.00	15.75	282.39	2.00	0.00	0.76	0.00
15.91	273.00	2.00	0.00	0.76	0.00	16.08	248.31	2.00	0.00	0.75	0.00
16.24	209.65	2.00	0.00	0.75	0.00	16.40	168.34	2.00	0.00	0.75	0.00
16.57	135.22	2.00	0.00	0.75	0.00	16.73	139.87	0.51	1.32	0.74	0.03
16.90	166.68	0.77	0.72	0.74	0.01	17.06	196.40	1.18	0.19	0.74	0.00
17.23	216.22	2.00	0.00	0.74	0.00	17.39	226.74	2.00	0.00	0.73	0.00
17.55	232.86	2.00	0.00	0.73	0.00	17.72	231.24	2.00	0.00	0.73	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)
17.88	212.64	2.00	0.00	0.73	0.00	18.05	184.82	0.99	0.36	0.72	0.01
18.21	160.77	2.00	0.00	0.72	0.00	18.37	163.74	0.72	0.88	0.72	0.02
18.54	184.75	0.98	0.36	0.72	0.01	18.70	210.02	2.00	0.00	0.71	0.00
18.87	230.87	2.00	0.00	0.71	0.00	19.03	246.44	2.00	0.00	0.71	0.00
19.19	259.19	2.00	0.00	0.71	0.00	19.36	266.16	2.00	0.00	0.70	0.00
19.52	268.04	2.00	0.00	0.70	0.00	19.69	256.83	2.00	0.00	0.70	0.00
19.85	240.42	2.00	0.00	0.70	0.00	20.01	219.27	2.00	0.00	0.69	0.00
20.18	201.45	2.00	0.00	0.69	0.00	20.34	186.57	0.98	0.34	0.69	0.01
20.51	173.80	0.81	0.62	0.69	0.01	20.67	163.65	0.70	0.84	0.68	0.02
20.83	150.89	0.57	1.14	0.68	0.02	21.00	146.04	0.53	1.16	0.68	0.02
21.16	143.66	0.50	1.18	0.68	0.02	21.33	152.69	0.58	1.11	0.67	0.02
21.49	159.90	0.65	0.85	0.67	0.02	21.65	169.91	0.76	0.63	0.67	0.01
21.82	175.49	0.82	0.60	0.67	0.01	21.98	185.35	0.95	0.42	0.66	0.01
22.15	192.08	1.04	0.32	0.66	0.01	22.31	196.21	1.10	0.23	0.66	0.00
22.47	191.10	1.02	0.32	0.66	0.01	22.64	186.75	0.96	0.32	0.65	0.01
22.80	183.97	0.92	0.41	0.65	0.01	22.97	182.97	0.90	0.42	0.65	0.01
23.13	178.96	0.85	0.43	0.65	0.01	23.30	175.78	0.81	0.58	0.64	0.01
23.46	173.94	0.79	0.58	0.64	0.01	23.62	172.64	0.77	0.59	0.64	0.01
23.79	166.01	0.70	0.76	0.64	0.02	23.95	157.66	0.61	1.00	0.63	0.02
24.12	152.36	0.56	1.04	0.63	0.02	24.28	157.09	0.61	0.99	0.63	0.02
24.44	169.02	0.73	0.73	0.63	0.01	24.61	180.41	0.86	0.41	0.62	0.01
24.77	184.59	0.91	0.39	0.62	0.01	24.94	176.69	0.81	0.55	0.62	0.01
25.10	163.79	0.67	0.75	0.62	0.01	25.26	152.29	0.56	1.01	0.61	0.02
25.43	145.37	0.50	1.05	0.61	0.02	25.59	141.50	0.47	1.07	0.61	0.02
25.76	143.00	0.48	1.06	0.61	0.02	25.92	155.04	0.58	0.97	0.60	0.02
26.08	175.17	0.78	0.54	0.60	0.01	26.25	197.01	1.07	0.21	0.60	0.00
26.41	212.90	2.00	0.00	0.60	0.00	26.58	225.05	2.00	0.00	0.59	0.00
26.74	229.10	2.00	0.00	0.59	0.00	26.90	233.59	2.00	0.00	0.59	0.00
27.07	238.03	2.00	0.00	0.59	0.00	27.23	240.86	2.00	0.00	0.58	0.00
27.40	235.96	2.00	0.00	0.58	0.00	27.56	224.13	2.00	0.00	0.58	0.00
27.72	203.13	2.00	0.00	0.58	0.00	27.89	180.52	0.83	0.49	0.57	0.01
28.05	158.98	2.00	0.00	0.57	0.00	28.22	134.59	2.00	0.00	0.57	0.00
28.38	126.16	2.00	0.00	0.57	0.00	28.54	126.92	2.00	0.00	0.56	0.00
28.71	122.16	2.00	0.00	0.56	0.00	28.87	122.37	2.00	0.00	0.56	0.00
29.04	128.13	2.00	0.00	0.56	0.00	29.20	138.30	2.00	0.00	0.55	0.00
29.36	137.47	2.00	0.00	0.55	0.00	29.53	136.47	2.00	0.00	0.55	0.00
29.69	124.34	2.00	0.00	0.55	0.00	29.86	118.90	2.00	0.00	0.54	0.00
30.02	114.79	2.00	0.00	0.54	0.00	30.19	119.25	2.00	0.00	0.54	0.00
30.35	117.85	2.00	0.00	0.54	0.00	30.51	111.60	2.00	0.00	0.53	0.00
30.68	103.67	2.00	0.00	0.53	0.00	30.84	98.44	2.00	0.00	0.53	0.00
31.01	98.20	2.00	0.00	0.53	0.00	31.17	102.36	2.00	0.00	0.52	0.00
31.33	110.20	2.00	0.00	0.52	0.00	31.50	120.12	2.00	0.00	0.52	0.00
31.66	128.10	2.00	0.00	0.52	0.00	31.83	132.32	2.00	0.00	0.51	0.00
31.99	131.60	2.00	0.00	0.51	0.00	32.15	127.66	2.00	0.00	0.51	0.00
32.32	120.39	2.00	0.00	0.51	0.00	32.48	115.95	2.00	0.00	0.50	0.00
32.65	112.64	2.00	0.00	0.50	0.00	32.81	112.07	2.00	0.00	0.50	0.00
32.97	109.72	2.00	0.00	0.50	0.00	33.14	111.33	2.00	0.00	0.49	0.00
33.30	115.16	2.00	0.00	0.49	0.00	33.47	117.45	2.00	0.00	0.49	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)
33.63	114.64	2.00	0.00	0.49	0.00	33.79	107.75	2.00	0.00	0.48	0.00
33.96	100.41	2.00	0.00	0.48	0.00	34.12	96.89	2.00	0.00	0.48	0.00
34.29	97.86	2.00	0.00	0.48	0.00	34.45	100.46	2.00	0.00	0.47	0.00
34.61	100.33	2.00	0.00	0.47	0.00	34.78	100.24	2.00	0.00	0.47	0.00
34.94	108.48	2.00	0.00	0.47	0.00	35.11	125.87	2.00	0.00	0.46	0.00
35.27	145.63	2.00	0.00	0.46	0.00	35.43	156.36	2.00	0.00	0.46	0.00
35.60	158.58	2.00	0.00	0.46	0.00	35.76	152.19	2.00	0.00	0.45	0.00
35.93	142.94	2.00	0.00	0.45	0.00	36.09	141.62	2.00	0.00	0.45	0.00
36.26	148.13	2.00	0.00	0.45	0.00	36.42	158.51	2.00	0.00	0.44	0.00
36.58	165.14	2.00	0.00	0.44	0.00	36.75	170.60	0.68	0.51	0.44	0.01
36.91	179.53	0.77	0.38	0.44	0.01	37.08	201.15	2.00	0.00	0.43	0.00
37.24	223.60	2.00	0.00	0.43	0.00	37.40	252.56	2.00	0.00	0.43	0.00
37.57	276.71	2.00	0.00	0.43	0.00	37.73	284.99	2.00	0.00	0.42	0.00
37.90	278.63	2.00	0.00	0.42	0.00	38.06	269.44	2.00	0.00	0.42	0.00
38.22	263.34	2.00	0.00	0.42	0.00	38.39	263.30	2.00	0.00	0.41	0.00
38.55	258.65	2.00	0.00	0.41	0.00	38.72	246.45	2.00	0.00	0.41	0.00
38.88	227.91	2.00	0.00	0.41	0.00	39.04	210.05	2.00	0.00	0.40	0.00
39.21	199.48	1.02	0.19	0.40	0.00	39.37	193.52	0.94	0.24	0.40	0.00
39.54	189.29	0.89	0.24	0.40	0.00	39.70	182.14	0.80	0.33	0.39	0.01
39.86	179.69	0.77	0.34	0.39	0.01	40.03	187.58	0.87	0.24	0.39	0.00
40.19	206.41	2.00	0.00	0.39	0.00	40.36	227.51	2.00	0.00	0.38	0.00
40.52	241.31	2.00	0.00	0.38	0.00	40.68	247.83	2.00	0.00	0.38	0.00
40.85	256.09	2.00	0.00	0.38	0.00	41.01	267.65	2.00	0.00	0.37	0.00
41.18	276.06	2.00	0.00	0.37	0.00	41.34	280.79	2.00	0.00	0.37	0.00
41.50	279.97	2.00	0.00	0.37	0.00	41.67	277.30	2.00	0.00	0.36	0.00
41.83	272.52	2.00	0.00	0.36	0.00	42.00	267.45	2.00	0.00	0.36	0.00
42.16	257.74	2.00	0.00	0.36	0.00	42.32	244.12	2.00	0.00	0.35	0.00
42.49	231.26	2.00	0.00	0.35	0.00	42.65	228.69	2.00	0.00	0.35	0.00
42.82	228.48	2.00	0.00	0.35	0.00	42.98	239.65	2.00	0.00	0.34	0.00
43.15	246.24	2.00	0.00	0.34	0.00	43.31	264.68	2.00	0.00	0.34	0.00
43.47	266.45	2.00	0.00	0.34	0.00	43.64	263.72	2.00	0.00	0.33	0.00
43.80	279.35	2.00	0.00	0.33	0.00	43.97	301.69	2.00	0.00	0.33	0.00
44.13	318.40	2.00	0.00	0.33	0.00	44.29	322.76	2.00	0.00	0.32	0.00
44.46	319.07	2.00	0.00	0.32	0.00	44.62	314.67	2.00	0.00	0.32	0.00
44.79	310.42	2.00	0.00	0.32	0.00	44.95	307.57	2.00	0.00	0.31	0.00
45.11	308.12	2.00	0.00	0.31	0.00	45.28	307.54	2.00	0.00	0.31	0.00
45.44	304.86	2.00	0.00	0.31	0.00	45.61	291.69	2.00	0.00	0.30	0.00
45.77	278.97	2.00	0.00	0.30	0.00	45.93	266.24	2.00	0.00	0.30	0.00
46.10	257.19	2.00	0.00	0.30	0.00	46.26	233.09	2.00	0.00	0.29	0.00
46.43	203.84	2.00	0.00	0.29	0.00	46.59	183.03	2.00	0.00	0.29	0.00
46.75	175.07	2.00	0.00	0.29	0.00	46.92	168.93	2.00	0.00	0.28	0.00
47.08	150.67	2.00	0.00	0.28	0.00	47.25	120.46	2.00	0.00	0.28	0.00
47.41	91.86	2.00	0.00	0.28	0.00	47.57	84.25	2.00	0.00	0.27	0.00
47.74	93.75	2.00	0.00	0.27	0.00	47.90	111.64	2.00	0.00	0.27	0.00
48.07	131.34	2.00	0.00	0.27	0.00	48.23	152.45	2.00	0.00	0.26	0.00
48.39	164.93	2.00	0.00	0.26	0.00	48.56	172.02	2.00	0.00	0.26	0.00
48.72	180.53	2.00	0.00	0.26	0.00	48.89	196.44	2.00	0.00	0.25	0.00
49.05	211.36	2.00	0.00	0.25	0.00	49.22	223.35	2.00	0.00	0.25	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)
49.38	230.88	2.00	0.00	0.25	0.00	49.54	240.44	2.00	0.00	0.24	0.00
49.71	248.30	2.00	0.00	0.24	0.00	49.87	259.26	2.00	0.00	0.24	0.00
50.04	269.62	2.00	0.00	0.24	0.00	50.20	276.32	2.00	0.00	0.23	0.00
50.36	273.19	2.00	0.00	0.23	0.00	50.53	269.01	2.00	0.00	0.23	0.00
50.69	270.80	2.00	0.00	0.23	0.00	50.86	282.81	2.00	0.00	0.22	0.00
51.02	295.90	2.00	0.00	0.22	0.00	51.18	304.96	2.00	0.00	0.22	0.00
51.35	307.80	2.00	0.00	0.22	0.00	51.51	303.83	2.00	0.00	0.21	0.00
51.68	296.56	2.00	0.00	0.21	0.00	51.84	299.06	2.00	0.00	0.21	0.00
52.00	312.96	2.00	0.00	0.21	0.00	52.17	323.96	2.00	0.00	0.20	0.00
52.33	318.88	2.00	0.00	0.20	0.00	52.50	295.62	2.00	0.00	0.20	0.00
52.66	268.21	2.00	0.00	0.20	0.00	52.82	240.21	2.00	0.00	0.19	0.00
52.99	215.23	2.00	0.00	0.19	0.00	53.15	190.75	0.97	0.09	0.19	0.00
53.32	171.24	0.73	0.21	0.19	0.00	53.48	159.12	0.61	0.29	0.18	0.01
53.64	155.22	0.57	0.29	0.18	0.01	53.81	157.90	0.60	0.28	0.18	0.01
53.97	161.02	0.63	0.27	0.18	0.01	54.14	166.75	0.69	0.21	0.17	0.00
54.30	169.25	0.71	0.20	0.17	0.00	54.46	168.68	0.71	0.20	0.17	0.00
54.63	168.39	0.71	0.20	0.17	0.00	54.79	163.90	0.66	0.20	0.16	0.00
54.96	161.75	0.64	0.25	0.16	0.01	55.12	159.71	0.62	0.25	0.16	0.00
55.28	170.78	0.74	0.18	0.16	0.00	55.45	184.66	0.90	0.10	0.15	0.00
55.61	198.88	1.10	0.05	0.15	0.00	55.78	205.40	2.00	0.00	0.15	0.00
55.94	205.90	2.00	0.00	0.15	0.00	56.11	207.99	2.00	0.00	0.14	0.00
56.27	211.14	2.00	0.00	0.14	0.00	56.43	205.89	2.00	0.00	0.14	0.00
56.60	195.26	2.00	0.00	0.14	0.00	56.76	177.49	2.00	0.00	0.13	0.00
56.93	172.84	2.00	0.00	0.13	0.00	57.09	164.00	2.00	0.00	0.13	0.00
57.25	161.46	2.00	0.00	0.13	0.00	57.42	157.34	0.61	0.20	0.12	0.00
57.58	164.81	0.68	0.15	0.12	0.00	57.75	173.02	0.78	0.11	0.12	0.00
57.91	182.96	0.90	0.08	0.12	0.00	58.07	183.14	2.00	0.00	0.11	0.00
58.24	166.74	2.00	0.00	0.11	0.00	58.40	145.40	2.00	0.00	0.11	0.00
58.57	120.90	2.00	0.00	0.11	0.00	58.73	104.25	2.00	0.00	0.10	0.00
58.89	93.09	2.00	0.00	0.10	0.00	59.06	88.06	2.00	0.00	0.10	0.00
59.22	83.81	2.00	0.00	0.10	0.00	59.39	82.66	2.00	0.00	0.09	0.00
59.55	84.72	2.00	0.00	0.09	0.00	59.71	91.70	2.00	0.00	0.09	0.00
59.88	106.92	2.00	0.00	0.09	0.00	60.04	134.57	2.00	0.00	0.08	0.00
60.21	160.36	2.00	0.00	0.08	0.00	60.37	173.34	2.00	0.00	0.08	0.00
60.53	174.17	2.00	0.00	0.08	0.00	60.70	170.94	2.00	0.00	0.07	0.00
60.86	166.72	2.00	0.00	0.07	0.00	61.03	156.37	2.00	0.00	0.07	0.00
61.19	142.70	2.00	0.00	0.07	0.00	61.35	132.48	2.00	0.00	0.06	0.00
61.52	126.49	2.00	0.00	0.06	0.00	61.68	121.87	2.00	0.00	0.06	0.00
61.85	115.93	2.00	0.00	0.06	0.00	62.01	108.53	2.00	0.00	0.05	0.00
62.17	101.89	2.00	0.00	0.05	0.00	62.34	96.65	2.00	0.00	0.05	0.00
62.50	98.33	2.00	0.00	0.05	0.00	62.67	106.63	2.00	0.00	0.04	0.00
62.83	113.76	2.00	0.00	0.04	0.00	63.00	119.77	2.00	0.00	0.04	0.00
63.16	119.70	2.00	0.00	0.04	0.00	63.32	119.08	2.00	0.00	0.03	0.00
63.49	112.95	2.00	0.00	0.03	0.00	63.65	105.11	2.00	0.00	0.03	0.00
63.82	95.75	2.00	0.00	0.03	0.00	63.98	89.29	2.00	0.00	0.02	0.00
64.14	86.31	2.00	0.00	0.02	0.00	64.31	87.17	2.00	0.00	0.02	0.00
64.47	89.94	2.00	0.00	0.02	0.00	64.64	93.67	2.00	0.00	0.01	0.00
64.80	99.55	2.00	0.00	0.01	0.00	64.96	108.21	2.00	0.00	0.01	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)
65.13	119.88	2.00	0.00	0.01	0.00	65.29	129.21	2.00	0.00	0.00	0.00
65.46	136.17	2.00	0.00	0.00	0.00	65.62	139.28	2.00	0.00	0.00	0.00
65.78	139.21	2.00	0.00	0.00	0.00	65.95	132.21	2.00	0.00	0.00	0.00
66.11	124.88	2.00	0.00	0.00	0.00	66.28	122.91	2.00	0.00	0.00	0.00
66.44	136.48	2.00	0.00	0.00	0.00	66.60	151.27	2.00	0.00	0.00	0.00
66.77	155.29	2.00	0.00	0.00	0.00	66.93	150.35	2.00	0.00	0.00	0.00
67.10	136.23	2.00	0.00	0.00	0.00	67.26	122.07	2.00	0.00	0.00	0.00
67.42	104.21	2.00	0.00	0.00	0.00	67.59	93.62	2.00	0.00	0.00	0.00
67.75	90.10	2.00	0.00	0.00	0.00	67.92	90.89	2.00	0.00	0.00	0.00
68.08	98.42	2.00	0.00	0.00	0.00	68.24	109.84	2.00	0.00	0.00	0.00
68.41	126.70	2.00	0.00	0.00	0.00	68.57	135.04	2.00	0.00	0.00	0.00
68.74	135.06	2.00	0.00	0.00	0.00	68.90	125.37	2.00	0.00	0.00	0.00
69.07	112.66	2.00	0.00	0.00	0.00	69.23	100.13	2.00	0.00	0.00	0.00
69.39	89.26	2.00	0.00	0.00	0.00	69.56	88.31	2.00	0.00	0.00	0.00
69.72	91.67	2.00	0.00	0.00	0.00	69.89	94.03	2.00	0.00	0.00	0.00
70.05	94.10	2.00	0.00	0.00	0.00	70.21	93.11	2.00	0.00	0.00	0.00
70.38	93.02	2.00	0.00	0.00	0.00	70.54	92.95	2.00	0.00	0.00	0.00
70.71	91.21	2.00	0.00	0.00	0.00	70.87	88.59	2.00	0.00	0.00	0.00
71.03	86.75	2.00	0.00	0.00	0.00	71.20	85.78	2.00	0.00	0.00	0.00
71.36	85.72	2.00	0.00	0.00	0.00	71.53	85.66	2.00	0.00	0.00	0.00
71.69	85.59	2.00	0.00	0.00	0.00	71.85	85.52	2.00	0.00	0.00	0.00
72.02	89.75	2.00	0.00	0.00	0.00	72.18	90.71	2.00	0.00	0.00	0.00
72.35	93.95	2.00	0.00	0.00	0.00	72.51	94.15	2.00	0.00	0.00	0.00
72.67	98.23	2.00	0.00	0.00	0.00	72.84	99.62	2.00	0.00	0.00	0.00
73.00	98.86	2.00	0.00	0.00	0.00	73.17	97.29	2.00	0.00	0.00	0.00
73.33	105.98	2.00	0.00	0.00	0.00	73.49	131.01	2.00	0.00	0.00	0.00
73.66	159.61	2.00	0.00	0.00	0.00	73.82	176.82	2.00	0.00	0.00	0.00
73.99	177.19	2.00	0.00	0.00	0.00	74.15	162.19	2.00	0.00	0.00	0.00
74.31	147.25	2.00	0.00	0.00	0.00	74.48	137.86	2.00	0.00	0.00	0.00
74.64	136.05	2.00	0.00	0.00	0.00	74.81	135.33	2.00	0.00	0.00	0.00
74.97	131.01	2.00	0.00	0.00	0.00	75.13	127.03	2.00	0.00	0.00	0.00

Total estimated settlement: 0.73

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

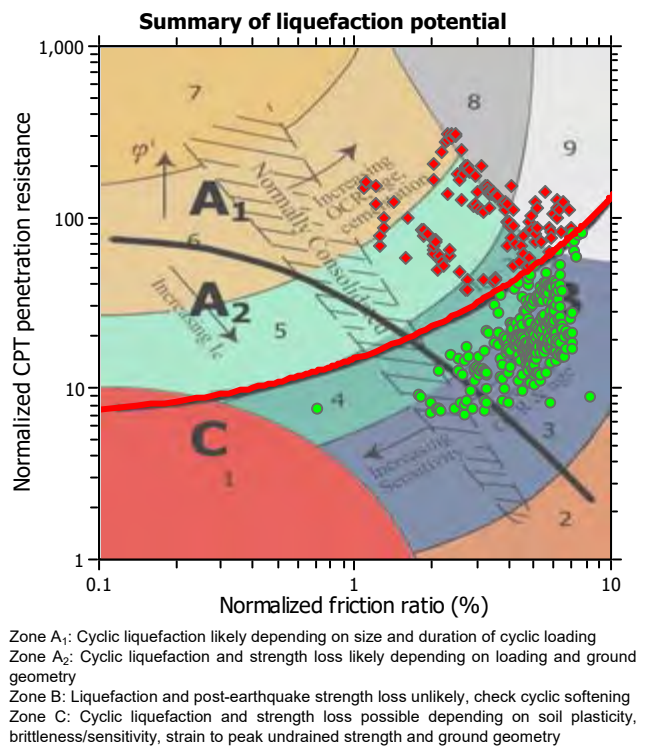
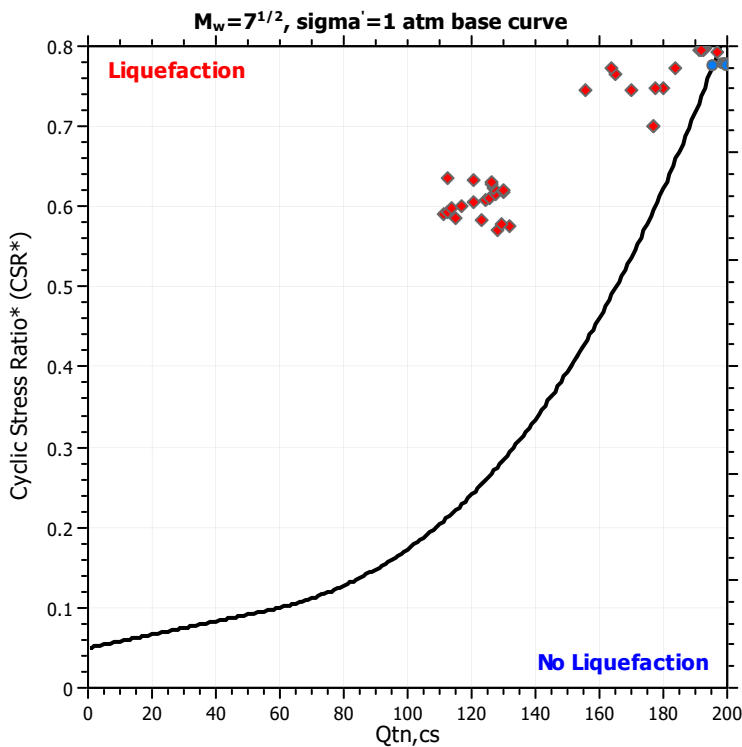
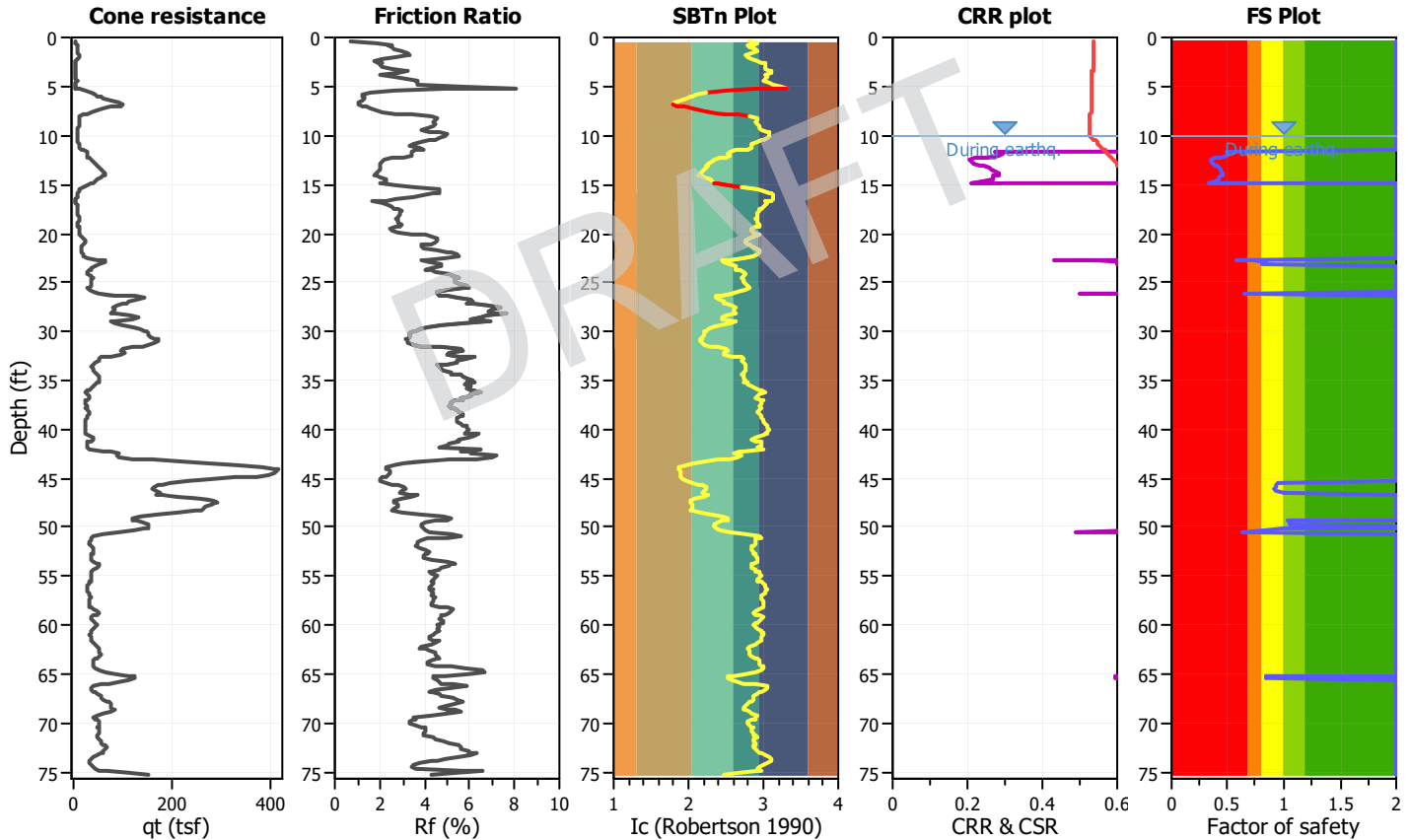
Project title : 210256003 - Compton HS

Location : Compton, CA

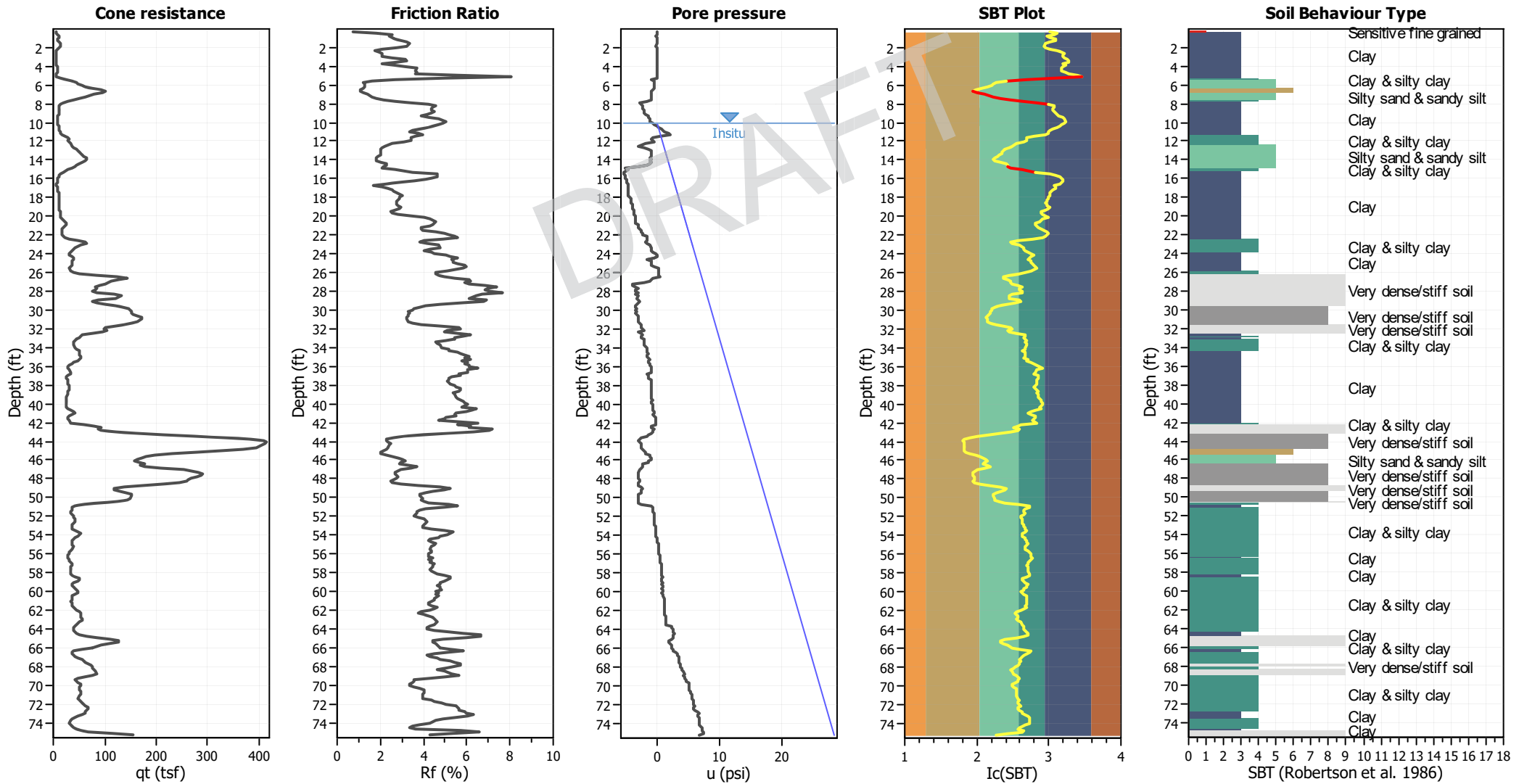
CPT file : CPT-08

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



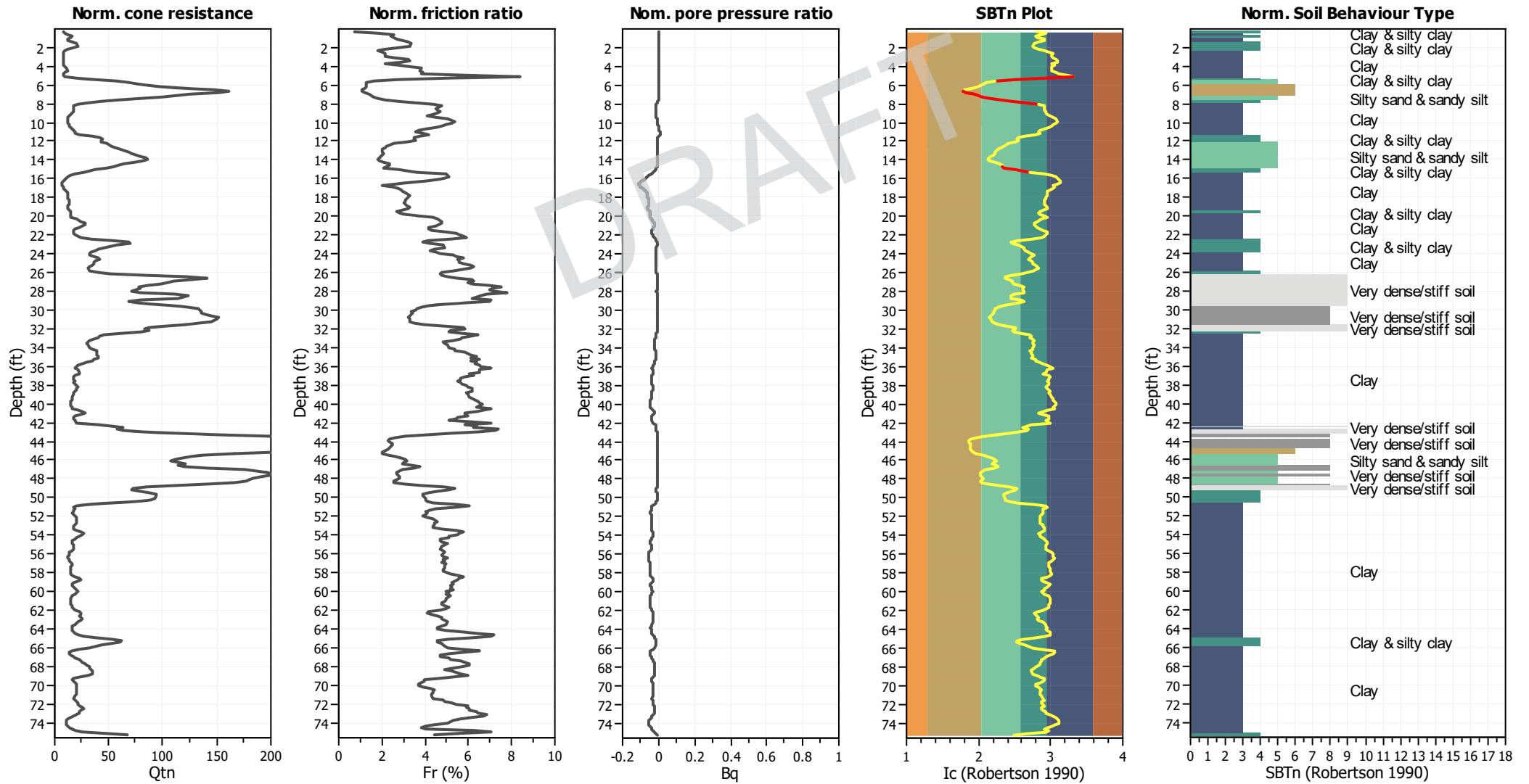
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



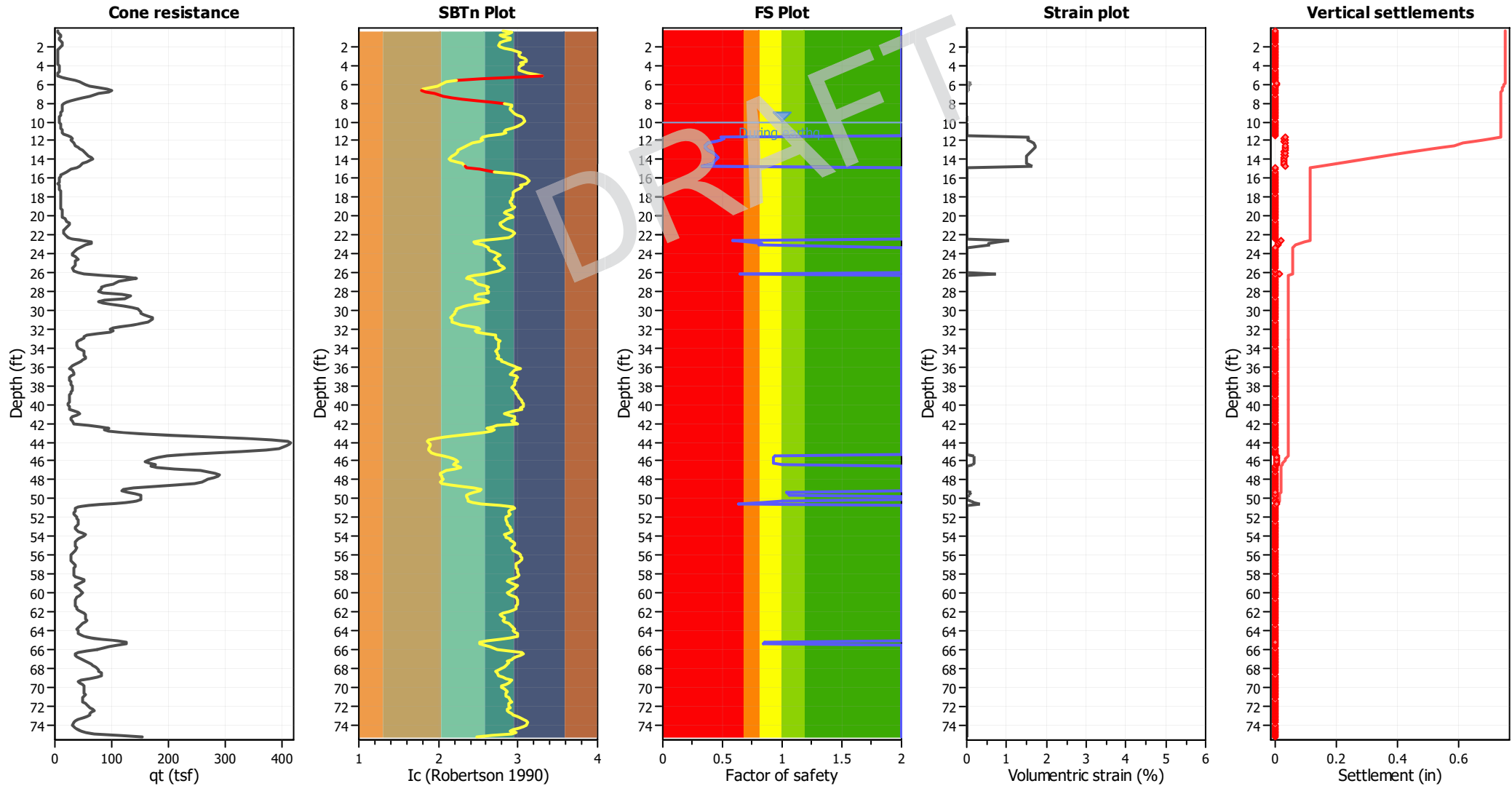
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.81	7.47	4.87	36.42	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	2.92	8.85	5.94	52.59	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	2.88	12.48	5.50	68.70	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	2.78	15.63	4.63	72.43	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	2.82	14.76	4.93	72.75	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	2.90	12.01	5.73	68.81	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	2.91	12.64	5.80	73.36	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	2.84	16.59	5.11	84.84	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	2.77	20.75	4.55	94.40	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	2.76	21.27	4.43	94.18	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	2.78	17.46	4.61	80.46	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	2.83	12.52	5.08	63.60	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	2.92	8.97	5.86	52.59	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	2.98	8.05	6.54	52.60	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	3.03	7.39	7.10	52.51	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	3.02	7.59	6.92	52.55	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	3.02	7.53	6.98	52.54	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	3.03	8.21	7.14	58.61	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	3.08	8.30	7.69	63.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	3.10	8.07	7.90	63.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	3.10	7.42	7.87	58.39	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	3.02	7.51	6.99	52.53	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	3.06	7.87	7.43	58.54	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	3.02	9.84	7.01	68.98	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	3.01	11.27	6.90	77.84	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	3.00	11.48	6.78	77.84	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	3.07	9.70	7.57	73.44	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	3.12	8.40	8.17	68.64	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	3.24	8.22	9.78	80.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.09	3.31	8.90	10.87	96.77	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	2.90	20.18	5.65	114.11	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.41	2.51	37.73	2.83	106.76	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.58	2.23	57.21	1.73	99.11	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.74	2.10	68.60	1.45	99.57	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.91	2.06	76.99	1.39	106.77	23	586	0.53	0.158	0.14	9.27	0.10	0.004
6.07	2.03	87.16	1.34	116.58	25	636	0.53	0.122	0.10	9.27	0.07	0.003
6.23	1.98	99.67	1.28	127.51	26	688	0.53	0.097	0.07	9.27	0.05	0.002
6.40	1.90	120.49	1.19	143.46	29	750	0.53	0.077	0.05	9.27	0.04	0.001
6.56	1.81	147.30	1.11	164.10	32	817	0.53	0.063	0.04	9.27	0.03	0.001
6.73	1.79	160.83	1.10	176.26	34	864	0.53	0.056	0.03	9.27	0.02	0.001
6.89	1.83	151.12	1.13	170.94	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	1.94	124.27	1.23	153.20	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.05	99.19	1.38	136.45	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.16	78.61	1.58	124.46	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.30	59.63	1.95	115.99	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.48	42.84	2.65	113.60	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.87	2.66	30.33	3.72	112.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.83	21.96	5.03	110.44	0	0	0.53	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)
8.20	2.91	18.09	5.83	105.49	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.92	17.38	5.89	102.45	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.91	17.74	5.77	102.35	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.91	17.73	5.77	102.36	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.93	17.13	5.99	102.51	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.94	16.37	6.07	99.39	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.96	14.75	6.29	92.82	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.98	13.03	6.58	85.70	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	3.04	11.84	7.24	85.70	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	3.08	11.72	7.62	89.30	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	3.09	11.98	7.75	92.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.01												

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)
10.01	92.86	2.00	0.00	0.85	0.00	10.17	92.92	2.00	0.00	0.84	0.00
10.34	92.93	2.00	0.00	0.84	0.00	10.50	92.88	2.00	0.00	0.84	0.00
10.66	92.58	2.00	0.00	0.84	0.00	10.83	92.08	2.00	0.00	0.83	0.00
10.99	91.85	2.00	0.00	0.83	0.00	11.16	98.56	2.00	0.00	0.83	0.00
11.32	109.92	2.00	0.00	0.83	0.00	11.48	122.38	2.00	0.00	0.82	0.00
11.65	128.14	0.48	1.57	0.82	0.03	11.81	131.64	0.51	1.53	0.82	0.03
11.98	129.58	0.49	1.54	0.82	0.03	12.14	123.17	0.44	1.61	0.81	0.03
12.30	115.26	0.38	1.69	0.81	0.03	12.47	111.07	0.35	1.74	0.81	0.04
12.63	112.22	0.36	1.72	0.81	0.03	12.80	113.54	0.36	1.69	0.80	0.03
12.96	117.17	0.38	1.65	0.80	0.03	13.12	120.77	0.40	1.60	0.80	0.03
13.29	124.26	0.43	1.56	0.80	0.03	13.45	125.88	0.43	1.54	0.79	0.03
13.62	127.73	0.45	1.51	0.79	0.03	13.78	129.79	0.46	1.49	0.79	0.03
13.94	129.78	0.46	1.49	0.79	0.03	14.11	127.10	0.43	1.51	0.78	0.03
14.27	126.00	0.42	1.51	0.78	0.03	14.44	126.04	0.42	1.51	0.78	0.03
14.60	120.53	0.38	1.56	0.78	0.03	14.76	112.66	0.33	1.64	0.77	0.03
14.93	104.70	2.00	0.00	0.77	0.00	15.09	108.52	2.00	0.00	0.77	0.00
15.26	109.37	2.00	0.00	0.77	0.00	15.42	108.86	2.00	0.00	0.76	0.00
15.58	98.06	2.00	0.00	0.76	0.00	15.75	91.63	2.00	0.00	0.76	0.00
15.91	84.78	2.00	0.00	0.76	0.00	16.08	77.40	2.00	0.00	0.75	0.00
16.24	69.34	2.00	0.00	0.75	0.00	16.40	60.43	2.00	0.00	0.75	0.00
16.57	55.38	2.00	0.00	0.75	0.00	16.73	49.90	2.00	0.00	0.74	0.00
16.90	55.41	2.00	0.00	0.74	0.00	17.06	60.39	2.00	0.00	0.74	0.00
17.23	64.87	2.00	0.00	0.74	0.00	17.39	68.91	2.00	0.00	0.73	0.00
17.55	72.59	2.00	0.00	0.73	0.00	17.72	76.13	2.00	0.00	0.73	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)
17.88	75.84	2.00	0.00	0.73	0.00	18.05	75.64	2.00	0.00	0.72	0.00
18.21	75.38	2.00	0.00	0.72	0.00	18.37	75.21	2.00	0.00	0.72	0.00
18.54	74.99	2.00	0.00	0.72	0.00	18.70	74.93	2.00	0.00	0.71	0.00
18.87	74.88	2.00	0.00	0.71	0.00	19.03	74.93	2.00	0.00	0.71	0.00
19.19	74.73	2.00	0.00	0.71	0.00	19.36	74.24	2.00	0.00	0.70	0.00
19.52	73.54	2.00	0.00	0.70	0.00	19.69	76.61	2.00	0.00	0.70	0.00
19.85	79.88	2.00	0.00	0.70	0.00	20.01	86.31	2.00	0.00	0.69	0.00
20.18	94.75	2.00	0.00	0.69	0.00	20.34	108.28	2.00	0.00	0.69	0.00
20.51	121.78	2.00	0.00	0.69	0.00	20.67	128.11	2.00	0.00	0.68	0.00
20.83	125.92	2.00	0.00	0.68	0.00	21.00	118.35	2.00	0.00	0.68	0.00
21.16	107.96	2.00	0.00	0.68	0.00	21.33	101.82	2.00	0.00	0.67	0.00
21.49	99.81	2.00	0.00	0.67	0.00	21.65	104.84	2.00	0.00	0.67	0.00
21.82	111.40	2.00	0.00	0.67	0.00	21.98	117.29	2.00	0.00	0.66	0.00
22.15	124.67	2.00	0.00	0.66	0.00	22.31	134.76	2.00	0.00	0.66	0.00
22.47	144.30	2.00	0.00	0.66	0.00	22.64	155.84	0.58	1.04	0.65	0.02
22.80	169.98	0.72	0.76	0.65	0.01	22.97	180.06	0.83	0.56	0.65	0.01
23.13	177.44	0.80	0.57	0.65	0.01	23.30	161.80	2.00	0.00	0.64	0.00
23.46	144.53	2.00	0.00	0.64	0.00	23.62	135.51	2.00	0.00	0.64	0.00
23.79	135.23	2.00	0.00	0.64	0.00	23.95	134.34	2.00	0.00	0.63	0.00
24.12	142.89	2.00	0.00	0.63	0.00	24.28	154.79	2.00	0.00	0.63	0.00
24.44	166.40	2.00	0.00	0.63	0.00	24.61	163.92	2.00	0.00	0.62	0.00
24.77	157.95	2.00	0.00	0.62	0.00	24.94	155.08	2.00	0.00	0.62	0.00
25.10	159.08	2.00	0.00	0.62	0.00	25.26	162.24	2.00	0.00	0.61	0.00
25.43	158.46	2.00	0.00	0.61	0.00	25.59	151.42	2.00	0.00	0.61	0.00
25.76	145.05	2.00	0.00	0.61	0.00	25.92	148.84	2.00	0.00	0.60	0.00
26.08	165.11	0.65	0.73	0.60	0.01	26.25	212.01	2.00	0.00	0.60	0.00
26.41	266.72	2.00	0.00	0.60	0.00	26.58	306.47	2.00	0.00	0.59	0.00
26.74	308.13	2.00	0.00	0.59	0.00	26.90	289.98	2.00	0.00	0.59	0.00
27.07	273.28	2.00	0.00	0.59	0.00	27.23	270.69	2.00	0.00	0.58	0.00
27.40	272.35	2.00	0.00	0.58	0.00	27.56	271.07	2.00	0.00	0.58	0.00
27.72	263.94	2.00	0.00	0.58	0.00	27.89	254.71	2.00	0.00	0.57	0.00
28.05	250.97	2.00	0.00	0.57	0.00	28.22	280.93	2.00	0.00	0.57	0.00
28.38	306.79	2.00	0.00	0.57	0.00	28.54	318.04	2.00	0.00	0.56	0.00
28.71	291.61	2.00	0.00	0.56	0.00	28.87	262.71	2.00	0.00	0.56	0.00
29.04	242.26	2.00	0.00	0.56	0.00	29.20	228.87	2.00	0.00	0.55	0.00
29.36	224.44	2.00	0.00	0.55	0.00	29.53	225.31	2.00	0.00	0.55	0.00
29.69	229.92	2.00	0.00	0.55	0.00	29.86	231.01	2.00	0.00	0.54	0.00
30.02	230.89	2.00	0.00	0.54	0.00	30.19	226.07	2.00	0.00	0.54	0.00
30.35	227.03	2.00	0.00	0.54	0.00	30.51	228.94	2.00	0.00	0.53	0.00
30.68	234.14	2.00	0.00	0.53	0.00	30.84	238.27	2.00	0.00	0.53	0.00
31.01	238.18	2.00	0.00	0.53	0.00	31.17	233.35	2.00	0.00	0.52	0.00
31.33	228.59	2.00	0.00	0.52	0.00	31.50	229.12	2.00	0.00	0.52	0.00
31.66	237.57	2.00	0.00	0.52	0.00	31.83	242.00	2.00	0.00	0.51	0.00
31.99	238.14	2.00	0.00	0.51	0.00	32.15	226.77	2.00	0.00	0.51	0.00
32.32	216.19	2.00	0.00	0.51	0.00	32.48	203.54	2.00	0.00	0.50	0.00
32.65	188.24	2.00	0.00	0.50	0.00	32.81	175.38	2.00	0.00	0.50	0.00
32.97	166.47	2.00	0.00	0.50	0.00	33.14	157.48	2.00	0.00	0.49	0.00
33.30	143.03	2.00	0.00	0.49	0.00	33.47	132.92	2.00	0.00	0.49	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)
33.63	132.88	2.00	0.00	0.49	0.00	33.79	136.30	2.00	0.00	0.48	0.00
33.96	140.56	2.00	0.00	0.48	0.00	34.12	150.25	2.00	0.00	0.48	0.00
34.29	157.70	2.00	0.00	0.48	0.00	34.45	165.14	2.00	0.00	0.47	0.00
34.61	167.93	2.00	0.00	0.47	0.00	34.78	170.75	2.00	0.00	0.47	0.00
34.94	176.31	2.00	0.00	0.47	0.00	35.11	173.63	2.00	0.00	0.46	0.00
35.27	171.46	2.00	0.00	0.46	0.00	35.43	160.20	2.00	0.00	0.46	0.00
35.60	152.60	2.00	0.00	0.46	0.00	35.76	141.74	2.00	0.00	0.45	0.00
35.93	134.89	2.00	0.00	0.45	0.00	36.09	128.85	2.00	0.00	0.45	0.00
36.26	128.71	2.00	0.00	0.45	0.00	36.42	132.98	2.00	0.00	0.44	0.00
36.58	138.44	2.00	0.00	0.44	0.00	36.75	133.46	2.00	0.00	0.44	0.00
36.91	123.96	2.00	0.00	0.44	0.00	37.08	113.56	2.00	0.00	0.43	0.00
37.24	113.32	2.00	0.00	0.43	0.00	37.40	114.42	2.00	0.00	0.43	0.00
37.57	114.16	2.00	0.00	0.43	0.00	37.73	114.03	2.00	0.00	0.42	0.00
37.90	116.41	2.00	0.00	0.42	0.00	38.06	122.38	2.00	0.00	0.42	0.00
38.22	126.92	2.00	0.00	0.42	0.00	38.39	127.90	2.00	0.00	0.41	0.00
38.55	124.24	2.00	0.00	0.41	0.00	38.72	120.50	2.00	0.00	0.41	0.00
38.88	116.59	2.00	0.00	0.41	0.00	39.04	115.20	2.00	0.00	0.40	0.00
39.21	113.76	2.00	0.00	0.40	0.00	39.37	113.60	2.00	0.00	0.40	0.00
39.54	113.41	2.00	0.00	0.40	0.00	39.70	113.20	2.00	0.00	0.39	0.00
39.86	113.01	2.00	0.00	0.39	0.00	40.03	114.06	2.00	0.00	0.39	0.00
40.19	113.92	2.00	0.00	0.39	0.00	40.36	115.01	2.00	0.00	0.38	0.00
40.52	123.15	2.00	0.00	0.38	0.00	40.68	134.94	2.00	0.00	0.38	0.00
40.85	144.73	2.00	0.00	0.38	0.00	41.01	142.13	2.00	0.00	0.37	0.00
41.18	131.89	2.00	0.00	0.37	0.00	41.34	120.83	2.00	0.00	0.37	0.00
41.50	112.34	2.00	0.00	0.37	0.00	41.67	110.93	2.00	0.00	0.36	0.00
41.83	110.70	2.00	0.00	0.36	0.00	42.00	134.36	2.00	0.00	0.36	0.00
42.16	166.58	2.00	0.00	0.36	0.00	42.32	200.84	2.00	0.00	0.35	0.00
42.49	217.53	2.00	0.00	0.35	0.00	42.65	229.66	2.00	0.00	0.35	0.00
42.82	236.49	2.00	0.00	0.35	0.00	42.98	250.73	2.00	0.00	0.34	0.00
43.15	258.35	2.00	0.00	0.34	0.00	43.31	269.12	2.00	0.00	0.34	0.00
43.47	281.25	2.00	0.00	0.34	0.00	43.64	308.67	2.00	0.00	0.33	0.00
43.80	335.33	2.00	0.00	0.33	0.00	43.97	354.37	2.00	0.00	0.33	0.00
44.13	360.25	2.00	0.00	0.33	0.00	44.29	360.36	2.00	0.00	0.32	0.00
44.46	355.20	2.00	0.00	0.32	0.00	44.62	343.18	2.00	0.00	0.32	0.00
44.79	320.95	2.00	0.00	0.32	0.00	44.95	285.54	2.00	0.00	0.31	0.00
45.11	245.66	2.00	0.00	0.31	0.00	45.28	210.92	2.00	0.00	0.31	0.00
45.44	193.06	0.94	0.18	0.31	0.00	45.61	191.61	0.92	0.18	0.30	0.00
45.77	192.41	0.93	0.18	0.30	0.00	45.93	192.38	0.93	0.18	0.30	0.00
46.10	191.40	0.92	0.18	0.30	0.00	46.26	191.84	0.93	0.18	0.29	0.00
46.43	196.86	0.99	0.14	0.29	0.00	46.59	203.47	2.00	0.00	0.29	0.00
46.75	222.40	2.00	0.00	0.29	0.00	46.92	235.89	2.00	0.00	0.28	0.00
47.08	252.14	2.00	0.00	0.28	0.00	47.25	261.67	2.00	0.00	0.28	0.00
47.41	267.23	2.00	0.00	0.28	0.00	47.57	267.63	2.00	0.00	0.27	0.00
47.74	261.92	2.00	0.00	0.27	0.00	47.90	253.84	2.00	0.00	0.27	0.00
48.07	245.38	2.00	0.00	0.27	0.00	48.23	237.96	2.00	0.00	0.26	0.00
48.39	229.30	2.00	0.00	0.26	0.00	48.56	220.49	2.00	0.00	0.26	0.00
48.72	216.53	2.00	0.00	0.26	0.00	48.89	215.96	2.00	0.00	0.25	0.00
49.05	210.18	2.00	0.00	0.25	0.00	49.22	203.34	2.00	0.00	0.25	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)
49.38	198.87	1.04	0.12	0.25	0.00	49.54	199.39	1.05	0.09	0.24	0.00
49.71	199.77	1.06	0.09	0.24	0.00	49.87	200.13	2.00	0.00	0.24	0.00
50.04	201.64	2.00	0.00	0.24	0.00	50.20	195.71	1.00	0.11	0.23	0.00
50.36	183.51	0.85	0.19	0.23	0.00	50.53	163.72	0.63	0.34	0.23	0.01
50.69	145.81	2.00	0.00	0.23	0.00	50.86	126.56	2.00	0.00	0.22	0.00
51.02	111.29	2.00	0.00	0.22	0.00	51.18	102.98	2.00	0.00	0.22	0.00
51.35	98.48	2.00	0.00	0.22	0.00	51.51	94.97	2.00	0.00	0.21	0.00
51.68	94.85	2.00	0.00	0.21	0.00	51.84	95.90	2.00	0.00	0.21	0.00
52.00	98.00	2.00	0.00	0.21	0.00	52.17	102.22	2.00	0.00	0.20	0.00
52.33	107.29	2.00	0.00	0.20	0.00	52.50	109.19	2.00	0.00	0.20	0.00
52.66	107.06	2.00	0.00	0.20	0.00	52.82	102.83	2.00	0.00	0.19	0.00
52.99	99.51	2.00	0.00	0.19	0.00	53.15	99.38	2.00	0.00	0.19	0.00
53.32	105.50	2.00	0.00	0.19	0.00	53.48	118.79	2.00	0.00	0.18	0.00
53.64	131.73	2.00	0.00	0.18	0.00	53.81	135.60	2.00	0.00	0.18	0.00
53.97	132.18	2.00	0.00	0.18	0.00	54.14	122.68	2.00	0.00	0.17	0.00
54.30	114.40	2.00	0.00	0.17	0.00	54.46	105.62	2.00	0.00	0.17	0.00
54.63	101.33	2.00	0.00	0.17	0.00	54.79	101.16	2.00	0.00	0.16	0.00
54.96	104.11	2.00	0.00	0.16	0.00	55.12	104.99	2.00	0.00	0.16	0.00
55.28	104.93	2.00	0.00	0.16	0.00	55.45	102.80	2.00	0.00	0.15	0.00
55.61	99.63	2.00	0.00	0.15	0.00	55.78	95.39	2.00	0.00	0.15	0.00
55.94	92.01	2.00	0.00	0.15	0.00	56.11	90.79	2.00	0.00	0.14	0.00
56.27	90.69	2.00	0.00	0.14	0.00	56.43	91.68	2.00	0.00	0.14	0.00
56.60	91.62	2.00	0.00	0.14	0.00	56.76	94.78	2.00	0.00	0.13	0.00
56.93	97.75	2.00	0.00	0.13	0.00	57.09	101.66	2.00	0.00	0.13	0.00
57.25	101.53	2.00	0.00	0.13	0.00	57.42	99.46	2.00	0.00	0.12	0.00
57.58	97.36	2.00	0.00	0.12	0.00	57.75	96.22	2.00	0.00	0.12	0.00
57.91	97.15	2.00	0.00	0.12	0.00	58.07	100.09	2.00	0.00	0.11	0.00
58.24	107.61	2.00	0.00	0.11	0.00	58.40	118.73	2.00	0.00	0.11	0.00
58.57	127.92	2.00	0.00	0.11	0.00	58.73	127.80	2.00	0.00	0.10	0.00
58.89	120.30	2.00	0.00	0.10	0.00	59.06	109.55	2.00	0.00	0.10	0.00
59.22	104.99	2.00	0.00	0.10	0.00	59.39	103.90	2.00	0.00	0.09	0.00
59.55	109.17	2.00	0.00	0.09	0.00	59.71	112.74	2.00	0.00	0.09	0.00
59.88	116.93	2.00	0.00	0.09	0.00	60.04	116.92	2.00	0.00	0.08	0.00
60.21	115.89	2.00	0.00	0.08	0.00	60.37	109.63	2.00	0.00	0.08	0.00
60.53	104.03	2.00	0.00	0.08	0.00	60.70	100.18	2.00	0.00	0.07	0.00
60.86	99.14	2.00	0.00	0.07	0.00	61.03	97.11	2.00	0.00	0.07	0.00
61.19	96.00	2.00	0.00	0.07	0.00	61.35	96.87	2.00	0.00	0.06	0.00
61.52	100.55	2.00	0.00	0.06	0.00	61.68	104.13	2.00	0.00	0.06	0.00
61.85	106.72	2.00	0.00	0.06	0.00	62.01	107.72	2.00	0.00	0.05	0.00
62.17	108.54	2.00	0.00	0.05	0.00	62.34	110.08	2.00	0.00	0.05	0.00
62.50	113.39	2.00	0.00	0.05	0.00	62.67	115.77	2.00	0.00	0.04	0.00
62.83	119.66	2.00	0.00	0.04	0.00	63.00	121.87	2.00	0.00	0.04	0.00
63.16	120.97	2.00	0.00	0.04	0.00	63.32	115.98	2.00	0.00	0.03	0.00
63.49	108.17	2.00	0.00	0.03	0.00	63.65	101.86	2.00	0.00	0.03	0.00
63.82	98.07	2.00	0.00	0.03	0.00	63.98	98.93	2.00	0.00	0.02	0.00
64.14	103.30	2.00	0.00	0.02	0.00	64.31	111.74	2.00	0.00	0.02	0.00
64.47	122.61	2.00	0.00	0.02	0.00	64.64	138.77	2.00	0.00	0.01	0.00
64.80	155.01	2.00	0.00	0.01	0.00	64.96	168.44	2.00	0.00	0.01	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)
65.13	175.03	2.00	0.00	0.01	0.00	65.29	176.82	0.85	0.00	0.00	0.00
65.46	176.63	0.85	0.00	0.00	0.00	65.62	168.50	2.00	0.00	0.00	0.00
65.78	155.85	2.00	0.00	0.00	0.00	65.95	141.16	2.00	0.00	0.00	0.00
66.11	127.95	2.00	0.00	0.00	0.00	66.28	114.96	2.00	0.00	0.00	0.00
66.44	102.63	2.00	0.00	0.00	0.00	66.60	96.40	2.00	0.00	0.00	0.00
66.77	97.11	2.00	0.00	0.00	0.00	66.93	102.30	2.00	0.00	0.00	0.00
67.10	111.35	2.00	0.00	0.00	0.00	67.26	120.64	2.00	0.00	0.00	0.00
67.42	129.74	2.00	0.00	0.00	0.00	67.59	137.10	2.00	0.00	0.00	0.00
67.75	144.73	2.00	0.00	0.00	0.00	67.92	149.61	2.00	0.00	0.00	0.00
68.08	148.86	2.00	0.00	0.00	0.00	68.24	143.67	2.00	0.00	0.00	0.00
68.41	139.54	2.00	0.00	0.00	0.00	68.57	148.24	2.00	0.00	0.00	0.00
68.74	154.76	2.00	0.00	0.00	0.00	68.90	151.65	2.00	0.00	0.00	0.00
69.07	128.41	2.00	0.00	0.00	0.00	69.23	105.08	2.00	0.00	0.00	0.00
69.39	91.27	2.00	0.00	0.00	0.00	69.56	94.01	2.00	0.00	0.00	0.00
69.72	96.72	2.00	0.00	0.00	0.00	69.89	98.40	2.00	0.00	0.00	0.00
70.05	98.32	2.00	0.00	0.00	0.00	70.21	99.91	2.00	0.00	0.00	0.00
70.38	103.06	2.00	0.00	0.00	0.00	70.54	105.34	2.00	0.00	0.00	0.00
70.71	106.86	2.00	0.00	0.00	0.00	70.87	106.77	2.00	0.00	0.00	0.00
71.03	105.08	2.00	0.00	0.00	0.00	71.20	102.49	2.00	0.00	0.00	0.00
71.36	100.66	2.00	0.00	0.00	0.00	71.53	106.79	2.00	0.00	0.00	0.00
71.69	113.69	2.00	0.00	0.00	0.00	71.85	120.01	2.00	0.00	0.00	0.00
72.02	123.23	2.00	0.00	0.00	0.00	72.18	131.58	2.00	0.00	0.00	0.00
72.35	137.98	2.00	0.00	0.00	0.00	72.51	140.90	2.00	0.00	0.00	0.00
72.67	136.94	2.00	0.00	0.00	0.00	72.84	136.36	2.00	0.00	0.00	0.00
73.00	135.49	2.00	0.00	0.00	0.00	73.17	132.87	2.00	0.00	0.00	0.00
73.33	121.20	2.00	0.00	0.00	0.00	73.49	106.83	2.00	0.00	0.00	0.00
73.66	94.74	2.00	0.00	0.00	0.00	73.82	88.49	2.00	0.00	0.00	0.00
73.99	84.79	2.00	0.00	0.00	0.00	74.15	82.10	2.00	0.00	0.00	0.00
74.31	82.11	2.00	0.00	0.00	0.00	74.48	84.79	2.00	0.00	0.00	0.00
74.64	92.97	2.00	0.00	0.00	0.00	74.81	122.72	2.00	0.00	0.00	0.00
74.97	149.07	2.00	0.00	0.00	0.00	75.13	175.82	2.00	0.00	0.00	0.00
75.30	182.71	2.00	0.00	0.00	0.00						

Total estimated settlement: 0.74

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

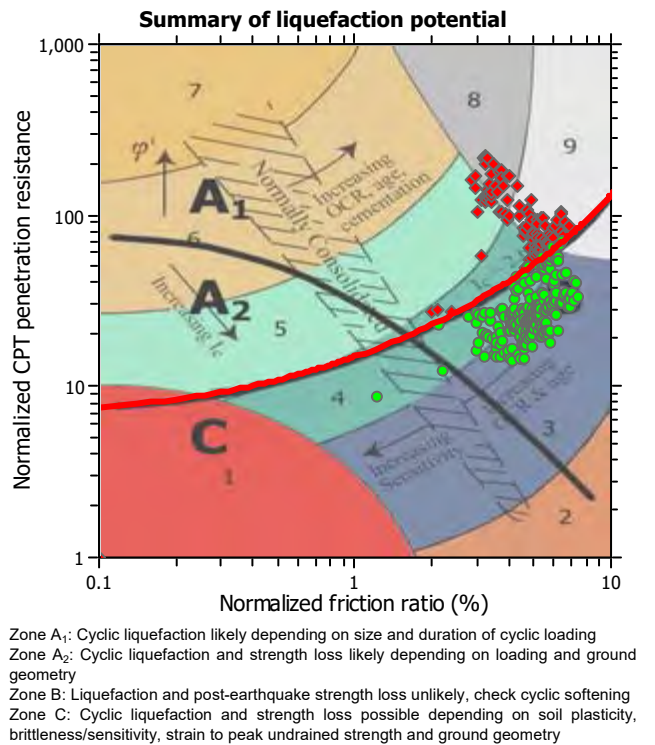
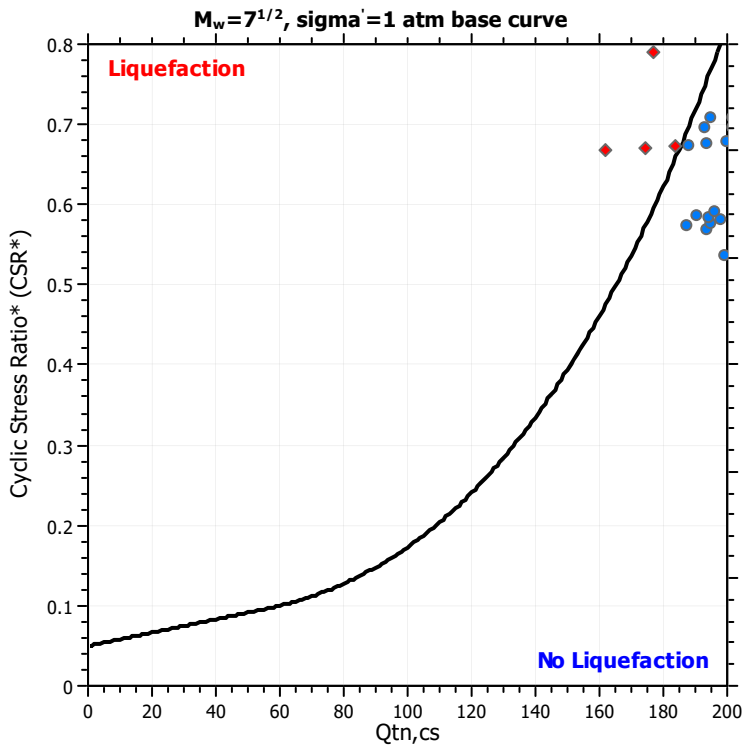
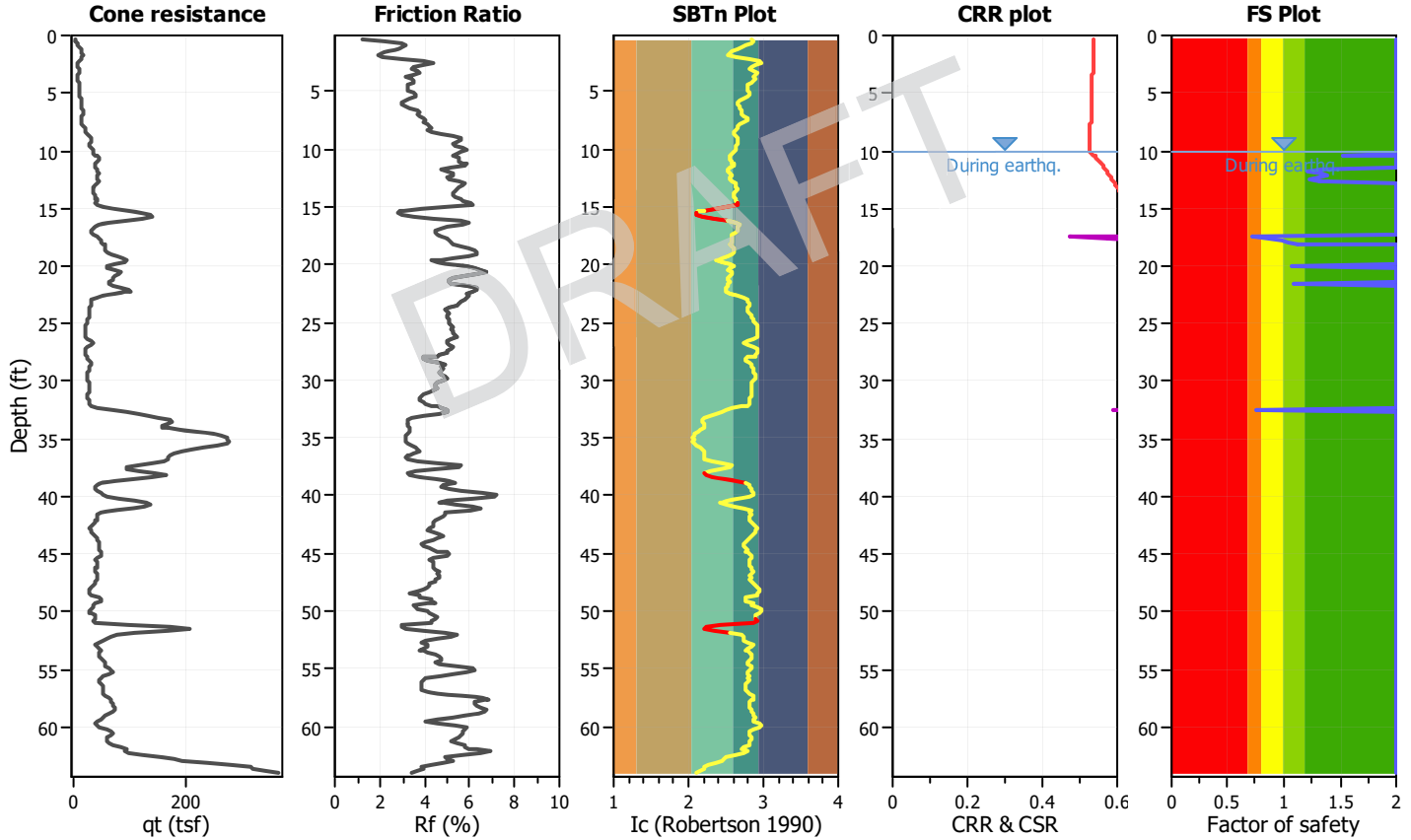
Project title : 210256003 - Compton HS

Location : Compton, CA

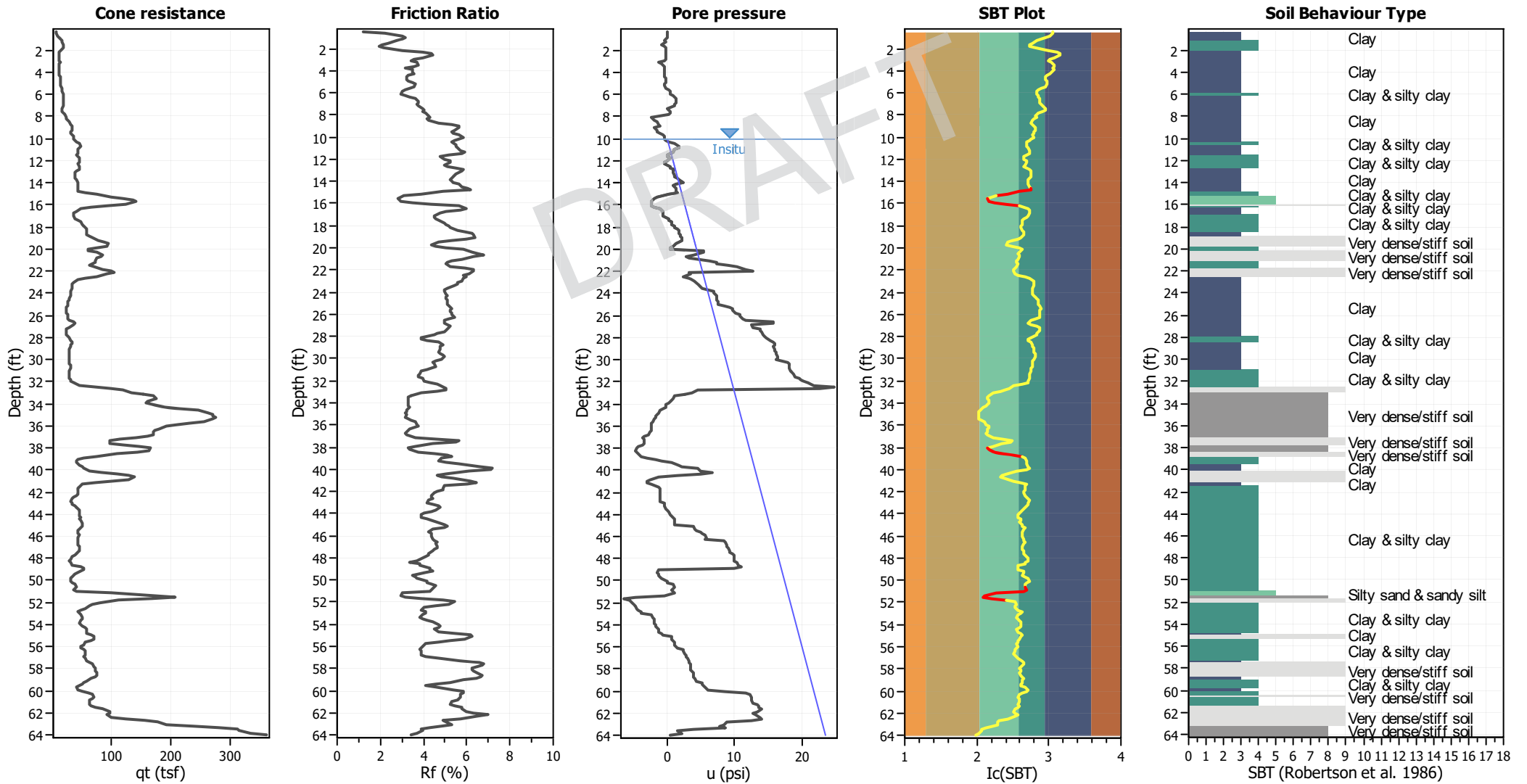
CPT file : CPT-09

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



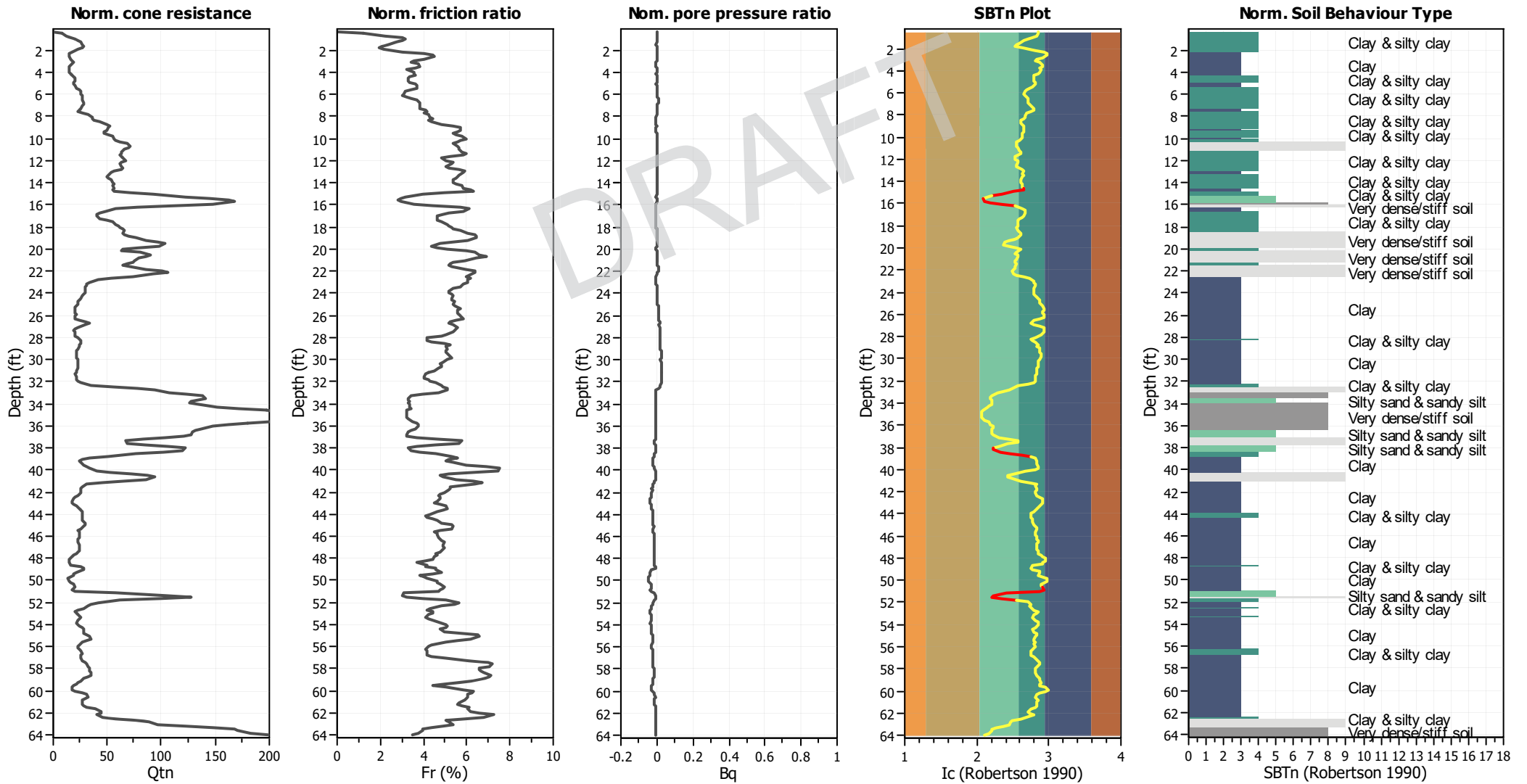
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



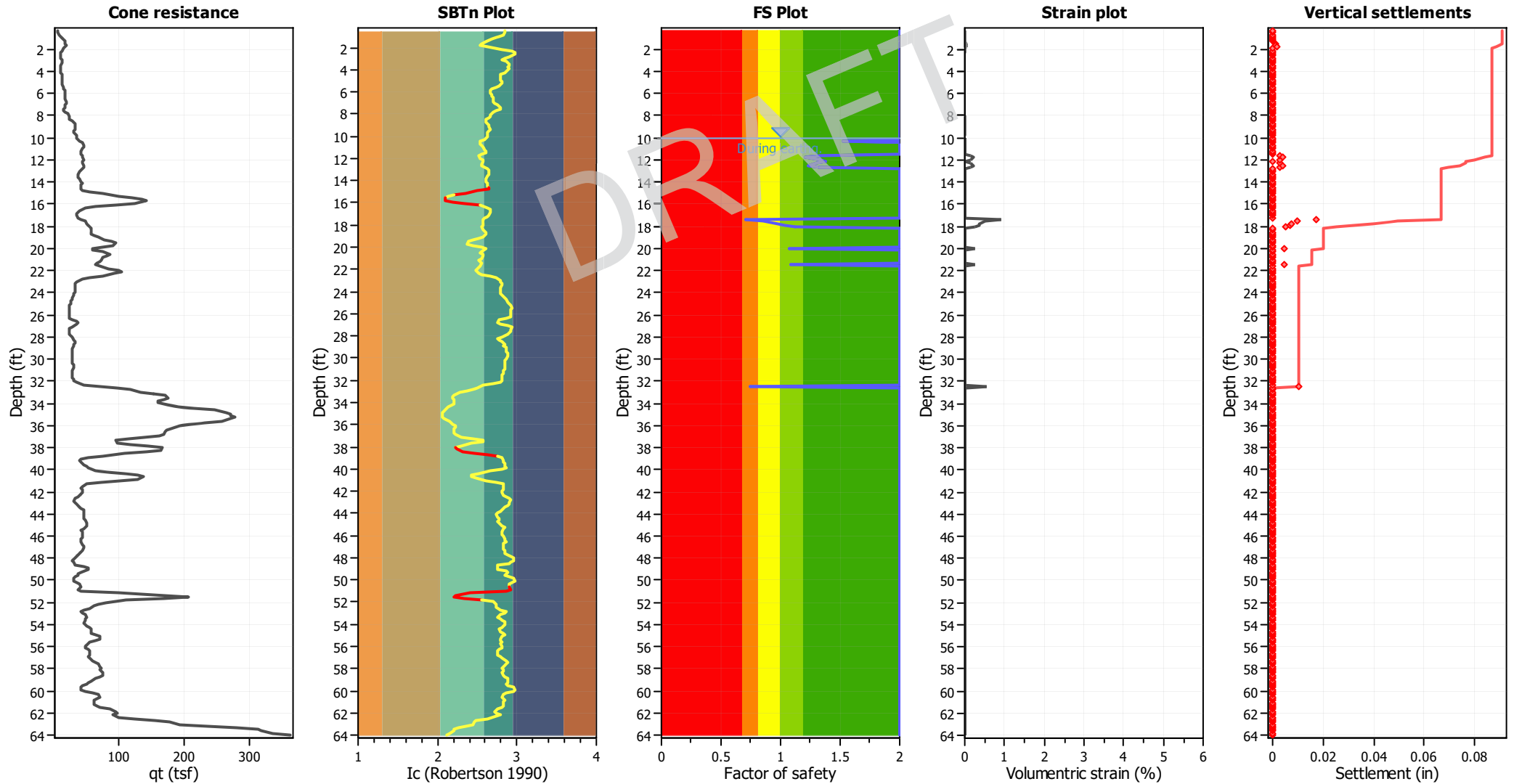
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	2.85	8.64	5.26	45.43	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	2.86	12.06	5.29	63.73	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	2.83	15.95	5.08	81.03	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	2.77	20.16	4.51	91.04	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	2.71	22.93	4.07	93.44	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	2.66	25.00	3.70	92.52	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.48	2.59	27.18	3.24	88.02	24	402	0.54	0.034	0.03	9.27	0.02	0.001
1.64	2.55	27.92	3.01	84.08	22	393	0.54	0.046	0.04	9.27	0.03	0.001
1.80	2.54	27.10	2.97	80.60	21	378	0.54	0.066	0.06	9.27	0.05	0.002
1.97	2.62	22.59	3.47	78.33	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	2.80	17.54	4.82	84.48	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	2.94	14.69	6.07	89.21	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	2.97	14.46	6.42	92.86	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	2.97	14.39	6.45	92.87	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	2.91	16.04	5.77	92.54	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	2.84	17.94	5.12	91.92	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	2.82	18.62	4.92	91.67	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	2.87	17.16	5.37	92.20	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	2.91	15.33	5.81	89.06	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	2.91	14.84	5.75	85.38	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	2.88	14.88	5.47	81.38	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	2.89	15.13	5.64	85.30	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	2.87	16.46	5.39	88.73	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	2.84	17.78	5.17	91.98	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	2.80	19.21	4.76	91.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	2.78	19.63	4.65	91.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	2.79	19.56	4.67	91.29	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	2.80	19.23	4.76	91.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.09	2.81	19.37	4.90	94.97	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	2.81	20.21	4.85	98.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.41	2.78	21.92	4.60	100.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.58	2.73	23.62	4.24	100.05	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.74	2.69	25.22	3.94	99.32	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.91	2.67	26.17	3.78	98.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.07	2.66	26.65	3.70	98.68	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.23	2.68	26.69	3.82	101.97	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.40	2.69	26.73	3.93	105.17	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.56	2.71	27.36	4.06	111.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.73	2.71	28.04	4.06	113.82	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.71	28.08	4.05	113.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.72	26.71	4.17	111.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.75	25.03	4.36	109.11	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.79	23.51	4.67	109.78	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.80	23.18	4.74	109.93	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.74	26.43	4.33	114.57	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.69	31.91	3.96	126.29	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.66	36.11	3.74	134.93	0	0	0.53	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)
8.20	2.67	36.40	3.77	137.35	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.64	38.05	3.59	136.59	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.61	43.29	3.38	146.51	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.69	2.60	49.06	3.35	164.46	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.86	2.62	52.04	3.46	180.08	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.65	51.54	3.62	186.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.65	49.81	3.68	183.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.66	47.39	3.71	175.94	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.65	47.65	3.65	173.71	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.64	50.85	3.55	180.61	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.63	54.96	3.51	192.85	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.00												

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)
10.01	198.32	2.00	0.00	0.85	0.00	10.17	197.36	2.00	0.00	0.84	0.00
10.34	199.55	1.53	0.00	0.84	0.00	10.50	206.01	2.00	0.00	0.84	0.00
10.66	214.71	2.00	0.00	0.84	0.00	10.83	212.93	2.00	0.00	0.83	0.00
10.99	208.38	2.00	0.00	0.83	0.00	11.16	207.49	2.00	0.00	0.83	0.00
11.32	210.65	2.00	0.00	0.83	0.00	11.48	205.19	2.00	0.00	0.82	0.00
11.65	193.62	1.33	0.15	0.82	0.00	11.81	187.58	1.21	0.21	0.82	0.00
11.98	195.04	1.34	0.15	0.82	0.00	12.14	197.88	1.38	0.00	0.81	0.00
12.30	194.37	1.31	0.15	0.81	0.00	12.47	190.67	1.24	0.21	0.81	0.00
12.63	196.09	1.32	0.14	0.81	0.00	12.80	202.25	2.00	0.00	0.80	0.00
12.96	199.64	2.00	0.00	0.80	0.00	13.12	192.08	2.00	0.00	0.80	0.00
13.29	184.76	2.00	0.00	0.80	0.00	13.45	181.29	2.00	0.00	0.79	0.00
13.62	180.12	2.00	0.00	0.79	0.00	13.78	181.49	2.00	0.00	0.79	0.00
13.94	186.52	2.00	0.00	0.79	0.00	14.11	190.30	2.00	0.00	0.78	0.00
14.27	193.80	2.00	0.00	0.78	0.00	14.44	196.40	2.00	0.00	0.78	0.00
14.60	201.24	2.00	0.00	0.78	0.00	14.76	206.28	2.00	0.00	0.77	0.00
14.93	199.86	2.00	0.00	0.77	0.00	15.09	198.75	2.00	0.00	0.77	0.00
15.26	203.89	2.00	0.00	0.77	0.00	15.42	221.09	2.00	0.00	0.76	0.00
15.58	234.96	2.00	0.00	0.76	0.00	15.75	245.02	2.00	0.00	0.76	0.00
15.91	243.90	2.00	0.00	0.76	0.00	16.08	237.29	2.00	0.00	0.75	0.00
16.24	227.96	2.00	0.00	0.75	0.00	16.40	204.67	2.00	0.00	0.75	0.00
16.57	182.63	2.00	0.00	0.75	0.00	16.73	162.37	2.00	0.00	0.74	0.00
16.90	152.77	2.00	0.00	0.74	0.00	17.06	146.77	2.00	0.00	0.74	0.00
17.23	151.81	2.00	0.00	0.74	0.00	17.39	161.97	0.71	0.91	0.73	0.02
17.55	174.63	0.86	0.50	0.73	0.01	17.72	183.58	0.98	0.37	0.73	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)
17.88	188.06	1.04	0.36	0.73	0.01	18.05	193.75	1.12	0.26	0.72	0.01
18.21	200.10	2.00	0.00	0.72	0.00	18.37	208.86	2.00	0.00	0.72	0.00
18.54	215.30	2.00	0.00	0.72	0.00	18.70	223.55	2.00	0.00	0.71	0.00
18.87	232.17	2.00	0.00	0.71	0.00	19.03	242.98	2.00	0.00	0.71	0.00
19.19	248.15	2.00	0.00	0.71	0.00	19.36	244.45	2.00	0.00	0.70	0.00
19.52	235.21	2.00	0.00	0.70	0.00	19.69	218.73	2.00	0.00	0.70	0.00
19.85	201.76	2.00	0.00	0.70	0.00	20.01	193.20	1.08	0.25	0.69	0.00
20.18	212.26	2.00	0.00	0.69	0.00	20.34	247.85	2.00	0.00	0.69	0.00
20.51	269.09	2.00	0.00	0.69	0.00	20.67	269.21	2.00	0.00	0.68	0.00
20.83	247.16	2.00	0.00	0.68	0.00	21.00	228.42	2.00	0.00	0.68	0.00
21.16	213.24	2.00	0.00	0.68	0.00	21.33	201.56	2.00	0.00	0.67	0.00
21.49	194.97	1.09	0.24	0.67	0.00	21.65	208.58	2.00	0.00	0.67	0.00
21.82	245.15	2.00	0.00	0.67	0.00	21.98	279.43	2.00	0.00	0.66	0.00
22.15	285.52	2.00	0.00	0.66	0.00	22.31	262.60	2.00	0.00	0.66	0.00
22.47	228.17	2.00	0.00	0.66	0.00	22.64	198.35	2.00	0.00	0.65	0.00
22.80	174.02	2.00	0.00	0.65	0.00	22.97	157.60	2.00	0.00	0.65	0.00
23.13	149.40	2.00	0.00	0.65	0.00	23.30	147.74	2.00	0.00	0.64	0.00
23.46	144.65	2.00	0.00	0.64	0.00	23.62	139.74	2.00	0.00	0.64	0.00
23.79	136.36	2.00	0.00	0.64	0.00	23.95	136.10	2.00	0.00	0.63	0.00
24.12	136.05	2.00	0.00	0.63	0.00	24.28	134.66	2.00	0.00	0.63	0.00
24.44	130.20	2.00	0.00	0.63	0.00	24.61	127.23	2.00	0.00	0.62	0.00
24.77	125.73	2.00	0.00	0.62	0.00	24.94	123.98	2.00	0.00	0.62	0.00
25.10	122.36	2.00	0.00	0.62	0.00	25.26	120.72	2.00	0.00	0.61	0.00
25.43	120.61	2.00	0.00	0.61	0.00	25.59	120.28	2.00	0.00	0.61	0.00
25.76	121.55	2.00	0.00	0.61	0.00	25.92	122.86	2.00	0.00	0.60	0.00
26.08	122.66	2.00	0.00	0.60	0.00	26.25	123.98	2.00	0.00	0.60	0.00
26.41	128.96	2.00	0.00	0.60	0.00	26.58	138.39	2.00	0.00	0.59	0.00
26.74	143.88	2.00	0.00	0.59	0.00	26.90	139.37	2.00	0.00	0.59	0.00
27.07	128.07	2.00	0.00	0.59	0.00	27.23	117.86	2.00	0.00	0.58	0.00
27.40	116.05	2.00	0.00	0.58	0.00	27.56	115.80	2.00	0.00	0.58	0.00
27.72	112.26	2.00	0.00	0.58	0.00	27.89	111.90	2.00	0.00	0.57	0.00
28.05	109.11	2.00	0.00	0.57	0.00	28.22	114.40	2.00	0.00	0.57	0.00
28.38	118.81	2.00	0.00	0.57	0.00	28.54	126.26	2.00	0.00	0.56	0.00
28.71	126.55	2.00	0.00	0.56	0.00	28.87	123.44	2.00	0.00	0.56	0.00
29.04	120.66	2.00	0.00	0.56	0.00	29.20	119.04	2.00	0.00	0.55	0.00
29.36	117.40	2.00	0.00	0.55	0.00	29.53	117.31	2.00	0.00	0.55	0.00
29.69	118.62	2.00	0.00	0.55	0.00	29.86	121.19	2.00	0.00	0.54	0.00
30.02	120.77	2.00	0.00	0.54	0.00	30.19	117.57	2.00	0.00	0.54	0.00
30.35	115.83	2.00	0.00	0.54	0.00	30.51	117.06	2.00	0.00	0.53	0.00
30.68	118.25	2.00	0.00	0.53	0.00	30.84	115.16	2.00	0.00	0.53	0.00
31.01	110.62	2.00	0.00	0.53	0.00	31.17	105.84	2.00	0.00	0.52	0.00
31.33	104.12	2.00	0.00	0.52	0.00	31.50	103.81	2.00	0.00	0.52	0.00
31.66	105.12	2.00	0.00	0.52	0.00	31.83	107.98	2.00	0.00	0.51	0.00
31.99	110.63	2.00	0.00	0.51	0.00	32.15	121.09	2.00	0.00	0.51	0.00
32.32	141.25	2.00	0.00	0.51	0.00	32.48	176.58	0.75	0.55	0.50	0.01
32.65	212.19	2.00	0.00	0.50	0.00	32.81	234.77	2.00	0.00	0.50	0.00
32.97	238.08	2.00	0.00	0.50	0.00	33.14	233.12	2.00	0.00	0.49	0.00
33.30	231.43	2.00	0.00	0.49	0.00	33.47	229.02	2.00	0.00	0.49	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)
33.63	223.29	2.00	0.00	0.49	0.00	33.79	216.76	2.00	0.00	0.48	0.00
33.96	214.78	2.00	0.00	0.48	0.00	34.12	223.37	2.00	0.00	0.48	0.00
34.29	241.98	2.00	0.00	0.48	0.00	34.45	264.75	2.00	0.00	0.47	0.00
34.61	285.06	2.00	0.00	0.47	0.00	34.78	297.01	2.00	0.00	0.47	0.00
34.94	301.66	2.00	0.00	0.47	0.00	35.11	302.07	2.00	0.00	0.46	0.00
35.27	305.77	2.00	0.00	0.46	0.00	35.43	303.87	2.00	0.00	0.46	0.00
35.60	297.06	2.00	0.00	0.46	0.00	35.76	282.43	2.00	0.00	0.45	0.00
35.93	268.04	2.00	0.00	0.45	0.00	36.09	253.05	2.00	0.00	0.45	0.00
36.26	235.22	2.00	0.00	0.45	0.00	36.42	223.06	2.00	0.00	0.44	0.00
36.58	215.76	2.00	0.00	0.44	0.00	36.75	213.39	2.00	0.00	0.44	0.00
36.91	207.76	2.00	0.00	0.44	0.00	37.08	203.85	2.00	0.00	0.43	0.00
37.24	206.68	2.00	0.00	0.43	0.00	37.40	213.36	2.00	0.00	0.43	0.00
37.57	211.28	2.00	0.00	0.43	0.00	37.73	206.08	2.00	0.00	0.42	0.00
37.90	205.82	2.00	0.00	0.42	0.00	38.06	210.35	2.00	0.00	0.42	0.00
38.22	210.92	2.00	0.00	0.42	0.00	38.39	206.73	2.00	0.00	0.41	0.00
38.55	196.21	2.00	0.00	0.41	0.00	38.72	176.85	2.00	0.00	0.41	0.00
38.88	151.93	2.00	0.00	0.41	0.00	39.04	130.84	2.00	0.00	0.40	0.00
39.21	124.40	2.00	0.00	0.40	0.00	39.37	131.67	2.00	0.00	0.40	0.00
39.54	144.39	2.00	0.00	0.40	0.00	39.70	163.36	2.00	0.00	0.39	0.00
39.86	177.39	2.00	0.00	0.39	0.00	40.03	192.19	2.00	0.00	0.39	0.00
40.19	200.41	2.00	0.00	0.39	0.00	40.36	206.62	2.00	0.00	0.38	0.00
40.52	215.47	2.00	0.00	0.38	0.00	40.68	227.42	2.00	0.00	0.38	0.00
40.85	233.34	2.00	0.00	0.38	0.00	41.01	223.77	2.00	0.00	0.37	0.00
41.18	192.29	2.00	0.00	0.37	0.00	41.34	155.96	2.00	0.00	0.37	0.00
41.50	131.68	2.00	0.00	0.37	0.00	41.67	128.60	2.00	0.00	0.36	0.00
41.83	128.37	2.00	0.00	0.36	0.00	42.00	125.05	2.00	0.00	0.36	0.00
42.16	120.76	2.00	0.00	0.36	0.00	42.32	116.45	2.00	0.00	0.35	0.00
42.49	112.06	2.00	0.00	0.35	0.00	42.65	107.45	2.00	0.00	0.35	0.00
42.82	102.58	2.00	0.00	0.35	0.00	42.98	102.45	2.00	0.00	0.34	0.00
43.15	108.15	2.00	0.00	0.34	0.00	43.31	116.76	2.00	0.00	0.34	0.00
43.47	123.71	2.00	0.00	0.34	0.00	43.64	125.25	2.00	0.00	0.33	0.00
43.80	122.93	2.00	0.00	0.33	0.00	43.97	118.40	2.00	0.00	0.33	0.00
44.13	116.08	2.00	0.00	0.33	0.00	44.29	116.99	2.00	0.00	0.32	0.00
44.46	120.15	2.00	0.00	0.32	0.00	44.62	123.98	2.00	0.00	0.32	0.00
44.79	130.35	2.00	0.00	0.32	0.00	44.95	137.71	2.00	0.00	0.31	0.00
45.11	136.76	2.00	0.00	0.31	0.00	45.28	128.51	2.00	0.00	0.31	0.00
45.44	117.57	2.00	0.00	0.31	0.00	45.61	115.26	2.00	0.00	0.30	0.00
45.77	118.17	2.00	0.00	0.30	0.00	45.93	118.98	2.00	0.00	0.30	0.00
46.10	117.89	2.00	0.00	0.30	0.00	46.26	116.82	2.00	0.00	0.29	0.00
46.43	116.69	2.00	0.00	0.29	0.00	46.59	118.57	2.00	0.00	0.29	0.00
46.75	120.29	2.00	0.00	0.29	0.00	46.92	122.95	2.00	0.00	0.28	0.00
47.08	122.82	2.00	0.00	0.28	0.00	47.25	119.76	2.00	0.00	0.28	0.00
47.41	115.78	2.00	0.00	0.28	0.00	47.57	110.60	2.00	0.00	0.27	0.00
47.74	106.30	2.00	0.00	0.27	0.00	47.90	100.68	2.00	0.00	0.27	0.00
48.07	94.71	2.00	0.00	0.27	0.00	48.23	88.53	2.00	0.00	0.26	0.00
48.39	85.96	2.00	0.00	0.26	0.00	48.56	95.67	2.00	0.00	0.26	0.00
48.72	112.24	2.00	0.00	0.26	0.00	48.89	124.37	2.00	0.00	0.25	0.00
49.05	124.23	2.00	0.00	0.25	0.00	49.22	114.24	2.00	0.00	0.25	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)
49.38	105.01	2.00	0.00	0.25	0.00	49.54	94.97	2.00	0.00	0.24	0.00
49.71	92.54	2.00	0.00	0.24	0.00	49.87	88.75	2.00	0.00	0.24	0.00
50.04	94.62	2.00	0.00	0.24	0.00	50.20	100.04	2.00	0.00	0.23	0.00
50.36	108.37	2.00	0.00	0.23	0.00	50.53	113.16	2.00	0.00	0.23	0.00
50.69	110.08	2.00	0.00	0.23	0.00	50.86	103.80	2.00	0.00	0.22	0.00
51.02	110.82	2.00	0.00	0.22	0.00	51.18	138.13	2.00	0.00	0.22	0.00
51.35	182.76	2.00	0.00	0.22	0.00	51.51	212.88	2.00	0.00	0.21	0.00
51.68	207.27	2.00	0.00	0.21	0.00	51.84	188.68	2.00	0.00	0.21	0.00
52.00	167.50	2.00	0.00	0.21	0.00	52.17	152.22	2.00	0.00	0.20	0.00
52.33	136.77	2.00	0.00	0.20	0.00	52.50	120.01	2.00	0.00	0.20	0.00
52.66	110.14	2.00	0.00	0.20	0.00	52.82	107.28	2.00	0.00	0.19	0.00
52.99	110.02	2.00	0.00	0.19	0.00	53.15	111.65	2.00	0.00	0.19	0.00
53.32	112.26	2.00	0.00	0.19	0.00	53.48	112.27	2.00	0.00	0.18	0.00
53.64	113.18	2.00	0.00	0.18	0.00	53.81	115.82	2.00	0.00	0.18	0.00
53.97	120.95	2.00	0.00	0.18	0.00	54.14	125.02	2.00	0.00	0.17	0.00
54.30	128.90	2.00	0.00	0.17	0.00	54.46	127.80	2.00	0.00	0.17	0.00
54.63	130.90	2.00	0.00	0.17	0.00	54.79	140.93	2.00	0.00	0.16	0.00
54.96	157.87	2.00	0.00	0.16	0.00	55.12	166.31	2.00	0.00	0.16	0.00
55.28	162.04	2.00	0.00	0.16	0.00	55.45	145.20	2.00	0.00	0.15	0.00
55.61	128.42	2.00	0.00	0.15	0.00	55.78	114.90	2.00	0.00	0.15	0.00
55.94	109.48	2.00	0.00	0.15	0.00	56.11	109.33	2.00	0.00	0.14	0.00
56.27	111.80	2.00	0.00	0.14	0.00	56.43	115.08	2.00	0.00	0.14	0.00
56.60	115.78	2.00	0.00	0.14	0.00	56.76	114.85	2.00	0.00	0.13	0.00
56.93	116.55	2.00	0.00	0.13	0.00	57.09	125.53	2.00	0.00	0.13	0.00
57.25	142.68	2.00	0.00	0.13	0.00	57.42	158.80	2.00	0.00	0.12	0.00
57.58	167.59	2.00	0.00	0.12	0.00	57.75	168.66	2.00	0.00	0.12	0.00
57.91	165.95	2.00	0.00	0.12	0.00	58.07	163.85	2.00	0.00	0.11	0.00
58.24	166.14	2.00	0.00	0.11	0.00	58.40	170.87	2.00	0.00	0.11	0.00
58.57	174.26	2.00	0.00	0.11	0.00	58.73	169.17	2.00	0.00	0.10	0.00
58.89	156.28	2.00	0.00	0.10	0.00	59.06	141.31	2.00	0.00	0.10	0.00
59.22	128.09	2.00	0.00	0.10	0.00	59.39	116.21	2.00	0.00	0.09	0.00
59.55	104.96	2.00	0.00	0.09	0.00	59.71	105.34	2.00	0.00	0.09	0.00
59.88	115.53	2.00	0.00	0.09	0.00	60.04	129.14	2.00	0.00	0.08	0.00
60.21	142.93	2.00	0.00	0.08	0.00	60.37	150.86	2.00	0.00	0.08	0.00
60.53	153.27	2.00	0.00	0.08	0.00	60.70	147.87	2.00	0.00	0.07	0.00
60.86	141.65	2.00	0.00	0.07	0.00	61.03	138.06	2.00	0.00	0.07	0.00
61.19	137.22	2.00	0.00	0.07	0.00	61.35	142.53	2.00	0.00	0.06	0.00
61.52	154.07	2.00	0.00	0.06	0.00	61.68	168.37	2.00	0.00	0.06	0.00
61.85	181.16	2.00	0.00	0.06	0.00	62.01	187.10	2.00	0.00	0.05	0.00
62.17	191.33	2.00	0.00	0.05	0.00	62.34	193.60	2.00	0.00	0.05	0.00
62.50	201.26	2.00	0.00	0.05	0.00	62.67	208.45	2.00	0.00	0.04	0.00
62.83	227.09	2.00	0.00	0.04	0.00	63.00	244.90	2.00	0.00	0.04	0.00
63.16	262.23	2.00	0.00	0.04	0.00	63.32	273.39	2.00	0.00	0.03	0.00
63.49	280.76	2.00	0.00	0.03	0.00	63.65	284.35	2.00	0.00	0.03	0.00
63.82	287.89	2.00	0.00	0.03	0.00	63.98	294.98	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)

Total estimated settlement: 0.09

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

DRAFT

LIQUEFACTION ANALYSIS REPORT

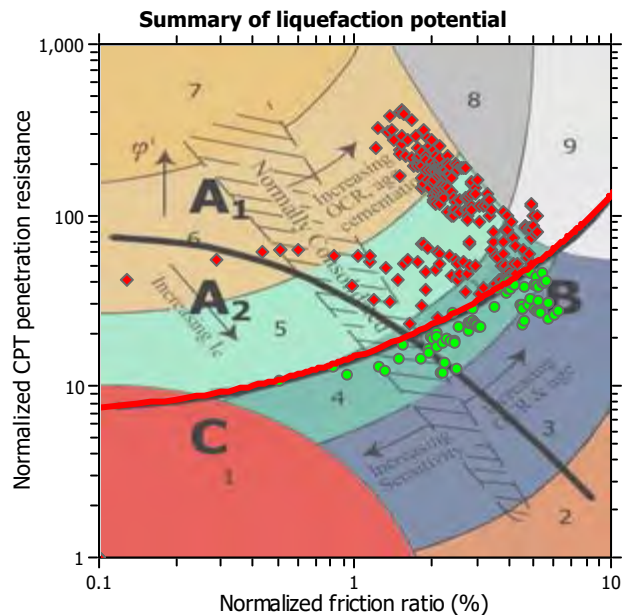
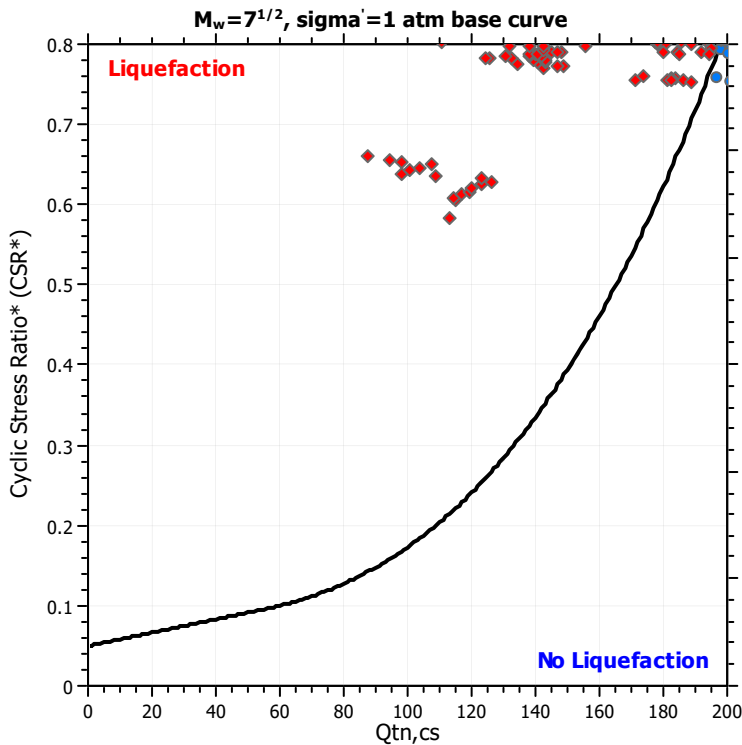
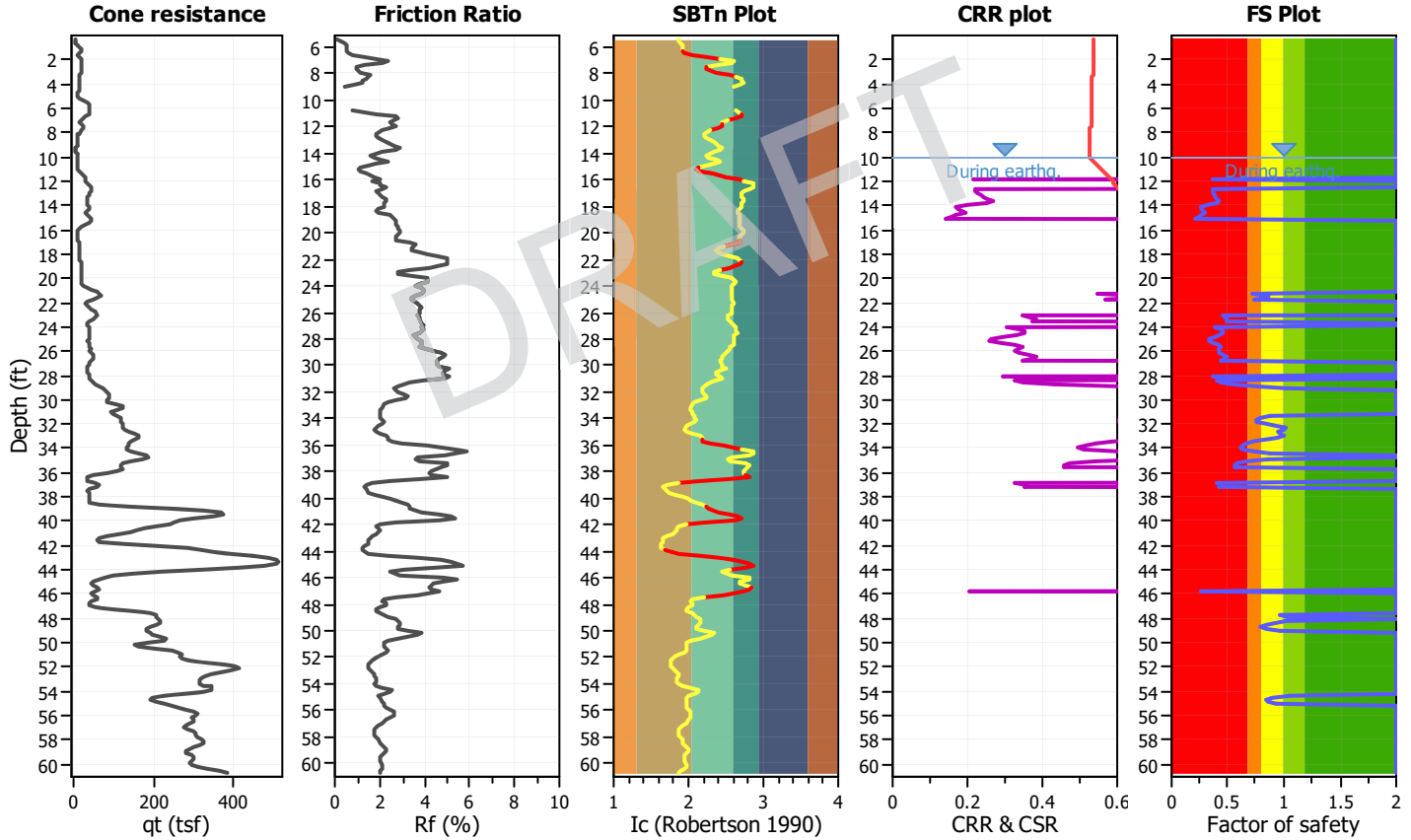
Project title : 210256003 - Compton HS

Location : Compton, CA

CPT file : CPT-10

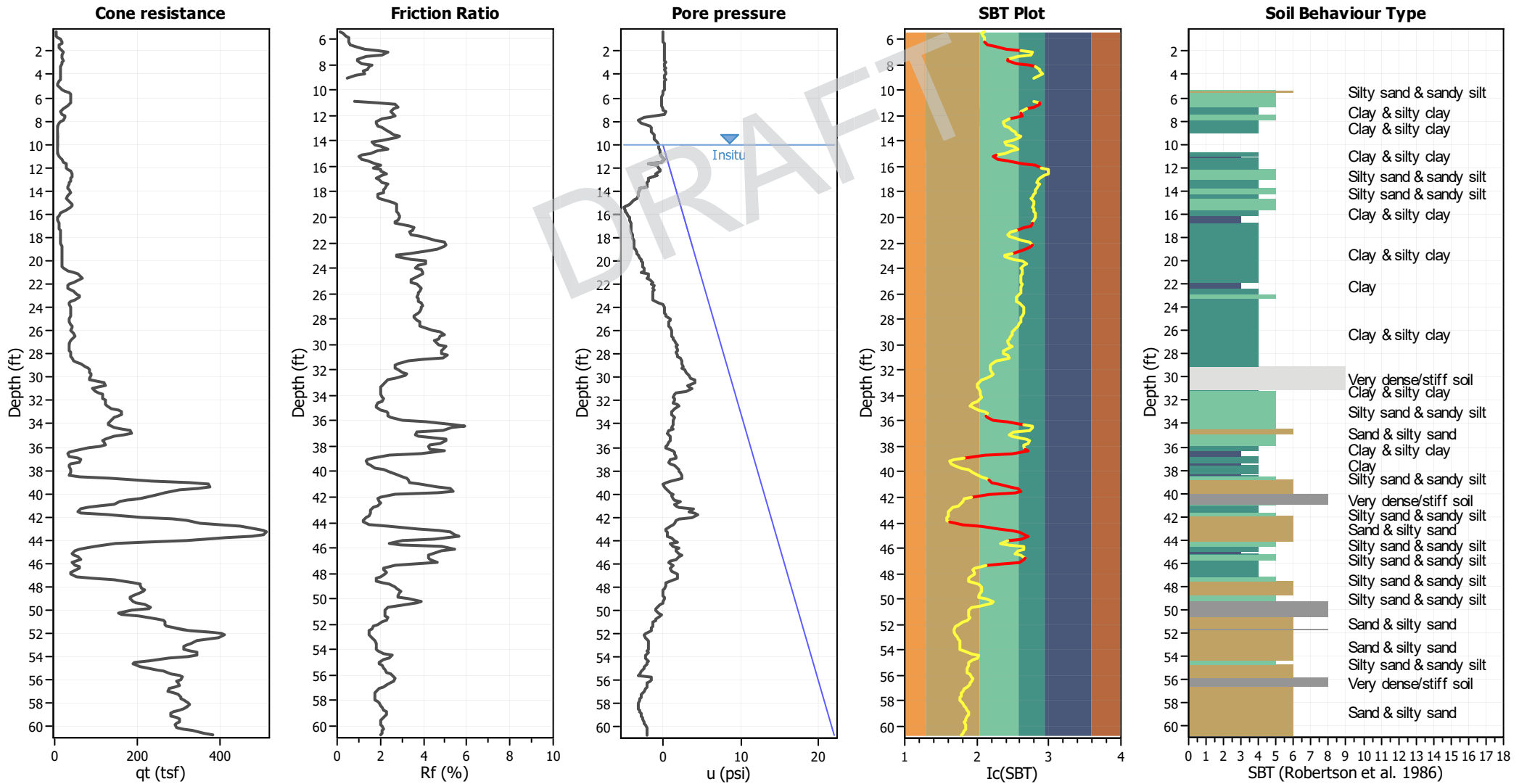
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



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



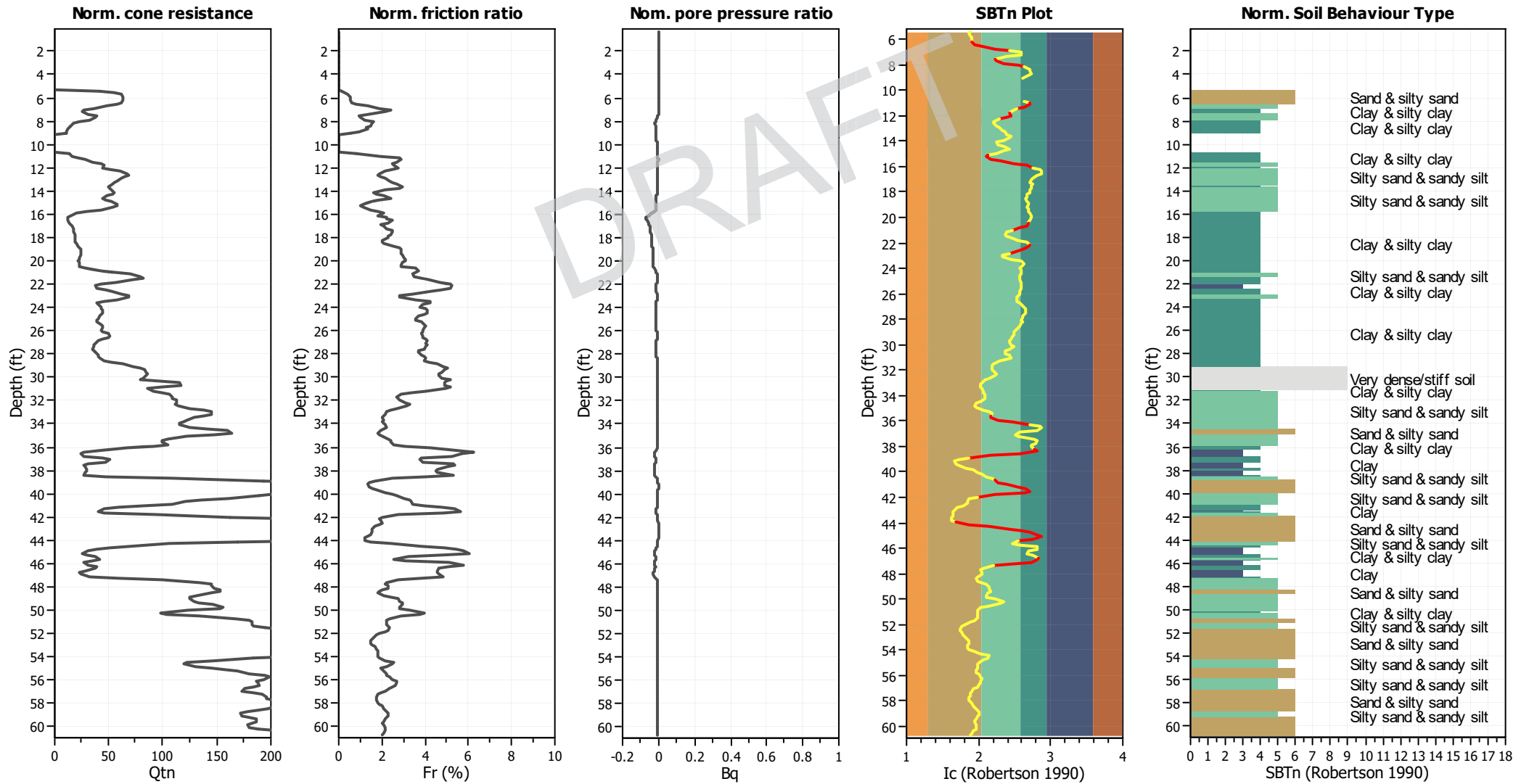
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



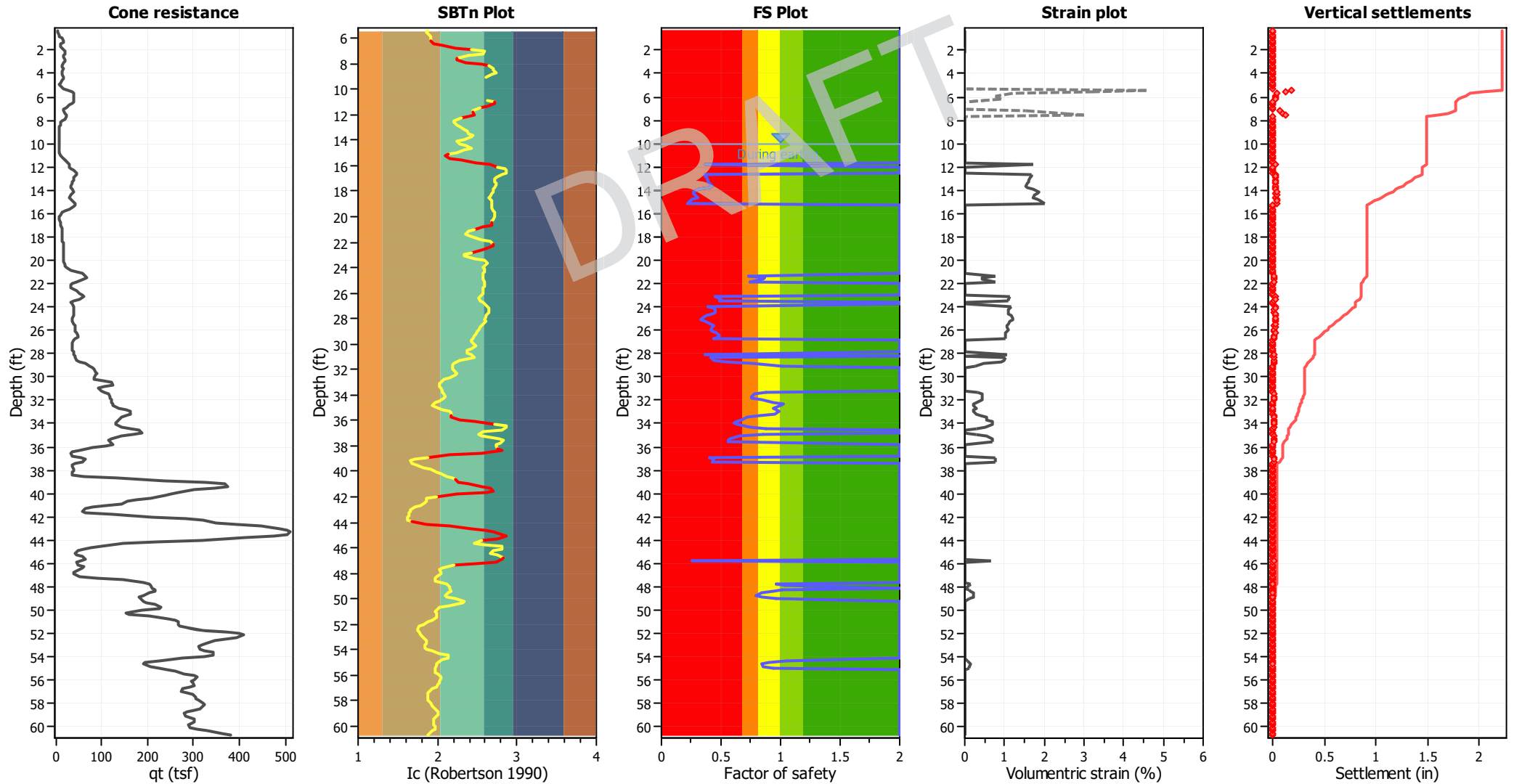
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.09	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.41	1.88	41.71	1.00	41.71	8	252	0.53	13.899	39.96	9.27	4.59	0.176
5.58	1.86	55.35	1.00	55.35	11	326	0.53	2.137	4.42	9.27	3.25	0.133
5.74	1.89	61.44	1.00	61.44	12	376	0.53	0.922	1.66	9.27	1.22	0.047
5.91	1.91	62.87	1.20	75.48	15	397	0.53	0.744	1.03	9.27	0.76	0.031
6.07	1.91	62.75	1.20	75.40	15	396	0.53	0.821	1.14	9.27	0.83	0.032
6.23	1.91	63.11	1.20	75.63	15	397	0.53	0.894	1.24	9.27	0.90	0.035
6.40	1.95	62.19	1.24	77.24	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.05	58.00	1.37	79.71	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.23	48.72	1.74	84.94	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.43	36.55	2.42	88.55	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.60	26.52	3.33	88.29	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.58	25.28	3.21	81.27	22	372	0.53	2.398	2.16	9.27	1.55	0.063
7.38	2.40	31.31	2.29	71.80	18	364	0.53	3.047	3.55	9.27	2.53	0.097
7.55	2.24	38.72	1.76	68.06	16	368	0.53	3.108	4.20	9.27	2.99	0.122
7.71	2.24	38.19	1.78	67.99	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.87	2.36	31.63	2.14	67.83	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.04	2.55	23.10	3.01	69.59	0	0	0.53	0.000	0.00	9.27	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)
8.20	2.64	17.31	3.58	61.93	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.70	14.31	4.01	57.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.71	12.81	4.04	51.70	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.74	12.16	4.27	51.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.69	11.40	3.94	44.88	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.62	10.53	3.43	36.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.35	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.74												

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)
10.01	-1.00	2.00	0.00	0.85	0.00	10.17	-1.00	2.00	0.00	0.84	0.00
10.34	-1.00	2.00	0.00	0.84	0.00	10.50	-1.00	2.00	0.00	0.84	0.00
10.66	-1.00	2.00	0.00	0.84	0.00	10.83	44.54	2.00	0.00	0.83	0.00
10.99	67.36	2.00	0.00	0.83	0.00	11.16	86.90	2.00	0.00	0.83	0.00
11.32	98.13	2.00	0.00	0.83	0.00	11.48	104.57	2.00	0.00	0.82	0.00
11.65	108.15	2.00	0.00	0.82	0.00	11.81	112.82	0.37	1.74	0.82	0.03
11.98	115.67	2.00	0.00	0.82	0.00	12.14	116.78	2.00	0.00	0.81	0.00
12.30	115.99	2.00	0.00	0.81	0.00	12.47	115.21	2.00	0.00	0.81	0.00
12.63	114.89	0.37	1.68	0.81	0.03	12.80	114.58	0.36	1.68	0.80	0.03
12.96	116.91	0.37	1.65	0.80	0.03	13.12	119.61	0.39	1.61	0.80	0.03
13.29	120.09	0.39	1.60	0.80	0.03	13.45	122.88	0.40	1.57	0.79	0.03
13.62	126.37	0.43	1.53	0.79	0.03	13.78	123.08	0.40	1.56	0.79	0.03
13.94	109.00	0.32	1.71	0.79	0.03	14.11	98.05	0.26	1.86	0.78	0.04
14.27	100.42	0.27	1.82	0.78	0.03	14.44	103.74	0.28	1.77	0.78	0.04
14.60	107.40	0.30	1.71	0.78	0.03	14.76	98.03	0.26	1.84	0.77	0.04
14.93	94.40	0.24	1.89	0.77	0.04	15.09	87.45	0.22	2.01	0.77	0.04
15.26	85.25	2.00	0.00	0.77	0.00	15.42	83.98	2.00	0.00	0.76	0.00
15.58	83.51	2.00	0.00	0.76	0.00	15.75	80.44	2.00	0.00	0.76	0.00
15.91	73.85	2.00	0.00	0.76	0.00	16.08	62.16	2.00	0.00	0.75	0.00
16.24	63.31	2.00	0.00	0.75	0.00	16.40	63.30	2.00	0.00	0.75	0.00
16.57	67.97	2.00	0.00	0.75	0.00	16.73	67.20	2.00	0.00	0.74	0.00
16.90	66.04	2.00	0.00	0.74	0.00	17.06	69.82	2.00	0.00	0.74	0.00
17.23	73.51	2.00	0.00	0.74	0.00	17.39	77.52	2.00	0.00	0.73	0.00
17.55	77.22	2.00	0.00	0.73	0.00	17.72	76.80	2.00	0.00	0.73	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)
17.88	76.32	2.00	0.00	0.73	0.00	18.05	76.13	2.00	0.00	0.72	0.00
18.21	71.85	2.00	0.00	0.72	0.00	18.37	71.51	2.00	0.00	0.72	0.00
18.54	74.70	2.00	0.00	0.72	0.00	18.70	84.77	2.00	0.00	0.71	0.00
18.87	90.54	2.00	0.00	0.71	0.00	19.03	93.15	2.00	0.00	0.71	0.00
19.19	92.90	2.00	0.00	0.71	0.00	19.36	92.78	2.00	0.00	0.70	0.00
19.52	92.77	2.00	0.00	0.70	0.00	19.69	92.94	2.00	0.00	0.70	0.00
19.85	93.12	2.00	0.00	0.70	0.00	20.01	92.92	2.00	0.00	0.69	0.00
20.18	92.21	2.00	0.00	0.69	0.00	20.34	91.56	2.00	0.00	0.69	0.00
20.51	91.39	2.00	0.00	0.69	0.00	20.67	110.44	2.00	0.00	0.68	0.00
20.83	132.42	2.00	0.00	0.68	0.00	21.00	148.41	2.00	0.00	0.68	0.00
21.16	160.35	2.00	0.00	0.68	0.00	21.33	171.49	0.73	0.77	0.67	0.02
21.49	183.66	0.87	0.43	0.67	0.01	21.65	182.79	0.85	0.43	0.67	0.01
21.82	173.55	0.75	0.75	0.67	0.02	21.98	161.75	2.00	0.00	0.66	0.00
22.15	153.48	2.00	0.00	0.66	0.00	22.31	154.25	2.00	0.00	0.66	0.00
22.47	159.78	2.00	0.00	0.66	0.00	22.64	159.52	2.00	0.00	0.65	0.00
22.80	149.99	2.00	0.00	0.65	0.00	22.97	141.60	2.00	0.00	0.65	0.00
23.13	142.65	0.45	1.13	0.65	0.02	23.30	148.48	0.50	1.09	0.64	0.02
23.46	147.01	0.49	1.09	0.64	0.02	23.62	138.83	2.00	0.00	0.64	0.00
23.79	132.35	2.00	0.00	0.64	0.00	23.95	134.27	0.39	1.17	0.63	0.02
24.12	140.77	0.44	1.12	0.63	0.02	24.28	143.37	0.45	1.10	0.63	0.02
24.44	142.98	0.45	1.09	0.63	0.02	24.61	139.44	0.43	1.11	0.62	0.02
24.77	132.59	0.38	1.15	0.62	0.02	24.94	125.92	0.34	1.20	0.62	0.02
25.10	124.25	0.33	1.21	0.62	0.02	25.26	130.93	0.37	1.15	0.61	0.02
25.43	137.98	0.41	1.10	0.61	0.02	25.59	142.03	0.44	1.07	0.61	0.02
25.76	139.93	0.43	1.08	0.61	0.02	25.92	138.29	0.41	1.08	0.60	0.02
26.08	140.52	0.43	1.07	0.60	0.02	26.25	144.71	0.46	1.04	0.60	0.02
26.41	148.30	0.49	1.01	0.60	0.02	26.58	146.76	0.47	1.01	0.59	0.02
26.74	142.40	0.44	1.04	0.59	0.02	26.90	137.58	2.00	0.00	0.59	0.00
27.07	133.19	2.00	0.00	0.59	0.00	27.23	131.81	2.00	0.00	0.58	0.00
27.40	129.87	2.00	0.00	0.58	0.00	27.56	126.76	2.00	0.00	0.58	0.00
27.72	123.91	2.00	0.00	0.58	0.00	27.89	126.44	2.00	0.00	0.57	0.00
28.05	131.93	0.37	1.07	0.57	0.02	28.22	136.16	2.00	0.00	0.57	0.00
28.38	138.38	0.41	1.02	0.57	0.02	28.54	142.51	0.44	0.99	0.56	0.02
28.71	155.76	0.54	0.91	0.56	0.02	28.87	177.89	0.76	0.49	0.56	0.01
29.04	199.06	1.02	0.26	0.56	0.01	29.20	212.24	2.00	0.00	0.55	0.00
29.36	212.67	2.00	0.00	0.55	0.00	29.53	211.63	2.00	0.00	0.55	0.00
29.69	210.42	2.00	0.00	0.55	0.00	29.86	209.16	2.00	0.00	0.54	0.00
30.02	208.47	2.00	0.00	0.54	0.00	30.19	215.92	2.00	0.00	0.54	0.00
30.35	234.50	2.00	0.00	0.54	0.00	30.51	253.07	2.00	0.00	0.53	0.00
30.68	257.29	2.00	0.00	0.53	0.00	30.84	241.73	2.00	0.00	0.53	0.00
31.01	220.07	2.00	0.00	0.53	0.00	31.17	200.51	2.00	0.00	0.52	0.00
31.33	188.79	0.88	0.32	0.52	0.01	31.50	180.54	0.78	0.45	0.52	0.01
31.66	177.79	0.75	0.45	0.52	0.01	31.83	178.35	0.76	0.45	0.51	0.01
31.99	185.90	0.84	0.42	0.51	0.01	32.15	193.33	0.94	0.30	0.51	0.01
32.32	199.85	1.02	0.24	0.51	0.00	32.48	197.94	0.99	0.24	0.50	0.00
32.65	194.08	0.94	0.30	0.50	0.01	32.81	195.81	0.96	0.24	0.50	0.00
32.97	197.98	0.99	0.23	0.50	0.00	33.14	194.72	0.95	0.29	0.49	0.01
33.30	184.98	0.83	0.41	0.49	0.01	33.47	175.72	0.72	0.54	0.49	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)
33.63	170.77	0.67	0.56	0.49	0.01	33.79	167.03	0.63	0.70	0.48	0.01
33.96	164.62	0.61	0.71	0.48	0.01	34.12	166.70	0.63	0.69	0.48	0.01
34.29	177.57	0.74	0.52	0.48	0.01	34.45	190.09	0.88	0.29	0.47	0.01
34.61	200.99	2.00	0.00	0.47	0.00	34.78	200.58	2.00	0.00	0.47	0.00
34.94	187.65	0.85	0.29	0.47	0.01	35.11	170.53	0.66	0.54	0.46	0.01
35.27	161.49	0.58	0.70	0.46	0.01	35.43	159.91	0.56	0.71	0.46	0.01
35.60	159.91	0.56	0.70	0.46	0.01	35.76	169.22	2.00	0.00	0.45	0.00
35.93	172.23	2.00	0.00	0.45	0.00	36.09	175.23	2.00	0.00	0.45	0.00
36.26	163.45	2.00	0.00	0.45	0.00	36.42	146.40	2.00	0.00	0.44	0.00
36.58	132.98	2.00	0.00	0.44	0.00	36.75	133.19	2.00	0.00	0.44	0.00
36.91	138.25	0.40	0.78	0.44	0.02	37.08	144.26	0.44	0.75	0.43	0.02
37.24	142.84	0.43	0.75	0.43	0.01	37.40	141.08	2.00	0.00	0.43	0.00
37.57	133.35	2.00	0.00	0.43	0.00	37.73	131.52	2.00	0.00	0.42	0.00
37.90	127.93	2.00	0.00	0.42	0.00	38.06	126.50	2.00	0.00	0.42	0.00
38.22	124.22	2.00	0.00	0.42	0.00	38.39	133.28	2.00	0.00	0.41	0.00
38.55	145.32	2.00	0.00	0.41	0.00	38.72	170.90	2.00	0.00	0.41	0.00
38.88	225.50	2.00	0.00	0.41	0.00	39.04	286.17	2.00	0.00	0.40	0.00
39.21	314.42	2.00	0.00	0.40	0.00	39.37	320.73	2.00	0.00	0.40	0.00
39.54	303.84	2.00	0.00	0.40	0.00	39.70	277.63	2.00	0.00	0.39	0.00
39.86	260.56	2.00	0.00	0.39	0.00	40.03	259.52	2.00	0.00	0.39	0.00
40.19	256.56	2.00	0.00	0.39	0.00	40.36	240.04	2.00	0.00	0.38	0.00
40.52	222.73	2.00	0.00	0.38	0.00	40.68	211.06	2.00	0.00	0.38	0.00
40.85	200.53	2.00	0.00	0.38	0.00	41.01	186.79	2.00	0.00	0.37	0.00
41.18	178.62	2.00	0.00	0.37	0.00	41.34	171.01	2.00	0.00	0.37	0.00
41.50	165.60	2.00	0.00	0.37	0.00	41.67	159.85	2.00	0.00	0.36	0.00
41.83	165.60	2.00	0.00	0.36	0.00	42.00	207.53	2.00	0.00	0.36	0.00
42.16	259.14	2.00	0.00	0.36	0.00	42.32	288.63	2.00	0.00	0.35	0.00
42.49	313.22	2.00	0.00	0.35	0.00	42.65	341.40	2.00	0.00	0.35	0.00
42.82	372.26	2.00	0.00	0.35	0.00	42.98	394.28	2.00	0.00	0.34	0.00
43.15	404.73	2.00	0.00	0.34	0.00	43.31	407.65	2.00	0.00	0.34	0.00
43.47	400.82	2.00	0.00	0.34	0.00	43.64	379.08	2.00	0.00	0.33	0.00
43.80	326.45	2.00	0.00	0.33	0.00	43.97	257.09	2.00	0.00	0.33	0.00
44.13	196.70	2.00	0.00	0.33	0.00	44.29	166.53	2.00	0.00	0.32	0.00
44.46	169.04	2.00	0.00	0.32	0.00	44.62	169.81	2.00	0.00	0.32	0.00
44.79	160.32	2.00	0.00	0.32	0.00	44.95	147.23	2.00	0.00	0.31	0.00
45.11	139.96	2.00	0.00	0.31	0.00	45.28	130.73	2.00	0.00	0.31	0.00
45.44	117.07	2.00	0.00	0.31	0.00	45.61	107.95	2.00	0.00	0.30	0.00
45.77	110.60	0.26	0.65	0.30	0.01	45.93	130.53	2.00	0.00	0.30	0.00
46.10	147.48	2.00	0.00	0.30	0.00	46.26	151.89	2.00	0.00	0.29	0.00
46.43	142.36	2.00	0.00	0.29	0.00	46.59	124.17	2.00	0.00	0.29	0.00
46.75	113.93	2.00	0.00	0.29	0.00	46.92	116.98	2.00	0.00	0.28	0.00
47.08	137.92	2.00	0.00	0.28	0.00	47.25	156.24	2.00	0.00	0.28	0.00
47.41	170.31	2.00	0.00	0.28	0.00	47.57	186.37	2.00	0.00	0.27	0.00
47.74	195.00	0.97	0.13	0.27	0.00	47.90	199.63	1.03	0.13	0.27	0.00
48.07	201.00	2.00	0.00	0.27	0.00	48.23	198.16	1.01	0.12	0.26	0.00
48.39	192.03	0.93	0.16	0.26	0.00	48.56	184.16	0.84	0.22	0.26	0.00
48.72	180.28	0.79	0.22	0.26	0.00	48.89	184.92	0.85	0.21	0.25	0.00
49.05	194.12	0.97	0.12	0.25	0.00	49.22	200.92	2.00	0.00	0.25	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)
49.38	210.88	2.00	0.00	0.25	0.00	49.54	222.37	2.00	0.00	0.24	0.00
49.71	228.89	2.00	0.00	0.24	0.00	49.87	225.68	2.00	0.00	0.24	0.00
50.04	211.49	2.00	0.00	0.24	0.00	50.20	206.12	2.00	0.00	0.23	0.00
50.36	205.51	2.00	0.00	0.23	0.00	50.53	208.67	2.00	0.00	0.23	0.00
50.69	223.15	2.00	0.00	0.23	0.00	50.86	229.21	2.00	0.00	0.22	0.00
51.02	232.73	2.00	0.00	0.22	0.00	51.18	232.39	2.00	0.00	0.22	0.00
51.35	235.58	2.00	0.00	0.22	0.00	51.51	248.47	2.00	0.00	0.21	0.00
51.68	271.26	2.00	0.00	0.21	0.00	51.84	297.64	2.00	0.00	0.21	0.00
52.00	314.00	2.00	0.00	0.21	0.00	52.17	314.36	2.00	0.00	0.20	0.00
52.33	299.33	2.00	0.00	0.20	0.00	52.50	278.56	2.00	0.00	0.20	0.00
52.66	261.60	2.00	0.00	0.20	0.00	52.82	250.27	2.00	0.00	0.19	0.00
52.99	245.67	2.00	0.00	0.19	0.00	53.15	242.58	2.00	0.00	0.19	0.00
53.32	245.36	2.00	0.00	0.19	0.00	53.48	254.16	2.00	0.00	0.18	0.00
53.64	265.89	2.00	0.00	0.18	0.00	53.81	265.89	2.00	0.00	0.18	0.00
53.97	251.67	2.00	0.00	0.18	0.00	54.14	222.66	2.00	0.00	0.17	0.00
54.30	197.10	1.05	0.08	0.17	0.00	54.46	186.33	0.90	0.11	0.17	0.00
54.63	180.97	0.84	0.14	0.17	0.00	54.79	182.60	0.86	0.11	0.16	0.00
54.96	188.84	0.94	0.10	0.16	0.00	55.12	201.23	2.00	0.00	0.16	0.00
55.28	215.50	2.00	0.00	0.16	0.00	55.45	229.15	2.00	0.00	0.15	0.00
55.61	244.25	2.00	0.00	0.15	0.00	55.78	251.24	2.00	0.00	0.15	0.00
55.94	253.03	2.00	0.00	0.15	0.00	56.11	252.60	2.00	0.00	0.14	0.00
56.27	254.40	2.00	0.00	0.14	0.00	56.43	253.67	2.00	0.00	0.14	0.00
56.60	243.37	2.00	0.00	0.14	0.00	56.76	229.75	2.00	0.00	0.13	0.00
56.93	221.42	2.00	0.00	0.13	0.00	57.09	223.93	2.00	0.00	0.13	0.00
57.25	228.34	2.00	0.00	0.13	0.00	57.42	229.38	2.00	0.00	0.12	0.00
57.58	229.25	2.00	0.00	0.12	0.00	57.75	233.71	2.00	0.00	0.12	0.00
57.91	240.42	2.00	0.00	0.12	0.00	58.07	244.97	2.00	0.00	0.11	0.00
58.24	245.38	2.00	0.00	0.11	0.00	58.40	241.14	2.00	0.00	0.11	0.00
58.57	234.39	2.00	0.00	0.11	0.00	58.73	227.27	2.00	0.00	0.10	0.00
58.89	223.82	2.00	0.00	0.10	0.00	59.06	225.58	2.00	0.00	0.10	0.00
59.22	230.96	2.00	0.00	0.10	0.00	59.39	233.51	2.00	0.00	0.09	0.00
59.55	230.87	2.00	0.00	0.09	0.00	59.71	225.53	2.00	0.00	0.09	0.00
59.88	223.75	2.00	0.00	0.09	0.00	60.04	226.92	2.00	0.00	0.08	0.00
60.21	236.00	2.00	0.00	0.08	0.00	60.37	250.41	2.00	0.00	0.08	0.00
60.53	267.30	2.00	0.00	0.08	0.00	60.70	278.44	2.00	0.00	0.07	0.00
						Total estimated settlement: 1.48					

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

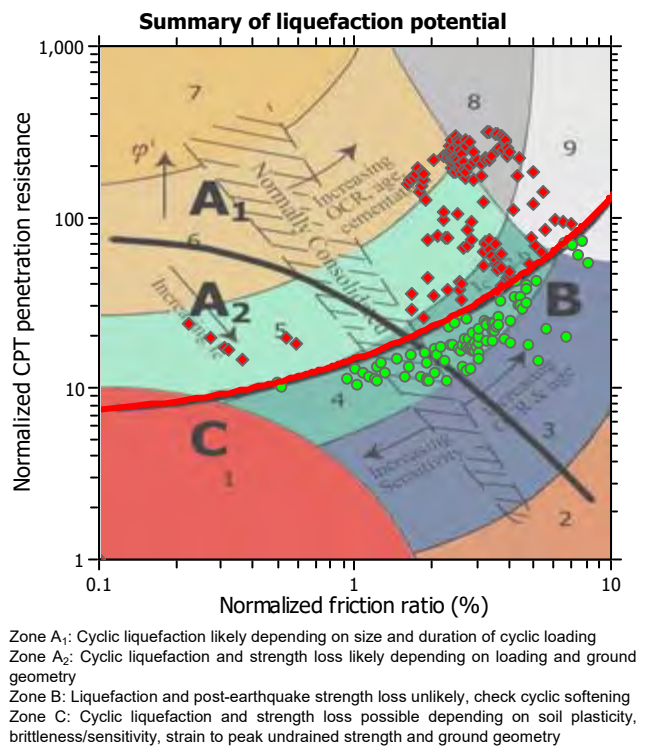
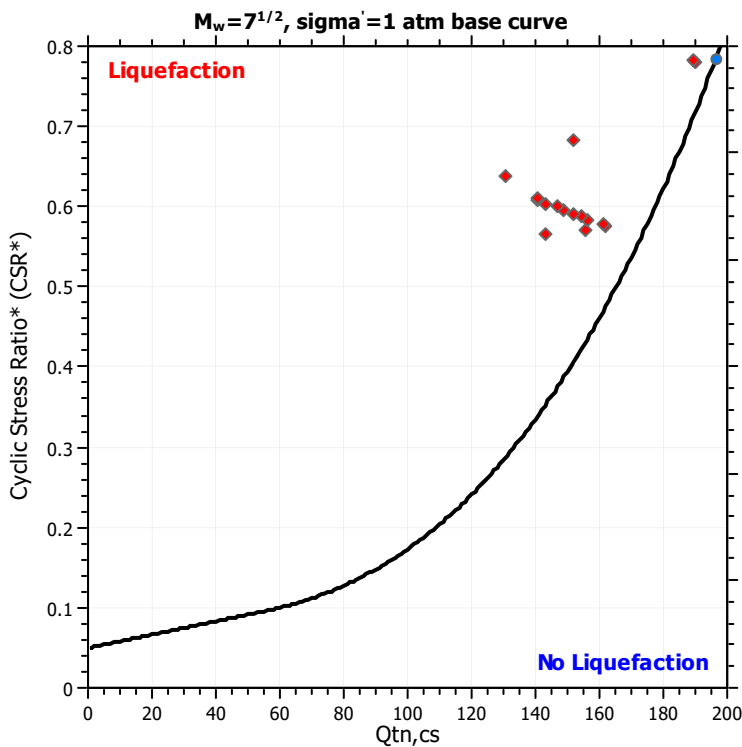
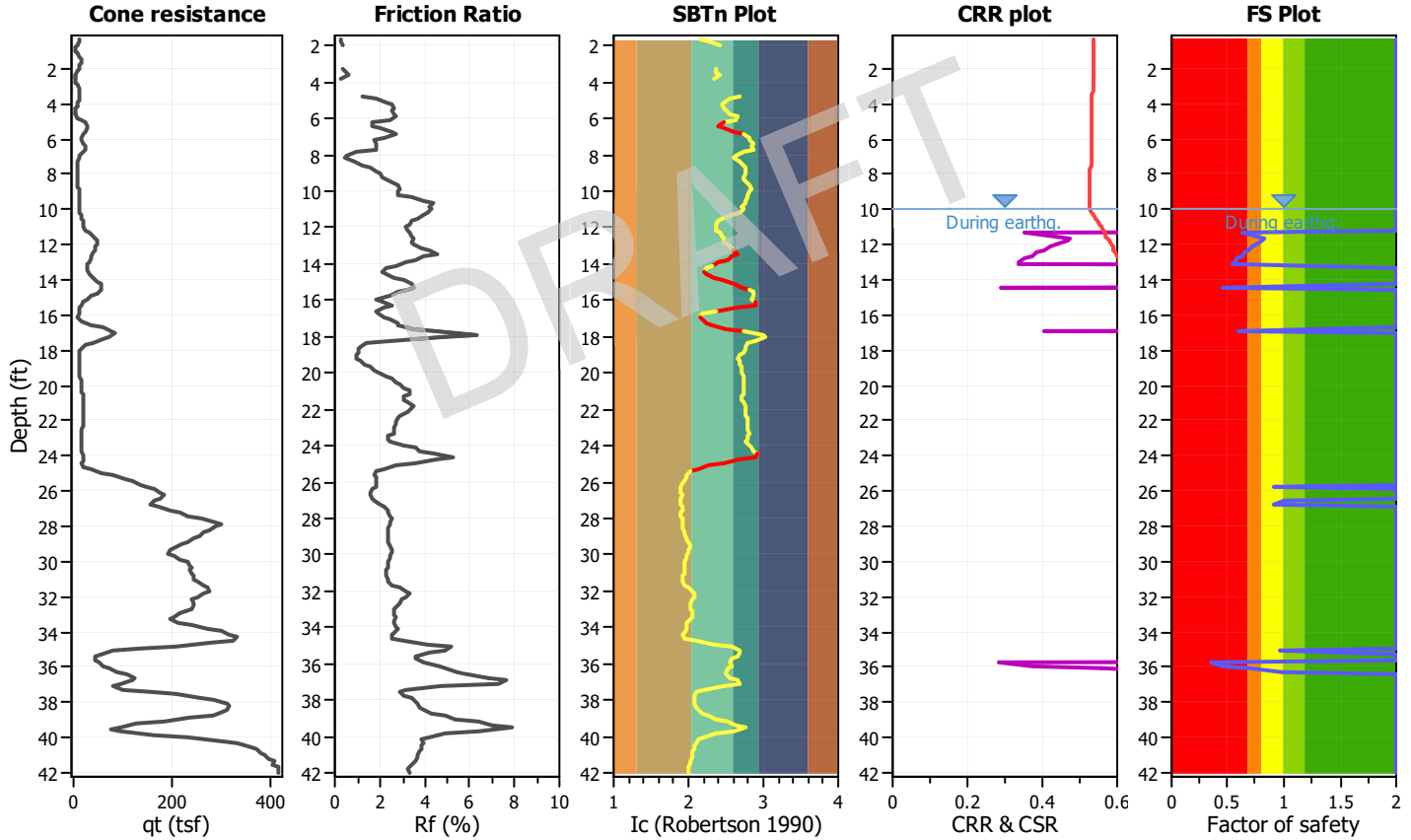
Project title : 210256003 - Compton HS

Location : Compton, CA

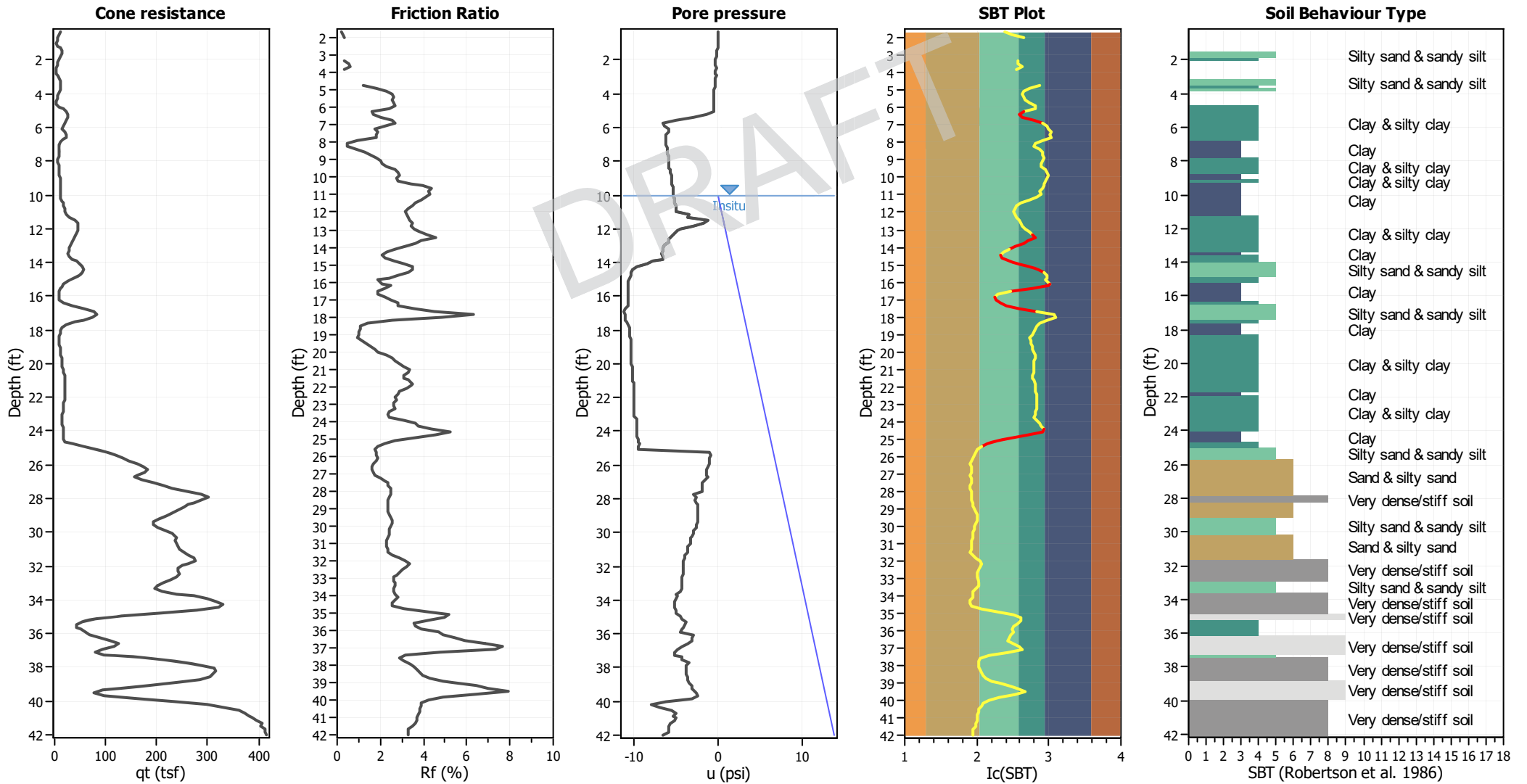
CPT file : CPT-11

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



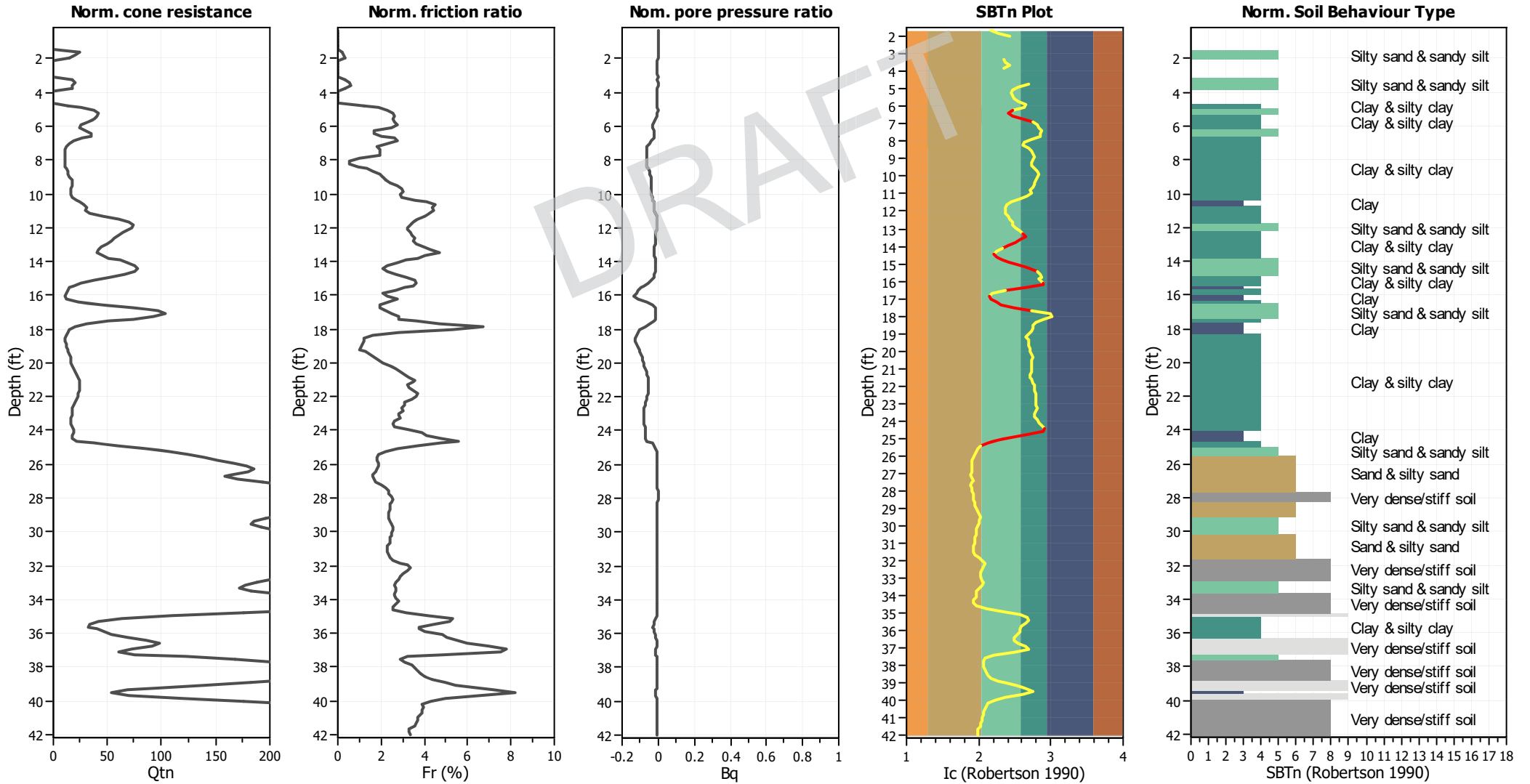
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{α} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



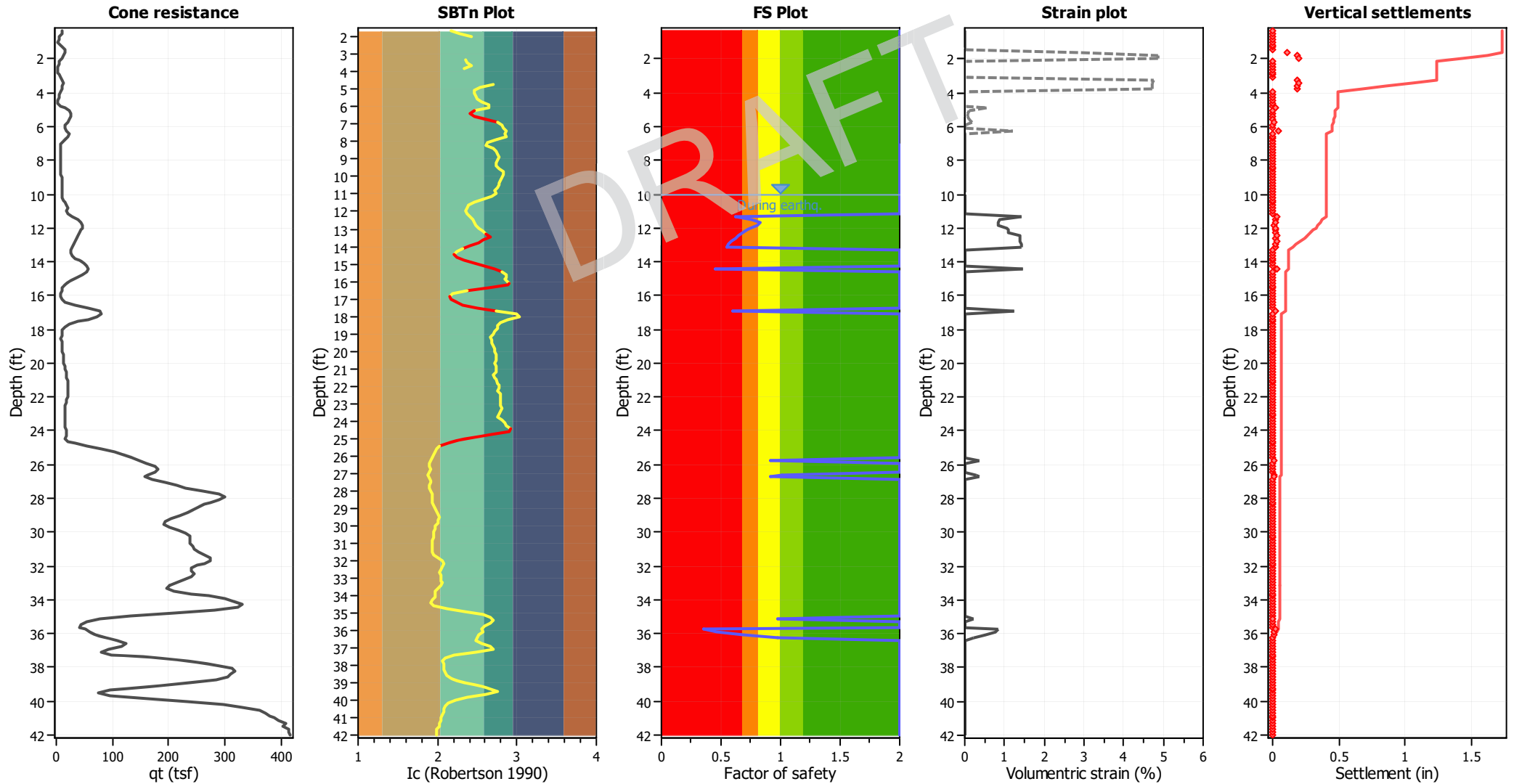
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	2.17	24.03	1.00	24.03	5	209	0.54	0.760	3.71	9.27	2.91	0.112
1.80	2.28	19.58	1.00	19.58	5	196	0.54	1.689	9.96	9.27	4.86	0.187
1.97	2.43	14.74	2.44	35.96	9	179	0.54	4.774	12.50	9.27	4.85	0.198
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.28	2.36	16.84	1.00	16.84	4	187	0.53	27.490	186.07	9.27	4.75	0.182
3.45	2.37	19.99	2.19	43.68	11	225	0.53	6.581	14.11	9.27	4.74	0.193
3.61	2.42	18.10	2.42	43.72	11	219	0.53	10.091	20.96	9.27	4.72	0.181
3.77	2.34	17.29	1.00	17.29	4	188	0.53	49.778	329.10	9.27	4.71	0.181
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	2.69	13.09	3.94	51.61	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	2.54	25.77	2.99	77.14	20	361	0.53	0.772	0.76	9.27	0.57	0.022
5.09	2.47	37.47	2.61	97.83	25	478	0.53	0.196	0.15	9.27	0.11	0.005
5.25	2.46	42.10	2.57	108.28	27	531	0.53	0.135	0.09	9.27	0.07	0.003
5.41	2.48	40.77	2.67	108.67	28	527	0.53	0.152	0.10	9.27	0.08	0.003
5.58	2.50	37.55	2.77	103.87	27	498	0.53	0.214	0.15	9.27	0.11	0.005
5.74	2.55	32.58	3.05	99.46	26	463	0.53	0.333	0.24	9.27	0.18	0.007
5.91	2.65	25.38	3.64	92.36	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.07	2.64	23.93	3.58	85.66	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.47	29.11	2.62	76.13	19	372	0.53	1.592	1.66	9.27	1.21	0.046
6.40	2.40	35.25	2.33	82.10	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.46	34.38	2.59	89.08	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.62	26.76	3.43	91.76	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.75	19.25	4.35	83.79	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.80	14.15	4.82	68.20	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.82	11.67	4.99	58.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.87	10.86	5.39	58.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.85	11.16	5.23	58.40	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.86	11.04	5.29	58.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.74	10.50	4.30	45.09	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.63	10.22	3.54	36.18	0	0	0.53	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)
8.20	2.61	10.64	3.40	36.13	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.70	11.32	3.97	44.90	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.73	12.22	4.24	51.87	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.75	13.17	4.39	57.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.77	13.96	4.52	63.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.75	15.40	4.40	67.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.73	17.04	4.22	71.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.73	17.89	4.25	76.03	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.78	17.39	4.63	80.49	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.82	16.31	4.96	80.90	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.84	15.87	5.11	81.06	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.32												

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)
10.01	80.79	2.00	0.00	0.85	0.00	10.17	84.28	2.00	0.00	0.84	0.00
10.34	97.72	2.00	0.00	0.84	0.00	10.50	112.31	2.00	0.00	0.84	0.00
10.66	125.15	2.00	0.00	0.84	0.00	10.83	126.82	2.00	0.00	0.83	0.00
10.99	127.10	2.00	0.00	0.83	0.00	11.16	130.62	2.00	0.00	0.83	0.00
11.32	143.16	0.62	1.44	0.83	0.03	11.48	155.92	0.76	0.88	0.82	0.02
11.65	161.86	0.83	0.83	0.82	0.02	11.81	161.06	0.81	0.83	0.82	0.02
11.98	156.43	0.75	1.06	0.82	0.02	12.14	154.60	0.72	1.08	0.81	0.02
12.30	151.58	0.68	1.11	0.81	0.02	12.47	148.52	0.65	1.39	0.81	0.03
12.63	147.10	0.63	1.40	0.81	0.03	12.80	143.30	0.59	1.40	0.80	0.03
12.96	140.33	0.55	1.42	0.80	0.03	13.12	140.40	0.55	1.42	0.80	0.03
13.29	143.99	2.00	0.00	0.80	0.00	13.45	147.71	2.00	0.00	0.79	0.00
13.62	143.16	2.00	0.00	0.79	0.00	13.78	143.98	2.00	0.00	0.79	0.00
13.94	144.69	2.00	0.00	0.79	0.00	14.11	140.00	2.00	0.00	0.78	0.00
14.27	134.86	2.00	0.00	0.78	0.00	14.44	130.83	0.45	1.46	0.78	0.03
14.60	134.07	2.00	0.00	0.78	0.00	14.76	134.92	2.00	0.00	0.77	0.00
14.93	132.70	2.00	0.00	0.77	0.00	15.09	123.32	2.00	0.00	0.77	0.00
15.26	107.80	2.00	0.00	0.77	0.00	15.42	92.61	2.00	0.00	0.76	0.00
15.58	79.49	2.00	0.00	0.76	0.00	15.75	71.40	2.00	0.00	0.76	0.00
15.91	61.99	2.00	0.00	0.76	0.00	16.08	62.42	2.00	0.00	0.75	0.00
16.24	71.27	2.00	0.00	0.75	0.00	16.40	81.67	2.00	0.00	0.75	0.00
16.57	96.39	2.00	0.00	0.75	0.00	16.73	123.30	2.00	0.00	0.74	0.00
16.90	152.10	0.60	1.23	0.74	0.03	17.06	166.25	2.00	0.00	0.74	0.00
17.23	166.60	2.00	0.00	0.74	0.00	17.39	147.49	2.00	0.00	0.73	0.00
17.55	143.04	2.00	0.00	0.73	0.00	17.72	133.09	2.00	0.00	0.73	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)
17.88	130.06	2.00	0.00	0.73	0.00	18.05	99.74	2.00	0.00	0.72	0.00
18.21	72.88	2.00	0.00	0.72	0.00	18.37	54.68	2.00	0.00	0.72	0.00
18.54	48.92	2.00	0.00	0.72	0.00	18.70	48.79	2.00	0.00	0.71	0.00
18.87	48.54	2.00	0.00	0.71	0.00	19.03	48.23	2.00	0.00	0.71	0.00
19.19	47.88	2.00	0.00	0.71	0.00	19.36	53.12	2.00	0.00	0.70	0.00
19.52	57.69	2.00	0.00	0.70	0.00	19.69	61.87	2.00	0.00	0.70	0.00
19.85	65.82	2.00	0.00	0.70	0.00	20.01	69.42	2.00	0.00	0.69	0.00
20.18	76.30	2.00	0.00	0.69	0.00	20.34	82.36	2.00	0.00	0.69	0.00
20.51	87.66	2.00	0.00	0.69	0.00	20.67	92.63	2.00	0.00	0.68	0.00
20.83	97.53	2.00	0.00	0.68	0.00	21.00	102.29	2.00	0.00	0.68	0.00
21.16	101.93	2.00	0.00	0.68	0.00	21.33	98.77	2.00	0.00	0.67	0.00
21.49	98.69	2.00	0.00	0.67	0.00	21.65	101.27	2.00	0.00	0.67	0.00
21.82	103.84	2.00	0.00	0.67	0.00	21.98	101.44	2.00	0.00	0.66	0.00
22.15	96.60	2.00	0.00	0.66	0.00	22.31	88.75	2.00	0.00	0.66	0.00
22.47	86.33	2.00	0.00	0.66	0.00	22.64	83.41	2.00	0.00	0.65	0.00
22.80	83.45	2.00	0.00	0.65	0.00	22.97	80.37	2.00	0.00	0.65	0.00
23.13	80.30	2.00	0.00	0.65	0.00	23.30	80.34	2.00	0.00	0.64	0.00
23.46	76.94	2.00	0.00	0.64	0.00	23.62	76.69	2.00	0.00	0.64	0.00
23.79	79.21	2.00	0.00	0.64	0.00	23.95	90.19	2.00	0.00	0.63	0.00
24.12	97.79	2.00	0.00	0.63	0.00	24.28	98.01	2.00	0.00	0.63	0.00
24.44	105.21	2.00	0.00	0.63	0.00	24.61	124.88	2.00	0.00	0.62	0.00
24.77	144.43	2.00	0.00	0.62	0.00	24.94	154.53	2.00	0.00	0.62	0.00
25.10	156.66	2.00	0.00	0.62	0.00	25.26	161.90	2.00	0.00	0.61	0.00
25.43	167.77	2.00	0.00	0.61	0.00	25.59	177.55	2.00	0.00	0.61	0.00
25.76	189.82	0.92	0.37	0.61	0.01	25.92	204.74	2.00	0.00	0.60	0.00
26.08	217.21	2.00	0.00	0.60	0.00	26.25	221.27	2.00	0.00	0.60	0.00
26.41	212.43	2.00	0.00	0.60	0.00	26.58	196.87	1.01	0.28	0.59	0.01
26.74	189.57	0.91	0.36	0.59	0.01	26.90	203.49	2.00	0.00	0.59	0.00
27.07	227.71	2.00	0.00	0.59	0.00	27.23	255.28	2.00	0.00	0.58	0.00
27.40	277.45	2.00	0.00	0.58	0.00	27.56	310.40	2.00	0.00	0.58	0.00
27.72	336.62	2.00	0.00	0.58	0.00	27.89	351.05	2.00	0.00	0.57	0.00
28.05	341.11	2.00	0.00	0.57	0.00	28.22	325.41	2.00	0.00	0.57	0.00
28.38	310.42	2.00	0.00	0.57	0.00	28.54	299.79	2.00	0.00	0.56	0.00
28.71	289.00	2.00	0.00	0.56	0.00	28.87	276.84	2.00	0.00	0.56	0.00
29.04	263.62	2.00	0.00	0.56	0.00	29.20	249.97	2.00	0.00	0.55	0.00
29.36	241.10	2.00	0.00	0.55	0.00	29.53	241.41	2.00	0.00	0.55	0.00
29.69	252.21	2.00	0.00	0.55	0.00	29.86	264.38	2.00	0.00	0.54	0.00
30.02	274.31	2.00	0.00	0.54	0.00	30.19	278.09	2.00	0.00	0.54	0.00
30.35	277.65	2.00	0.00	0.54	0.00	30.51	275.46	2.00	0.00	0.53	0.00
30.68	274.59	2.00	0.00	0.53	0.00	30.84	275.23	2.00	0.00	0.53	0.00
31.01	276.40	2.00	0.00	0.53	0.00	31.17	282.23	2.00	0.00	0.52	0.00
31.33	292.71	2.00	0.00	0.52	0.00	31.50	302.51	2.00	0.00	0.52	0.00
31.66	309.12	2.00	0.00	0.52	0.00	31.83	310.42	2.00	0.00	0.51	0.00
31.99	310.76	2.00	0.00	0.51	0.00	32.15	307.44	2.00	0.00	0.51	0.00
32.32	301.33	2.00	0.00	0.51	0.00	32.48	295.89	2.00	0.00	0.50	0.00
32.65	285.03	2.00	0.00	0.50	0.00	32.81	270.64	2.00	0.00	0.50	0.00
32.97	253.17	2.00	0.00	0.50	0.00	33.14	241.58	2.00	0.00	0.49	0.00
33.30	238.25	2.00	0.00	0.49	0.00	33.47	248.89	2.00	0.00	0.49	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)
33.63	272.16	2.00	0.00	0.49	0.00	33.79	298.84	2.00	0.00	0.48	0.00
33.96	324.79	2.00	0.00	0.48	0.00	34.12	343.00	2.00	0.00	0.48	0.00
34.29	349.18	2.00	0.00	0.48	0.00	34.45	335.96	2.00	0.00	0.47	0.00
34.61	299.77	2.00	0.00	0.47	0.00	34.78	258.73	2.00	0.00	0.47	0.00
34.94	224.39	2.00	0.00	0.47	0.00	35.11	196.39	0.97	0.22	0.46	0.00
35.27	159.04	2.00	0.00	0.46	0.00	35.43	132.93	2.00	0.00	0.46	0.00
35.60	119.69	2.00	0.00	0.46	0.00	35.76	130.11	0.35	0.86	0.45	0.02
35.93	146.63	0.46	0.77	0.45	0.02	36.09	172.30	0.68	0.51	0.45	0.01
36.26	197.46	0.98	0.21	0.45	0.00	36.42	233.74	2.00	0.00	0.44	0.00
36.58	263.80	2.00	0.00	0.44	0.00	36.75	280.85	2.00	0.00	0.44	0.00
36.91	266.46	2.00	0.00	0.44	0.00	37.08	237.34	2.00	0.00	0.43	0.00
37.24	202.70	2.00	0.00	0.43	0.00	37.40	207.43	2.00	0.00	0.43	0.00
37.57	241.83	2.00	0.00	0.43	0.00	37.73	285.27	2.00	0.00	0.42	0.00
37.90	322.05	2.00	0.00	0.42	0.00	38.06	351.33	2.00	0.00	0.42	0.00
38.22	358.96	2.00	0.00	0.42	0.00	38.39	357.90	2.00	0.00	0.41	0.00
38.55	359.72	2.00	0.00	0.41	0.00	38.72	355.99	2.00	0.00	0.41	0.00
38.88	334.87	2.00	0.00	0.41	0.00	39.04	303.04	2.00	0.00	0.40	0.00
39.21	274.47	2.00	0.00	0.40	0.00	39.37	245.46	2.00	0.00	0.40	0.00
39.54	234.79	2.00	0.00	0.40	0.00	39.70	235.66	2.00	0.00	0.39	0.00
39.86	262.94	2.00	0.00	0.39	0.00	40.03	301.85	2.00	0.00	0.39	0.00
40.19	343.32	2.00	0.00	0.39	0.00	40.36	370.56	2.00	0.00	0.38	0.00
40.52	391.25	2.00	0.00	0.38	0.00	40.68	400.81	2.00	0.00	0.38	0.00
40.85	401.84	2.00	0.00	0.38	0.00	41.01	405.37	2.00	0.00	0.37	0.00
41.18	409.81	2.00	0.00	0.37	0.00	41.34	414.98	2.00	0.00	0.37	0.00
41.50	407.88	2.00	0.00	0.37	0.00	41.67	405.91	2.00	0.00	0.36	0.00
41.83	404.47	2.00	0.00	0.36	0.00	42.00	405.85	2.00	0.00	0.36	0.00
Total estimated settlement: 0.40											

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

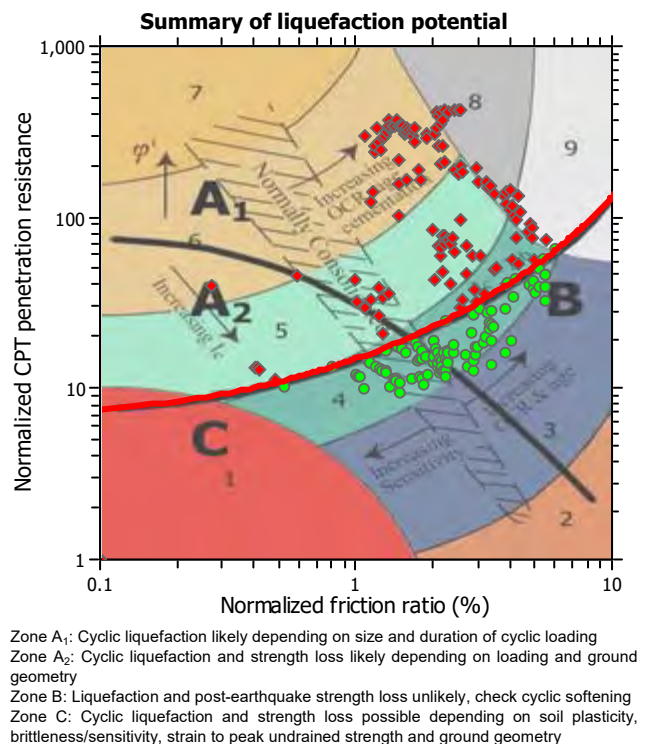
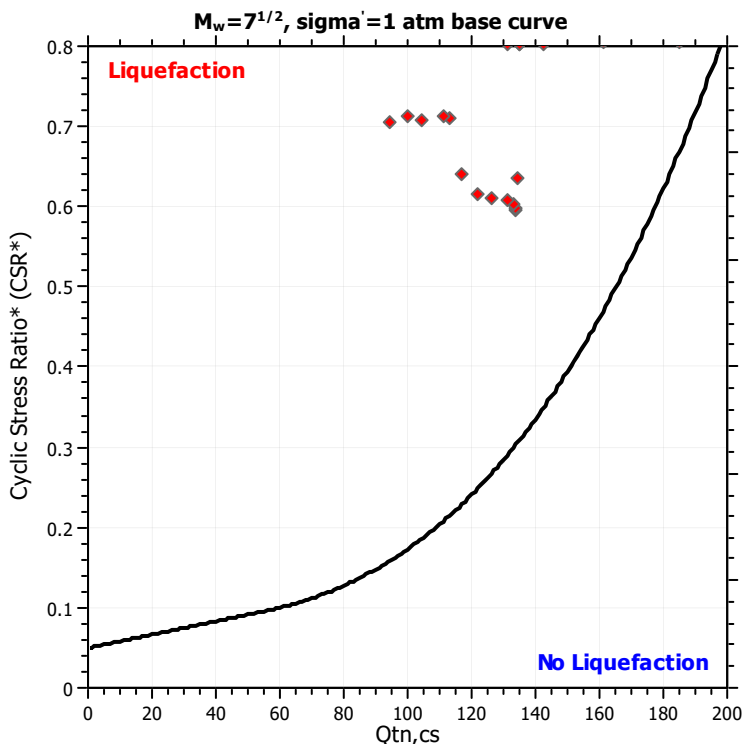
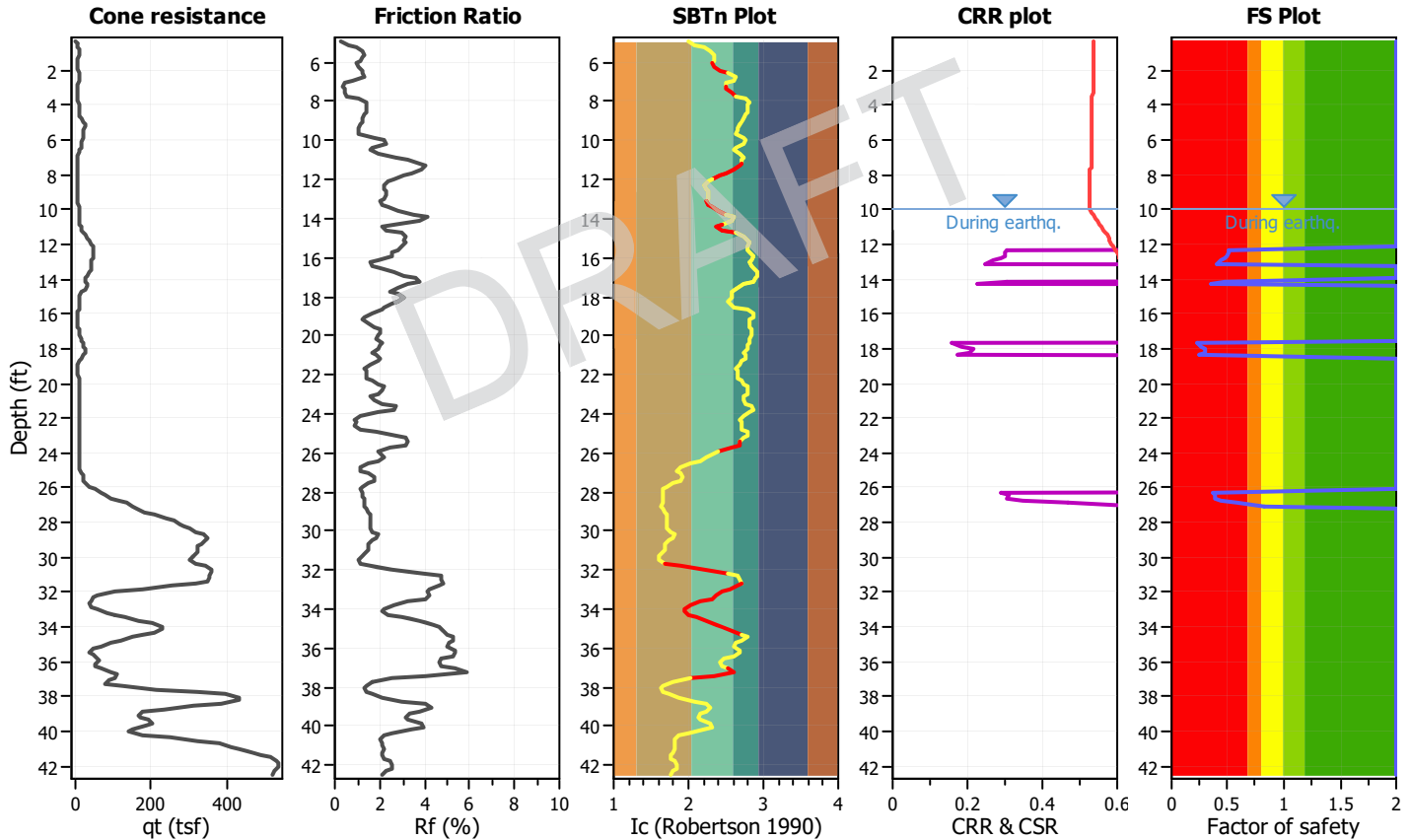
Project title : 210256003 - Compton HS

Location : Compton, CA

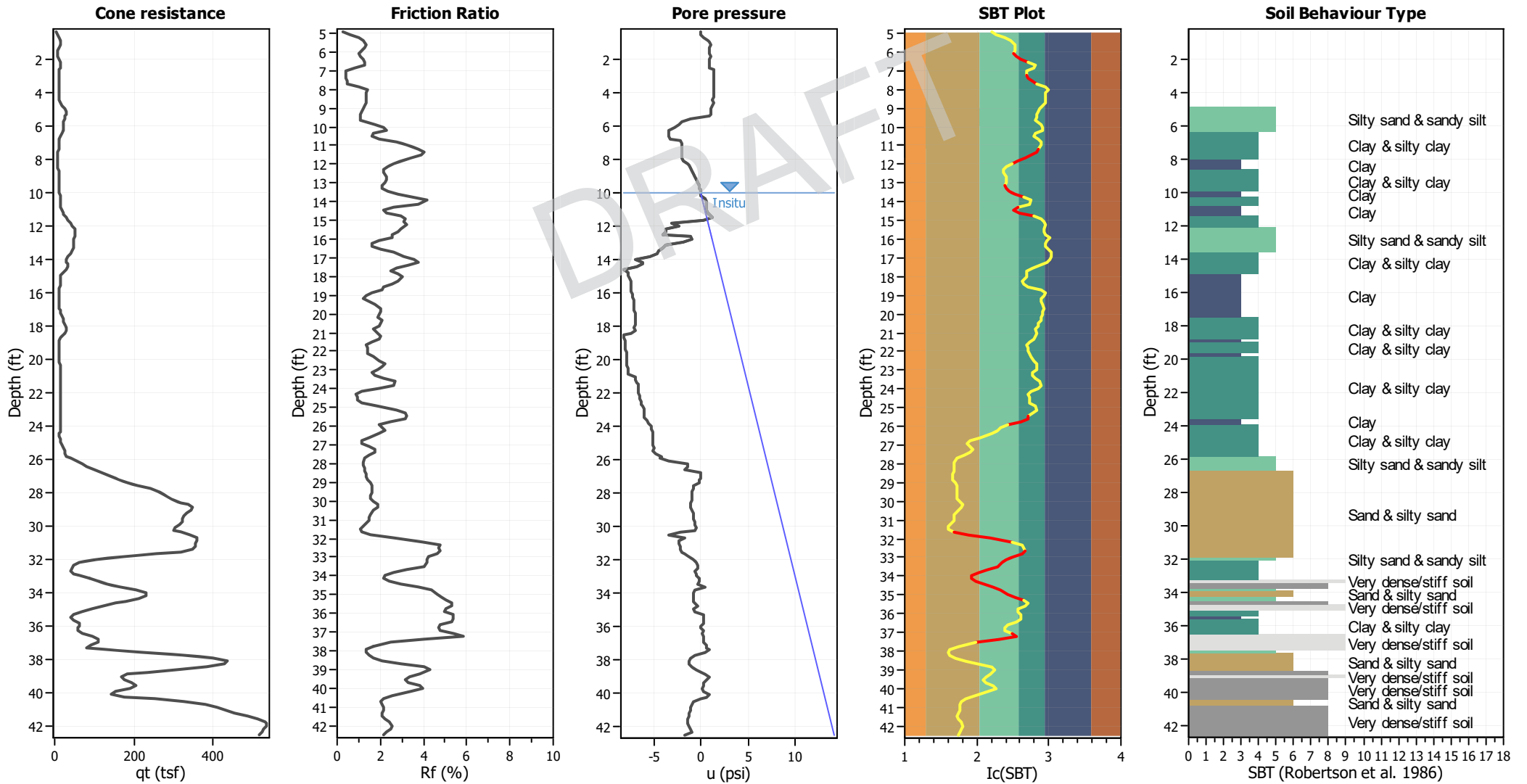
CPT file : CPT-12

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



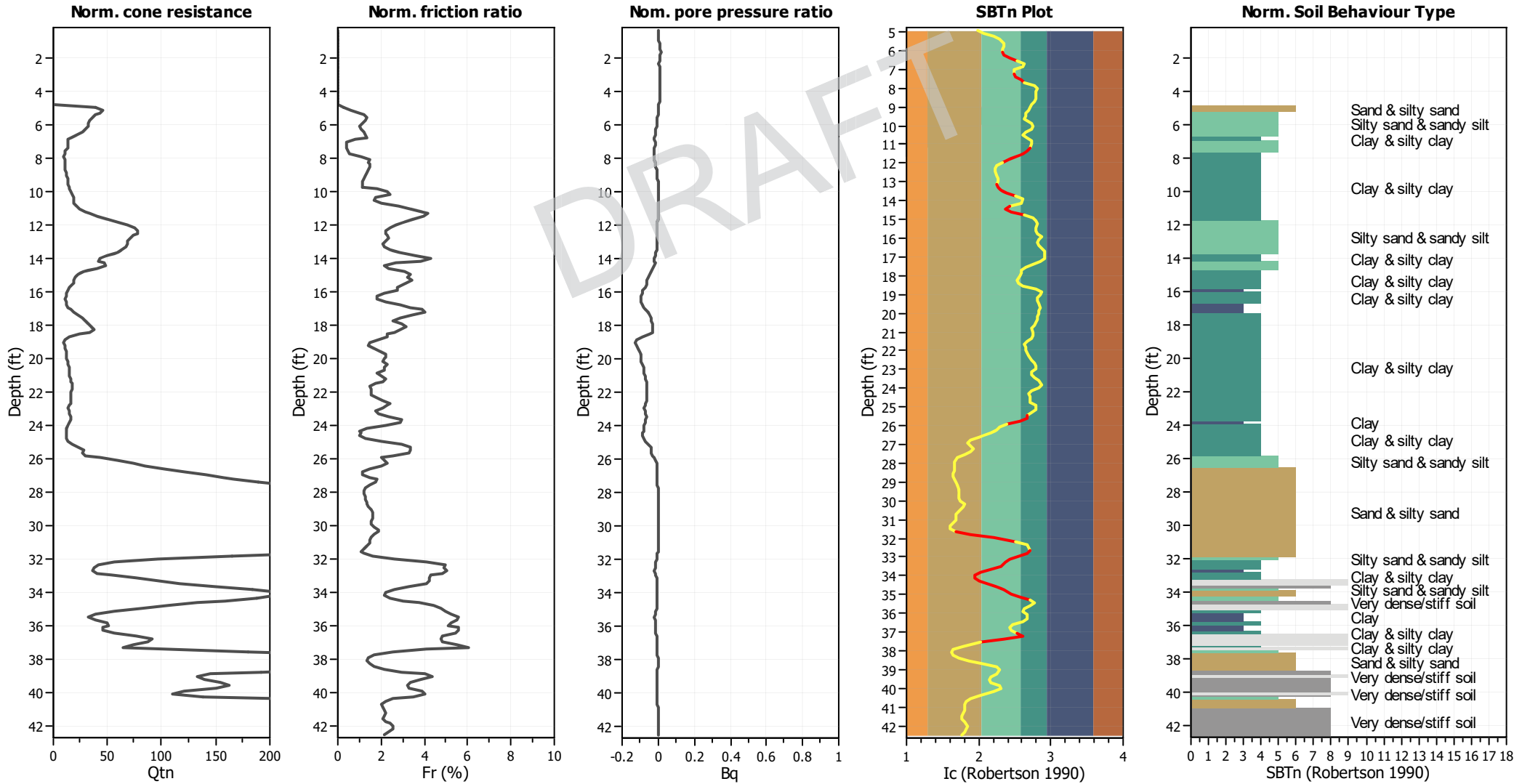
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



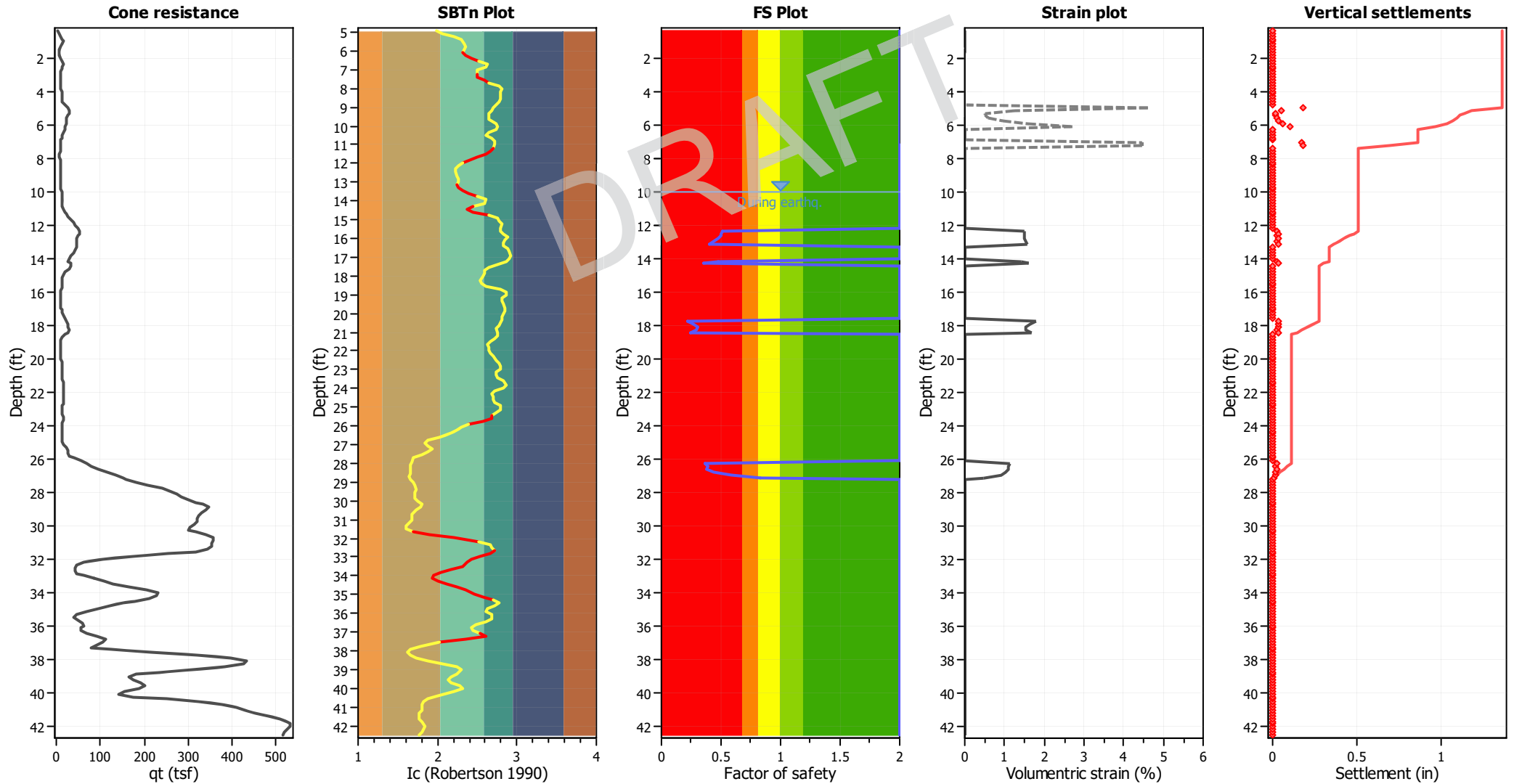
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _v applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.92	1.99	39.25	1.00	39.25	8	272	0.53	5.107	15.04	9.27	4.62	0.178
5.09	2.07	45.13	1.40	63.28	14	347	0.53	1.039	1.66	9.27	1.23	0.050
5.25	2.21	42.87	1.68	72.06	16	392	0.53	0.560	0.72	9.27	0.53	0.020
5.41	2.29	39.09	1.92	74.97	18	398	0.53	0.572	0.67	9.27	0.49	0.019
5.58	2.34	35.89	2.09	75.03	18	390	0.53	0.718	0.82	9.27	0.60	0.025
5.74	2.35	33.81	2.12	71.53	17	371	0.53	1.086	1.30	9.27	0.96	0.037
5.91	2.34	32.61	2.08	67.77	16	353	0.53	1.673	2.15	9.27	1.58	0.064
6.07	2.32	31.73	2.01	63.80	15	335	0.53	2.665	3.72	9.27	2.72	0.104
6.23	2.35	29.88	2.14	63.86	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.43	26.28	2.45	64.29	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.52	21.07	2.88	60.72	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.63	16.25	3.49	56.78	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.61	13.14	3.39	44.47	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.50	13.03	2.76	35.96	9	173	0.53	4654.345	11/25.6	9.27	4.46	0.171
7.22	2.49	13.12	2.74	35.96	9	173	0.53	5194.624	13/18.3	9.27	4.45	0.182
7.38	2.51	12.85	2.80	35.97	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.59	11.12	3.25	36.09	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.64	10.09	3.59	36.19	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.77	9.92	4.56	45.22	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.81	10.66	4.91	52.30	0	0	0.53	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)
8.20	2.79	11.19	4.66	52.16	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.79	11.13	4.69	52.18	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.79	11.06	4.72	52.19	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.78	11.38	4.58	52.11	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.74	12.12	4.28	51.90	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.71	12.75	4.06	51.71	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.68	13.33	3.87	51.54	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.65	13.96	3.68	51.35	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.65	14.06	3.65	51.32	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.64	14.37	3.56	51.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.73	14.89	4.22	62.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.85												

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)
10.01	72.13	2.00	0.00	0.85	0.00	10.17	76.08	2.00	0.00	0.84	0.00
10.34	66.58	2.00	0.00	0.84	0.00	10.50	66.22	2.00	0.00	0.84	0.00
10.66	71.29	2.00	0.00	0.84	0.00	10.83	87.00	2.00	0.00	0.83	0.00
10.99	99.89	2.00	0.00	0.83	0.00	11.16	116.34	2.00	0.00	0.83	0.00
11.32	128.16	2.00	0.00	0.83	0.00	11.48	135.46	2.00	0.00	0.82	0.00
11.65	137.06	2.00	0.00	0.82	0.00	11.81	138.91	2.00	0.00	0.82	0.00
11.98	137.70	2.00	0.00	0.82	0.00	12.14	136.67	2.00	0.00	0.81	0.00
12.30	133.98	0.51	1.49	0.81	0.03	12.47	133.55	0.50	1.49	0.81	0.03
12.63	133.29	0.50	1.49	0.81	0.03	12.80	131.02	0.48	1.51	0.80	0.03
12.96	126.46	0.44	1.55	0.80	0.03	13.12	121.81	0.40	1.59	0.80	0.03
13.29	121.53	2.00	0.00	0.80	0.00	13.45	126.08	2.00	0.00	0.79	0.00
13.62	133.75	2.00	0.00	0.79	0.00	13.78	139.80	2.00	0.00	0.79	0.00
13.94	144.25	2.00	0.00	0.79	0.00	14.11	134.18	0.48	1.44	0.78	0.03
14.27	116.85	0.36	1.61	0.78	0.03	14.44	105.60	2.00	0.00	0.78	0.00
14.60	102.53	2.00	0.00	0.78	0.00	14.76	102.72	2.00	0.00	0.77	0.00
14.93	96.79	2.00	0.00	0.77	0.00	15.09	90.88	2.00	0.00	0.77	0.00
15.26	91.22	2.00	0.00	0.77	0.00	15.42	87.27	2.00	0.00	0.76	0.00
15.58	83.62	2.00	0.00	0.76	0.00	15.75	76.16	2.00	0.00	0.76	0.00
15.91	72.61	2.00	0.00	0.76	0.00	16.08	62.88	2.00	0.00	0.75	0.00
16.24	57.39	2.00	0.00	0.75	0.00	16.40	57.40	2.00	0.00	0.75	0.00
16.57	62.87	2.00	0.00	0.75	0.00	16.73	72.23	2.00	0.00	0.74	0.00
16.90	80.18	2.00	0.00	0.74	0.00	17.06	90.47	2.00	0.00	0.74	0.00
17.23	98.96	2.00	0.00	0.74	0.00	17.39	99.16	2.00	0.00	0.73	0.00
17.55	96.39	2.00	0.00	0.73	0.00	17.72	94.32	0.22	1.79	0.73	0.04

:: 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)
17.88	104.37	0.26	1.64	0.73	0.03	18.05	112.91	0.30	1.53	0.72	0.03
18.21	111.16	0.29	1.55	0.72	0.03	18.37	99.87	0.24	1.68	0.72	0.03
18.54	82.81	2.00	0.00	0.72	0.00	18.70	68.87	2.00	0.00	0.71	0.00
18.87	55.87	2.00	0.00	0.71	0.00	19.03	50.12	2.00	0.00	0.71	0.00
19.19	49.76	2.00	0.00	0.71	0.00	19.36	55.18	2.00	0.00	0.70	0.00
19.52	60.07	2.00	0.00	0.70	0.00	19.69	64.62	2.00	0.00	0.70	0.00
19.85	64.43	2.00	0.00	0.70	0.00	20.01	64.25	2.00	0.00	0.69	0.00
20.18	63.90	2.00	0.00	0.69	0.00	20.34	67.85	2.00	0.00	0.69	0.00
20.51	67.42	2.00	0.00	0.69	0.00	20.67	67.21	2.00	0.00	0.68	0.00
20.83	62.60	2.00	0.00	0.68	0.00	21.00	66.65	2.00	0.00	0.68	0.00
21.16	70.20	2.00	0.00	0.68	0.00	21.33	69.61	2.00	0.00	0.67	0.00
21.49	65.15	2.00	0.00	0.67	0.00	21.65	60.65	2.00	0.00	0.67	0.00
21.82	60.80	2.00	0.00	0.67	0.00	21.98	60.80	2.00	0.00	0.66	0.00
22.15	60.92	2.00	0.00	0.66	0.00	22.31	65.02	2.00	0.00	0.66	0.00
22.47	69.01	2.00	0.00	0.66	0.00	22.64	72.85	2.00	0.00	0.65	0.00
22.80	69.38	2.00	0.00	0.65	0.00	22.97	65.63	2.00	0.00	0.65	0.00
23.13	61.15	2.00	0.00	0.65	0.00	23.30	64.82	2.00	0.00	0.64	0.00
23.46	72.00	2.00	0.00	0.64	0.00	23.62	79.15	2.00	0.00	0.64	0.00
23.79	76.15	2.00	0.00	0.64	0.00	23.95	65.31	2.00	0.00	0.63	0.00
24.12	51.97	2.00	0.00	0.63	0.00	24.28	46.68	2.00	0.00	0.63	0.00
24.44	46.75	2.00	0.00	0.63	0.00	24.61	46.66	2.00	0.00	0.62	0.00
24.77	51.64	2.00	0.00	0.62	0.00	24.94	64.39	2.00	0.00	0.62	0.00
25.10	83.17	2.00	0.00	0.62	0.00	25.26	99.25	2.00	0.00	0.61	0.00
25.43	106.26	2.00	0.00	0.61	0.00	25.59	103.97	2.00	0.00	0.61	0.00
25.76	95.05	2.00	0.00	0.61	0.00	25.92	96.98	2.00	0.00	0.60	0.00
26.08	114.92	2.00	0.00	0.60	0.00	26.25	131.32	0.36	1.12	0.60	0.02
26.41	135.09	0.39	1.09	0.60	0.02	26.58	134.75	0.38	1.09	0.59	0.02
26.74	142.47	0.43	1.04	0.59	0.02	26.90	160.98	0.58	0.90	0.59	0.02
27.07	184.78	0.83	0.49	0.59	0.01	27.23	203.09	2.00	0.00	0.58	0.00
27.40	222.85	2.00	0.00	0.58	0.00	27.56	237.13	2.00	0.00	0.58	0.00
27.72	255.98	2.00	0.00	0.58	0.00	27.89	267.06	2.00	0.00	0.57	0.00
28.05	280.68	2.00	0.00	0.57	0.00	28.22	292.35	2.00	0.00	0.57	0.00
28.38	305.33	2.00	0.00	0.57	0.00	28.54	319.52	2.00	0.00	0.56	0.00
28.71	335.02	2.00	0.00	0.56	0.00	28.87	347.79	2.00	0.00	0.56	0.00
29.04	350.30	2.00	0.00	0.56	0.00	29.20	344.50	2.00	0.00	0.55	0.00
29.36	337.24	2.00	0.00	0.55	0.00	29.53	333.49	2.00	0.00	0.55	0.00
29.69	329.38	2.00	0.00	0.55	0.00	29.86	322.81	2.00	0.00	0.54	0.00
30.02	318.91	2.00	0.00	0.54	0.00	30.19	324.01	2.00	0.00	0.54	0.00
30.35	336.88	2.00	0.00	0.54	0.00	30.51	350.46	2.00	0.00	0.53	0.00
30.68	353.70	2.00	0.00	0.53	0.00	30.84	352.18	2.00	0.00	0.53	0.00
31.01	346.24	2.00	0.00	0.53	0.00	31.17	338.81	2.00	0.00	0.52	0.00
31.33	328.95	2.00	0.00	0.52	0.00	31.50	300.20	2.00	0.00	0.52	0.00
31.66	248.99	2.00	0.00	0.52	0.00	31.83	195.01	2.00	0.00	0.51	0.00
31.99	162.24	2.00	0.00	0.51	0.00	32.15	158.98	2.00	0.00	0.51	0.00
32.32	155.32	2.00	0.00	0.51	0.00	32.48	148.52	2.00	0.00	0.50	0.00
32.65	146.32	2.00	0.00	0.50	0.00	32.81	149.68	2.00	0.00	0.50	0.00
32.97	161.54	2.00	0.00	0.50	0.00	33.14	187.35	2.00	0.00	0.49	0.00
33.30	211.89	2.00	0.00	0.49	0.00	33.47	230.26	2.00	0.00	0.49	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)
33.63	236.84	2.00	0.00	0.49	0.00	33.79	247.88	2.00	0.00	0.48	0.00
33.96	257.45	2.00	0.00	0.48	0.00	34.12	252.42	2.00	0.00	0.48	0.00
34.29	244.53	2.00	0.00	0.48	0.00	34.45	236.37	2.00	0.00	0.47	0.00
34.61	237.09	2.00	0.00	0.47	0.00	34.78	228.94	2.00	0.00	0.47	0.00
34.94	208.34	2.00	0.00	0.47	0.00	35.11	179.08	2.00	0.00	0.46	0.00
35.27	154.71	2.00	0.00	0.46	0.00	35.43	148.13	2.00	0.00	0.46	0.00
35.60	159.99	2.00	0.00	0.46	0.00	35.76	172.70	2.00	0.00	0.45	0.00
35.93	173.78	2.00	0.00	0.45	0.00	36.09	172.35	2.00	0.00	0.45	0.00
36.26	172.98	2.00	0.00	0.45	0.00	36.42	190.28	2.00	0.00	0.44	0.00
36.58	204.09	2.00	0.00	0.44	0.00	36.75	220.88	2.00	0.00	0.44	0.00
36.91	218.45	2.00	0.00	0.44	0.00	37.08	216.14	2.00	0.00	0.43	0.00
37.24	213.25	2.00	0.00	0.43	0.00	37.40	215.34	2.00	0.00	0.43	0.00
37.57	240.57	2.00	0.00	0.43	0.00	37.73	298.38	2.00	0.00	0.42	0.00
37.90	343.27	2.00	0.00	0.42	0.00	38.06	372.29	2.00	0.00	0.42	0.00
38.22	368.77	2.00	0.00	0.42	0.00	38.39	345.53	2.00	0.00	0.41	0.00
38.55	301.89	2.00	0.00	0.41	0.00	38.72	268.44	2.00	0.00	0.41	0.00
38.88	259.34	2.00	0.00	0.41	0.00	39.04	256.30	2.00	0.00	0.40	0.00
39.21	246.54	2.00	0.00	0.40	0.00	39.37	244.99	2.00	0.00	0.40	0.00
39.54	248.31	2.00	0.00	0.40	0.00	39.70	238.79	2.00	0.00	0.39	0.00
39.86	227.84	2.00	0.00	0.39	0.00	40.03	219.71	2.00	0.00	0.39	0.00
40.19	231.68	2.00	0.00	0.39	0.00	40.36	262.76	2.00	0.00	0.38	0.00
40.52	307.90	2.00	0.00	0.38	0.00	40.68	344.75	2.00	0.00	0.38	0.00
40.85	369.94	2.00	0.00	0.38	0.00	41.01	387.74	2.00	0.00	0.37	0.00
41.18	406.85	2.00	0.00	0.37	0.00	41.34	428.65	2.00	0.00	0.37	0.00
41.50	446.63	2.00	0.00	0.37	0.00	41.67	463.79	2.00	0.00	0.36	0.00
41.83	475.86	2.00	0.00	0.36	0.00	42.00	482.28	2.00	0.00	0.36	0.00
42.16	473.45	2.00	0.00	0.36	0.00	42.32	459.09	2.00	0.00	0.35	0.00
42.49	446.83	2.00	0.00	0.35	0.00						

Total estimated settlement: 0.51

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

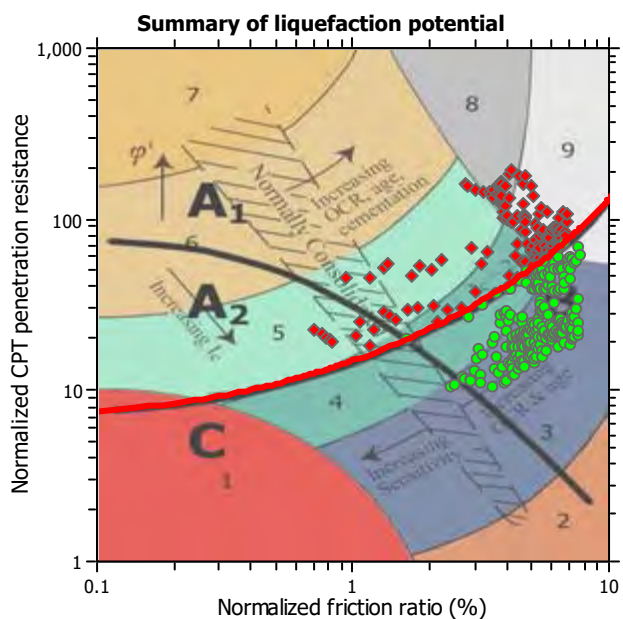
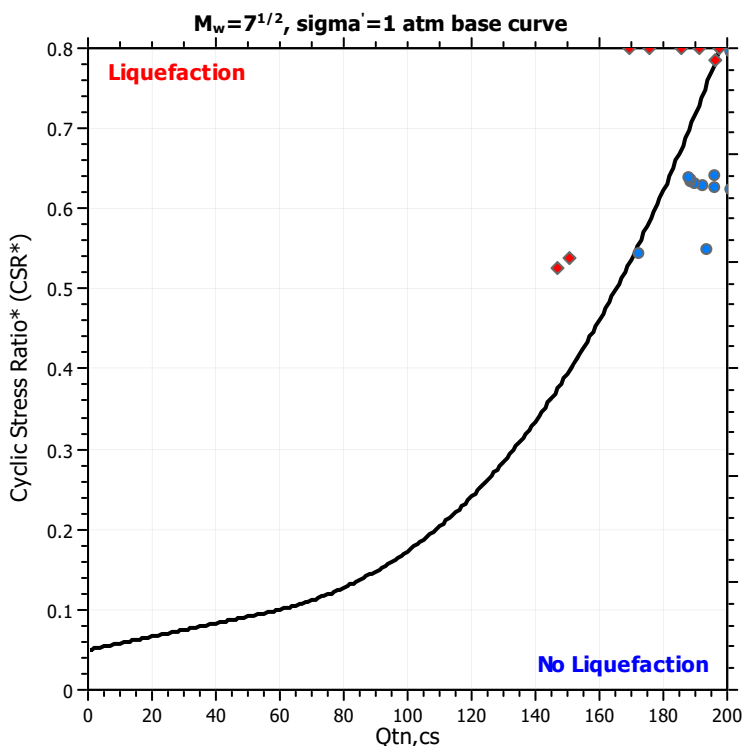
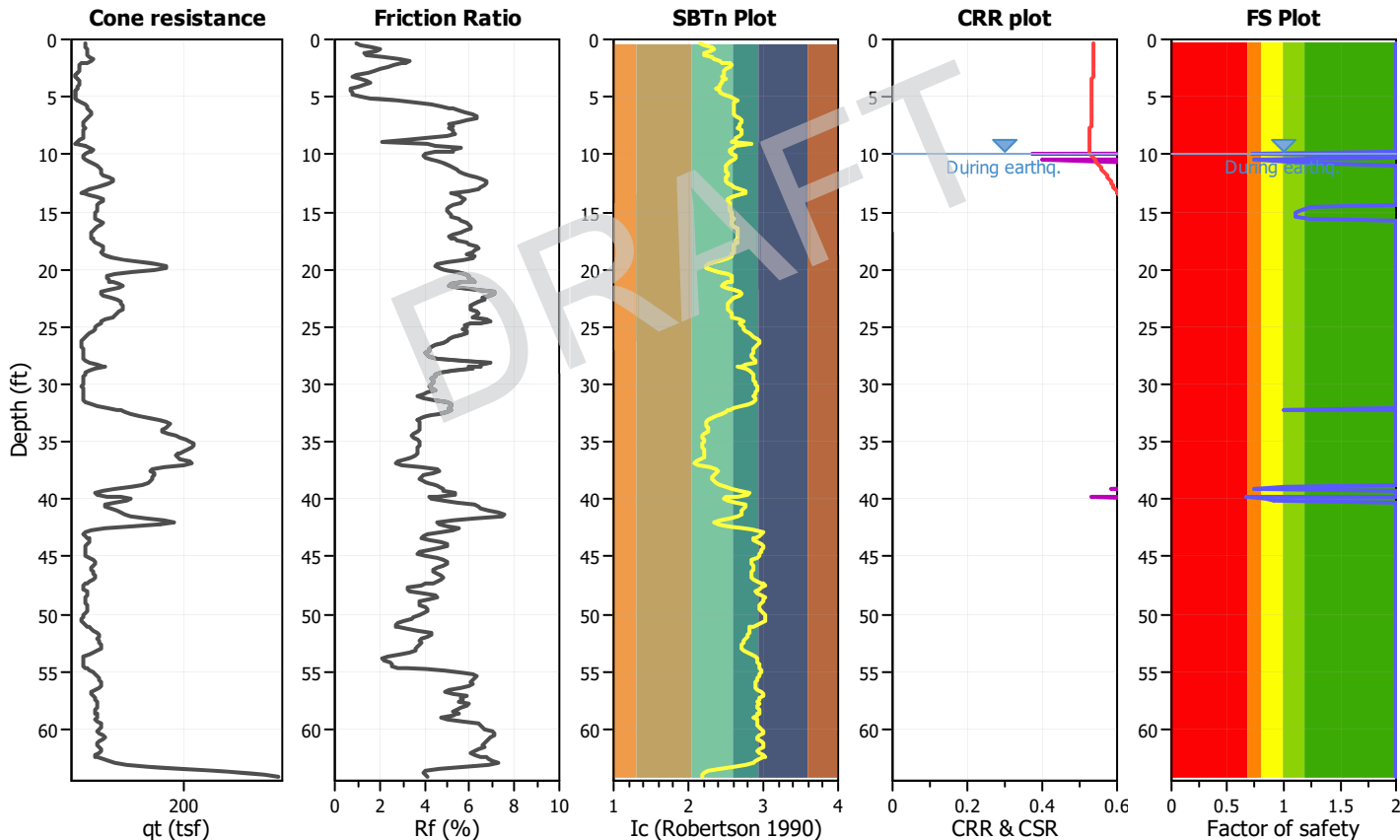
Project title : 210256003 - Compton HS

Location : Compton, CA

CPT file : CPT-13

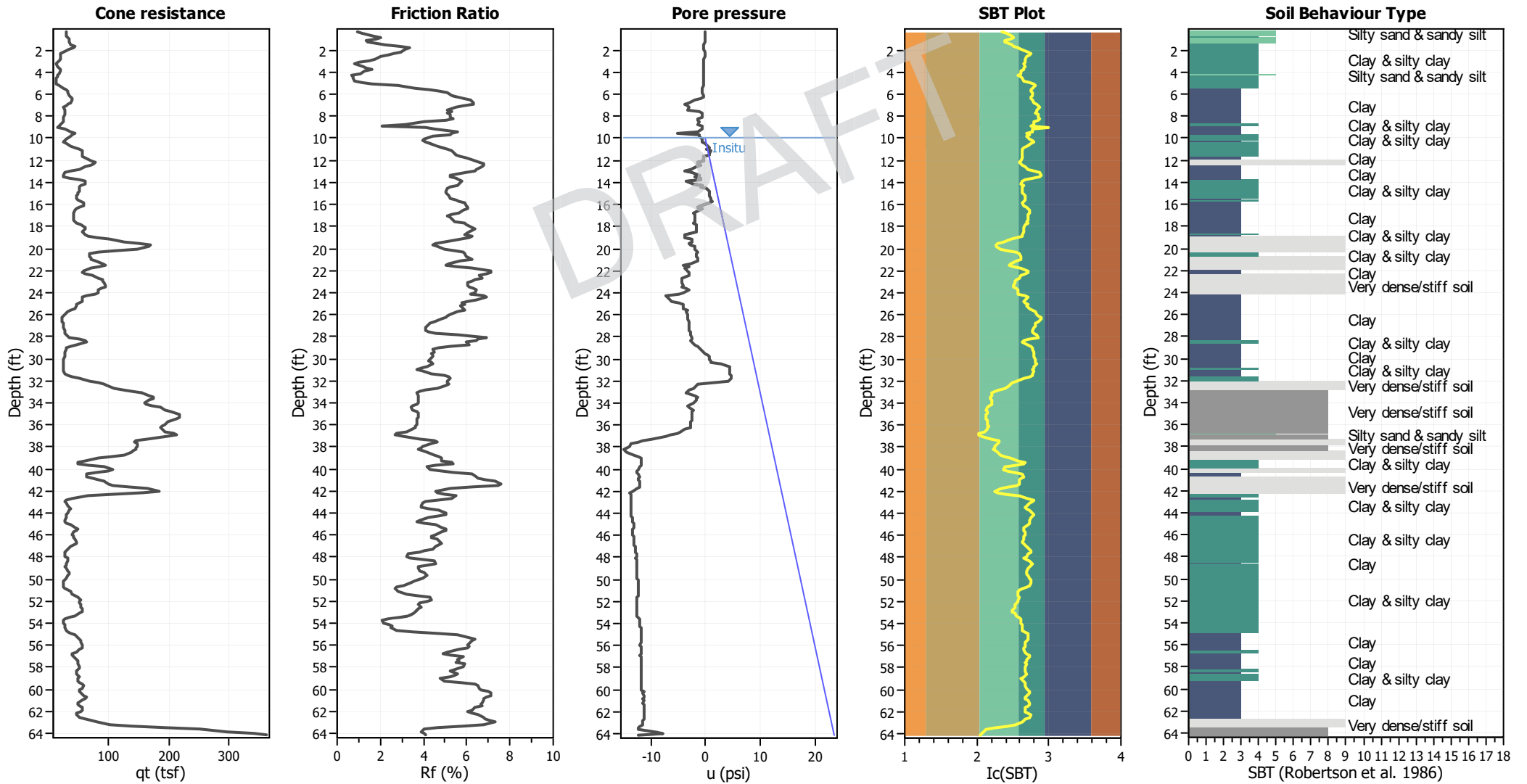
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



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



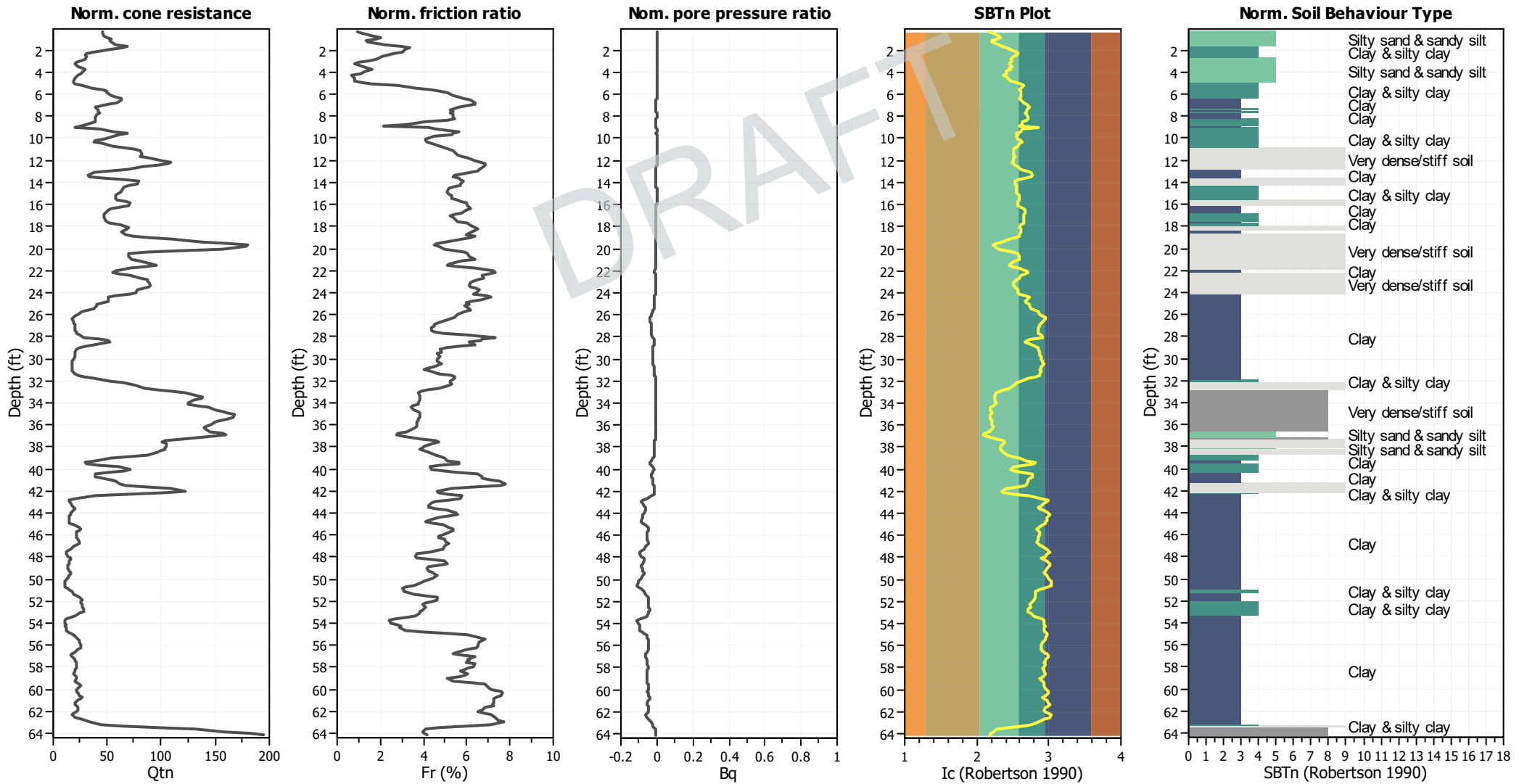
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



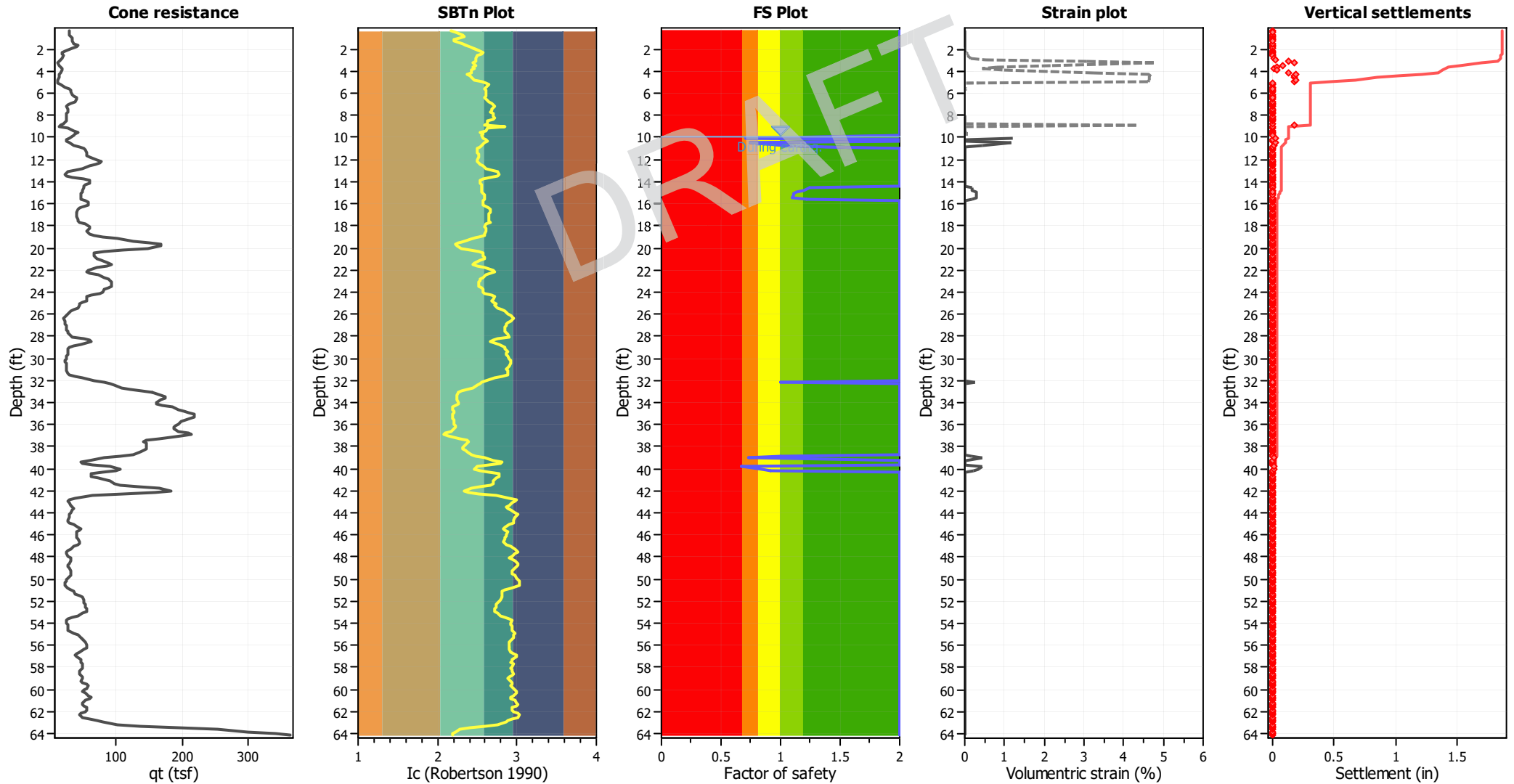
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.16	46.03	1.58	72.76	16	399	0.54	0.004	0.00	9.27	0.00	0.000
0.49	2.22	45.64	1.72	78.71	18	427	0.54	0.006	0.01	9.27	0.01	0.000
0.66	2.31	47.23	1.98	93.34	22	492	0.54	0.006	0.01	9.27	0.00	0.000
0.82	2.34	50.11	2.08	104.08	25	542	0.54	0.007	0.01	9.27	0.00	0.000
0.98	2.29	53.09	1.91	101.36	24	539	0.54	0.010	0.01	9.27	0.01	0.000
1.15	2.21	52.48	1.68	88.22	20	480	0.54	0.016	0.02	9.27	0.01	0.001
1.31	2.20	54.34	1.68	91.15	21	496	0.54	0.018	0.02	9.27	0.01	0.001
1.48	2.32	58.02	2.00	116.05	27	610	0.54	0.013	0.01	9.27	0.01	0.000
1.64	2.35	67.86	2.12	143.96	35	746	0.54	0.011	0.01	9.27	0.00	0.000
1.80	2.41	63.93	2.36	150.88	37	759	0.54	0.012	0.01	9.27	0.00	0.000
1.97	2.44	54.28	2.50	135.48	34	671	0.54	0.017	0.01	9.27	0.01	0.000
2.13	2.54	37.55	3.00	112.62	30	527	0.54	0.036	0.02	9.27	0.02	0.001
2.30	2.58	30.36	3.20	97.09	26	445	0.54	0.074	0.05	9.27	0.04	0.002
2.46	2.55	29.71	3.05	90.59	24	422	0.54	0.107	0.09	9.27	0.07	0.003
2.62	2.50	31.24	2.77	86.57	22	415	0.54	0.132	0.12	9.27	0.09	0.003
2.79	2.48	30.00	2.66	79.70	20	387	0.53	0.212	0.21	9.27	0.16	0.007
2.95	2.48	25.59	2.69	68.85	18	333	0.53	0.555	0.65	9.27	0.50	0.019
3.12	2.47	21.03	2.64	55.48	14	270	0.53	2.648	4.02	9.27	3.08	0.126
3.28	2.45	19.83	2.52	49.98	13	247	0.53	6.318	11.03	9.27	4.75	0.182
3.45	2.49	22.34	2.70	60.39	15	292	0.53	2.072	2.82	9.27	2.15	0.088
3.61	2.45	26.93	2.54	68.53	17	337	0.53	0.904	1.08	9.27	0.82	0.031
3.77	2.46	29.54	2.57	76.02	19	373	0.53	0.559	0.59	9.27	0.45	0.017
3.94	2.42	28.56	2.39	68.21	17	342	0.53	1.078	1.32	9.27	1.00	0.041
4.10	2.42	25.07	2.39	59.87	15	300	0.53	3.002	4.29	9.27	3.24	0.124
4.27	2.37	22.86	2.18	49.74	12	256	0.53	12.324	22.65	9.27	4.67	0.191
4.43	2.41	21.18	2.35	49.83	12	251	0.53	16.788	30.05	9.27	4.66	0.179
4.59	2.43	20.42	2.44	49.91	12	249	0.53	20.901	36.90	9.27	4.65	0.179
4.76	2.47	19.23	2.60	50.07	13	245	0.53	27.734	47.83	9.27	4.64	0.189
4.92	2.55	18.47	3.04	56.10	15	262	0.53	17.259	24.74	9.27	4.62	0.178
5.09	2.61	19.63	3.37	66.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	2.65	26.36	3.62	95.42	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.41	2.61	36.57	3.39	124.15	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.58	2.60	45.29	3.32	150.34	41	682	0.53	0.089	0.04	9.27	0.03	0.001
5.74	2.60	49.29	3.33	164.36	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.91	2.62	50.18	3.44	172.56	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.07	2.61	53.17	3.42	181.63	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.23	2.60	58.29	3.35	195.30	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.60	62.97	3.31	208.44	56	946	0.53	0.045	0.01	9.27	0.01	0.000
6.56	2.62	63.04	3.42	215.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.73	2.64	58.88	3.60	212.06	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.68	51.19	3.88	198.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.70	44.16	4.02	177.44	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.72	39.01	4.16	162.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.68	41.15	3.87	159.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.69	41.74	3.91	163.38	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.67	43.14	3.77	162.72	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.70	39.97	4.00	159.69	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.71	39.04	4.04	157.84	0	0	0.53	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)
8.20	2.72	38.27	4.13	158.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.70	38.67	3.97	153.37	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.62	39.09	3.48	136.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.62	31.53	3.46	109.22	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.86	2.59	24.93	3.27	81.40	22	371	0.53	10.777	9.66	9.27	4.32	0.176
9.02	2.85	20.15	5.20	104.81	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.19	2.63	43.32	3.49	151.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.62	56.71	3.42	194.04	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.51	2.54	68.15	3.00	204.54	54	957	0.53	0.089	0.03	9.27	0.02	0.001
9.68	2.58	60.27	3.19	192.54	52	884	0.53	0.119	0.04	9.27	0.03	0.001
9.84	2.55	55.73	3.02	168.14	44	785	0.53	0.189	0.07	9.27	0.05	0.002
Total estimated settlement: 1.74												

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)
10.01	146.94	0.71	1.21	0.85	0.02	10.17	135.78	2.00	0.00	0.84	0.00
10.34	136.09	2.00	0.00	0.84	0.00	10.50	150.77	0.74	1.15	0.84	0.02
10.66	172.76	1.03	0.44	0.84	0.01	10.83	193.60	1.38	0.00	0.83	0.00
10.99	209.83	2.00	0.00	0.83	0.00	11.16	221.77	2.00	0.00	0.83	0.00
11.32	228.18	2.00	0.00	0.83	0.00	11.48	229.08	2.00	0.00	0.82	0.00
11.65	233.33	2.00	0.00	0.82	0.00	11.81	251.86	2.00	0.00	0.82	0.00
11.98	279.54	2.00	0.00	0.82	0.00	12.14	299.00	2.00	0.00	0.81	0.00
12.30	300.25	2.00	0.00	0.81	0.00	12.47	284.56	2.00	0.00	0.81	0.00
12.63	263.03	2.00	0.00	0.81	0.00	12.80	233.95	2.00	0.00	0.80	0.00
12.96	202.16	2.00	0.00	0.80	0.00	13.12	169.18	2.00	0.00	0.80	0.00
13.29	144.78	2.00	0.00	0.80	0.00	13.45	147.60	2.00	0.00	0.79	0.00
13.62	176.71	2.00	0.00	0.79	0.00	13.78	211.91	2.00	0.00	0.79	0.00
13.94	232.26	2.00	0.00	0.79	0.00	14.11	228.58	2.00	0.00	0.78	0.00
14.27	214.20	2.00	0.00	0.78	0.00	14.44	201.01	2.00	0.00	0.78	0.00
14.60	195.96	1.25	0.20	0.78	0.00	14.76	192.75	1.19	0.20	0.77	0.00
14.93	189.72	1.13	0.28	0.77	0.01	15.09	188.51	1.11	0.28	0.77	0.01
15.26	188.50	1.11	0.28	0.77	0.01	15.42	188.16	1.10	0.28	0.76	0.01
15.58	196.33	1.22	0.19	0.76	0.00	15.75	211.16	2.00	0.00	0.76	0.00
15.91	225.05	2.00	0.00	0.76	0.00	16.08	224.74	2.00	0.00	0.75	0.00
16.24	212.76	2.00	0.00	0.75	0.00	16.40	200.05	2.00	0.00	0.75	0.00
16.57	190.38	2.00	0.00	0.75	0.00	16.73	181.86	2.00	0.00	0.74	0.00
16.90	173.41	2.00	0.00	0.74	0.00	17.06	169.78	2.00	0.00	0.74	0.00
17.23	172.20	2.00	0.00	0.74	0.00	17.39	177.43	2.00	0.00	0.73	0.00
17.55	180.67	2.00	0.00	0.73	0.00	17.72	195.20	2.00	0.00	0.73	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)
17.88	212.21	2.00	0.00	0.73	0.00	18.05	230.26	2.00	0.00	0.72	0.00
18.21	232.16	2.00	0.00	0.72	0.00	18.37	223.91	2.00	0.00	0.72	0.00
18.54	216.73	2.00	0.00	0.72	0.00	18.70	218.78	2.00	0.00	0.71	0.00
18.87	236.61	2.00	0.00	0.71	0.00	19.03	256.79	2.00	0.00	0.71	0.00
19.19	274.21	2.00	0.00	0.71	0.00	19.36	284.63	2.00	0.00	0.70	0.00
19.52	297.92	2.00	0.00	0.70	0.00	19.69	313.81	2.00	0.00	0.70	0.00
19.85	319.99	2.00	0.00	0.70	0.00	20.01	307.11	2.00	0.00	0.69	0.00
20.18	275.48	2.00	0.00	0.69	0.00	20.34	244.17	2.00	0.00	0.69	0.00
20.51	223.64	2.00	0.00	0.69	0.00	20.67	224.29	2.00	0.00	0.68	0.00
20.83	230.89	2.00	0.00	0.68	0.00	21.00	235.20	2.00	0.00	0.68	0.00
21.16	231.69	2.00	0.00	0.68	0.00	21.33	232.57	2.00	0.00	0.67	0.00
21.49	235.71	2.00	0.00	0.67	0.00	21.65	236.58	2.00	0.00	0.67	0.00
21.82	233.29	2.00	0.00	0.67	0.00	21.98	226.80	2.00	0.00	0.66	0.00
22.15	222.71	2.00	0.00	0.66	0.00	22.31	228.42	2.00	0.00	0.66	0.00
22.47	242.01	2.00	0.00	0.66	0.00	22.64	258.10	2.00	0.00	0.65	0.00
22.80	261.45	2.00	0.00	0.65	0.00	22.97	258.44	2.00	0.00	0.65	0.00
23.13	255.33	2.00	0.00	0.65	0.00	23.30	256.03	2.00	0.00	0.64	0.00
23.46	256.58	2.00	0.00	0.64	0.00	23.62	254.00	2.00	0.00	0.64	0.00
23.79	248.41	2.00	0.00	0.64	0.00	23.95	243.44	2.00	0.00	0.63	0.00
24.12	231.55	2.00	0.00	0.63	0.00	24.28	221.95	2.00	0.00	0.63	0.00
24.44	210.69	2.00	0.00	0.63	0.00	24.61	203.99	2.00	0.00	0.62	0.00
24.77	193.76	2.00	0.00	0.62	0.00	24.94	180.27	2.00	0.00	0.62	0.00
25.10	172.32	2.00	0.00	0.62	0.00	25.26	169.26	2.00	0.00	0.61	0.00
25.43	167.47	2.00	0.00	0.61	0.00	25.59	156.51	2.00	0.00	0.61	0.00
25.76	141.69	2.00	0.00	0.61	0.00	25.92	128.09	2.00	0.00	0.60	0.00
26.08	119.37	2.00	0.00	0.60	0.00	26.25	113.06	2.00	0.00	0.60	0.00
26.41	109.60	2.00	0.00	0.60	0.00	26.58	107.53	2.00	0.00	0.59	0.00
26.74	107.09	2.00	0.00	0.59	0.00	26.90	106.79	2.00	0.00	0.59	0.00
27.07	106.57	2.00	0.00	0.59	0.00	27.23	106.24	2.00	0.00	0.58	0.00
27.40	107.56	2.00	0.00	0.58	0.00	27.56	110.53	2.00	0.00	0.58	0.00
27.72	116.60	2.00	0.00	0.58	0.00	27.89	133.50	2.00	0.00	0.57	0.00
28.05	160.39	2.00	0.00	0.57	0.00	28.22	186.87	2.00	0.00	0.57	0.00
28.38	201.99	2.00	0.00	0.57	0.00	28.54	194.85	2.00	0.00	0.56	0.00
28.71	171.82	2.00	0.00	0.56	0.00	28.87	140.80	2.00	0.00	0.56	0.00
29.04	121.64	2.00	0.00	0.56	0.00	29.20	114.46	2.00	0.00	0.55	0.00
29.36	111.56	2.00	0.00	0.55	0.00	29.53	109.78	2.00	0.00	0.55	0.00
29.69	111.09	2.00	0.00	0.55	0.00	29.86	109.53	2.00	0.00	0.54	0.00
30.02	104.86	2.00	0.00	0.54	0.00	30.19	103.17	2.00	0.00	0.54	0.00
30.35	104.58	2.00	0.00	0.54	0.00	30.51	105.99	2.00	0.00	0.53	0.00
30.68	102.60	2.00	0.00	0.53	0.00	30.84	99.19	2.00	0.00	0.53	0.00
31.01	97.30	2.00	0.00	0.53	0.00	31.17	100.48	2.00	0.00	0.52	0.00
31.33	109.32	2.00	0.00	0.52	0.00	31.50	122.81	2.00	0.00	0.52	0.00
31.66	138.98	2.00	0.00	0.52	0.00	31.83	157.61	2.00	0.00	0.51	0.00
31.99	178.49	2.00	0.00	0.51	0.00	32.15	196.28	1.00	0.24	0.51	0.00
32.32	208.25	2.00	0.00	0.51	0.00	32.48	210.89	2.00	0.00	0.50	0.00
32.65	210.39	2.00	0.00	0.50	0.00	32.81	209.34	2.00	0.00	0.50	0.00
32.97	215.71	2.00	0.00	0.50	0.00	33.14	226.29	2.00	0.00	0.49	0.00
33.30	238.68	2.00	0.00	0.49	0.00	33.47	244.23	2.00	0.00	0.49	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)
33.63	242.94	2.00	0.00	0.49	0.00	33.79	235.82	2.00	0.00	0.48	0.00
33.96	229.33	2.00	0.00	0.48	0.00	34.12	227.62	2.00	0.00	0.48	0.00
34.29	228.40	2.00	0.00	0.48	0.00	34.45	237.43	2.00	0.00	0.47	0.00
34.61	247.04	2.00	0.00	0.47	0.00	34.78	260.56	2.00	0.00	0.47	0.00
34.94	269.34	2.00	0.00	0.47	0.00	35.11	274.34	2.00	0.00	0.46	0.00
35.27	273.75	2.00	0.00	0.46	0.00	35.43	267.75	2.00	0.00	0.46	0.00
35.60	260.75	2.00	0.00	0.46	0.00	35.76	253.84	2.00	0.00	0.45	0.00
35.93	248.91	2.00	0.00	0.45	0.00	36.09	244.16	2.00	0.00	0.45	0.00
36.26	240.29	2.00	0.00	0.45	0.00	36.42	235.86	2.00	0.00	0.44	0.00
36.58	230.76	2.00	0.00	0.44	0.00	36.75	228.70	2.00	0.00	0.44	0.00
36.91	228.99	2.00	0.00	0.44	0.00	37.08	226.84	2.00	0.00	0.43	0.00
37.24	227.53	2.00	0.00	0.43	0.00	37.40	231.28	2.00	0.00	0.43	0.00
37.57	231.66	2.00	0.00	0.43	0.00	37.73	226.39	2.00	0.00	0.42	0.00
37.90	215.20	2.00	0.00	0.42	0.00	38.06	210.76	2.00	0.00	0.42	0.00
38.22	206.98	2.00	0.00	0.42	0.00	38.39	209.29	2.00	0.00	0.41	0.00
38.55	210.36	2.00	0.00	0.41	0.00	38.72	210.53	2.00	0.00	0.41	0.00
38.88	197.52	1.00	0.19	0.41	0.00	39.04	175.70	0.73	0.45	0.40	0.01
39.21	152.07	2.00	0.00	0.40	0.00	39.37	143.47	2.00	0.00	0.40	0.00
39.54	145.05	2.00	0.00	0.40	0.00	39.70	153.05	2.00	0.00	0.39	0.00
39.86	169.42	0.67	0.46	0.39	0.01	40.03	185.56	0.84	0.32	0.39	0.01
40.19	190.95	0.91	0.23	0.39	0.00	40.36	182.29	2.00	0.00	0.38	0.00
40.52	175.27	2.00	0.00	0.38	0.00	40.68	179.69	2.00	0.00	0.38	0.00
40.85	193.57	2.00	0.00	0.38	0.00	41.01	212.33	2.00	0.00	0.37	0.00
41.18	230.85	2.00	0.00	0.37	0.00	41.34	245.21	2.00	0.00	0.37	0.00
41.50	253.09	2.00	0.00	0.37	0.00	41.67	256.34	2.00	0.00	0.36	0.00
41.83	258.71	2.00	0.00	0.36	0.00	42.00	254.17	2.00	0.00	0.36	0.00
42.16	234.10	2.00	0.00	0.36	0.00	42.32	201.05	2.00	0.00	0.35	0.00
42.49	164.07	2.00	0.00	0.35	0.00	42.65	126.04	2.00	0.00	0.35	0.00
42.82	102.54	2.00	0.00	0.35	0.00	42.98	93.83	2.00	0.00	0.34	0.00
43.15	94.90	2.00	0.00	0.34	0.00	43.31	98.51	2.00	0.00	0.34	0.00
43.47	101.89	2.00	0.00	0.34	0.00	43.64	107.46	2.00	0.00	0.33	0.00
43.80	110.58	2.00	0.00	0.33	0.00	43.97	109.44	2.00	0.00	0.33	0.00
44.13	106.05	2.00	0.00	0.33	0.00	44.29	101.36	2.00	0.00	0.32	0.00
44.46	96.44	2.00	0.00	0.32	0.00	44.62	90.05	2.00	0.00	0.32	0.00
44.79	88.63	2.00	0.00	0.32	0.00	44.95	94.80	2.00	0.00	0.31	0.00
45.11	109.49	2.00	0.00	0.31	0.00	45.28	124.26	2.00	0.00	0.31	0.00
45.44	131.41	2.00	0.00	0.31	0.00	45.61	128.57	2.00	0.00	0.30	0.00
45.77	120.97	2.00	0.00	0.30	0.00	45.93	114.92	2.00	0.00	0.30	0.00
46.10	112.73	2.00	0.00	0.30	0.00	46.26	114.57	2.00	0.00	0.29	0.00
46.43	119.31	2.00	0.00	0.29	0.00	46.59	124.74	2.00	0.00	0.29	0.00
46.75	124.65	2.00	0.00	0.29	0.00	46.92	118.88	2.00	0.00	0.28	0.00
47.08	108.80	2.00	0.00	0.28	0.00	47.25	100.08	2.00	0.00	0.28	0.00
47.41	91.92	2.00	0.00	0.28	0.00	47.57	85.60	2.00	0.00	0.27	0.00
47.74	80.14	2.00	0.00	0.27	0.00	47.90	81.38	2.00	0.00	0.27	0.00
48.07	87.88	2.00	0.00	0.27	0.00	48.23	96.02	2.00	0.00	0.26	0.00
48.39	100.39	2.00	0.00	0.26	0.00	48.56	98.14	2.00	0.00	0.26	0.00
48.72	92.30	2.00	0.00	0.26	0.00	48.89	87.34	2.00	0.00	0.25	0.00
49.05	88.43	2.00	0.00	0.25	0.00	49.22	91.87	2.00	0.00	0.25	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)
49.38	96.36	2.00	0.00	0.25	0.00	49.54	97.33	2.00	0.00	0.24	0.00
49.71	95.04	2.00	0.00	0.24	0.00	49.87	89.20	2.00	0.00	0.24	0.00
50.04	84.19	2.00	0.00	0.24	0.00	50.20	80.21	2.00	0.00	0.23	0.00
50.36	77.41	2.00	0.00	0.23	0.00	50.53	73.11	2.00	0.00	0.23	0.00
50.69	71.57	2.00	0.00	0.23	0.00	50.86	74.49	2.00	0.00	0.22	0.00
51.02	79.93	2.00	0.00	0.22	0.00	51.18	84.86	2.00	0.00	0.22	0.00
51.35	92.98	2.00	0.00	0.22	0.00	51.51	105.45	2.00	0.00	0.21	0.00
51.68	118.49	2.00	0.00	0.21	0.00	51.84	122.62	2.00	0.00	0.21	0.00
52.00	118.95	2.00	0.00	0.21	0.00	52.17	113.31	2.00	0.00	0.20	0.00
52.33	113.92	2.00	0.00	0.20	0.00	52.50	116.53	2.00	0.00	0.20	0.00
52.66	117.94	2.00	0.00	0.20	0.00	52.82	116.03	2.00	0.00	0.19	0.00
52.99	113.21	2.00	0.00	0.19	0.00	53.15	107.83	2.00	0.00	0.19	0.00
53.32	97.04	2.00	0.00	0.19	0.00	53.48	83.64	2.00	0.00	0.18	0.00
53.64	68.90	2.00	0.00	0.18	0.00	53.81	62.51	2.00	0.00	0.18	0.00
53.97	64.10	2.00	0.00	0.18	0.00	54.14	68.64	2.00	0.00	0.17	0.00
54.30	69.98	2.00	0.00	0.17	0.00	54.46	69.95	2.00	0.00	0.17	0.00
54.63	74.03	2.00	0.00	0.17	0.00	54.79	85.14	2.00	0.00	0.16	0.00
54.96	103.95	2.00	0.00	0.16	0.00	55.12	121.53	2.00	0.00	0.16	0.00
55.28	134.73	2.00	0.00	0.16	0.00	55.45	140.54	2.00	0.00	0.15	0.00
55.61	142.67	2.00	0.00	0.15	0.00	55.78	143.34	2.00	0.00	0.15	0.00
55.94	143.93	2.00	0.00	0.15	0.00	56.11	145.17	2.00	0.00	0.14	0.00
56.27	142.86	2.00	0.00	0.14	0.00	56.43	133.88	2.00	0.00	0.14	0.00
56.60	119.43	2.00	0.00	0.14	0.00	56.76	109.85	2.00	0.00	0.13	0.00
56.93	111.59	2.00	0.00	0.13	0.00	57.09	121.51	2.00	0.00	0.13	0.00
57.25	125.15	2.00	0.00	0.13	0.00	57.42	127.33	2.00	0.00	0.12	0.00
57.58	126.51	2.00	0.00	0.12	0.00	57.75	131.51	2.00	0.00	0.12	0.00
57.91	132.95	2.00	0.00	0.12	0.00	58.07	129.93	2.00	0.00	0.11	0.00
58.24	124.30	2.00	0.00	0.11	0.00	58.40	119.42	2.00	0.00	0.11	0.00
58.57	122.40	2.00	0.00	0.11	0.00	58.73	124.68	2.00	0.00	0.10	0.00
58.89	124.72	2.00	0.00	0.10	0.00	59.06	118.42	2.00	0.00	0.10	0.00
59.22	118.14	2.00	0.00	0.10	0.00	59.39	130.07	2.00	0.00	0.09	0.00
59.55	143.26	2.00	0.00	0.09	0.00	59.71	147.88	2.00	0.00	0.09	0.00
59.88	144.78	2.00	0.00	0.09	0.00	60.04	141.36	2.00	0.00	0.08	0.00
60.21	142.65	2.00	0.00	0.08	0.00	60.37	147.06	2.00	0.00	0.08	0.00
60.53	153.71	2.00	0.00	0.08	0.00	60.70	157.56	2.00	0.00	0.07	0.00
60.86	154.18	2.00	0.00	0.07	0.00	61.03	144.90	2.00	0.00	0.07	0.00
61.19	137.55	2.00	0.00	0.07	0.00	61.35	135.34	2.00	0.00	0.06	0.00
61.52	139.87	2.00	0.00	0.06	0.00	61.68	142.23	2.00	0.00	0.06	0.00
61.85	140.82	2.00	0.00	0.06	0.00	62.01	133.79	2.00	0.00	0.05	0.00
62.17	128.26	2.00	0.00	0.05	0.00	62.34	128.14	2.00	0.00	0.05	0.00
62.50	137.61	2.00	0.00	0.05	0.00	62.67	152.60	2.00	0.00	0.04	0.00
62.83	167.75	2.00	0.00	0.04	0.00	63.00	181.67	2.00	0.00	0.04	0.00
63.16	197.97	2.00	0.00	0.04	0.00	63.32	213.14	2.00	0.00	0.03	0.00
63.49	225.94	2.00	0.00	0.03	0.00	63.65	245.67	2.00	0.00	0.03	0.00
63.82	271.24	2.00	0.00	0.03	0.00	63.98	299.66	2.00	0.00	0.02	0.00
64.14	316.33	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)

Total estimated settlement: 0.13

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

DRAFT

LIQUEFACTION ANALYSIS REPORT

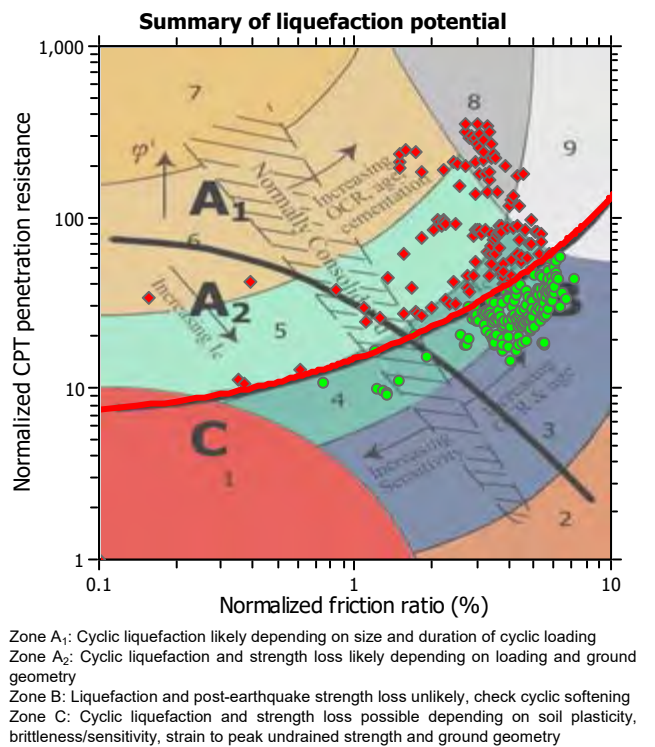
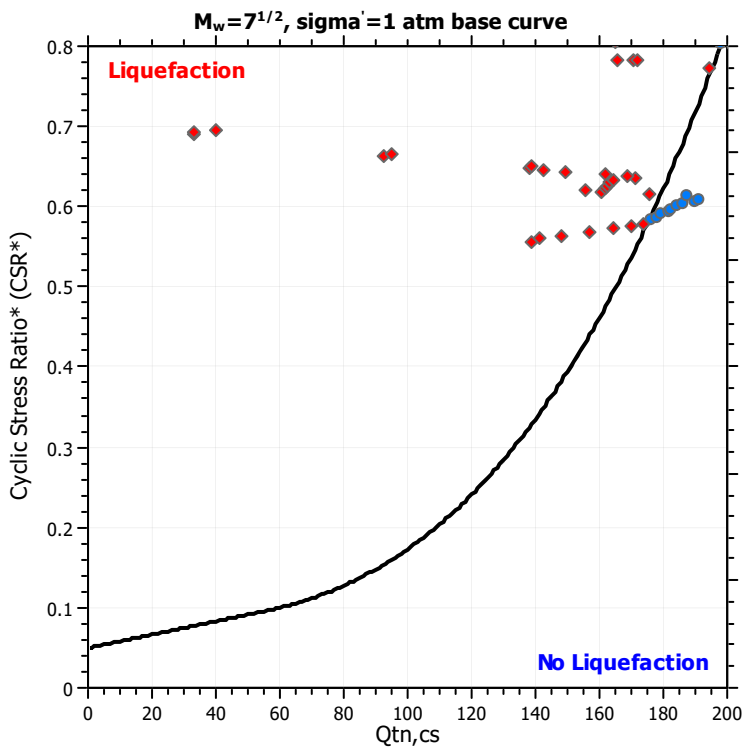
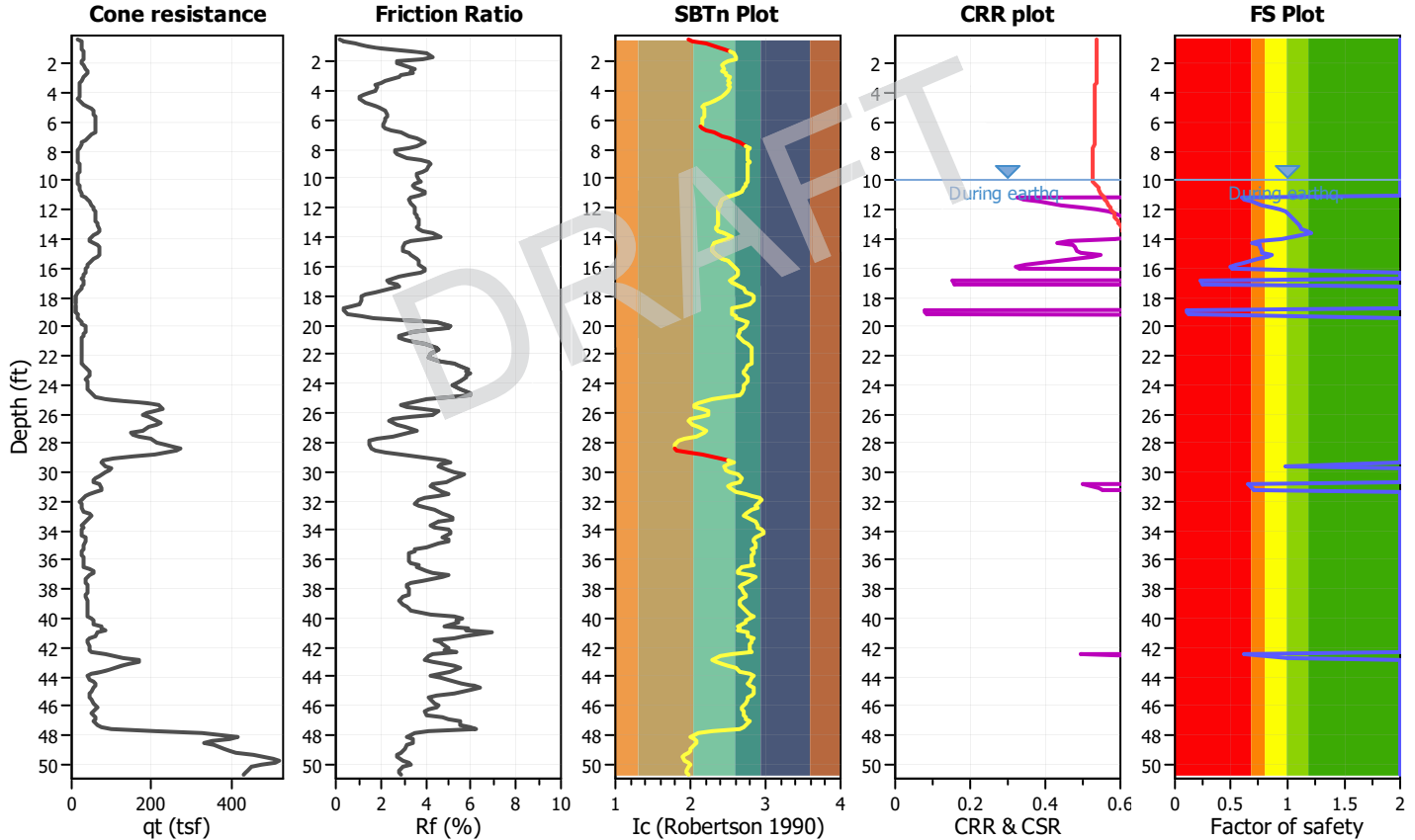
Project title : 210256003 - Compton HS

Location : Compton, CA

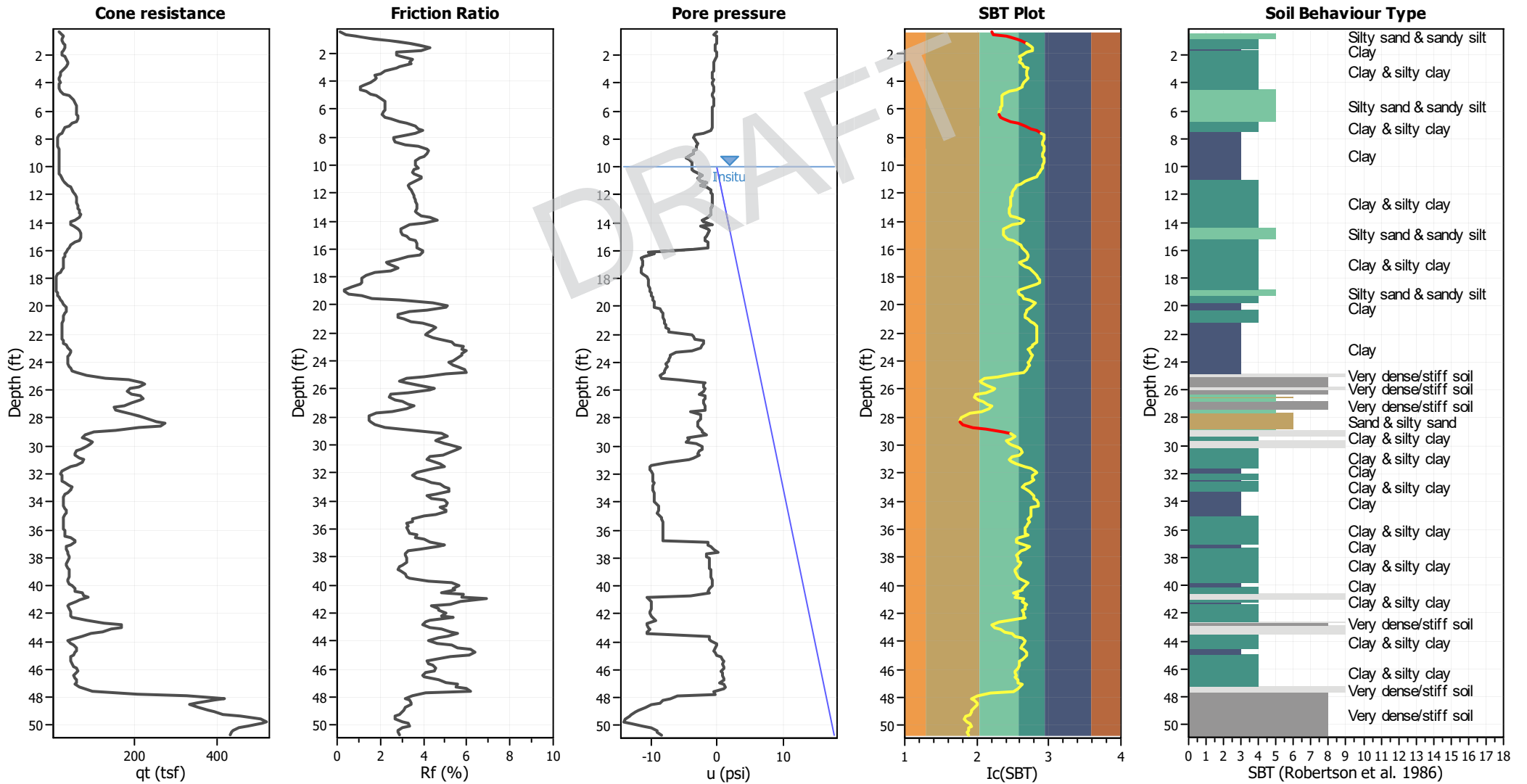
CPT file : CPT-14

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



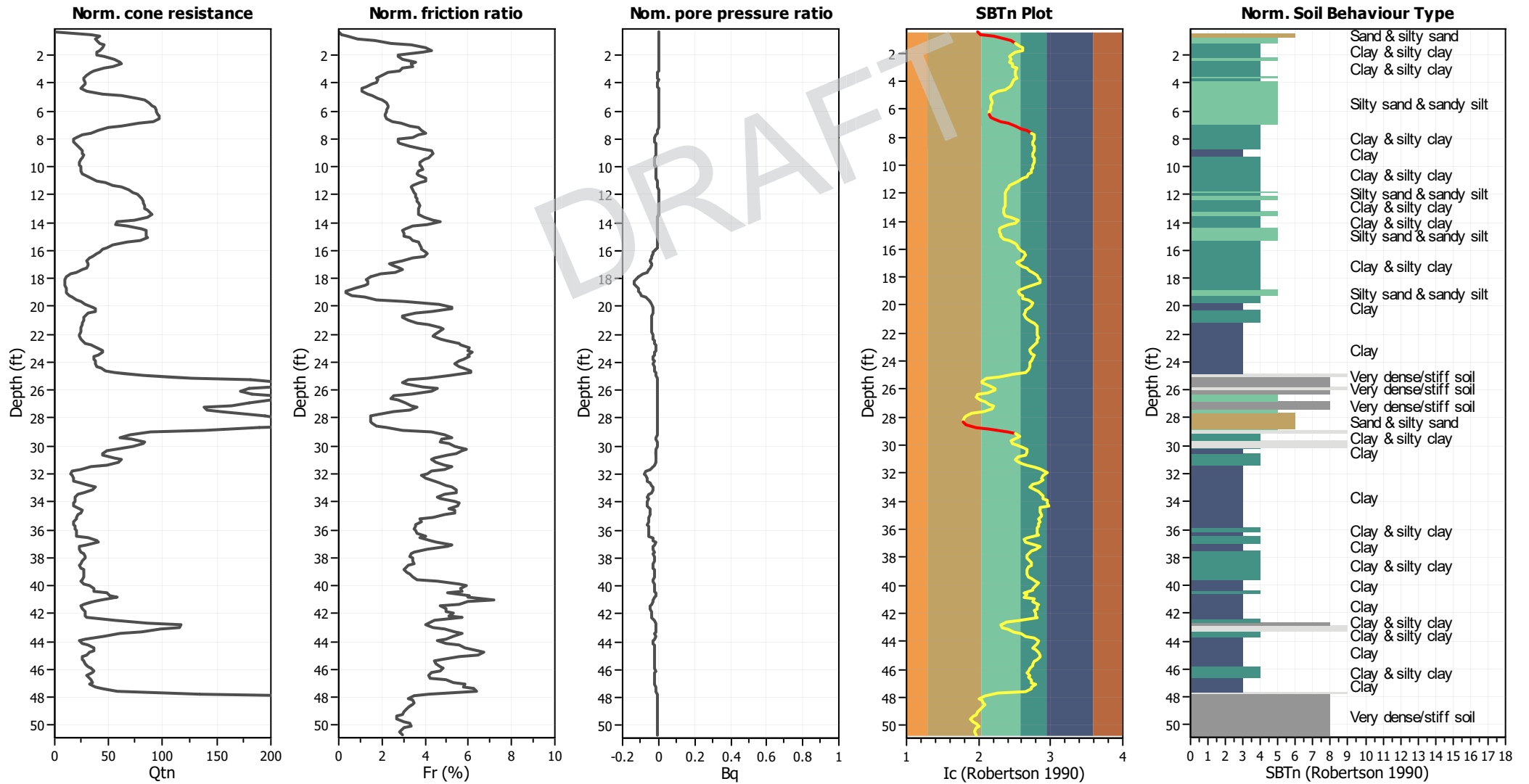
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

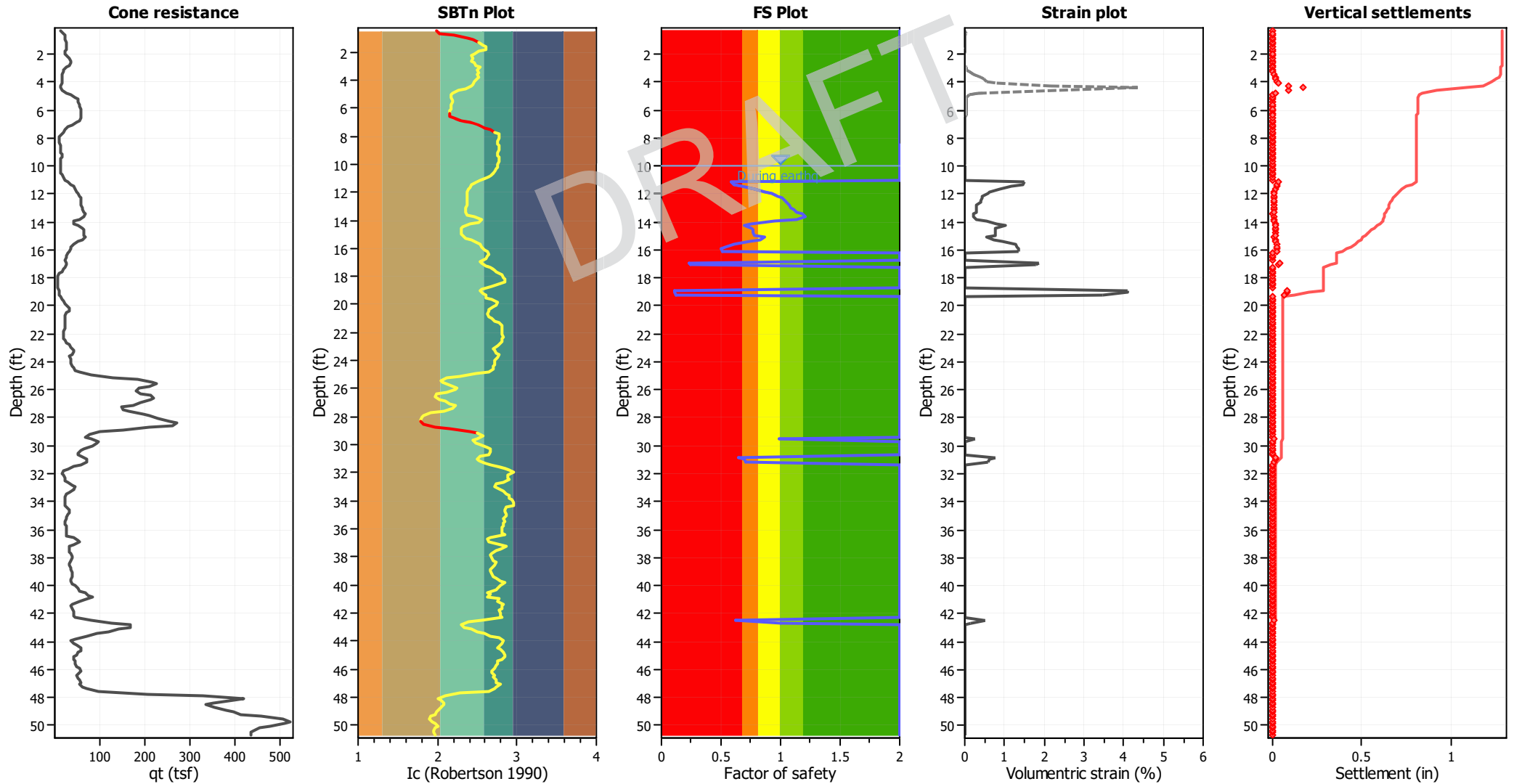
CPT basic interpretation plots (normalized)



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:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.49	1.98	34.13	1.00	34.13	7	235	0.54	0.019	0.07	9.27	0.05	0.002
0.66	2.02	41.50	1.00	41.50	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.82	2.21	38.12	1.69	64.41	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.98	2.37	38.53	2.20	84.95	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.15	2.44	42.26	2.49	105.41	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.31	2.52	44.98	2.86	128.64	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.48	2.58	44.91	3.19	143.43	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	2.62	42.16	3.43	144.61	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.80	2.61	38.51	3.41	131.25	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.97	2.51	38.76	2.82	109.31	28	521	0.54	0.029	0.02	9.27	0.01	0.001
2.13	2.46	45.06	2.57	115.65	29	568	0.54	0.026	0.02	9.27	0.01	0.000
2.30	2.42	54.47	2.40	130.75	32	655	0.54	0.021	0.01	9.27	0.01	0.000
2.46	2.44	60.77	2.49	151.62	38	751	0.54	0.017	0.01	9.27	0.01	0.000
2.62	2.43	61.66	2.42	149.26	37	745	0.54	0.020	0.01	9.27	0.01	0.000
2.79	2.47	53.40	2.63	140.36	36	684	0.53	0.026	0.01	9.27	0.01	0.000
2.95	2.47	45.73	2.64	120.71	31	588	0.53	0.044	0.03	9.27	0.02	0.001
3.12	2.54	36.28	2.96	107.28	28	504	0.53	0.083	0.06	9.27	0.04	0.002
3.28	2.50	33.27	2.79	92.73	24	444	0.53	0.158	0.13	9.27	0.10	0.004
3.45	2.51	29.40	2.84	83.58	22	398	0.53	0.307	0.28	9.27	0.21	0.009
3.61	2.51	27.35	2.80	76.63	20	366	0.53	0.546	0.55	9.27	0.42	0.016
3.77	2.53	26.43	2.91	76.92	20	363	0.53	0.648	0.64	9.27	0.49	0.019
3.94	2.50	27.70	2.76	76.52	20	367	0.53	0.691	0.70	9.27	0.53	0.022
4.10	2.47	27.57	2.63	72.55	18	353	0.53	0.984	1.08	9.27	0.82	0.031
4.27	2.44	25.85	2.49	64.37	16	319	0.53	2.223	2.88	9.27	2.16	0.088
4.43	2.43	24.44	2.45	59.96	15	298	0.53	4.090	5.79	9.27	4.35	0.167
4.59	2.36	29.52	2.16	63.88	15	329	0.53	2.240	3.05	9.27	2.29	0.088
4.76	2.27	44.17	1.85	81.59	19	437	0.53	0.435	0.47	9.27	0.35	0.014
4.92	2.19	61.83	1.65	102.19	23	558	0.53	0.149	0.13	9.27	0.09	0.004
5.09	2.17	76.60	1.59	122.08	27	669	0.53	0.081	0.06	9.27	0.04	0.002
5.25	2.18	83.81	1.61	134.94	30	739	0.53	0.063	0.04	9.27	0.03	0.001
5.41	2.18	87.87	1.63	142.94	32	781	0.53	0.056	0.03	9.27	0.02	0.001
5.58	2.18	90.42	1.63	146.94	33	803	0.53	0.055	0.03	9.27	0.02	0.001
5.74	2.18	92.39	1.61	149.05	33	816	0.53	0.056	0.03	9.27	0.02	0.001
5.91	2.17	93.71	1.59	149.34	33	818	0.53	0.059	0.03	9.27	0.02	0.001
6.07	2.17	94.28	1.59	149.46	33	819	0.53	0.061	0.03	9.27	0.02	0.001
6.23	2.15	94.80	1.56	147.91	33	812	0.53	0.066	0.04	9.27	0.03	0.001
6.40	2.14	96.23	1.54	148.28	33	815	0.53	0.069	0.04	9.27	0.03	0.001
6.56	2.16	96.54	1.57	151.65	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.21	90.95	1.69	153.97	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.31	77.87	1.97	153.21	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.41	62.27	2.36	146.98	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.52	49.45	2.86	141.66	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.59	40.91	3.25	132.78	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.67	33.37	3.76	125.60	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.72	26.00	4.18	108.66	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.78	20.51	4.61	94.50	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.77	17.72	4.54	80.36	0	0	0.53	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)
8.20	2.77	17.65	4.55	80.38	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.75	19.03	4.41	83.88	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.76	21.32	4.42	94.16	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.77	23.50	4.54	106.64	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.78	24.98	4.61	115.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.77	25.76	4.57	117.83	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.76	26.38	4.46	117.55	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.76	25.77	4.46	114.87	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.77	24.26	4.51	109.46	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.77	22.75	4.56	103.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.77	22.74	4.56	103.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.48												

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)
10.01	106.42	2.00	0.00	0.85	0.00	10.17	109.21	2.00	0.00	0.84	0.00
10.34	106.06	2.00	0.00	0.84	0.00	10.50	105.82	2.00	0.00	0.84	0.00
10.66	110.93	2.00	0.00	0.84	0.00	10.83	125.27	2.00	0.00	0.83	0.00
10.99	134.23	2.00	0.00	0.83	0.00	11.16	138.83	0.59	1.48	0.83	0.03
11.32	141.32	0.61	1.46	0.83	0.03	11.48	148.04	0.68	1.16	0.82	0.02
11.65	157.15	0.78	0.86	0.82	0.02	11.81	164.34	0.86	0.62	0.82	0.01
11.98	169.89	0.93	0.58	0.82	0.01	12.14	173.71	0.98	0.43	0.81	0.01
12.30	175.94	1.01	0.42	0.81	0.01	12.47	178.42	1.04	0.42	0.81	0.01
12.63	179.35	1.05	0.41	0.81	0.01	12.80	181.79	1.08	0.30	0.80	0.01
12.96	182.39	1.08	0.30	0.80	0.01	13.12	184.42	1.11	0.30	0.80	0.01
13.29	186.22	1.13	0.29	0.80	0.01	13.45	189.70	1.18	0.21	0.79	0.00
13.62	191.51	1.20	0.20	0.79	0.00	13.78	187.44	1.13	0.29	0.79	0.01
13.94	175.40	0.95	0.54	0.79	0.01	14.11	160.58	0.75	0.80	0.78	0.02
14.27	155.56	0.69	1.03	0.78	0.02	14.44	161.77	0.76	0.79	0.78	0.02
14.60	162.33	0.76	0.78	0.78	0.01	14.76	163.29	0.77	0.77	0.77	0.01
14.93	164.34	0.78	0.76	0.77	0.02	15.09	171.17	0.86	0.54	0.77	0.01
15.26	168.78	0.83	0.73	0.77	0.01	15.42	162.19	0.74	0.95	0.76	0.02
15.58	149.48	0.61	1.29	0.76	0.02	15.75	142.41	0.54	1.33	0.76	0.03
15.91	137.85	0.50	1.36	0.76	0.03	16.08	138.92	0.51	1.35	0.75	0.03
16.24	134.34	2.00	0.00	0.75	0.00	16.40	127.28	2.00	0.00	0.75	0.00
16.57	112.94	2.00	0.00	0.75	0.00	16.73	101.63	2.00	0.00	0.74	0.00
16.90	92.54	0.23	1.85	0.74	0.04	17.06	95.01	0.24	1.80	0.74	0.03
17.23	98.43	2.00	0.00	0.74	0.00	17.39	95.16	2.00	0.00	0.73	0.00
17.55	83.13	2.00	0.00	0.73	0.00	17.72	64.68	2.00	0.00	0.73	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)
17.88	52.70	2.00	0.00	0.73	0.00	18.05	47.63	2.00	0.00	0.72	0.00
18.21	47.64	2.00	0.00	0.72	0.00	18.37	47.59	2.00	0.00	0.72	0.00
18.54	47.32	2.00	0.00	0.72	0.00	18.70	40.81	2.00	0.00	0.71	0.00
18.87	33.31	0.11	4.10	0.71	0.08	19.03	33.27	0.11	4.09	0.71	0.08
19.19	40.16	0.12	3.49	0.71	0.07	19.36	54.72	2.00	0.00	0.70	0.00
19.52	68.60	2.00	0.00	0.70	0.00	19.69	95.73	2.00	0.00	0.70	0.00
19.85	127.50	2.00	0.00	0.70	0.00	20.01	149.76	2.00	0.00	0.69	0.00
20.18	153.25	2.00	0.00	0.69	0.00	20.34	136.90	2.00	0.00	0.69	0.00
20.51	114.09	2.00	0.00	0.69	0.00	20.67	99.71	2.00	0.00	0.68	0.00
20.83	97.82	2.00	0.00	0.68	0.00	21.00	102.47	2.00	0.00	0.68	0.00
21.16	107.27	2.00	0.00	0.68	0.00	21.33	113.97	2.00	0.00	0.67	0.00
21.49	120.19	2.00	0.00	0.67	0.00	21.65	121.92	2.00	0.00	0.67	0.00
21.82	117.84	2.00	0.00	0.67	0.00	21.98	113.84	2.00	0.00	0.66	0.00
22.15	111.67	2.00	0.00	0.66	0.00	22.31	117.27	2.00	0.00	0.66	0.00
22.47	125.71	2.00	0.00	0.66	0.00	22.64	140.22	2.00	0.00	0.65	0.00
22.80	152.19	2.00	0.00	0.65	0.00	22.97	169.13	2.00	0.00	0.65	0.00
23.13	178.61	2.00	0.00	0.65	0.00	23.30	181.10	2.00	0.00	0.64	0.00
23.46	171.12	2.00	0.00	0.64	0.00	23.62	162.73	2.00	0.00	0.64	0.00
23.79	159.14	2.00	0.00	0.64	0.00	23.95	159.29	2.00	0.00	0.63	0.00
24.12	155.80	2.00	0.00	0.63	0.00	24.28	160.86	2.00	0.00	0.63	0.00
24.44	171.27	2.00	0.00	0.63	0.00	24.61	184.93	2.00	0.00	0.62	0.00
24.77	201.32	2.00	0.00	0.62	0.00	24.94	219.46	2.00	0.00	0.62	0.00
25.10	242.19	2.00	0.00	0.62	0.00	25.26	266.84	2.00	0.00	0.61	0.00
25.43	285.87	2.00	0.00	0.61	0.00	25.59	301.84	2.00	0.00	0.61	0.00
25.76	313.50	2.00	0.00	0.61	0.00	25.92	317.15	2.00	0.00	0.60	0.00
26.08	299.09	2.00	0.00	0.60	0.00	26.25	272.49	2.00	0.00	0.60	0.00
26.41	262.68	2.00	0.00	0.60	0.00	26.58	264.39	2.00	0.00	0.59	0.00
26.74	266.67	2.00	0.00	0.59	0.00	26.90	260.65	2.00	0.00	0.59	0.00
27.07	253.61	2.00	0.00	0.59	0.00	27.23	237.43	2.00	0.00	0.58	0.00
27.40	228.97	2.00	0.00	0.58	0.00	27.56	215.74	2.00	0.00	0.58	0.00
27.72	218.32	2.00	0.00	0.58	0.00	27.89	219.75	2.00	0.00	0.57	0.00
28.05	234.21	2.00	0.00	0.57	0.00	28.22	254.18	2.00	0.00	0.57	0.00
28.38	271.73	2.00	0.00	0.57	0.00	28.54	268.21	2.00	0.00	0.56	0.00
28.71	238.63	2.00	0.00	0.56	0.00	28.87	214.16	2.00	0.00	0.56	0.00
29.04	204.50	2.00	0.00	0.56	0.00	29.20	196.64	2.00	0.00	0.55	0.00
29.36	191.94	2.00	0.00	0.55	0.00	29.53	194.47	0.99	0.26	0.55	0.01
29.69	208.21	2.00	0.00	0.55	0.00	29.86	216.53	2.00	0.00	0.54	0.00
30.02	210.30	2.00	0.00	0.54	0.00	30.19	198.33	2.00	0.00	0.54	0.00
30.35	181.19	2.00	0.00	0.54	0.00	30.51	169.06	2.00	0.00	0.53	0.00
30.68	162.71	2.00	0.00	0.53	0.00	30.84	165.40	0.64	0.78	0.53	0.01
31.01	170.67	0.69	0.61	0.53	0.01	31.17	171.96	0.71	0.60	0.52	0.01
31.33	165.57	2.00	0.00	0.52	0.00	31.50	146.18	2.00	0.00	0.52	0.00
31.66	121.48	2.00	0.00	0.52	0.00	31.83	96.68	2.00	0.00	0.51	0.00
31.99	89.67	2.00	0.00	0.51	0.00	32.15	91.07	2.00	0.00	0.51	0.00
32.32	96.01	2.00	0.00	0.51	0.00	32.48	100.85	2.00	0.00	0.50	0.00
32.65	116.21	2.00	0.00	0.50	0.00	32.81	138.56	2.00	0.00	0.50	0.00
32.97	152.01	2.00	0.00	0.50	0.00	33.14	150.40	2.00	0.00	0.49	0.00
33.30	134.46	2.00	0.00	0.49	0.00	33.47	115.57	2.00	0.00	0.49	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)
33.63	104.19	2.00	0.00	0.49	0.00	33.79	106.98	2.00	0.00	0.48	0.00
33.96	112.68	2.00	0.00	0.48	0.00	34.12	113.93	2.00	0.00	0.48	0.00
34.29	112.37	2.00	0.00	0.48	0.00	34.45	120.94	2.00	0.00	0.47	0.00
34.61	129.26	2.00	0.00	0.47	0.00	34.78	127.92	2.00	0.00	0.47	0.00
34.94	116.46	2.00	0.00	0.47	0.00	35.11	105.34	2.00	0.00	0.46	0.00
35.27	97.53	2.00	0.00	0.46	0.00	35.43	94.53	2.00	0.00	0.46	0.00
35.60	91.08	2.00	0.00	0.46	0.00	35.76	92.48	2.00	0.00	0.45	0.00
35.93	93.73	2.00	0.00	0.45	0.00	36.09	95.12	2.00	0.00	0.45	0.00
36.26	96.48	2.00	0.00	0.45	0.00	36.42	101.06	2.00	0.00	0.44	0.00
36.58	118.33	2.00	0.00	0.44	0.00	36.75	137.49	2.00	0.00	0.44	0.00
36.91	144.59	2.00	0.00	0.44	0.00	37.08	137.72	2.00	0.00	0.43	0.00
37.24	120.05	2.00	0.00	0.43	0.00	37.40	107.97	2.00	0.00	0.43	0.00
37.57	102.99	2.00	0.00	0.43	0.00	37.73	103.57	2.00	0.00	0.42	0.00
37.90	105.71	2.00	0.00	0.42	0.00	38.06	107.06	2.00	0.00	0.42	0.00
38.22	104.68	2.00	0.00	0.42	0.00	38.39	100.98	2.00	0.00	0.41	0.00
38.55	96.56	2.00	0.00	0.41	0.00	38.72	96.04	2.00	0.00	0.41	0.00
38.88	98.27	2.00	0.00	0.41	0.00	39.04	102.08	2.00	0.00	0.40	0.00
39.21	104.70	2.00	0.00	0.40	0.00	39.37	104.91	2.00	0.00	0.40	0.00
39.54	105.15	2.00	0.00	0.40	0.00	39.70	118.00	2.00	0.00	0.39	0.00
39.86	135.78	2.00	0.00	0.39	0.00	40.03	152.81	2.00	0.00	0.39	0.00
40.19	156.41	2.00	0.00	0.39	0.00	40.36	158.76	2.00	0.00	0.38	0.00
40.52	167.22	2.00	0.00	0.38	0.00	40.68	191.29	2.00	0.00	0.38	0.00
40.85	201.22	2.00	0.00	0.38	0.00	41.01	195.90	2.00	0.00	0.37	0.00
41.18	163.77	2.00	0.00	0.37	0.00	41.34	135.67	2.00	0.00	0.37	0.00
41.50	118.34	2.00	0.00	0.37	0.00	41.67	125.78	2.00	0.00	0.36	0.00
41.83	132.47	2.00	0.00	0.36	0.00	42.00	136.47	2.00	0.00	0.36	0.00
42.16	132.25	2.00	0.00	0.36	0.00	42.32	142.96	2.00	0.00	0.35	0.00
42.49	164.79	0.62	0.52	0.35	0.01	42.65	198.34	1.00	0.16	0.35	0.00
42.82	227.06	2.00	0.00	0.35	0.00	42.98	237.71	2.00	0.00	0.34	0.00
43.15	233.14	2.00	0.00	0.34	0.00	43.31	222.76	2.00	0.00	0.34	0.00
43.47	202.14	2.00	0.00	0.34	0.00	43.64	169.19	2.00	0.00	0.33	0.00
43.80	131.84	2.00	0.00	0.33	0.00	43.97	113.43	2.00	0.00	0.33	0.00
44.13	124.84	2.00	0.00	0.33	0.00	44.29	146.16	2.00	0.00	0.32	0.00
44.46	160.88	2.00	0.00	0.32	0.00	44.62	169.12	2.00	0.00	0.32	0.00
44.79	165.26	2.00	0.00	0.32	0.00	44.95	153.55	2.00	0.00	0.31	0.00
45.11	134.57	2.00	0.00	0.31	0.00	45.28	123.42	2.00	0.00	0.31	0.00
45.44	120.89	2.00	0.00	0.31	0.00	45.61	123.64	2.00	0.00	0.30	0.00
45.77	131.02	2.00	0.00	0.30	0.00	45.93	139.62	2.00	0.00	0.30	0.00
46.10	142.42	2.00	0.00	0.30	0.00	46.26	132.31	2.00	0.00	0.29	0.00
46.43	122.30	2.00	0.00	0.29	0.00	46.59	126.72	2.00	0.00	0.29	0.00
46.75	140.58	2.00	0.00	0.29	0.00	46.92	148.89	2.00	0.00	0.28	0.00
47.08	151.82	2.00	0.00	0.28	0.00	47.25	161.35	2.00	0.00	0.28	0.00
47.41	180.87	2.00	0.00	0.28	0.00	47.57	211.27	2.00	0.00	0.27	0.00
47.74	253.22	2.00	0.00	0.27	0.00	47.90	319.55	2.00	0.00	0.27	0.00
48.07	372.55	2.00	0.00	0.27	0.00	48.23	362.66	2.00	0.00	0.26	0.00
48.39	332.12	2.00	0.00	0.26	0.00	48.56	317.68	2.00	0.00	0.26	0.00
48.72	323.79	2.00	0.00	0.26	0.00	48.89	338.17	2.00	0.00	0.25	0.00
49.05	345.79	2.00	0.00	0.25	0.00	49.22	354.48	2.00	0.00	0.25	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)
49.38	377.06	2.00	0.00	0.25	0.00	49.54	411.45	2.00	0.00	0.24	0.00
49.71	432.55	2.00	0.00	0.24	0.00	49.87	434.42	2.00	0.00	0.24	0.00
50.04	413.11	2.00	0.00	0.24	0.00	50.20	383.58	2.00	0.00	0.23	0.00
50.36	366.93	2.00	0.00	0.23	0.00	50.53	362.01	2.00	0.00	0.23	0.00
50.69	363.50	2.00	0.00	0.23	0.00						

Total estimated settlement: 0.81

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

DRAFT

LIQUEFACTION ANALYSIS REPORT

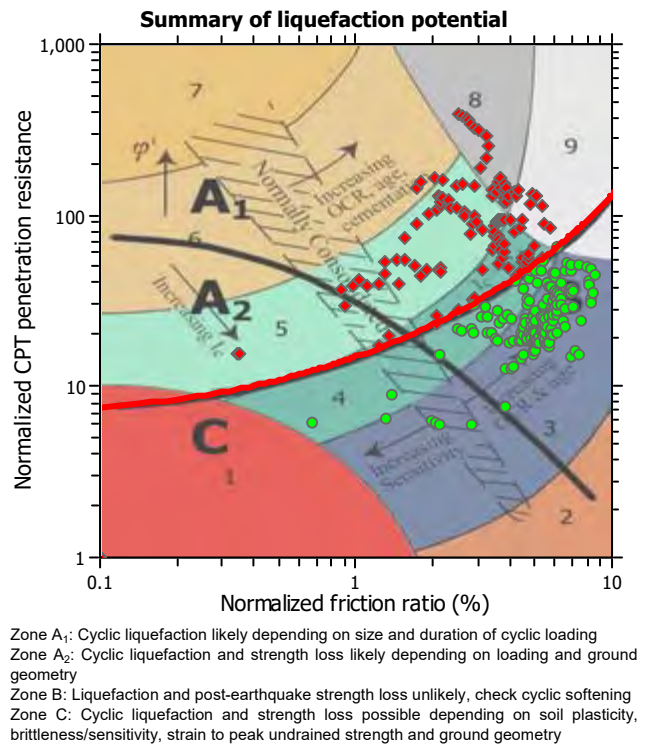
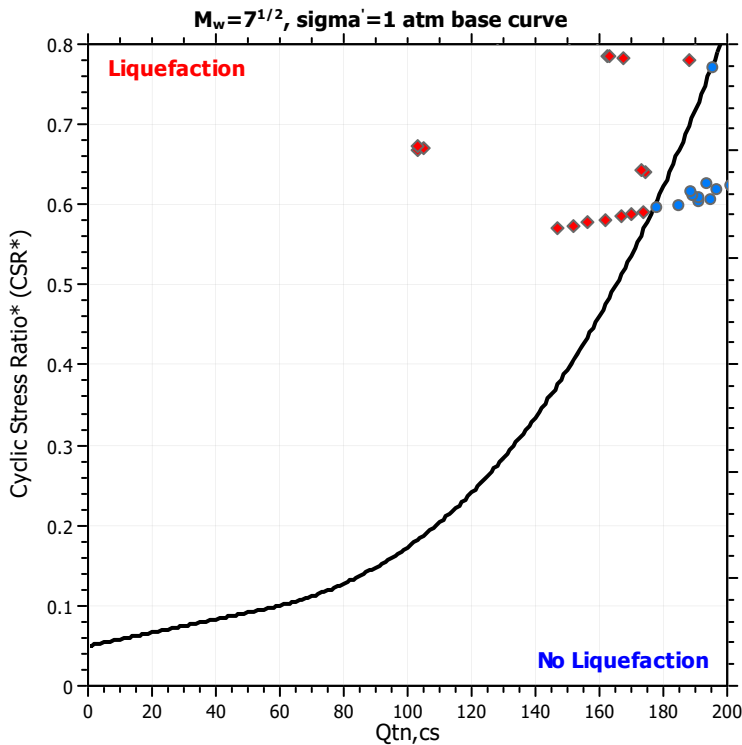
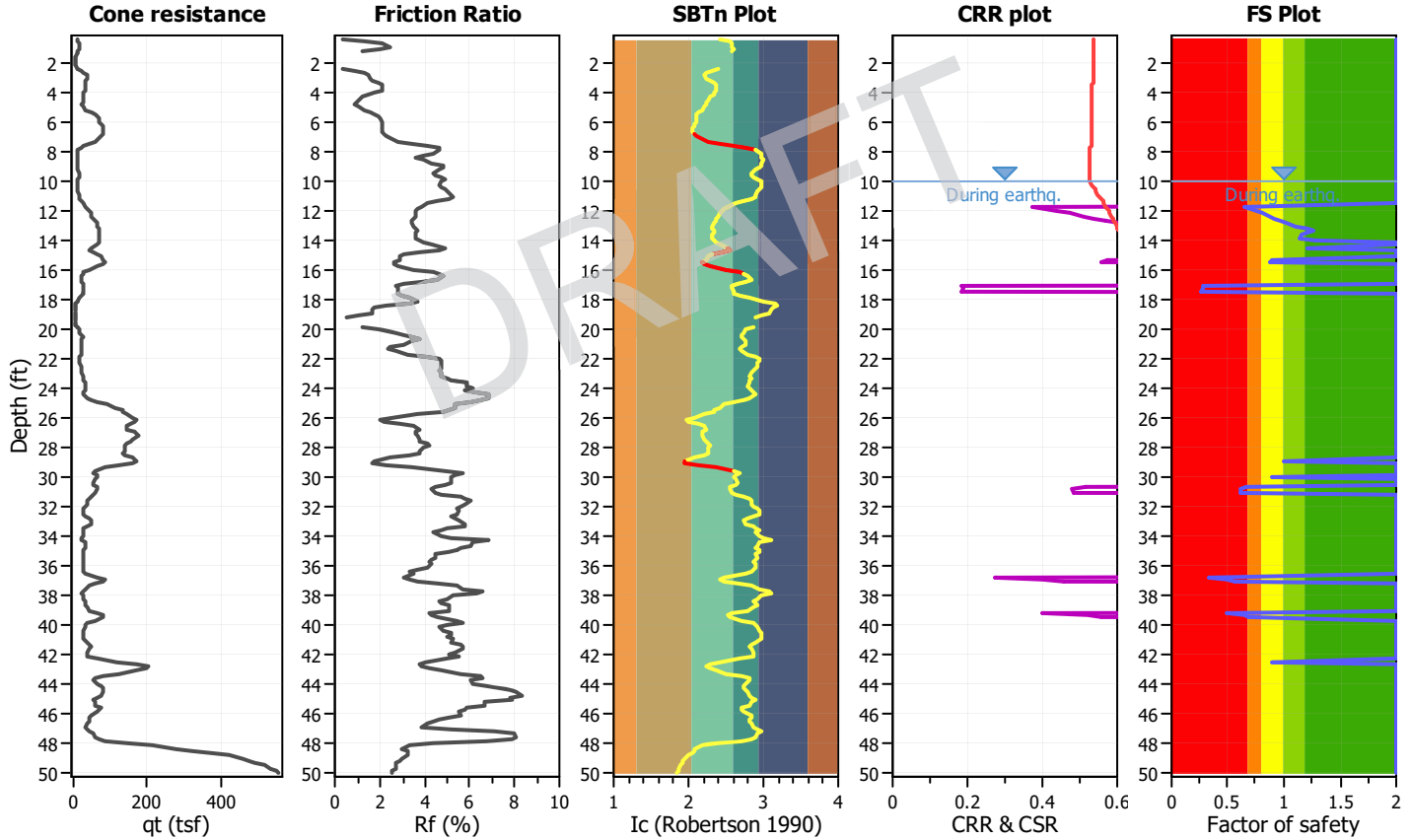
Project title : 210256003 - Compton HS

Location : Compton, CA

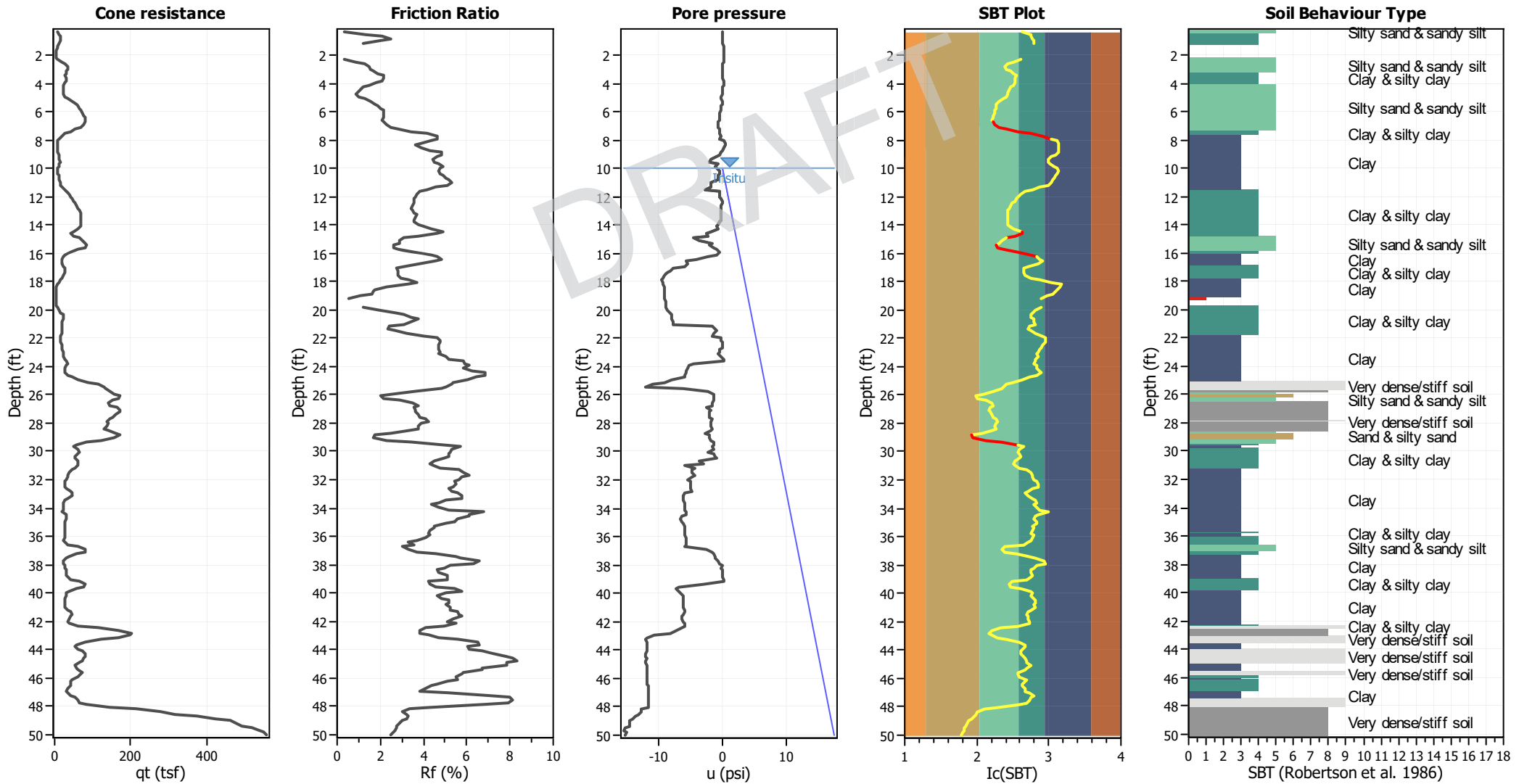
CPT file : CPT-14A

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



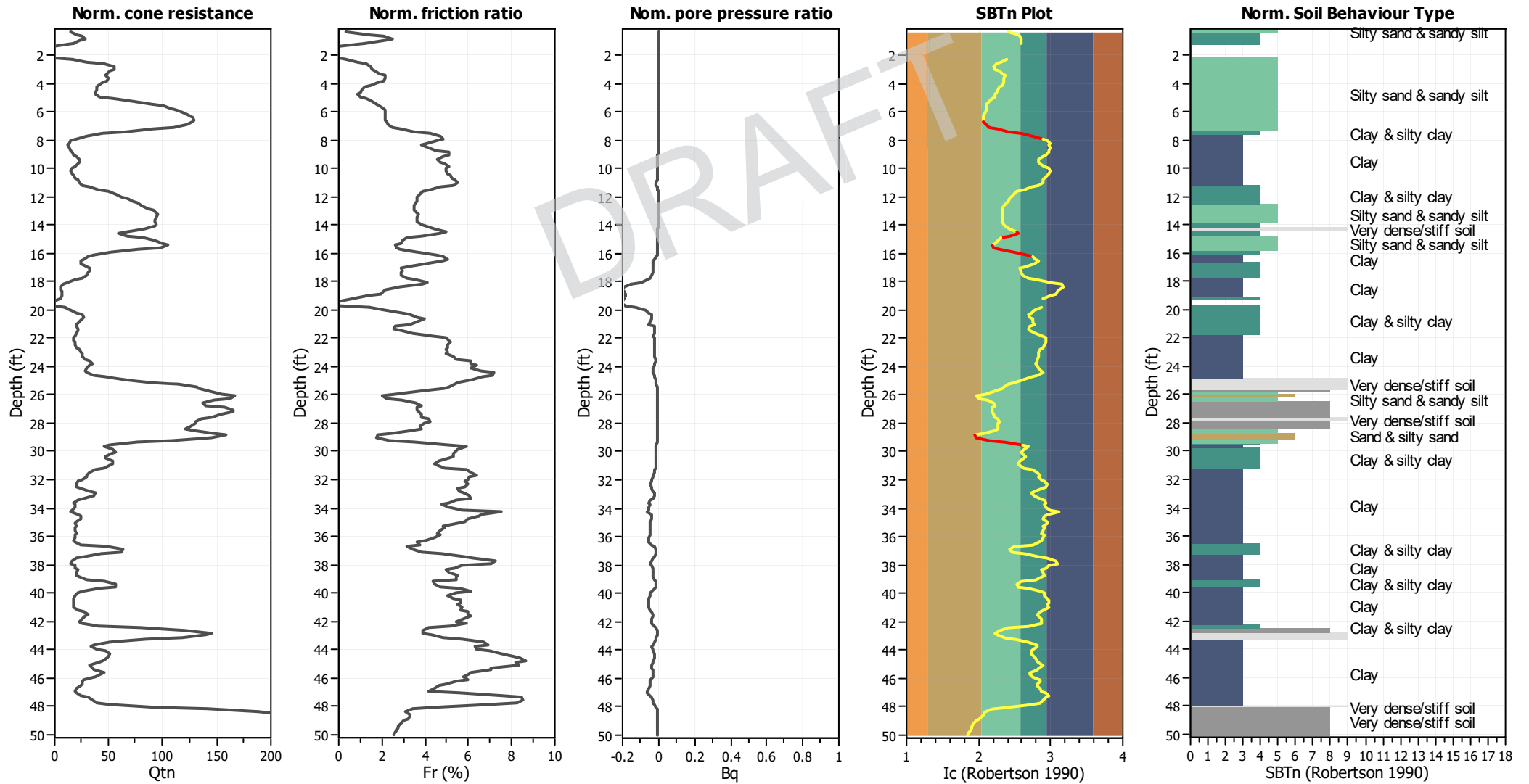
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



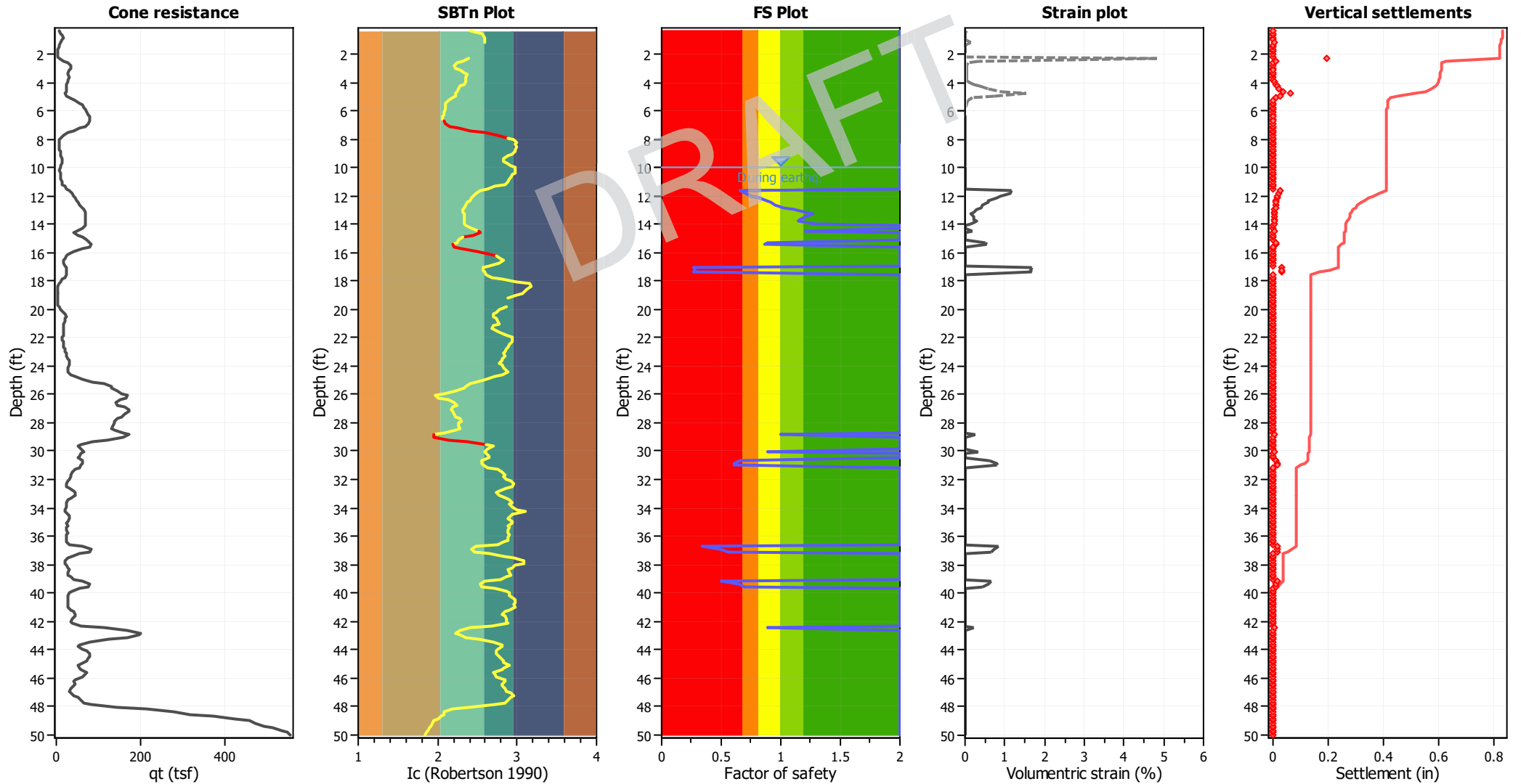
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

Estimation of post-earthquake settlements



Abbreviations

- q_t : 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 _v (%)	Settle. (in)
0.33	2.41	15.35	2.35	35.99	9	181	0.54	0.022	0.06	9.27	0.05	0.002
0.49	2.56	19.89	3.07	61.06	16	284	0.54	0.012	0.01	9.27	0.01	0.000
0.66	2.57	25.92	3.13	81.02	22	374	0.54	0.010	0.01	9.27	0.01	0.000
0.82	2.59	27.89	3.27	91.29	25	416	0.54	0.011	0.01	9.27	0.01	0.000
0.98	2.60	23.49	3.32	77.97	21	354	0.54	0.024	0.02	9.27	0.02	0.001
1.15	2.59	17.42	3.24	56.40	15	258	0.54	0.121	0.17	9.27	0.13	0.005
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.30	2.40	15.63	2.30	36.01	9	182	0.54	10.269	27.32	9.27	4.82	0.197
2.46	2.32	29.65	2.01	59.56	14	313	0.54	0.286	0.43	9.27	0.34	0.013
2.62	2.24	45.80	1.78	81.72	19	440	0.54	0.070	0.08	9.27	0.06	0.002
2.79	2.21	55.21	1.70	93.84	21	510	0.53	0.049	0.05	9.27	0.03	0.001
2.95	2.23	55.57	1.74	96.42	22	522	0.53	0.051	0.05	9.27	0.03	0.001
3.12	2.29	50.52	1.90	96.08	22	511	0.53	0.062	0.05	9.27	0.04	0.002
3.28	2.33	47.93	2.06	98.87	24	516	0.53	0.068	0.06	9.27	0.04	0.002
3.45	2.38	47.12	2.22	104.43	25	535	0.53	0.067	0.05	9.27	0.04	0.002
3.61	2.36	49.84	2.14	106.75	26	552	0.53	0.067	0.05	9.27	0.04	0.001
3.77	2.36	48.54	2.15	104.24	25	538	0.53	0.080	0.06	9.27	0.05	0.002
3.94	2.34	44.51	2.10	93.50	22	486	0.53	0.134	0.12	9.27	0.09	0.004
4.10	2.33	39.78	2.05	81.58	19	426	0.53	0.273	0.28	9.27	0.21	0.008
4.27	2.28	39.49	1.90	74.98	18	399	0.53	0.435	0.51	9.27	0.38	0.016
4.43	2.27	38.78	1.84	71.54	17	383	0.53	0.612	0.77	9.27	0.58	0.022
4.59	2.24	38.18	1.78	67.99	16	367	0.53	0.891	1.20	9.27	0.90	0.034
4.76	2.23	36.98	1.74	64.21	15	348	0.53	1.403	2.04	9.27	1.52	0.062
4.92	2.22	41.63	1.73	71.86	16	390	0.53	0.765	0.97	9.27	0.72	0.028
5.09	2.19	53.66	1.65	88.43	20	483	0.53	0.266	0.27	9.27	0.20	0.008
5.25	2.14	72.82	1.53	111.20	24	611	0.53	0.105	0.08	9.27	0.06	0.002
5.41	2.10	90.16	1.46	131.38	28	723	0.53	0.064	0.04	9.27	0.03	0.001
5.58	2.10	101.01	1.45	146.52	32	806	0.53	0.049	0.03	9.27	0.02	0.001
5.74	2.10	106.94	1.46	156.24	34	860	0.53	0.044	0.02	9.27	0.02	0.001
5.91	2.10	113.02	1.45	164.24	36	903	0.53	0.041	0.02	9.27	0.02	0.001
6.07	2.09	119.27	1.43	170.74	37	939	0.53	0.039	0.02	9.27	0.01	0.001
6.23	2.07	124.72	1.41	175.54	38	964	0.53	0.039	0.02	9.27	0.01	0.001
6.40	2.06	127.65	1.39	178.03	38	977	0.53	0.039	0.02	9.27	0.01	0.001
6.56	2.06	129.02	1.38	178.59	38	980	0.53	0.041	0.02	9.27	0.01	0.001
6.73	2.07	127.34	1.41	179.23	38	985	0.53	0.042	0.02	9.27	0.01	0.001
6.89	2.10	122.02	1.45	177.27	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.16	109.90	1.57	172.23	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.26	89.70	1.83	164.29	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.41	66.23	2.36	156.62	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.59	44.36	3.29	146.04	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.75	29.51	4.41	130.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.88	20.08	5.53	111.13	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.96	15.19	6.33	96.23	0	0	0.53	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)
8.20	2.99	12.99	6.60	85.70	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.98	12.55	6.52	81.85	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.99	12.96	6.61	85.70	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.98	14.28	6.50	92.88	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.98	15.81	6.50	102.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.94	17.93	6.06	108.66	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.88	20.05	5.54	111.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.84	22.27	5.09	113.37	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.83	22.95	5.06	116.08	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.86	21.87	5.33	116.50	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.92	18.87	5.91	111.49	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.42												

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)
10.01	102.72	2.00	0.00	0.85	0.00	10.17	99.59	2.00	0.00	0.84	0.00
10.34	102.74	2.00	0.00	0.84	0.00	10.50	108.72	2.00	0.00	0.84	0.00
10.66	114.34	2.00	0.00	0.84	0.00	10.83	119.72	2.00	0.00	0.83	0.00
10.99	124.87	2.00	0.00	0.83	0.00	11.16	129.34	2.00	0.00	0.83	0.00
11.32	134.22	2.00	0.00	0.83	0.00	11.48	141.13	2.00	0.00	0.82	0.00
11.65	146.85	0.66	1.17	0.82	0.02	11.81	151.57	0.70	1.12	0.82	0.02
11.98	156.53	0.76	0.86	0.82	0.02	12.14	161.76	0.82	0.82	0.81	0.02
12.30	166.91	0.88	0.60	0.81	0.01	12.47	170.30	0.92	0.58	0.81	0.01
12.63	173.54	0.96	0.43	0.81	0.01	12.80	178.37	1.02	0.42	0.80	0.01
12.96	184.72	1.11	0.30	0.80	0.01	13.12	191.19	1.21	0.21	0.80	0.00
13.29	194.89	1.27	0.14	0.80	0.00	13.45	191.40	1.20	0.21	0.79	0.00
13.62	189.33	1.16	0.21	0.79	0.00	13.78	188.73	1.15	0.29	0.79	0.01
13.94	196.67	1.27	0.14	0.79	0.00	14.11	202.01	2.00	0.00	0.78	0.00
14.27	201.28	2.00	0.00	0.78	0.00	14.44	193.70	1.21	0.20	0.78	0.00
14.60	177.82	2.00	0.00	0.78	0.00	14.76	166.25	2.00	0.00	0.77	0.00
14.93	164.79	2.00	0.00	0.77	0.00	15.09	169.28	2.00	0.00	0.77	0.00
15.26	174.24	0.89	0.53	0.77	0.01	15.42	172.83	0.87	0.53	0.76	0.01
15.58	166.55	2.00	0.00	0.76	0.00	15.75	152.01	2.00	0.00	0.76	0.00
15.91	143.38	2.00	0.00	0.76	0.00	16.08	139.60	2.00	0.00	0.75	0.00
16.24	134.23	2.00	0.00	0.75	0.00	16.40	129.61	2.00	0.00	0.75	0.00
16.57	119.58	2.00	0.00	0.75	0.00	16.73	111.08	2.00	0.00	0.74	0.00
16.90	105.35	2.00	0.00	0.74	0.00	17.06	103.28	0.27	1.68	0.74	0.03
17.23	105.19	0.28	1.65	0.74	0.03	17.39	103.12	0.27	1.67	0.73	0.03
17.55	101.22	2.00	0.00	0.73	0.00	17.72	98.37	2.00	0.00	0.73	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)
17.88	93.42	2.00	0.00	0.73	0.00	18.05	83.76	2.00	0.00	0.72	0.00
18.21	65.98	2.00	0.00	0.72	0.00	18.37	52.68	2.00	0.00	0.72	0.00
18.54	47.57	2.00	0.00	0.72	0.00	18.70	47.63	2.00	0.00	0.71	0.00
18.87	47.69	2.00	0.00	0.71	0.00	19.03	41.61	2.00	0.00	0.71	0.00
19.19	33.67	2.00	0.00	0.71	0.00	19.36	-1.00	2.00	0.00	0.70	0.00
19.52	-1.00	2.00	0.00	0.70	0.00	19.69	-1.00	2.00	0.00	0.70	0.00
19.85	47.50	2.00	0.00	0.70	0.00	20.01	67.74	2.00	0.00	0.69	0.00
20.18	87.60	2.00	0.00	0.69	0.00	20.34	100.70	2.00	0.00	0.69	0.00
20.51	108.98	2.00	0.00	0.69	0.00	20.67	111.78	2.00	0.00	0.68	0.00
20.83	103.41	2.00	0.00	0.68	0.00	21.00	92.21	2.00	0.00	0.68	0.00
21.16	83.37	2.00	0.00	0.68	0.00	21.33	82.88	2.00	0.00	0.67	0.00
21.49	88.27	2.00	0.00	0.67	0.00	21.65	94.09	2.00	0.00	0.67	0.00
21.82	102.15	2.00	0.00	0.67	0.00	21.98	106.92	2.00	0.00	0.66	0.00
22.15	108.83	2.00	0.00	0.66	0.00	22.31	110.58	2.00	0.00	0.66	0.00
22.47	112.09	2.00	0.00	0.66	0.00	22.64	115.50	2.00	0.00	0.65	0.00
22.80	118.59	2.00	0.00	0.65	0.00	22.97	123.44	2.00	0.00	0.65	0.00
23.13	124.65	2.00	0.00	0.65	0.00	23.30	129.82	2.00	0.00	0.64	0.00
23.46	138.57	2.00	0.00	0.64	0.00	23.62	156.29	2.00	0.00	0.64	0.00
23.79	162.31	2.00	0.00	0.64	0.00	23.95	160.13	2.00	0.00	0.63	0.00
24.12	149.99	2.00	0.00	0.63	0.00	24.28	151.95	2.00	0.00	0.63	0.00
24.44	161.86	2.00	0.00	0.63	0.00	24.61	178.39	2.00	0.00	0.62	0.00
24.77	194.09	2.00	0.00	0.62	0.00	24.94	216.75	2.00	0.00	0.62	0.00
25.10	237.09	2.00	0.00	0.62	0.00	25.26	267.20	2.00	0.00	0.61	0.00
25.43	280.62	2.00	0.00	0.61	0.00	25.59	275.41	2.00	0.00	0.61	0.00
25.76	245.56	2.00	0.00	0.61	0.00	25.92	218.23	2.00	0.00	0.60	0.00
26.08	211.25	2.00	0.00	0.60	0.00	26.25	212.05	2.00	0.00	0.60	0.00
26.41	221.62	2.00	0.00	0.60	0.00	26.58	233.89	2.00	0.00	0.59	0.00
26.74	244.98	2.00	0.00	0.59	0.00	26.90	256.57	2.00	0.00	0.59	0.00
27.07	266.35	2.00	0.00	0.59	0.00	27.23	267.19	2.00	0.00	0.58	0.00
27.40	259.29	2.00	0.00	0.58	0.00	27.56	253.12	2.00	0.00	0.58	0.00
27.72	252.45	2.00	0.00	0.58	0.00	27.89	250.05	2.00	0.00	0.57	0.00
28.05	240.56	2.00	0.00	0.57	0.00	28.22	229.98	2.00	0.00	0.57	0.00
28.38	225.88	2.00	0.00	0.57	0.00	28.54	219.57	2.00	0.00	0.56	0.00
28.71	207.00	2.00	0.00	0.56	0.00	28.87	195.41	1.00	0.27	0.56	0.01
29.04	180.42	2.00	0.00	0.56	0.00	29.20	167.12	2.00	0.00	0.55	0.00
29.36	167.94	2.00	0.00	0.55	0.00	29.53	172.39	2.00	0.00	0.55	0.00
29.69	179.05	2.00	0.00	0.55	0.00	29.86	184.37	2.00	0.00	0.54	0.00
30.02	187.87	0.89	0.33	0.54	0.01	30.19	179.38	2.00	0.00	0.54	0.00
30.35	170.89	2.00	0.00	0.54	0.00	30.51	165.99	2.00	0.00	0.53	0.00
30.68	167.29	0.66	0.63	0.53	0.01	30.84	162.59	0.61	0.79	0.53	0.02
31.01	163.01	0.61	0.79	0.53	0.02	31.17	162.16	2.00	0.00	0.52	0.00
31.33	163.08	2.00	0.00	0.52	0.00	31.50	156.21	2.00	0.00	0.52	0.00
31.66	154.29	2.00	0.00	0.52	0.00	31.83	148.04	2.00	0.00	0.51	0.00
31.99	138.61	2.00	0.00	0.51	0.00	32.15	125.92	2.00	0.00	0.51	0.00
32.32	123.10	2.00	0.00	0.51	0.00	32.48	122.81	2.00	0.00	0.50	0.00
32.65	129.94	2.00	0.00	0.50	0.00	32.81	148.78	2.00	0.00	0.50	0.00
32.97	162.85	2.00	0.00	0.50	0.00	33.14	162.19	2.00	0.00	0.49	0.00
33.30	143.50	2.00	0.00	0.49	0.00	33.47	119.86	2.00	0.00	0.49	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)
33.63	108.50	2.00	0.00	0.49	0.00	33.79	106.67	2.00	0.00	0.48	0.00
33.96	109.57	2.00	0.00	0.48	0.00	34.12	111.06	2.00	0.00	0.48	0.00
34.29	120.35	2.00	0.00	0.48	0.00	34.45	135.28	2.00	0.00	0.47	0.00
34.61	140.76	2.00	0.00	0.47	0.00	34.78	134.45	2.00	0.00	0.47	0.00
34.94	122.08	2.00	0.00	0.47	0.00	35.11	115.23	2.00	0.00	0.46	0.00
35.27	110.69	2.00	0.00	0.46	0.00	35.43	109.20	2.00	0.00	0.46	0.00
35.60	107.51	2.00	0.00	0.46	0.00	35.76	107.24	2.00	0.00	0.45	0.00
35.93	105.81	2.00	0.00	0.45	0.00	36.09	102.68	2.00	0.00	0.45	0.00
36.26	96.40	2.00	0.00	0.45	0.00	36.42	92.84	2.00	0.00	0.44	0.00
36.58	106.54	2.00	0.00	0.44	0.00	36.75	127.90	0.34	0.84	0.44	0.02
36.91	150.71	0.49	0.73	0.44	0.01	37.08	159.50	0.57	0.67	0.43	0.01
37.24	153.41	2.00	0.00	0.43	0.00	37.40	142.40	2.00	0.00	0.43	0.00
37.57	127.23	2.00	0.00	0.43	0.00	37.73	121.15	2.00	0.00	0.42	0.00
37.90	115.88	2.00	0.00	0.42	0.00	38.06	115.71	2.00	0.00	0.42	0.00
38.22	115.41	2.00	0.00	0.42	0.00	38.39	115.02	2.00	0.00	0.41	0.00
38.55	114.92	2.00	0.00	0.41	0.00	38.72	119.74	2.00	0.00	0.41	0.00
38.88	126.42	2.00	0.00	0.41	0.00	39.04	139.67	2.00	0.00	0.40	0.00
39.21	151.14	0.50	0.67	0.40	0.01	39.37	168.20	0.65	0.57	0.40	0.01
39.54	172.74	0.69	0.45	0.40	0.01	39.70	164.24	2.00	0.00	0.39	0.00
39.86	141.23	2.00	0.00	0.39	0.00	40.03	120.43	2.00	0.00	0.39	0.00
40.19	111.82	2.00	0.00	0.39	0.00	40.36	110.42	2.00	0.00	0.38	0.00
40.52	112.88	2.00	0.00	0.38	0.00	40.68	113.90	2.00	0.00	0.38	0.00
40.85	112.45	2.00	0.00	0.38	0.00	41.01	114.77	2.00	0.00	0.37	0.00
41.18	124.77	2.00	0.00	0.37	0.00	41.34	142.05	2.00	0.00	0.37	0.00
41.50	151.05	2.00	0.00	0.37	0.00	41.67	147.30	2.00	0.00	0.36	0.00
41.83	134.41	2.00	0.00	0.36	0.00	42.00	126.90	2.00	0.00	0.36	0.00
42.16	135.09	2.00	0.00	0.36	0.00	42.32	156.86	2.00	0.00	0.35	0.00
42.49	189.71	0.89	0.21	0.35	0.00	42.65	226.99	2.00	0.00	0.35	0.00
42.82	252.82	2.00	0.00	0.35	0.00	42.98	261.13	2.00	0.00	0.34	0.00
43.15	253.89	2.00	0.00	0.34	0.00	43.31	236.46	2.00	0.00	0.34	0.00
43.47	205.59	2.00	0.00	0.34	0.00	43.64	175.67	2.00	0.00	0.33	0.00
43.80	161.34	2.00	0.00	0.33	0.00	43.97	175.13	2.00	0.00	0.33	0.00
44.13	199.33	2.00	0.00	0.33	0.00	44.29	217.10	2.00	0.00	0.32	0.00
44.46	225.23	2.00	0.00	0.32	0.00	44.62	227.05	2.00	0.00	0.32	0.00
44.79	223.05	2.00	0.00	0.32	0.00	44.95	204.40	2.00	0.00	0.31	0.00
45.11	184.89	2.00	0.00	0.31	0.00	45.28	173.55	2.00	0.00	0.31	0.00
45.44	179.22	2.00	0.00	0.31	0.00	45.61	181.85	2.00	0.00	0.30	0.00
45.77	177.23	2.00	0.00	0.30	0.00	45.93	161.91	2.00	0.00	0.30	0.00
46.10	141.59	2.00	0.00	0.30	0.00	46.26	130.25	2.00	0.00	0.29	0.00
46.43	125.94	2.00	0.00	0.29	0.00	46.59	119.76	2.00	0.00	0.29	0.00
46.75	108.17	2.00	0.00	0.29	0.00	46.92	100.00	2.00	0.00	0.28	0.00
47.08	119.64	2.00	0.00	0.28	0.00	47.25	152.25	2.00	0.00	0.28	0.00
47.41	180.64	2.00	0.00	0.28	0.00	47.57	193.83	2.00	0.00	0.27	0.00
47.74	200.87	2.00	0.00	0.27	0.00	47.90	207.69	2.00	0.00	0.27	0.00
48.07	213.38	2.00	0.00	0.27	0.00	48.23	233.03	2.00	0.00	0.26	0.00
48.39	268.05	2.00	0.00	0.26	0.00	48.56	302.48	2.00	0.00	0.26	0.00
48.72	343.17	2.00	0.00	0.26	0.00	48.89	377.73	2.00	0.00	0.25	0.00
49.05	394.29	2.00	0.00	0.25	0.00	49.22	399.39	2.00	0.00	0.25	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)
49.38	407.92	2.00	0.00	0.25	0.00	49.54	423.23	2.00	0.00	0.24	0.00
49.71	435.00	2.00	0.00	0.24	0.00	49.87	439.77	2.00	0.00	0.24	0.00
50.04	441.17	2.00	0.00	0.24	0.00						

Total estimated settlement: 0.41**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

DRAFT

LIQUEFACTION ANALYSIS REPORT

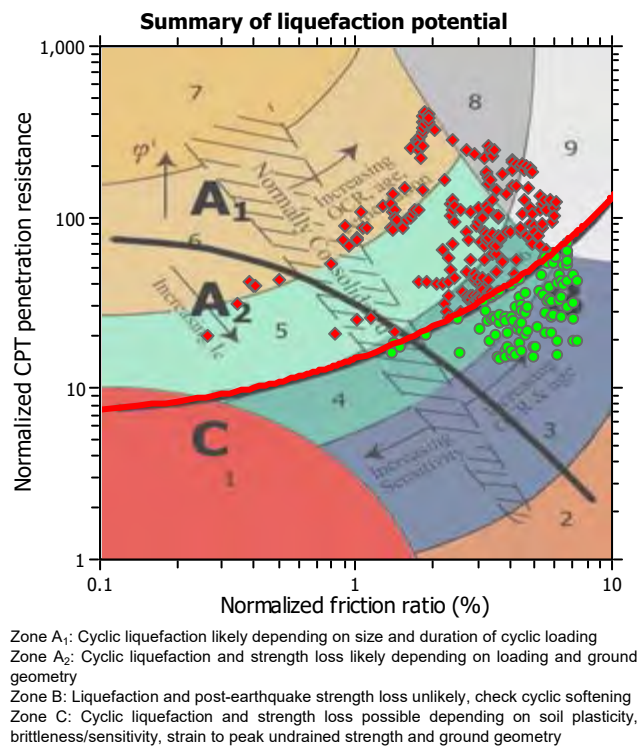
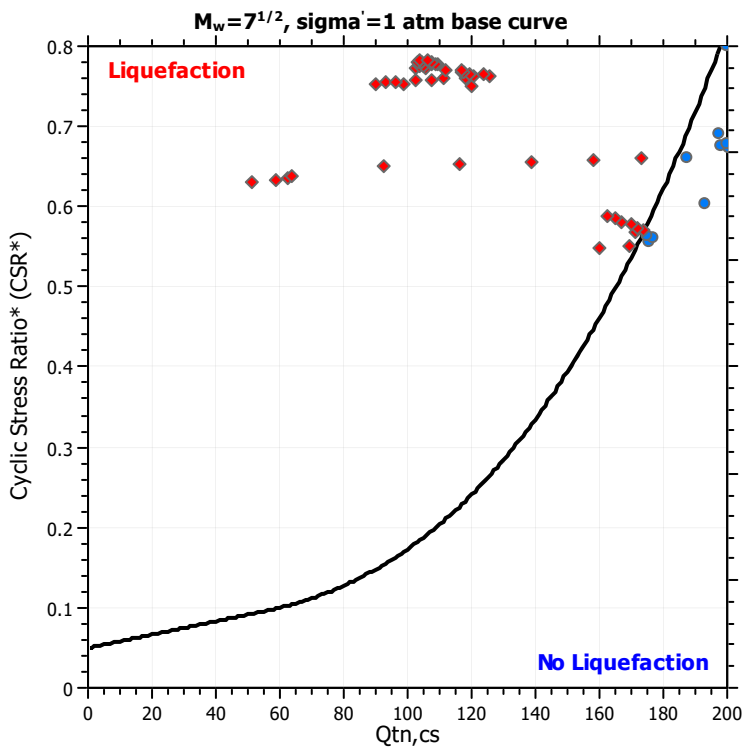
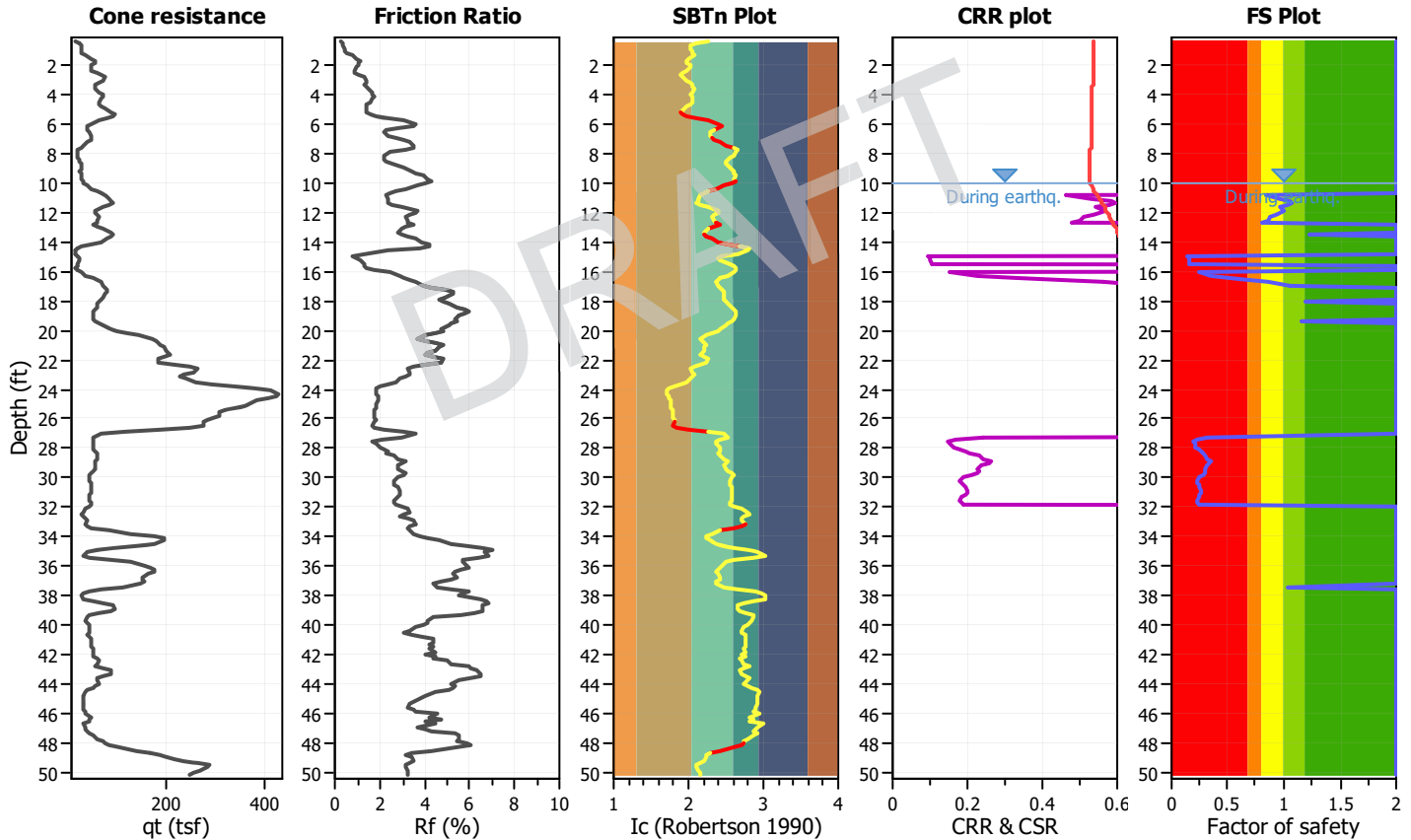
Project title : 210256003 - Compton HS

Location : Compton, CA

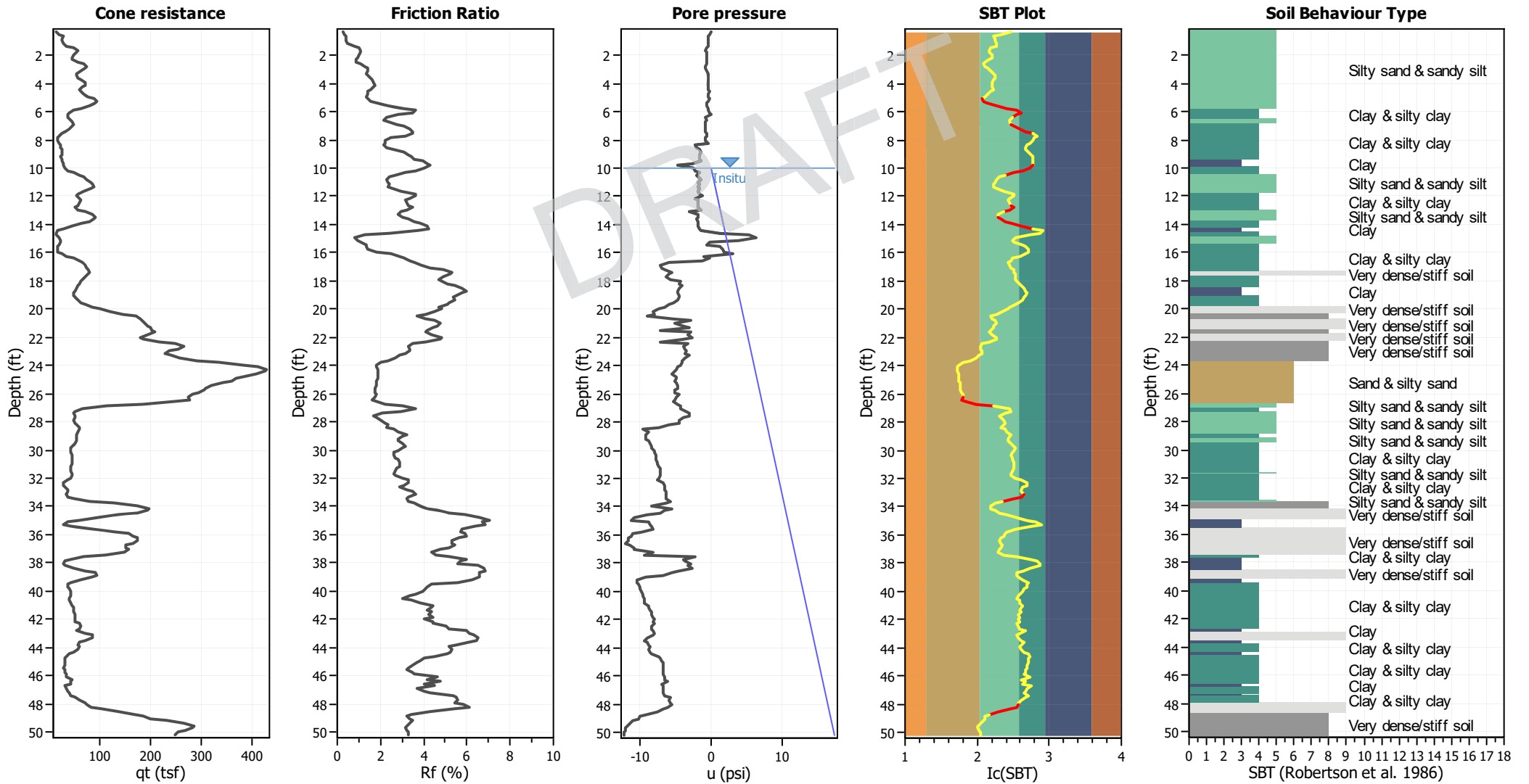
CPT file : CPT-15

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



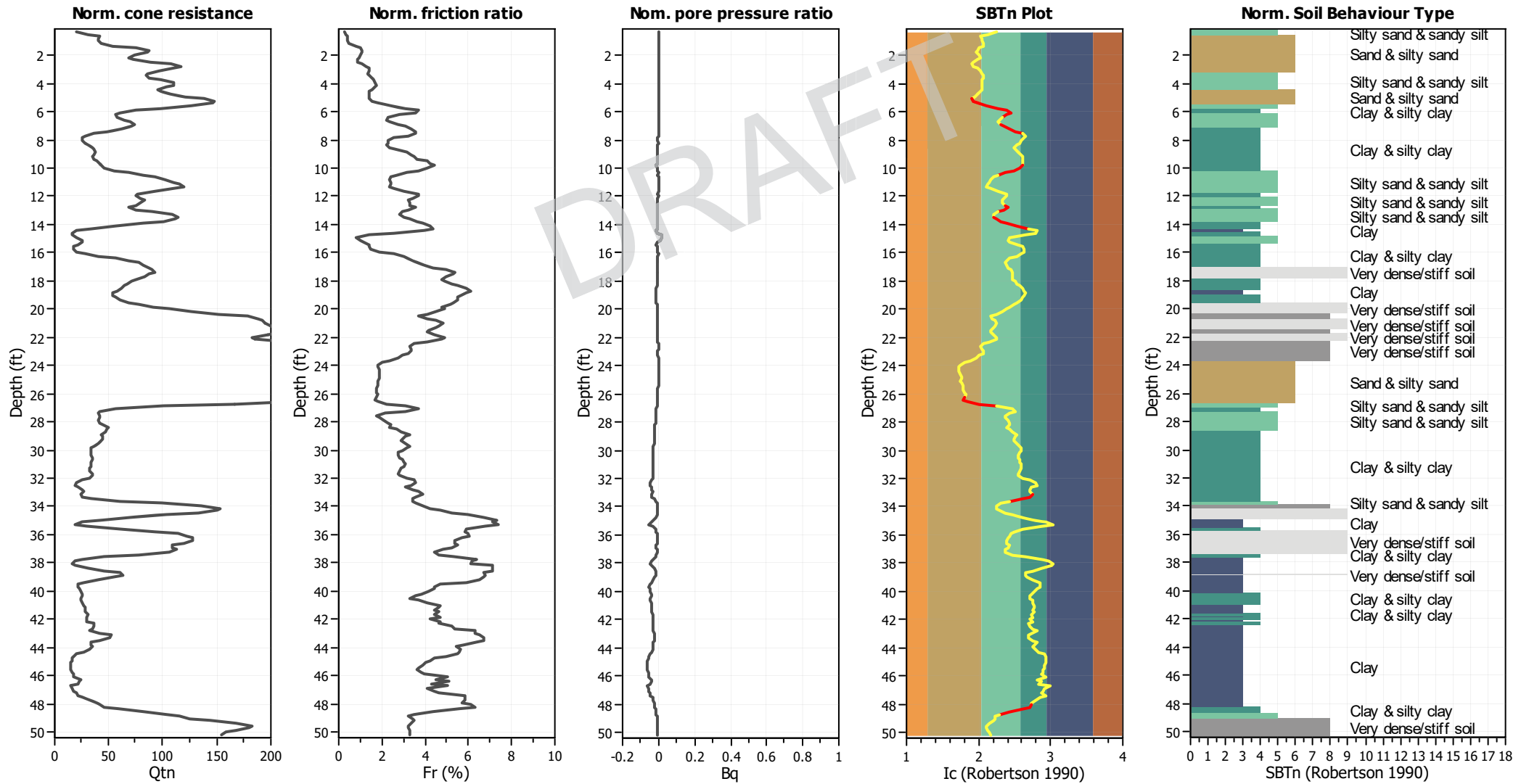
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



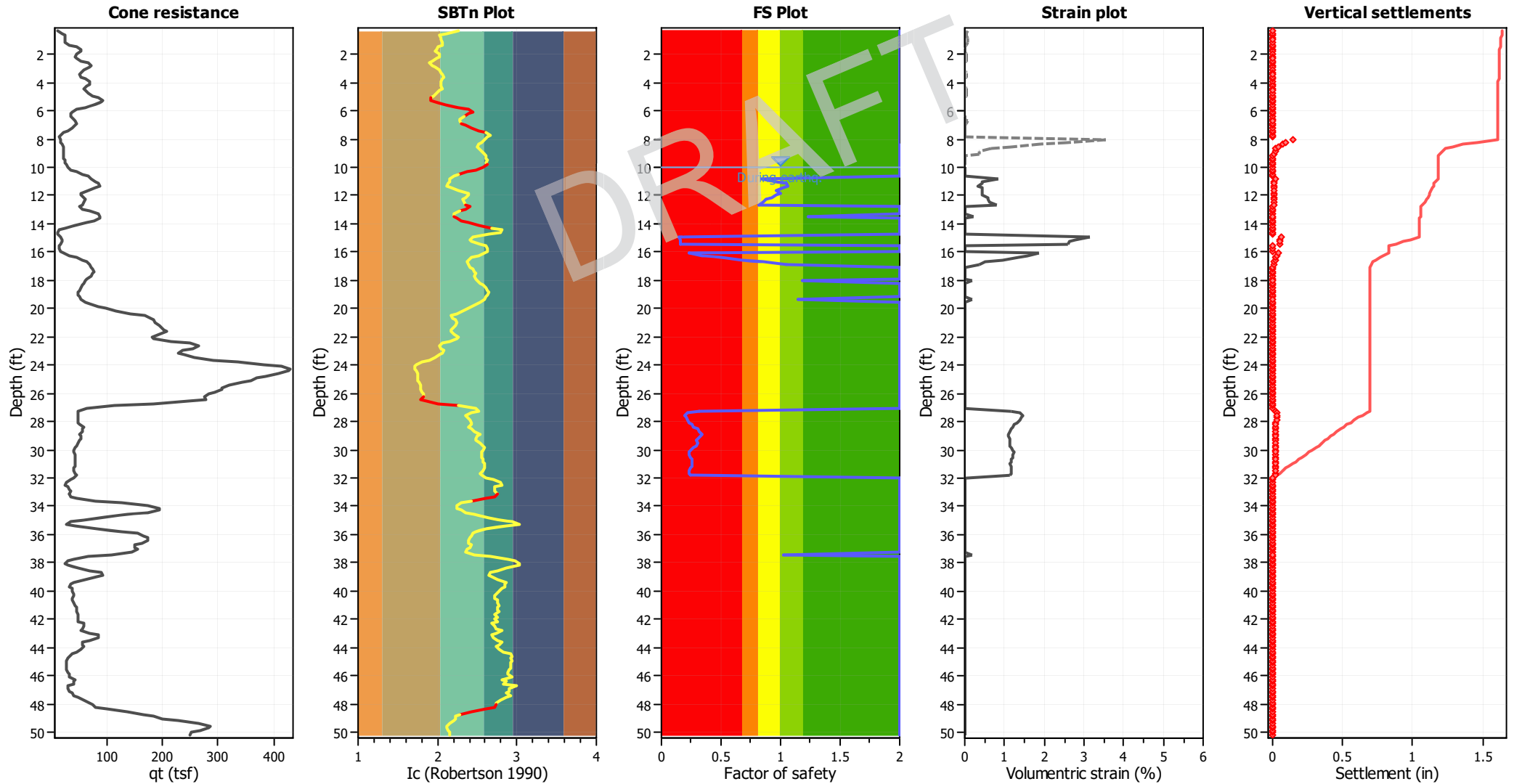
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.26	20.27	1.00	20.27	5	198	0.54	0.016	0.09	9.27	0.07	0.003
0.49	2.12	31.07	1.00	31.07	7	254	0.54	0.016	0.06	9.27	0.05	0.002
0.66	2.02	41.77	1.00	41.77	9	301	0.54	0.017	0.05	9.27	0.04	0.001
0.82	2.04	40.15	1.00	40.15	8	298	0.54	0.027	0.08	9.27	0.06	0.002
0.98	2.04	39.92	1.00	39.92	8	297	0.54	0.040	0.11	9.27	0.09	0.003
1.15	2.06	42.64	1.38	58.98	13	323	0.54	0.041	0.07	9.27	0.06	0.002
1.31	2.07	54.03	1.40	75.51	16	415	0.54	0.024	0.03	9.27	0.02	0.001
1.48	2.01	74.84	1.31	98.21	21	534	0.54	0.015	0.01	9.27	0.01	0.000
1.64	1.98	87.15	1.28	111.55	23	602	0.54	0.014	0.01	9.27	0.01	0.000
1.80	1.98	86.11	1.27	109.34	23	589	0.54	0.017	0.01	9.27	0.01	0.000
1.97	2.02	73.94	1.32	97.77	20	532	0.54	0.026	0.03	9.27	0.02	0.001
2.13	2.02	68.73	1.33	91.30	19	498	0.54	0.037	0.04	9.27	0.03	0.001
2.30	1.99	72.84	1.28	93.37	19	504	0.54	0.041	0.04	9.27	0.03	0.001
2.46	1.92	88.73	1.21	107.55	22	568	0.54	0.033	0.03	9.27	0.02	0.001
2.62	1.90	107.30	1.19	127.57	26	667	0.54	0.024	0.02	9.27	0.01	0.001
2.79	1.93	117.29	1.22	142.83	29	756	0.53	0.020	0.01	9.27	0.01	0.000
2.95	1.98	110.42	1.27	140.34	29	756	0.53	0.022	0.01	9.27	0.01	0.000
3.12	2.02	96.92	1.33	129.21	27	705	0.53	0.029	0.02	9.27	0.02	0.001
3.28	2.05	86.46	1.36	117.98	25	646	0.53	0.039	0.03	9.27	0.02	0.001
3.45	2.06	83.93	1.39	116.92	25	642	0.53	0.044	0.03	9.27	0.03	0.001
3.61	2.08	87.40	1.41	123.53	26	679	0.53	0.041	0.03	9.27	0.02	0.001
3.77	2.06	98.57	1.38	136.19	29	747	0.53	0.034	0.02	9.27	0.02	0.001
3.94	2.04	109.91	1.35	148.55	31	812	0.53	0.030	0.02	9.27	0.01	0.001
4.10	2.05	110.05	1.36	150.05	32	821	0.53	0.031	0.02	9.27	0.01	0.001
4.27	2.05	103.40	1.37	141.30	30	774	0.53	0.039	0.02	9.27	0.02	0.001
4.43	2.06	95.35	1.38	131.69	28	722	0.53	0.051	0.03	9.27	0.03	0.001
4.59	2.02	98.01	1.32	129.72	27	707	0.53	0.058	0.04	9.27	0.03	0.001
4.76	1.99	107.10	1.28	137.20	28	741	0.53	0.054	0.04	9.27	0.03	0.001
4.92	1.94	120.31	1.23	148.42	30	791	0.53	0.048	0.03	9.27	0.02	0.001
5.09	1.91	137.81	1.20	164.74	33	864	0.53	0.040	0.02	9.27	0.02	0.001
5.25	1.92	147.65	1.21	178.49	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.41	1.98	145.75	1.27	185.30	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.58	2.10	125.81	1.46	184.06	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.74	2.26	97.84	1.84	179.97	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.91	2.39	74.58	2.29	170.78	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.07	2.45	60.49	2.51	151.69	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.39	57.04	2.28	130.22	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.33	57.88	2.05	118.42	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.28	63.80	1.89	120.54	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.28	70.00	1.88	131.38	31	701	0.53	0.132	0.08	9.27	0.06	0.002
6.89	2.31	73.84	1.97	145.56	34	768	0.53	0.100	0.05	9.27	0.04	0.001
7.05	2.35	71.20	2.13	151.74	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.43	61.70	2.42	149.25	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.51	48.57	2.83	137.22	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.61	35.86	3.39	121.73	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.66	28.13	3.72	104.53	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.63	25.33	3.50	88.78	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.60	25.75	3.30	84.91	23	386	0.53	5.929	5.03	9.27	3.56	0.145

:: 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)
8.20	2.56	28.24	3.10	87.61	23	406	0.53	4.362	3.64	9.27	2.56	0.098
8.37	2.52	31.27	2.88	90.03	23	427	0.53	3.259	2.69	9.27	1.89	0.077
8.53	2.50	34.62	2.76	95.55	25	459	0.53	2.120	1.65	9.27	1.16	0.044
8.69	2.51	36.81	2.83	104.11	27	496	0.53	1.367	0.95	9.27	0.67	0.026
8.86	2.56	37.65	3.07	115.41	31	536	0.53	0.913	0.55	9.27	0.38	0.016
9.02	2.59	36.62	3.24	118.63	32	542	0.53	0.906	0.52	9.27	0.36	0.014
9.19	2.61	35.21	3.39	119.24	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.35	2.61	36.64	3.39	124.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.62	39.40	3.45	135.98	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.68	2.61	41.72	3.41	142.39	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.62	42.60	3.45	146.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.46												

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)
10.01	146.47	2.00	0.00	0.85	0.00	10.17	149.61	2.00	0.00	0.84	0.00
10.34	151.84	2.00	0.00	0.84	0.00	10.50	152.29	2.00	0.00	0.84	0.00
10.66	154.97	2.00	0.00	0.84	0.00	10.83	160.01	0.84	0.85	0.83	0.02
10.99	169.47	0.97	0.45	0.83	0.01	11.16	175.54	1.05	0.43	0.83	0.01
11.32	177.06	1.07	0.31	0.83	0.01	11.48	174.99	1.03	0.43	0.82	0.01
11.65	170.94	0.96	0.44	0.82	0.01	11.81	173.72	0.99	0.43	0.82	0.01
11.98	171.78	0.96	0.44	0.82	0.01	12.14	169.69	0.92	0.58	0.81	0.01
12.30	166.79	0.88	0.60	0.81	0.01	12.47	165.17	0.85	0.60	0.81	0.01
12.63	162.25	0.81	0.81	0.81	0.02	12.80	160.37	2.00	0.00	0.80	0.00
12.96	159.55	2.00	0.00	0.80	0.00	13.12	167.85	2.00	0.00	0.80	0.00
13.29	181.41	2.00	0.00	0.80	0.00	13.45	192.84	1.24	0.20	0.79	0.00
13.62	198.57	2.00	0.00	0.79	0.00	13.78	197.32	2.00	0.00	0.79	0.00
13.94	184.79	2.00	0.00	0.79	0.00	14.11	162.74	2.00	0.00	0.78	0.00
14.27	132.60	2.00	0.00	0.78	0.00	14.44	102.36	2.00	0.00	0.78	0.00
14.60	75.06	2.00	0.00	0.78	0.00	14.76	57.55	2.00	0.00	0.77	0.00
14.93	50.95	0.15	3.14	0.77	0.06	15.09	58.53	0.16	2.79	0.77	0.05
15.26	62.20	0.16	2.65	0.77	0.05	15.42	63.58	0.16	2.59	0.76	0.05
15.58	60.63	2.00	0.00	0.76	0.00	15.75	60.93	2.00	0.00	0.76	0.00
15.91	71.35	2.00	0.00	0.76	0.00	16.08	92.70	0.24	1.88	0.75	0.04
16.24	115.97	0.34	1.56	0.75	0.03	16.40	138.64	0.50	1.34	0.75	0.03
16.57	158.01	0.68	0.96	0.75	0.02	16.73	173.27	0.86	0.52	0.74	0.01
16.90	187.43	1.05	0.37	0.74	0.01	17.06	204.36	2.00	0.00	0.74	0.00
17.23	224.79	2.00	0.00	0.74	0.00	17.39	238.16	2.00	0.00	0.73	0.00
17.55	231.49	2.00	0.00	0.73	0.00	17.72	215.95	2.00	0.00	0.73	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)
17.88	200.67	2.00	0.00	0.73	0.00	18.05	197.88	1.18	0.18	0.72	0.00
18.21	200.20	2.00	0.00	0.72	0.00	18.37	203.61	2.00	0.00	0.72	0.00
18.54	207.21	2.00	0.00	0.72	0.00	18.70	203.36	2.00	0.00	0.71	0.00
18.87	194.46	2.00	0.00	0.71	0.00	19.03	188.31	2.00	0.00	0.71	0.00
19.19	189.12	2.00	0.00	0.71	0.00	19.36	197.37	1.15	0.18	0.70	0.00
19.52	203.63	2.00	0.00	0.70	0.00	19.69	213.23	2.00	0.00	0.70	0.00
19.85	221.98	2.00	0.00	0.70	0.00	20.01	243.16	2.00	0.00	0.69	0.00
20.18	254.50	2.00	0.00	0.69	0.00	20.34	269.24	2.00	0.00	0.69	0.00
20.51	283.11	2.00	0.00	0.69	0.00	20.67	307.85	2.00	0.00	0.68	0.00
20.83	328.01	2.00	0.00	0.68	0.00	21.00	344.68	2.00	0.00	0.68	0.00
21.16	343.69	2.00	0.00	0.68	0.00	21.33	340.34	2.00	0.00	0.67	0.00
21.49	331.55	2.00	0.00	0.67	0.00	21.65	332.51	2.00	0.00	0.67	0.00
21.82	330.20	2.00	0.00	0.67	0.00	21.98	332.71	2.00	0.00	0.66	0.00
22.15	331.98	2.00	0.00	0.66	0.00	22.31	337.32	2.00	0.00	0.66	0.00
22.47	345.63	2.00	0.00	0.66	0.00	22.64	352.05	2.00	0.00	0.65	0.00
22.80	342.17	2.00	0.00	0.65	0.00	22.97	324.16	2.00	0.00	0.65	0.00
23.13	308.40	2.00	0.00	0.65	0.00	23.30	306.01	2.00	0.00	0.64	0.00
23.46	315.10	2.00	0.00	0.64	0.00	23.62	332.58	2.00	0.00	0.64	0.00
23.79	355.42	2.00	0.00	0.64	0.00	23.95	387.33	2.00	0.00	0.63	0.00
24.12	413.44	2.00	0.00	0.63	0.00	24.28	429.06	2.00	0.00	0.63	0.00
24.44	426.95	2.00	0.00	0.63	0.00	24.61	410.45	2.00	0.00	0.62	0.00
24.77	388.72	2.00	0.00	0.62	0.00	24.94	372.63	2.00	0.00	0.62	0.00
25.10	361.21	2.00	0.00	0.62	0.00	25.26	344.89	2.00	0.00	0.61	0.00
25.43	323.72	2.00	0.00	0.61	0.00	25.59	310.38	2.00	0.00	0.61	0.00
25.76	308.29	2.00	0.00	0.61	0.00	25.92	299.28	2.00	0.00	0.60	0.00
26.08	289.73	2.00	0.00	0.60	0.00	26.25	279.95	2.00	0.00	0.60	0.00
26.41	277.38	2.00	0.00	0.60	0.00	26.58	256.41	2.00	0.00	0.59	0.00
26.74	216.46	2.00	0.00	0.59	0.00	26.90	180.82	2.00	0.00	0.59	0.00
27.07	151.04	2.00	0.00	0.59	0.00	27.23	119.72	0.32	1.18	0.58	0.02
27.40	98.46	0.22	1.38	0.58	0.03	27.56	89.99	0.20	1.48	0.58	0.03
27.72	93.11	0.21	1.43	0.58	0.03	27.89	96.36	0.22	1.38	0.57	0.03
28.05	102.33	0.24	1.31	0.57	0.03	28.22	107.68	0.26	1.25	0.57	0.03
28.38	110.98	0.27	1.22	0.57	0.02	28.54	117.88	0.31	1.15	0.56	0.02
28.71	120.77	0.32	1.13	0.56	0.02	28.87	125.64	0.35	1.09	0.56	0.02
29.04	123.54	0.33	1.10	0.56	0.02	29.20	119.33	0.31	1.12	0.55	0.02
29.36	116.70	0.30	1.14	0.55	0.02	29.53	117.49	0.30	1.13	0.55	0.02
29.69	116.92	0.30	1.13	0.55	0.02	29.86	111.76	0.27	1.16	0.54	0.02
30.02	105.84	0.25	1.21	0.54	0.02	30.19	102.46	0.23	1.24	0.54	0.03
30.35	103.52	0.24	1.22	0.54	0.02	30.51	104.81	0.24	1.20	0.53	0.02
30.68	107.68	0.25	1.17	0.53	0.02	30.84	109.08	0.26	1.15	0.53	0.02
31.01	109.00	0.26	1.15	0.53	0.02	31.17	107.61	0.25	1.15	0.52	0.02
31.33	104.58	0.24	1.18	0.52	0.02	31.50	102.82	0.23	1.19	0.52	0.02
31.66	103.56	0.23	1.17	0.52	0.02	31.83	106.26	0.24	1.14	0.51	0.02
31.99	108.51	2.00	0.00	0.51	0.00	32.15	104.57	2.00	0.00	0.51	0.00
32.32	96.62	2.00	0.00	0.51	0.00	32.48	90.20	2.00	0.00	0.50	0.00
32.65	92.47	2.00	0.00	0.50	0.00	32.81	102.61	2.00	0.00	0.50	0.00
32.97	109.39	2.00	0.00	0.50	0.00	33.14	108.48	2.00	0.00	0.49	0.00
33.30	105.02	2.00	0.00	0.49	0.00	33.47	115.98	2.00	0.00	0.49	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)
33.63	148.51	2.00	0.00	0.49	0.00	33.79	195.41	2.00	0.00	0.48	0.00
33.96	242.83	2.00	0.00	0.48	0.00	34.12	273.75	2.00	0.00	0.48	0.00
34.29	288.58	2.00	0.00	0.48	0.00	34.45	286.15	2.00	0.00	0.47	0.00
34.61	271.09	2.00	0.00	0.47	0.00	34.78	238.24	2.00	0.00	0.47	0.00
34.94	194.49	2.00	0.00	0.47	0.00	35.11	150.11	2.00	0.00	0.46	0.00
35.27	133.20	2.00	0.00	0.46	0.00	35.43	157.12	2.00	0.00	0.46	0.00
35.60	204.40	2.00	0.00	0.46	0.00	35.76	251.82	2.00	0.00	0.45	0.00
35.93	286.25	2.00	0.00	0.45	0.00	36.09	299.27	2.00	0.00	0.45	0.00
36.26	295.11	2.00	0.00	0.45	0.00	36.42	285.92	2.00	0.00	0.44	0.00
36.58	274.53	2.00	0.00	0.44	0.00	36.75	265.82	2.00	0.00	0.44	0.00
36.91	256.79	2.00	0.00	0.44	0.00	37.08	248.27	2.00	0.00	0.43	0.00
37.24	228.74	2.00	0.00	0.43	0.00	37.40	199.75	1.03	0.20	0.43	0.00
37.57	168.40	2.00	0.00	0.43	0.00	37.73	143.26	2.00	0.00	0.42	0.00
37.90	121.21	2.00	0.00	0.42	0.00	38.06	111.73	2.00	0.00	0.42	0.00
38.22	129.71	2.00	0.00	0.42	0.00	38.39	166.06	2.00	0.00	0.41	0.00
38.55	200.99	2.00	0.00	0.41	0.00	38.72	221.29	2.00	0.00	0.41	0.00
38.88	226.73	2.00	0.00	0.41	0.00	39.04	212.76	2.00	0.00	0.40	0.00
39.21	178.96	2.00	0.00	0.40	0.00	39.37	139.67	2.00	0.00	0.40	0.00
39.54	113.16	2.00	0.00	0.40	0.00	39.70	109.44	2.00	0.00	0.39	0.00
39.86	112.58	2.00	0.00	0.39	0.00	40.03	113.23	2.00	0.00	0.39	0.00
40.19	110.38	2.00	0.00	0.39	0.00	40.36	105.34	2.00	0.00	0.38	0.00
40.52	99.04	2.00	0.00	0.38	0.00	40.68	104.24	2.00	0.00	0.38	0.00
40.85	114.43	2.00	0.00	0.38	0.00	41.01	125.10	2.00	0.00	0.37	0.00
41.18	126.80	2.00	0.00	0.37	0.00	41.34	123.44	2.00	0.00	0.37	0.00
41.50	125.47	2.00	0.00	0.37	0.00	41.67	127.75	2.00	0.00	0.36	0.00
41.83	129.86	2.00	0.00	0.36	0.00	42.00	123.35	2.00	0.00	0.36	0.00
42.16	129.56	2.00	0.00	0.36	0.00	42.32	139.58	2.00	0.00	0.35	0.00
42.49	152.01	2.00	0.00	0.35	0.00	42.65	150.49	2.00	0.00	0.35	0.00
42.82	157.78	2.00	0.00	0.35	0.00	42.98	179.22	2.00	0.00	0.34	0.00
43.15	203.24	2.00	0.00	0.34	0.00	43.31	205.23	2.00	0.00	0.34	0.00
43.47	186.54	2.00	0.00	0.34	0.00	43.64	163.59	2.00	0.00	0.33	0.00
43.80	153.42	2.00	0.00	0.33	0.00	43.97	151.95	2.00	0.00	0.33	0.00
44.13	148.01	2.00	0.00	0.33	0.00	44.29	136.92	2.00	0.00	0.32	0.00
44.46	120.92	2.00	0.00	0.32	0.00	44.62	106.03	2.00	0.00	0.32	0.00
44.79	97.83	2.00	0.00	0.32	0.00	44.95	94.06	2.00	0.00	0.31	0.00
45.11	91.45	2.00	0.00	0.31	0.00	45.28	88.78	2.00	0.00	0.31	0.00
45.44	86.05	2.00	0.00	0.31	0.00	45.61	85.96	2.00	0.00	0.30	0.00
45.77	91.06	2.00	0.00	0.30	0.00	45.93	94.66	2.00	0.00	0.30	0.00
46.10	107.01	2.00	0.00	0.30	0.00	46.26	115.03	2.00	0.00	0.29	0.00
46.43	120.97	2.00	0.00	0.29	0.00	46.59	109.68	2.00	0.00	0.29	0.00
46.75	99.94	2.00	0.00	0.29	0.00	46.92	93.96	2.00	0.00	0.28	0.00
47.08	101.93	2.00	0.00	0.28	0.00	47.25	109.29	2.00	0.00	0.28	0.00
47.41	124.70	2.00	0.00	0.28	0.00	47.57	137.79	2.00	0.00	0.27	0.00
47.74	151.84	2.00	0.00	0.27	0.00	47.90	162.33	2.00	0.00	0.27	0.00
48.07	174.27	2.00	0.00	0.27	0.00	48.23	186.61	2.00	0.00	0.26	0.00
48.39	195.32	2.00	0.00	0.26	0.00	48.56	197.91	2.00	0.00	0.26	0.00
48.72	197.24	2.00	0.00	0.26	0.00	48.89	202.05	2.00	0.00	0.25	0.00
49.05	217.19	2.00	0.00	0.25	0.00	49.22	239.78	2.00	0.00	0.25	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)
49.38	258.58	2.00	0.00	0.25	0.00	49.54	268.55	2.00	0.00	0.24	0.00
49.71	265.73	2.00	0.00	0.24	0.00	49.87	256.03	2.00	0.00	0.24	0.00
50.04	247.33	2.00	0.00	0.24	0.00	50.20	243.95	2.00	0.00	0.23	0.00

Total estimated settlement: 1.18

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

DRAFT

LIQUEFACTION ANALYSIS REPORT

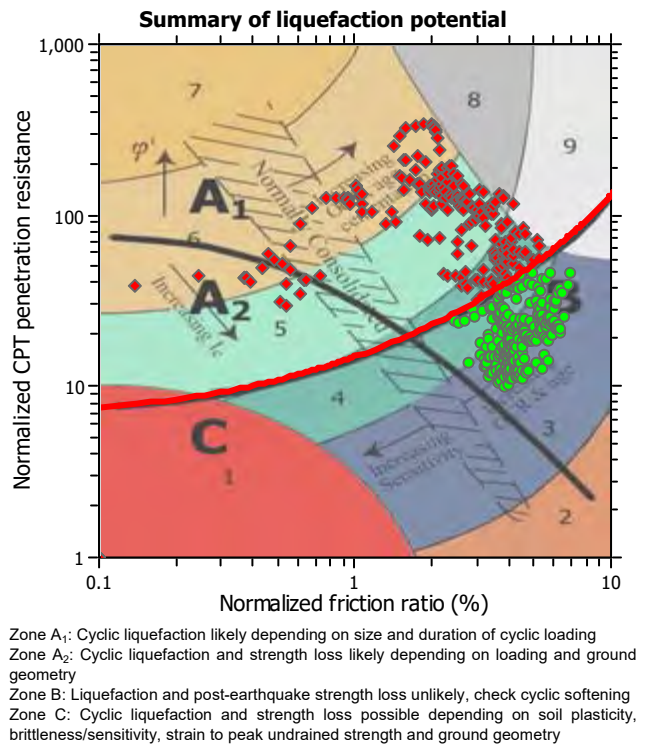
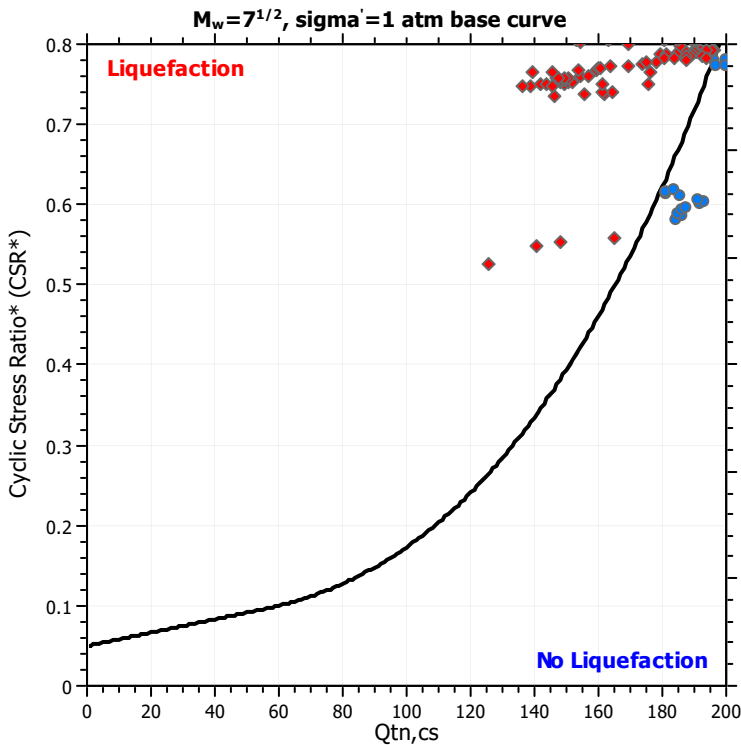
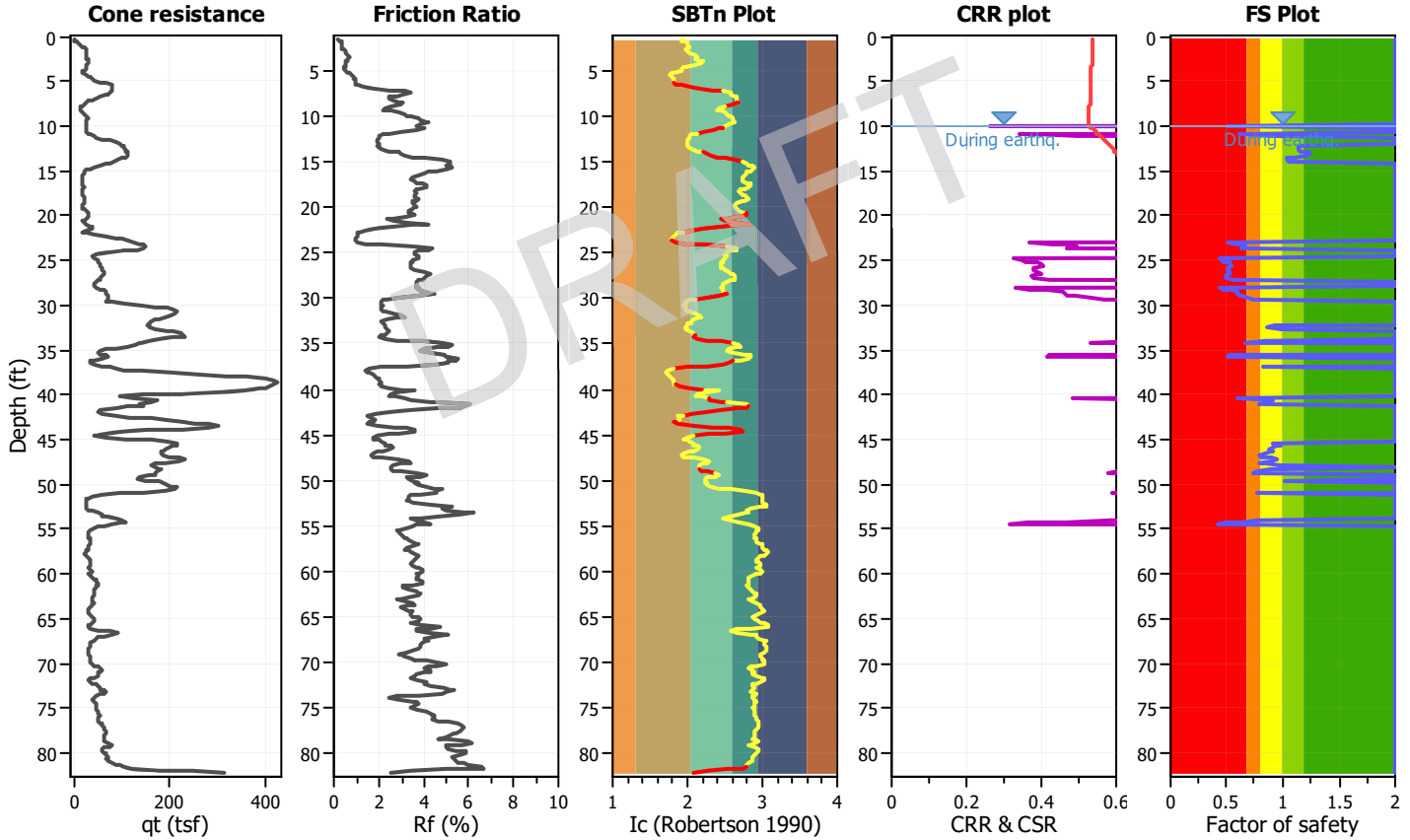
Project title : 210256003 - Compton HS

Location : Compton, CA

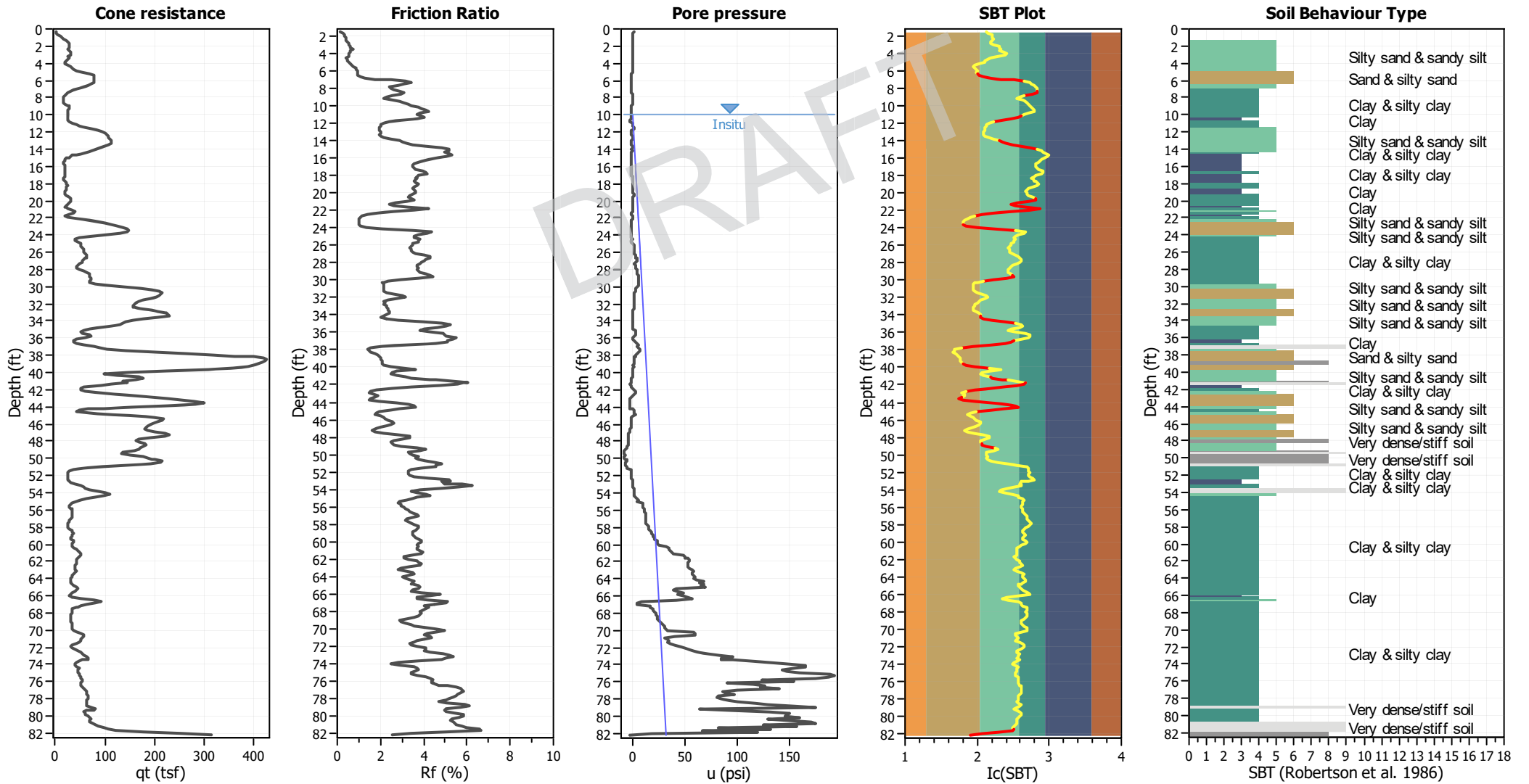
CPT file : CPT-16

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



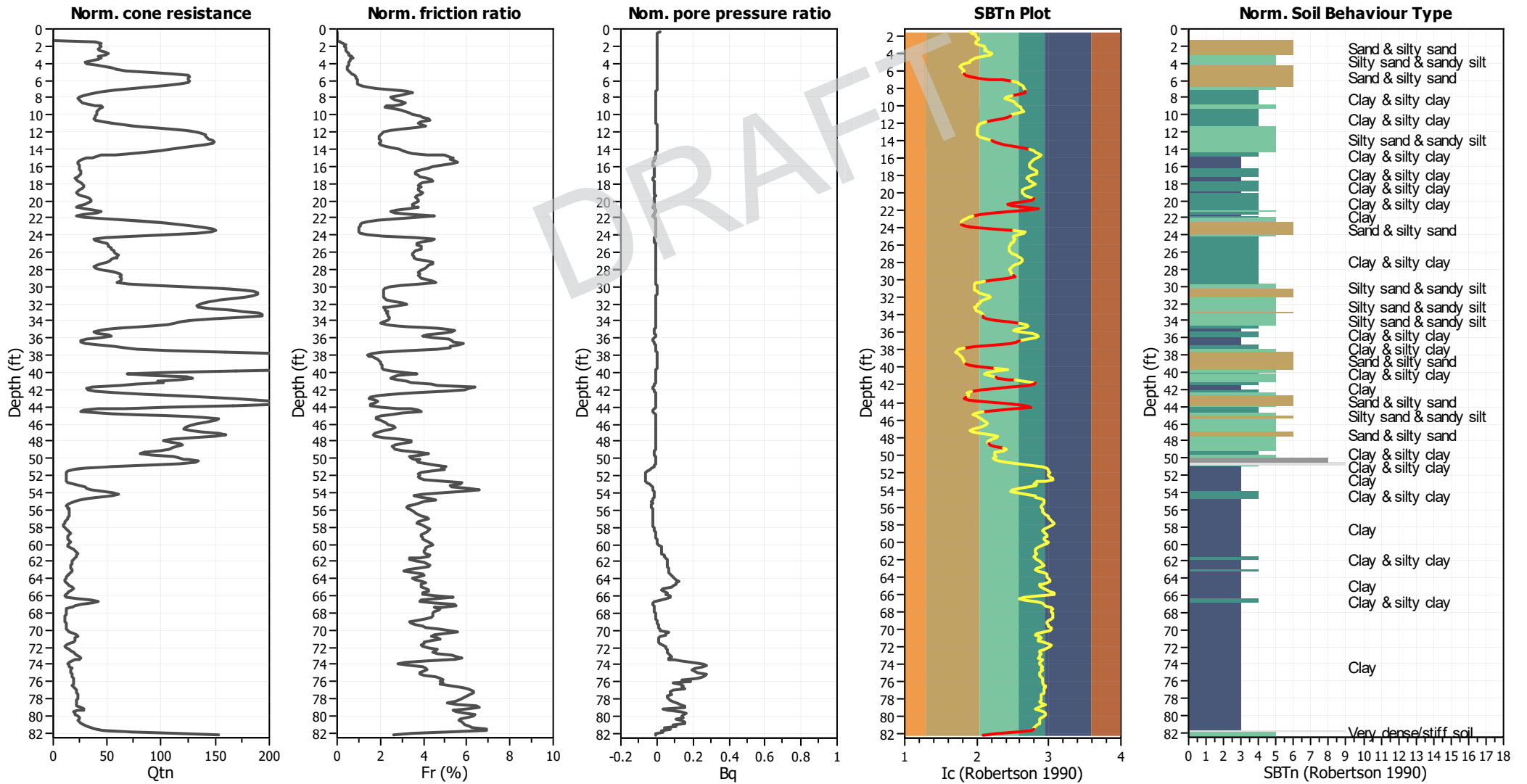
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{α} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



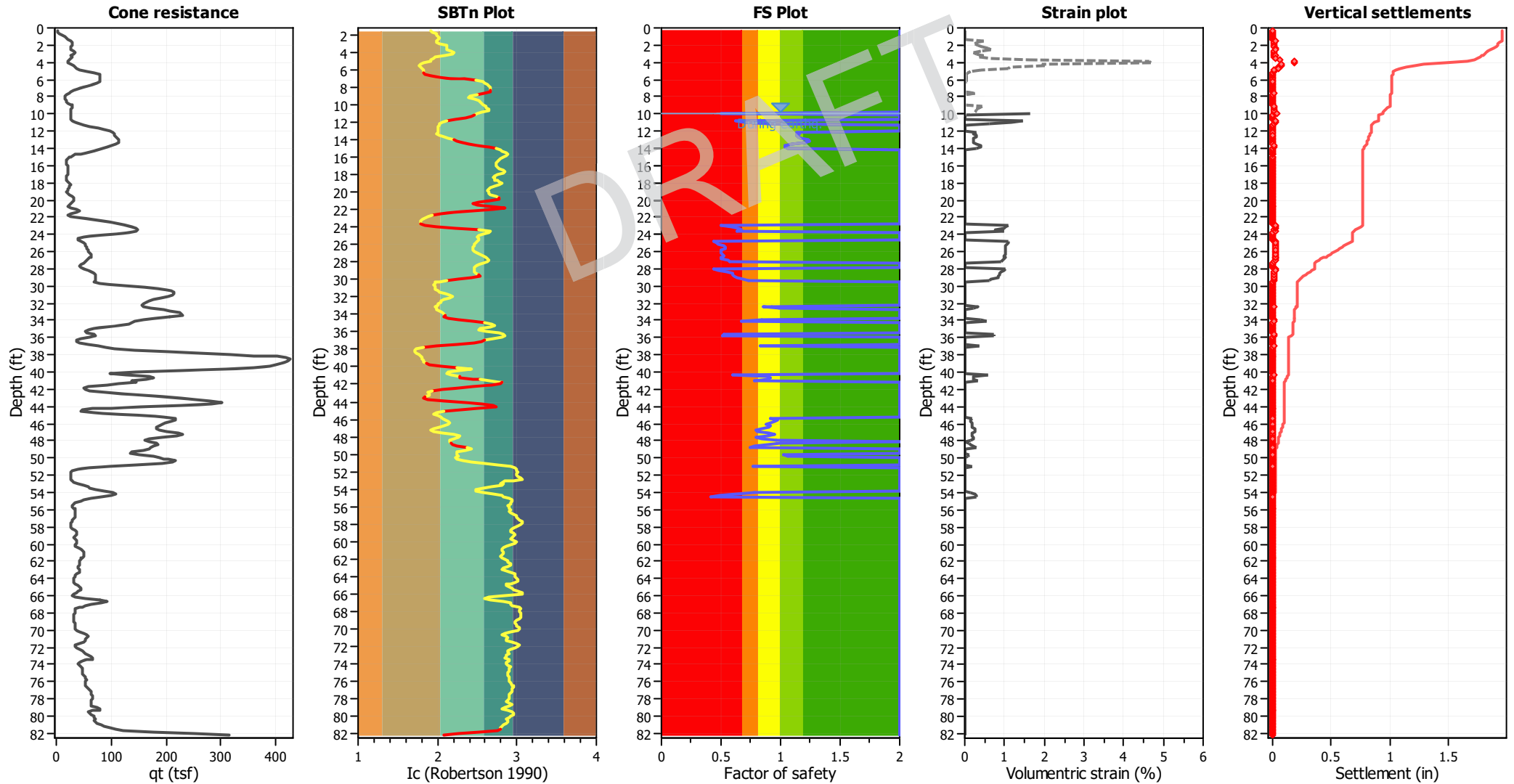
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.48	1.91	39.09	1.00	39.09	8	246	0.54	0.204	0.62	9.27	0.49	0.020
1.64	1.93	43.68	1.00	43.68	9	281	0.54	0.138	0.37	9.27	0.29	0.011
1.80	1.99	43.40	1.00	43.40	9	304	0.54	0.124	0.32	9.27	0.25	0.010
1.97	1.99	43.66	1.00	43.66	9	305	0.54	0.159	0.41	9.27	0.32	0.013
2.13	2.00	42.68	1.00	42.68	9	303	0.54	0.207	0.55	9.27	0.43	0.016
2.30	2.03	41.06	1.00	41.06	9	299	0.54	0.276	0.76	9.27	0.59	0.024
2.46	2.01	42.55	1.00	42.55	9	302	0.54	0.321	0.85	9.27	0.66	0.025
2.62	1.98	48.85	1.00	48.85	10	335	0.54	0.223	0.51	9.27	0.39	0.015
2.79	1.99	51.57	1.29	66.44	14	359	0.53	0.189	0.29	9.27	0.23	0.009
2.95	2.03	48.13	1.34	64.66	14	353	0.53	0.243	0.38	9.27	0.30	0.011
3.12	2.11	41.90	1.48	61.99	13	341	0.53	0.347	0.56	9.27	0.43	0.017
3.28	2.11	42.21	1.47	62.10	13	342	0.53	0.401	0.64	9.27	0.49	0.019
3.45	2.12	44.18	1.49	66.03	14	363	0.53	0.334	0.50	9.27	0.38	0.015
3.61	2.11	42.13	1.47	62.07	13	341	0.53	0.546	0.88	9.27	0.67	0.026
3.77	2.17	35.21	1.60	56.18	13	308	0.53	1.206	2.12	9.27	1.61	0.062
3.94	2.21	29.95	1.69	50.53	11	275	0.53	3.136	6.14	9.27	4.64	0.189
4.10	2.18	31.32	1.62	50.88	11	278	0.53	3.319	6.52	9.27	4.69	0.180
4.27	2.10	39.99	1.45	57.83	12	318	0.53	1.477	2.60	9.27	1.95	0.080
4.43	1.98	48.92	1.00	48.92	10	335	0.53	1.179	2.68	9.27	2.01	0.077
4.59	1.95	55.11	1.00	55.11	11	366	0.53	0.771	1.53	9.27	1.15	0.044
4.76	1.91	58.90	1.00	58.90	12	372	0.53	0.782	1.46	9.27	1.09	0.045
4.92	1.91	66.86	1.20	80.05	16	420	0.53	0.432	0.56	9.27	0.42	0.016
5.09	1.82	88.26	1.13	99.29	19	498	0.53	0.203	0.21	9.27	0.16	0.006
5.25	1.78	109.55	1.09	119.48	23	583	0.53	0.114	0.10	9.27	0.07	0.003
5.41	1.76	124.85	1.08	135.04	26	653	0.53	0.081	0.06	9.27	0.04	0.002
5.58	1.79	125.96	1.10	138.33	27	679	0.53	0.076	0.05	9.27	0.04	0.002
5.74	1.81	124.98	1.11	138.93	27	690	0.53	0.077	0.05	9.27	0.04	0.002
5.91	1.82	124.91	1.12	140.11	27	701	0.53	0.078	0.05	9.27	0.04	0.002
6.07	1.81	126.02	1.12	140.84	27	703	0.53	0.082	0.06	9.27	0.04	0.002
6.23	1.82	124.40	1.12	139.78	27	701	0.53	0.088	0.06	9.27	0.04	0.002
6.40	1.85	116.78	1.14	133.56	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	1.91	104.93	1.20	126.14	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.02	89.81	1.33	119.49	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.17	75.44	1.59	119.86	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.34	59.95	2.09	125.21	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.48	48.47	2.68	129.97	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.57	39.94	3.14	125.40	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.59	34.04	3.26	111.13	30	507	0.53	0.611	0.38	9.27	0.27	0.011
7.71	2.63	27.71	3.54	98.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.64	23.73	3.61	85.74	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.66	23.13	3.72	86.00	0	0	0.53	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)
8.20	2.67	23.70	3.78	89.48	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.67	25.19	3.81	95.94	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.66	27.15	3.75	101.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.60	31.96	3.32	105.98	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.86	2.49	38.90	2.73	106.38	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.02	2.41	44.29	2.37	104.94	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.19	2.39	45.94	2.28	104.62	26	532	0.53	0.841	0.62	9.27	0.43	0.018
9.35	2.46	43.24	2.56	110.74	28	544	0.53	0.780	0.52	9.27	0.36	0.014
9.51	2.51	41.41	2.82	116.79	30	557	0.53	0.721	0.44	9.27	0.30	0.012
9.68	2.54	40.42	2.96	119.86	31	563	0.53	0.718	0.42	9.27	0.29	0.012
9.84	2.55	40.14	3.06	122.66	32	571	0.53	0.700	0.39	9.27	0.27	0.010
Total estimated settlement: 1.02												

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)
10.01	125.48	0.50	1.64	0.85	0.03	10.17	130.98	2.00	0.00	0.84	0.00
10.34	133.65	2.00	0.00	0.84	0.00	10.50	136.57	2.00	0.00	0.84	0.00
10.66	138.83	2.00	0.00	0.84	0.00	10.83	140.85	0.62	1.47	0.83	0.03
10.99	148.26	0.69	1.17	0.83	0.02	11.16	164.83	0.89	0.62	0.83	0.01
11.32	181.52	2.00	0.00	0.83	0.00	11.48	189.56	2.00	0.00	0.82	0.00
11.65	186.33	2.00	0.00	0.82	0.00	11.81	183.00	2.00	0.00	0.82	0.00
11.98	182.54	2.00	0.00	0.82	0.00	12.14	184.23	1.14	0.30	0.81	0.01
12.30	186.17	1.16	0.21	0.81	0.00	12.47	184.95	1.13	0.30	0.81	0.01
12.63	185.98	1.14	0.30	0.81	0.01	12.80	187.66	1.16	0.21	0.80	0.00
12.96	191.98	1.23	0.21	0.80	0.00	13.12	193.22	1.25	0.21	0.80	0.00
13.29	191.25	1.20	0.21	0.80	0.00	13.45	185.37	1.10	0.29	0.79	0.01
13.62	181.06	1.03	0.40	0.79	0.01	13.78	181.42	1.03	0.40	0.79	0.01
13.94	183.62	1.06	0.29	0.79	0.01	14.11	178.75	2.00	0.00	0.78	0.00
14.27	171.90	2.00	0.00	0.78	0.00	14.44	164.78	2.00	0.00	0.78	0.00
14.60	163.10	2.00	0.00	0.78	0.00	14.76	160.57	2.00	0.00	0.77	0.00
14.93	151.48	2.00	0.00	0.77	0.00	15.09	141.56	2.00	0.00	0.77	0.00
15.26	131.62	2.00	0.00	0.77	0.00	15.42	128.19	2.00	0.00	0.76	0.00
15.58	126.24	2.00	0.00	0.76	0.00	15.75	123.24	2.00	0.00	0.76	0.00
15.91	119.71	2.00	0.00	0.76	0.00	16.08	116.22	2.00	0.00	0.75	0.00
16.24	113.15	2.00	0.00	0.75	0.00	16.40	110.07	2.00	0.00	0.75	0.00
16.57	106.88	2.00	0.00	0.75	0.00	16.73	106.38	2.00	0.00	0.74	0.00
16.90	106.13	2.00	0.00	0.74	0.00	17.06	106.36	2.00	0.00	0.74	0.00
17.23	104.50	2.00	0.00	0.74	0.00	17.39	105.32	2.00	0.00	0.73	0.00
17.55	107.61	2.00	0.00	0.73	0.00	17.72	111.56	2.00	0.00	0.73	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)
17.88	111.84	2.00	0.00	0.73	0.00	18.05	112.92	2.00	0.00	0.72	0.00
18.21	114.08	2.00	0.00	0.72	0.00	18.37	114.36	2.00	0.00	0.72	0.00
18.54	110.09	2.00	0.00	0.72	0.00	18.70	106.18	2.00	0.00	0.71	0.00
18.87	104.24	2.00	0.00	0.71	0.00	19.03	104.47	2.00	0.00	0.71	0.00
19.19	105.91	2.00	0.00	0.71	0.00	19.36	108.79	2.00	0.00	0.70	0.00
19.52	115.09	2.00	0.00	0.70	0.00	19.69	121.47	2.00	0.00	0.70	0.00
19.85	124.61	2.00	0.00	0.70	0.00	20.01	122.78	2.00	0.00	0.69	0.00
20.18	117.37	2.00	0.00	0.69	0.00	20.34	110.03	2.00	0.00	0.69	0.00
20.51	102.93	2.00	0.00	0.69	0.00	20.67	99.40	2.00	0.00	0.68	0.00
20.83	103.50	2.00	0.00	0.68	0.00	21.00	107.08	2.00	0.00	0.68	0.00
21.16	108.45	2.00	0.00	0.68	0.00	21.33	108.15	2.00	0.00	0.67	0.00
21.49	109.26	2.00	0.00	0.67	0.00	21.65	108.08	2.00	0.00	0.67	0.00
21.82	109.72	2.00	0.00	0.67	0.00	21.98	112.17	2.00	0.00	0.66	0.00
22.15	117.20	2.00	0.00	0.66	0.00	22.31	119.61	2.00	0.00	0.66	0.00
22.47	123.48	2.00	0.00	0.66	0.00	22.64	128.23	2.00	0.00	0.65	0.00
22.80	136.09	2.00	0.00	0.65	0.00	22.97	146.01	0.50	1.11	0.65	0.02
23.13	155.36	0.58	1.04	0.65	0.02	23.30	161.97	0.64	0.97	0.64	0.02
23.46	164.33	0.67	0.78	0.64	0.01	23.62	161.13	0.63	0.97	0.64	0.02
23.79	150.40	2.00	0.00	0.64	0.00	23.95	135.35	2.00	0.00	0.63	0.00
24.12	129.61	2.00	0.00	0.63	0.00	24.28	139.12	2.00	0.00	0.63	0.00
24.44	142.03	2.00	0.00	0.63	0.00	24.61	139.78	2.00	0.00	0.62	0.00
24.77	138.60	0.44	1.11	0.62	0.02	24.94	141.92	0.46	1.09	0.62	0.02
25.10	143.79	0.48	1.07	0.62	0.02	25.26	149.25	0.52	1.03	0.61	0.02
25.43	150.92	0.53	1.02	0.61	0.02	25.59	151.63	0.54	1.01	0.61	0.02
25.76	147.89	0.51	1.03	0.61	0.02	25.92	147.47	0.50	1.03	0.60	0.02
26.08	147.99	0.51	1.02	0.60	0.02	26.25	149.60	0.52	1.01	0.60	0.02
26.41	150.74	0.53	1.00	0.60	0.02	26.58	149.36	0.51	1.00	0.59	0.02
26.74	147.06	0.50	1.01	0.59	0.02	26.90	147.59	0.50	1.00	0.59	0.02
27.07	154.58	0.56	0.95	0.59	0.02	27.23	156.68	0.58	0.93	0.58	0.02
27.40	151.34	2.00	0.00	0.58	0.00	27.56	140.28	2.00	0.00	0.58	0.00
27.72	135.21	2.00	0.00	0.58	0.00	27.89	135.66	2.00	0.00	0.57	0.00
28.05	139.35	0.43	1.02	0.57	0.02	28.22	145.85	0.48	0.98	0.57	0.02
28.38	153.73	0.54	0.93	0.57	0.02	28.54	159.52	0.60	0.87	0.56	0.02
28.71	160.03	0.60	0.86	0.56	0.02	28.87	160.90	0.61	0.85	0.56	0.02
29.04	163.80	0.63	0.83	0.56	0.02	29.20	169.36	0.69	0.65	0.55	0.01
29.36	173.87	0.73	0.62	0.55	0.01	29.53	174.13	2.00	0.00	0.55	0.00
29.69	170.75	2.00	0.00	0.55	0.00	29.86	171.72	2.00	0.00	0.54	0.00
30.02	184.10	2.00	0.00	0.54	0.00	30.19	202.85	2.00	0.00	0.54	0.00
30.35	219.55	2.00	0.00	0.54	0.00	30.51	232.72	2.00	0.00	0.53	0.00
30.68	237.48	2.00	0.00	0.53	0.00	30.84	236.53	2.00	0.00	0.53	0.00
31.01	232.81	2.00	0.00	0.53	0.00	31.17	226.83	2.00	0.00	0.52	0.00
31.33	216.17	2.00	0.00	0.52	0.00	31.50	208.21	2.00	0.00	0.52	0.00
31.66	212.23	2.00	0.00	0.52	0.00	31.83	219.03	2.00	0.00	0.51	0.00
31.99	220.62	2.00	0.00	0.51	0.00	32.15	204.63	2.00	0.00	0.51	0.00
32.32	191.72	0.93	0.30	0.51	0.01	32.48	185.93	0.85	0.32	0.50	0.01
32.65	196.43	0.99	0.24	0.50	0.00	32.81	214.46	2.00	0.00	0.50	0.00
32.97	227.96	2.00	0.00	0.50	0.00	33.14	242.34	2.00	0.00	0.49	0.00
33.30	247.74	2.00	0.00	0.49	0.00	33.47	247.62	2.00	0.00	0.49	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)
33.63	230.50	2.00	0.00	0.49	0.00	33.79	206.70	2.00	0.00	0.48	0.00
33.96	185.38	0.84	0.40	0.48	0.01	34.12	169.60	0.67	0.56	0.48	0.01
34.29	160.99	2.00	0.00	0.48	0.00	34.45	163.17	2.00	0.00	0.47	0.00
34.61	164.56	2.00	0.00	0.47	0.00	34.78	175.31	2.00	0.00	0.47	0.00
34.94	172.64	2.00	0.00	0.47	0.00	35.11	165.52	2.00	0.00	0.46	0.00
35.27	154.09	2.00	0.00	0.46	0.00	35.43	150.71	2.00	0.00	0.46	0.00
35.60	154.16	0.52	0.75	0.46	0.02	35.76	153.23	0.52	0.75	0.45	0.01
35.93	149.54	2.00	0.00	0.45	0.00	36.09	139.06	2.00	0.00	0.45	0.00
36.26	129.63	2.00	0.00	0.45	0.00	36.42	129.55	2.00	0.00	0.44	0.00
36.58	145.55	2.00	0.00	0.44	0.00	36.75	167.55	2.00	0.00	0.44	0.00
36.91	185.29	0.83	0.36	0.44	0.01	37.08	198.93	2.00	0.00	0.43	0.00
37.24	200.81	2.00	0.00	0.43	0.00	37.40	197.35	2.00	0.00	0.43	0.00
37.57	206.84	2.00	0.00	0.43	0.00	37.73	236.17	2.00	0.00	0.42	0.00
37.90	272.42	2.00	0.00	0.42	0.00	38.06	306.37	2.00	0.00	0.42	0.00
38.22	338.79	2.00	0.00	0.42	0.00	38.39	357.94	2.00	0.00	0.41	0.00
38.55	367.07	2.00	0.00	0.41	0.00	38.72	369.58	2.00	0.00	0.41	0.00
38.88	365.93	2.00	0.00	0.41	0.00	39.04	358.88	2.00	0.00	0.40	0.00
39.21	352.03	2.00	0.00	0.40	0.00	39.37	342.98	2.00	0.00	0.40	0.00
39.54	320.59	2.00	0.00	0.40	0.00	39.70	282.03	2.00	0.00	0.39	0.00
39.86	229.37	2.00	0.00	0.39	0.00	40.03	186.28	2.00	0.00	0.39	0.00
40.19	165.84	2.00	0.00	0.39	0.00	40.36	163.26	0.60	0.57	0.38	0.01
40.52	189.59	0.89	0.23	0.38	0.00	40.68	191.44	0.91	0.23	0.38	0.00
40.85	189.43	0.88	0.23	0.38	0.00	41.01	180.80	0.78	0.32	0.37	0.01
41.18	194.39	2.00	0.00	0.37	0.00	41.34	192.35	2.00	0.00	0.37	0.00
41.50	179.01	2.00	0.00	0.37	0.00	41.67	168.13	2.00	0.00	0.36	0.00
41.83	153.67	2.00	0.00	0.36	0.00	42.00	151.44	2.00	0.00	0.36	0.00
42.16	150.45	2.00	0.00	0.36	0.00	42.32	149.92	2.00	0.00	0.35	0.00
42.49	149.59	2.00	0.00	0.35	0.00	42.65	158.33	2.00	0.00	0.35	0.00
42.82	171.07	2.00	0.00	0.35	0.00	42.98	194.91	2.00	0.00	0.34	0.00
43.15	219.13	2.00	0.00	0.34	0.00	43.31	243.04	2.00	0.00	0.34	0.00
43.47	253.85	2.00	0.00	0.34	0.00	43.64	234.75	2.00	0.00	0.33	0.00
43.80	194.12	2.00	0.00	0.33	0.00	43.97	154.44	2.00	0.00	0.33	0.00
44.13	139.19	2.00	0.00	0.33	0.00	44.29	125.96	2.00	0.00	0.32	0.00
44.46	114.19	2.00	0.00	0.32	0.00	44.62	110.26	2.00	0.00	0.32	0.00
44.79	119.18	2.00	0.00	0.32	0.00	44.95	136.05	2.00	0.00	0.31	0.00
45.11	158.38	2.00	0.00	0.31	0.00	45.28	177.28	2.00	0.00	0.31	0.00
45.44	190.31	0.91	0.19	0.31	0.00	45.61	195.38	0.98	0.14	0.30	0.00
45.77	193.48	0.95	0.14	0.30	0.00	45.93	190.34	0.91	0.18	0.30	0.00
46.10	187.68	0.88	0.18	0.30	0.00	46.26	190.28	0.91	0.18	0.29	0.00
46.43	189.45	0.90	0.18	0.29	0.00	46.59	184.63	0.84	0.24	0.29	0.00
46.75	179.69	0.79	0.25	0.29	0.00	46.92	181.06	0.80	0.24	0.28	0.00
47.08	189.04	0.90	0.17	0.28	0.00	47.25	192.50	0.95	0.17	0.28	0.00
47.41	187.75	0.89	0.17	0.28	0.00	47.57	180.32	0.80	0.24	0.27	0.00
47.74	183.88	0.84	0.23	0.27	0.00	47.90	193.63	0.97	0.13	0.27	0.00
48.07	200.08	2.00	0.00	0.27	0.00	48.23	196.35	1.00	0.12	0.26	0.00
48.39	187.52	0.89	0.16	0.26	0.00	48.56	178.38	0.78	0.23	0.26	0.00
48.72	175.02	0.74	0.29	0.26	0.01	48.89	175.52	2.00	0.00	0.25	0.00
49.05	179.43	2.00	0.00	0.25	0.00	49.22	184.00	2.00	0.00	0.25	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)
49.38	192.84	2.00	0.00	0.25	0.00	49.54	196.85	1.02	0.12	0.24	0.00
49.71	199.88	1.06	0.09	0.24	0.00	49.87	207.96	2.00	0.00	0.24	0.00
50.04	217.19	2.00	0.00	0.24	0.00	50.20	230.24	2.00	0.00	0.23	0.00
50.36	235.95	2.00	0.00	0.23	0.00	50.53	235.93	2.00	0.00	0.23	0.00
50.69	232.83	2.00	0.00	0.23	0.00	50.86	207.90	2.00	0.00	0.22	0.00
51.02	176.50	0.77	0.20	0.22	0.00	51.18	133.38	2.00	0.00	0.22	0.00
51.35	108.48	2.00	0.00	0.22	0.00	51.51	90.13	2.00	0.00	0.21	0.00
51.68	81.41	2.00	0.00	0.21	0.00	51.84	78.68	2.00	0.00	0.21	0.00
52.00	78.61	2.00	0.00	0.21	0.00	52.17	78.52	2.00	0.00	0.20	0.00
52.33	79.78	2.00	0.00	0.20	0.00	52.50	82.28	2.00	0.00	0.20	0.00
52.66	89.48	2.00	0.00	0.20	0.00	52.82	102.43	2.00	0.00	0.19	0.00
52.99	116.55	2.00	0.00	0.19	0.00	53.15	127.04	2.00	0.00	0.19	0.00
53.32	137.26	2.00	0.00	0.19	0.00	53.48	151.51	2.00	0.00	0.18	0.00
53.64	168.56	2.00	0.00	0.18	0.00	53.81	178.95	2.00	0.00	0.18	0.00
53.97	175.80	0.78	0.16	0.18	0.00	54.14	161.40	0.63	0.26	0.17	0.01
54.30	145.36	0.49	0.30	0.17	0.01	54.46	136.02	0.42	0.31	0.17	0.01
54.63	128.77	2.00	0.00	0.17	0.00	54.79	117.69	2.00	0.00	0.16	0.00
54.96	102.83	2.00	0.00	0.16	0.00	55.12	90.22	2.00	0.00	0.16	0.00
55.28	81.86	2.00	0.00	0.16	0.00	55.45	76.78	2.00	0.00	0.15	0.00
55.61	76.77	2.00	0.00	0.15	0.00	55.78	79.28	2.00	0.00	0.15	0.00
55.94	81.72	2.00	0.00	0.15	0.00	56.11	82.83	2.00	0.00	0.14	0.00
56.27	83.91	2.00	0.00	0.14	0.00	56.43	84.96	2.00	0.00	0.14	0.00
56.60	87.18	2.00	0.00	0.14	0.00	56.76	88.13	2.00	0.00	0.13	0.00
56.93	89.05	2.00	0.00	0.13	0.00	57.09	86.83	2.00	0.00	0.13	0.00
57.25	82.14	2.00	0.00	0.13	0.00	57.42	77.17	2.00	0.00	0.12	0.00
57.58	74.52	2.00	0.00	0.12	0.00	57.75	74.37	2.00	0.00	0.12	0.00
57.91	75.58	2.00	0.00	0.12	0.00	58.07	79.32	2.00	0.00	0.11	0.00
58.24	85.14	2.00	0.00	0.11	0.00	58.40	89.39	2.00	0.00	0.11	0.00
58.57	91.41	2.00	0.00	0.11	0.00	58.73	91.43	2.00	0.00	0.10	0.00
58.89	89.21	2.00	0.00	0.10	0.00	59.06	85.72	2.00	0.00	0.10	0.00
59.22	83.47	2.00	0.00	0.10	0.00	59.39	85.59	2.00	0.00	0.09	0.00
59.55	90.90	2.00	0.00	0.09	0.00	59.71	93.89	2.00	0.00	0.09	0.00
59.88	92.69	2.00	0.00	0.09	0.00	60.04	89.60	2.00	0.00	0.08	0.00
60.21	89.45	2.00	0.00	0.08	0.00	60.37	93.60	2.00	0.00	0.08	0.00
60.53	99.46	2.00	0.00	0.08	0.00	60.70	102.16	2.00	0.00	0.07	0.00
60.86	104.75	2.00	0.00	0.07	0.00	61.03	107.28	2.00	0.00	0.07	0.00
61.19	109.78	2.00	0.00	0.07	0.00	61.35	107.09	2.00	0.00	0.06	0.00
61.52	99.80	2.00	0.00	0.06	0.00	61.68	91.99	2.00	0.00	0.06	0.00
61.85	90.93	2.00	0.00	0.06	0.00	62.01	92.84	2.00	0.00	0.05	0.00
62.17	96.56	2.00	0.00	0.05	0.00	62.34	97.35	2.00	0.00	0.05	0.00
62.50	97.15	2.00	0.00	0.05	0.00	62.67	94.13	2.00	0.00	0.04	0.00
62.83	89.31	2.00	0.00	0.04	0.00	63.00	86.26	2.00	0.00	0.04	0.00
63.16	85.13	2.00	0.00	0.04	0.00	63.32	88.14	2.00	0.00	0.03	0.00
63.49	88.78	2.00	0.00	0.03	0.00	63.65	86.59	2.00	0.00	0.03	0.00
63.82	81.23	2.00	0.00	0.03	0.00	63.98	76.65	2.00	0.00	0.02	0.00
64.14	76.62	2.00	0.00	0.02	0.00	64.31	78.84	2.00	0.00	0.02	0.00
64.47	82.07	2.00	0.00	0.02	0.00	64.64	84.07	2.00	0.00	0.01	0.00
64.80	88.20	2.00	0.00	0.01	0.00	64.96	94.12	2.00	0.00	0.01	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)
65.13	98.61	2.00	0.00	0.01	0.00	65.29	98.42	2.00	0.00	0.00	0.00
65.46	92.57	2.00	0.00	0.00	0.00	65.62	85.64	2.00	0.00	0.00	0.00
65.78	80.40	2.00	0.00	0.00	0.00	65.95	82.35	2.00	0.00	0.00	0.00
66.11	94.98	2.00	0.00	0.00	0.00	66.28	112.16	2.00	0.00	0.00	0.00
66.44	125.54	2.00	0.00	0.00	0.00	66.60	135.15	2.00	0.00	0.00	0.00
66.77	136.98	2.00	0.00	0.00	0.00	66.93	132.67	2.00	0.00	0.00	0.00
67.10	119.53	2.00	0.00	0.00	0.00	67.26	107.11	2.00	0.00	0.00	0.00
67.42	96.84	2.00	0.00	0.00	0.00	67.59	90.52	2.00	0.00	0.00	0.00
67.75	87.56	2.00	0.00	0.00	0.00	67.92	86.54	2.00	0.00	0.00	0.00
68.08	85.49	2.00	0.00	0.00	0.00	68.24	84.40	2.00	0.00	0.00	0.00
68.41	83.31	2.00	0.00	0.00	0.00	68.57	82.23	2.00	0.00	0.00	0.00
68.74	79.04	2.00	0.00	0.00	0.00	68.90	75.76	2.00	0.00	0.00	0.00
69.07	73.46	2.00	0.00	0.00	0.00	69.23	75.63	2.00	0.00	0.00	0.00
69.39	78.80	2.00	0.00	0.00	0.00	69.56	81.85	2.00	0.00	0.00	0.00
69.72	83.78	2.00	0.00	0.00	0.00	69.89	88.49	2.00	0.00	0.00	0.00
70.05	96.44	2.00	0.00	0.00	0.00	70.21	105.35	2.00	0.00	0.00	0.00
70.38	110.72	2.00	0.00	0.00	0.00	70.54	111.78	2.00	0.00	0.00	0.00
70.71	111.72	2.00	0.00	0.00	0.00	70.87	110.74	2.00	0.00	0.00	0.00
71.03	109.78	2.00	0.00	0.00	0.00	71.20	105.18	2.00	0.00	0.00	0.00
71.36	98.66	2.00	0.00	0.00	0.00	71.53	89.52	2.00	0.00	0.00	0.00
71.69	80.91	2.00	0.00	0.00	0.00	71.85	78.82	2.00	0.00	0.00	0.00
72.02	84.67	2.00	0.00	0.00	0.00	72.18	94.40	2.00	0.00	0.00	0.00
72.35	100.14	2.00	0.00	0.00	0.00	72.51	103.58	2.00	0.00	0.00	0.00
72.67	108.82	2.00	0.00	0.00	0.00	72.84	119.27	2.00	0.00	0.00	0.00
73.00	129.26	2.00	0.00	0.00	0.00	73.17	134.75	2.00	0.00	0.00	0.00
73.33	129.07	2.00	0.00	0.00	0.00	73.49	116.64	2.00	0.00	0.00	0.00
73.66	96.45	2.00	0.00	0.00	0.00	73.82	80.43	2.00	0.00	0.00	0.00
73.99	74.22	2.00	0.00	0.00	0.00	74.15	80.19	2.00	0.00	0.00	0.00
74.31	90.07	2.00	0.00	0.00	0.00	74.48	95.21	2.00	0.00	0.00	0.00
74.64	95.88	2.00	0.00	0.00	0.00	74.81	93.36	2.00	0.00	0.00	0.00
74.97	91.72	2.00	0.00	0.00	0.00	75.13	92.52	2.00	0.00	0.00	0.00
75.30	96.52	2.00	0.00	0.00	0.00	75.46	103.31	2.00	0.00	0.00	0.00
75.63	106.89	2.00	0.00	0.00	0.00	75.79	109.68	2.00	0.00	0.00	0.00
75.96	107.42	2.00	0.00	0.00	0.00	76.12	107.17	2.00	0.00	0.00	0.00
76.28	106.42	2.00	0.00	0.00	0.00	76.45	109.61	2.00	0.00	0.00	0.00
76.61	116.16	2.00	0.00	0.00	0.00	76.78	123.79	2.00	0.00	0.00	0.00
76.94	129.93	2.00	0.00	0.00	0.00	77.10	131.58	2.00	0.00	0.00	0.00
77.27	131.40	2.00	0.00	0.00	0.00	77.43	132.04	2.00	0.00	0.00	0.00
77.60	133.45	2.00	0.00	0.00	0.00	77.76	132.19	2.00	0.00	0.00	0.00
77.92	129.05	2.00	0.00	0.00	0.00	78.09	125.25	2.00	0.00	0.00	0.00
78.25	122.73	2.00	0.00	0.00	0.00	78.42	118.35	2.00	0.00	0.00	0.00
78.58	122.45	2.00	0.00	0.00	0.00	78.74	132.48	2.00	0.00	0.00	0.00
78.91	145.25	2.00	0.00	0.00	0.00	79.07	146.75	2.00	0.00	0.00	0.00
79.24	136.29	2.00	0.00	0.00	0.00	79.40	123.25	2.00	0.00	0.00	0.00
79.56	116.91	2.00	0.00	0.00	0.00	79.73	122.20	2.00	0.00	0.00	0.00
79.89	129.25	2.00	0.00	0.00	0.00	80.06	134.56	2.00	0.00	0.00	0.00
80.22	134.25	2.00	0.00	0.00	0.00	80.38	132.14	2.00	0.00	0.00	0.00
80.55	129.02	2.00	0.00	0.00	0.00	80.71	131.79	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)
80.88	136.33	2.00	0.00	0.00	0.00	81.04	144.65	2.00	0.00	0.00	0.00
81.20	152.93	2.00	0.00	0.00	0.00	81.37	163.85	2.00	0.00	0.00	0.00
81.53	180.91	2.00	0.00	0.00	0.00	81.70	195.86	2.00	0.00	0.00	0.00
81.86	205.59	2.00	0.00	0.00	0.00	82.02	206.29	2.00	0.00	0.00	0.00
82.19	216.29	2.00	0.00	0.00	0.00						

Total estimated settlement: 0.94**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

DRAFT

LIQUEFACTION ANALYSIS REPORT

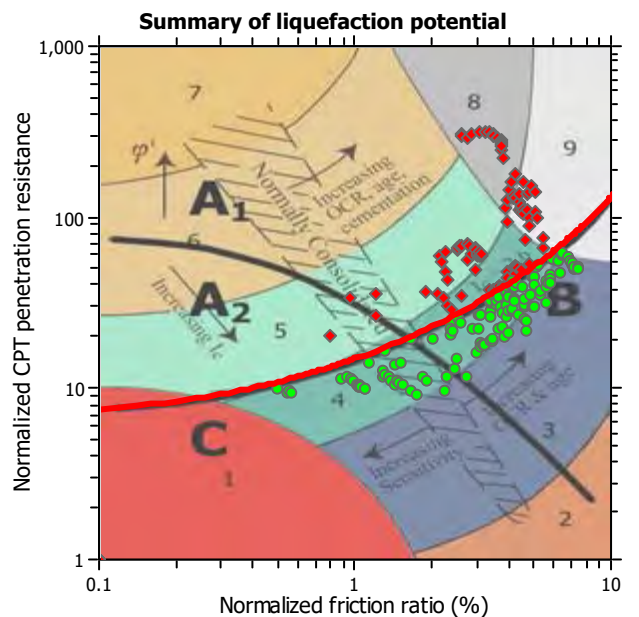
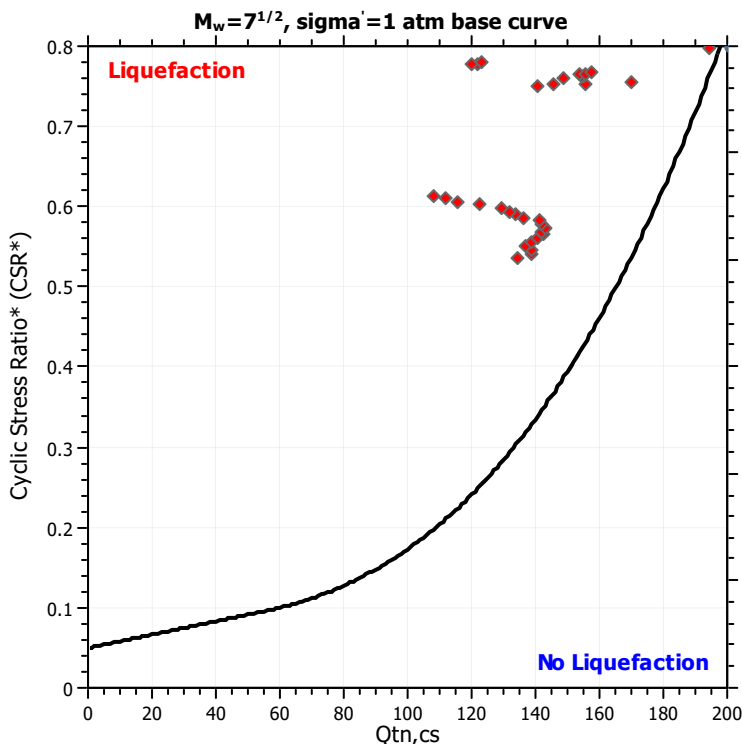
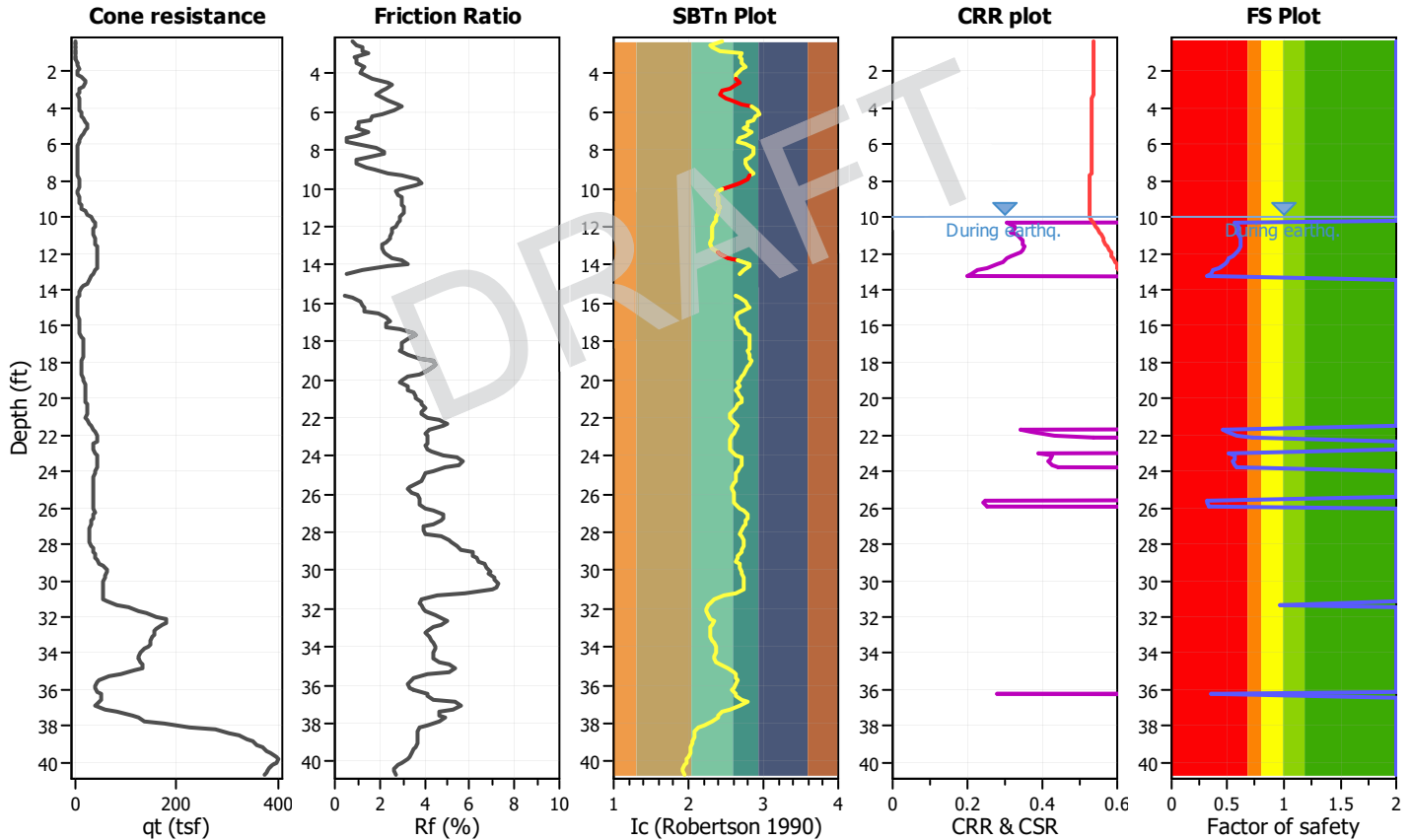
Project title : 210256003 - Compton HS

Location : Compton, CA

CPT file : CPT-17

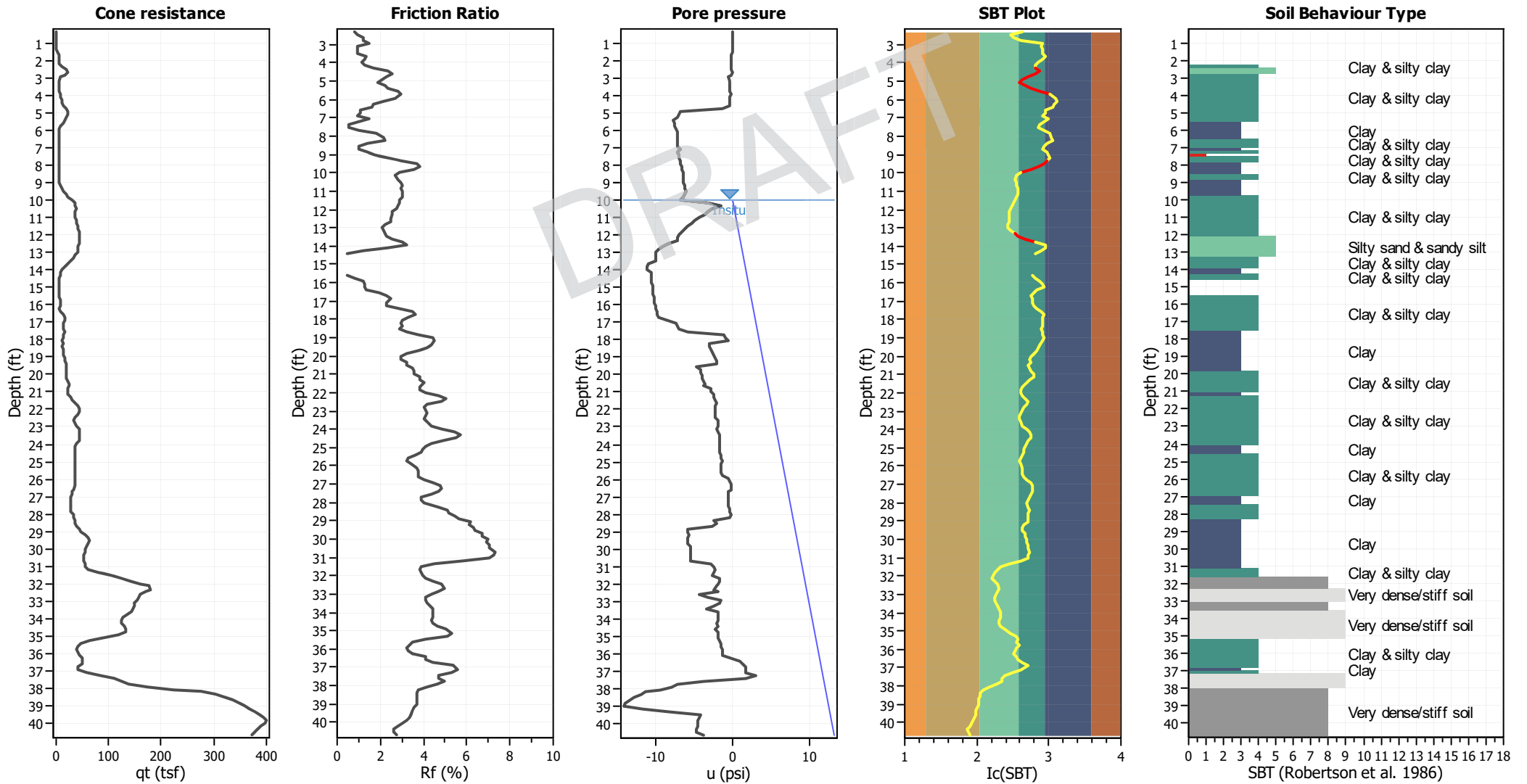
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



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



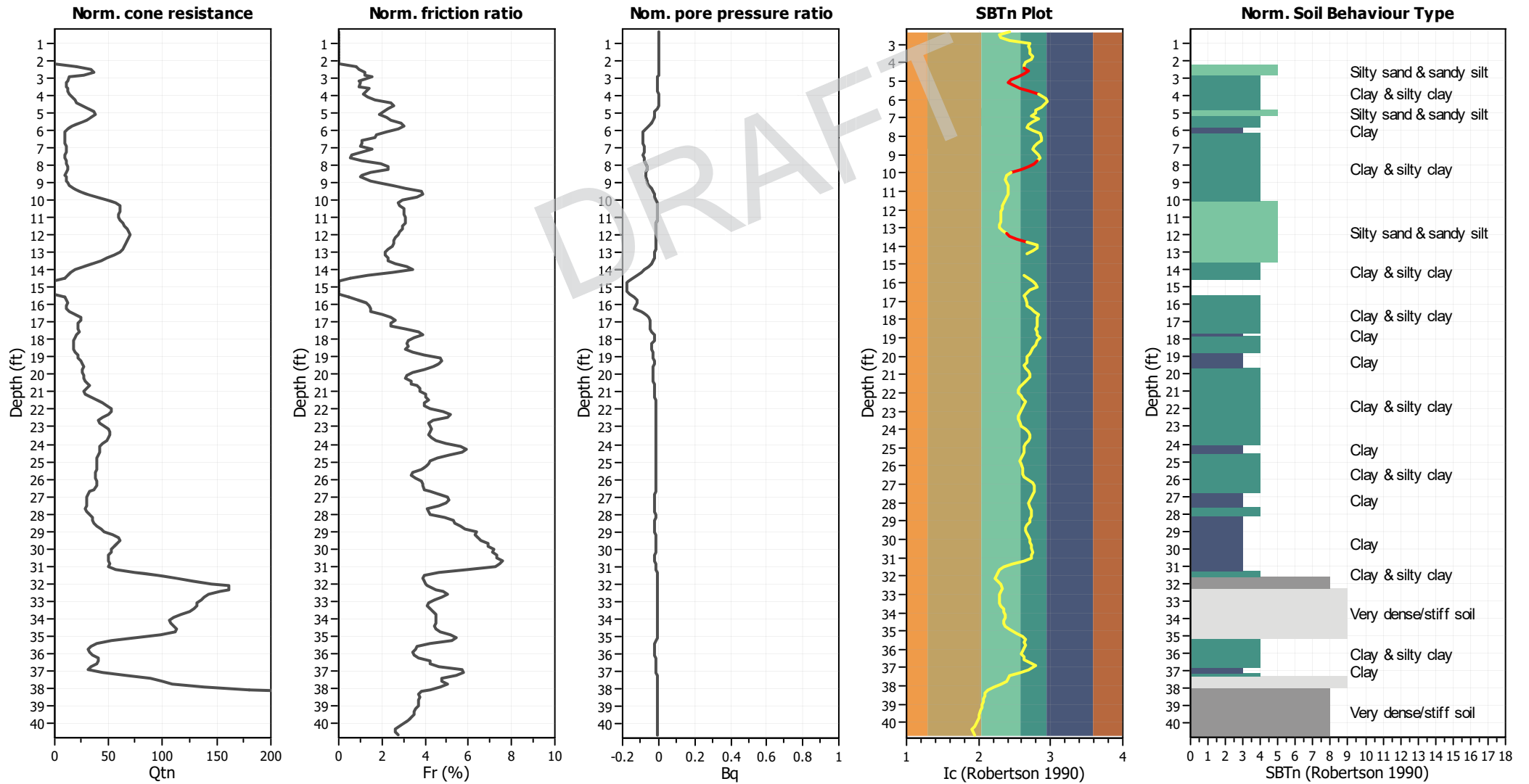
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



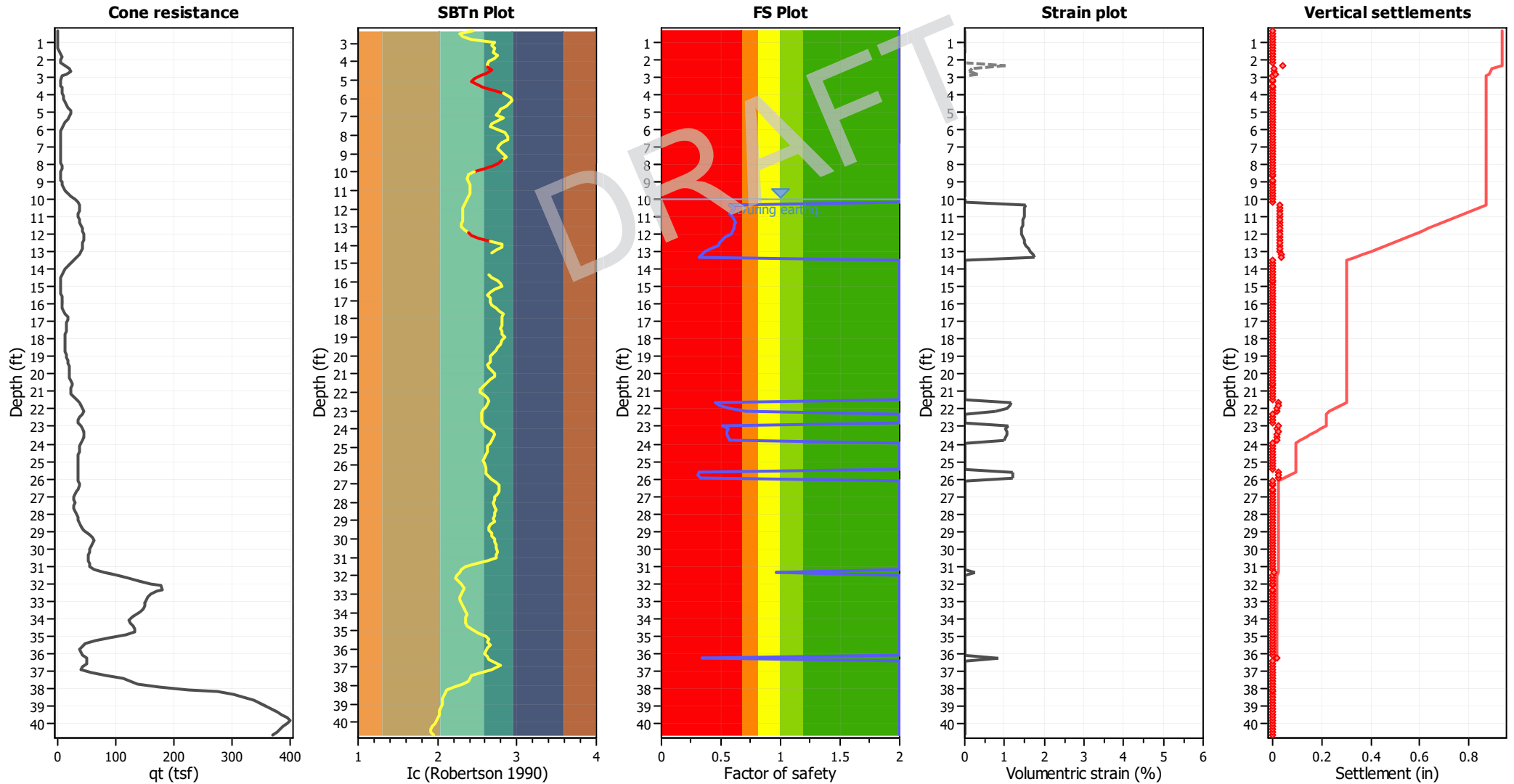
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.30	2.44	20.24	2.47	49.93	12	248	0.54	0.741	1.30	9.27	1.01	0.041
2.46	2.28	33.67	1.90	63.85	15	340	0.54	0.156	0.22	9.27	0.17	0.007
2.62	2.32	35.64	2.00	71.45	17	375	0.54	0.118	0.14	9.27	0.11	0.004
2.79	2.43	26.46	2.43	64.26	16	321	0.53	0.314	0.41	9.27	0.32	0.013
2.95	2.71	14.02	4.10	57.53	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.12	2.69	11.44	3.92	44.88	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	2.72	10.84	4.15	45.02	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	2.71	11.09	4.05	44.96	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	2.76	11.67	4.46	52.03	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	2.72	12.46	4.16	51.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	2.66	13.94	3.68	51.35	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	2.63	16.23	3.50	56.78	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.27	2.62	19.11	3.47	66.33	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	2.69	20.22	3.92	79.31	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	2.64	25.02	3.55	88.91	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.76	2.54	30.26	2.99	90.39	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.92	2.46	35.87	2.56	91.96	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.09	2.42	37.04	2.39	88.45	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.25	2.49	33.91	2.73	92.52	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.41	2.57	29.02	3.13	90.85	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.58	2.71	22.25	4.05	90.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.74	2.83	15.92	5.09	81.04	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.91	2.93	11.57	5.95	68.89	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.07	2.95	9.53	6.16	58.67	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.23	2.91	9.14	5.75	52.57	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.40	2.87	9.66	5.43	52.50	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.56	2.79	9.71	4.66	45.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.73	2.78	9.75	4.64	45.25	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.74	10.49	4.30	45.10	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.83	10.37	5.05	52.36	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.76	10.20	4.43	45.16	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.68	9.38	3.87	36.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.67	9.64	3.76	36.24	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.76	10.16	4.44	45.17	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.86	11.06	5.28	58.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.88	11.69	5.46	63.82	0	0	0.53	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)
8.20	2.88	11.58	5.52	63.85	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.81	10.76	4.86	52.27	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.77	10.00	4.52	45.20	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.75	10.31	4.38	45.14	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.80	10.89	4.80	52.24	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.83	11.62	5.01	58.28	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.86	12.90	5.32	68.59	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.81	17.22	4.91	84.60	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.78	22.46	4.63	103.88	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.69	30.04	3.95	118.75	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.59	38.38	3.28	126.05	0	0	0.53	0.000	0.00	9.27	0.00	0.000
Total estimated settlement: 0.07												

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)
10.01	124.85	2.00	0.00	0.85	0.00	10.17	127.94	2.00	0.00	0.84	0.00
10.34	134.19	0.57	1.55	0.84	0.03	10.50	138.60	0.60	1.50	0.84	0.03
10.66	138.75	0.60	1.50	0.84	0.03	10.83	136.70	0.58	1.51	0.83	0.03
10.99	138.96	0.59	1.49	0.83	0.03	11.16	140.83	0.61	1.46	0.83	0.03
11.32	142.59	0.62	1.45	0.83	0.03	11.48	141.82	0.61	1.45	0.82	0.03
11.65	142.94	0.61	1.43	0.82	0.03	11.81	141.86	0.60	1.44	0.82	0.03
11.98	141.05	0.59	1.44	0.82	0.03	12.14	136.40	0.54	1.48	0.81	0.03
12.30	134.01	0.51	1.49	0.81	0.03	12.47	131.72	0.49	1.51	0.81	0.03
12.63	129.38	0.47	1.53	0.81	0.03	12.80	122.53	0.42	1.59	0.80	0.03
12.96	115.90	0.37	1.66	0.80	0.03	13.12	111.75	0.34	1.71	0.80	0.03
13.29	108.13	0.32	1.75	0.80	0.04	13.45	104.15	2.00	0.00	0.79	0.00
13.62	101.79	2.00	0.00	0.79	0.00	13.78	100.49	2.00	0.00	0.79	0.00
13.94	91.41	2.00	0.00	0.79	0.00	14.11	72.43	2.00	0.00	0.78	0.00
14.27	51.43	2.00	0.00	0.78	0.00	14.44	35.79	2.00	0.00	0.78	0.00
14.60	-1.00	2.00	0.00	0.78	0.00	14.76	-1.00	2.00	0.00	0.77	0.00
14.93	-1.00	2.00	0.00	0.77	0.00	15.09	-1.00	2.00	0.00	0.77	0.00
15.26	-1.00	2.00	0.00	0.77	0.00	15.42	-1.00	2.00	0.00	0.76	0.00
15.58	35.46	2.00	0.00	0.76	0.00	15.75	43.87	2.00	0.00	0.76	0.00
15.91	50.86	2.00	0.00	0.76	0.00	16.08	51.10	2.00	0.00	0.75	0.00
16.24	51.22	2.00	0.00	0.75	0.00	16.40	55.80	2.00	0.00	0.75	0.00
16.57	72.34	2.00	0.00	0.75	0.00	16.73	84.73	2.00	0.00	0.74	0.00
16.90	88.22	2.00	0.00	0.74	0.00	17.06	81.96	2.00	0.00	0.74	0.00
17.23	82.08	2.00	0.00	0.74	0.00	17.39	92.30	2.00	0.00	0.73	0.00
17.55	101.57	2.00	0.00	0.73	0.00	17.72	99.62	2.00	0.00	0.73	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)
17.88	93.26	2.00	0.00	0.73	0.00	18.05	86.99	2.00	0.00	0.72	0.00
18.21	86.65	2.00	0.00	0.72	0.00	18.37	86.63	2.00	0.00	0.72	0.00
18.54	86.06	2.00	0.00	0.72	0.00	18.70	92.18	2.00	0.00	0.71	0.00
18.87	103.11	2.00	0.00	0.71	0.00	19.03	113.65	2.00	0.00	0.71	0.00
19.19	119.62	2.00	0.00	0.71	0.00	19.36	120.93	2.00	0.00	0.70	0.00
19.52	119.64	2.00	0.00	0.70	0.00	19.69	112.07	2.00	0.00	0.70	0.00
19.85	103.87	2.00	0.00	0.70	0.00	20.01	100.38	2.00	0.00	0.69	0.00
20.18	99.87	2.00	0.00	0.69	0.00	20.34	106.88	2.00	0.00	0.69	0.00
20.51	112.05	2.00	0.00	0.69	0.00	20.67	116.48	2.00	0.00	0.68	0.00
20.83	115.07	2.00	0.00	0.68	0.00	21.00	111.39	2.00	0.00	0.68	0.00
21.16	117.60	2.00	0.00	0.68	0.00	21.33	125.49	2.00	0.00	0.67	0.00
21.49	136.64	2.00	0.00	0.67	0.00	21.65	140.82	0.45	1.18	0.67	0.02
21.82	145.72	0.49	1.15	0.67	0.02	21.98	155.93	0.57	1.06	0.66	0.02
22.15	170.04	0.71	0.77	0.66	0.02	22.31	172.72	2.00	0.00	0.66	0.00
22.47	160.51	2.00	0.00	0.66	0.00	22.64	142.25	2.00	0.00	0.65	0.00
22.80	141.12	2.00	0.00	0.65	0.00	22.97	148.96	0.51	1.10	0.65	0.02
23.13	155.18	0.56	1.04	0.65	0.02	23.30	154.36	0.55	1.04	0.64	0.02
23.46	153.69	0.55	1.06	0.64	0.02	23.62	155.34	0.56	1.03	0.64	0.02
23.79	157.19	0.58	1.00	0.64	0.02	23.95	160.61	2.00	0.00	0.63	0.00
24.12	168.06	2.00	0.00	0.63	0.00	24.28	171.10	2.00	0.00	0.63	0.00
24.44	167.53	2.00	0.00	0.63	0.00	24.61	154.73	2.00	0.00	0.62	0.00
24.77	143.15	2.00	0.00	0.62	0.00	24.94	137.37	2.00	0.00	0.62	0.00
25.10	136.72	2.00	0.00	0.62	0.00	25.26	134.68	2.00	0.00	0.61	0.00
25.43	129.21	2.00	0.00	0.61	0.00	25.59	121.82	0.32	1.21	0.61	0.02
25.76	119.74	0.31	1.22	0.61	0.02	25.92	123.20	0.33	1.19	0.60	0.02
26.08	129.72	2.00	0.00	0.60	0.00	26.25	132.48	2.00	0.00	0.60	0.00
26.41	130.83	2.00	0.00	0.60	0.00	26.58	128.15	2.00	0.00	0.59	0.00
26.74	127.71	2.00	0.00	0.59	0.00	26.90	130.50	2.00	0.00	0.59	0.00
27.07	134.23	2.00	0.00	0.59	0.00	27.23	135.53	2.00	0.00	0.58	0.00
27.40	133.42	2.00	0.00	0.58	0.00	27.56	127.95	2.00	0.00	0.58	0.00
27.72	119.01	2.00	0.00	0.58	0.00	27.89	120.25	2.00	0.00	0.57	0.00
28.05	127.23	2.00	0.00	0.57	0.00	28.22	142.40	2.00	0.00	0.57	0.00
28.38	149.51	2.00	0.00	0.57	0.00	28.54	154.24	2.00	0.00	0.56	0.00
28.71	161.64	2.00	0.00	0.56	0.00	28.87	172.94	2.00	0.00	0.56	0.00
29.04	188.80	2.00	0.00	0.56	0.00	29.20	202.65	2.00	0.00	0.55	0.00
29.36	214.62	2.00	0.00	0.55	0.00	29.53	218.89	2.00	0.00	0.55	0.00
29.69	219.73	2.00	0.00	0.55	0.00	29.86	215.84	2.00	0.00	0.54	0.00
30.02	216.20	2.00	0.00	0.54	0.00	30.19	213.59	2.00	0.00	0.54	0.00
30.35	212.87	2.00	0.00	0.54	0.00	30.51	212.37	2.00	0.00	0.53	0.00
30.68	216.25	2.00	0.00	0.53	0.00	30.84	216.32	2.00	0.00	0.53	0.00
31.01	211.68	2.00	0.00	0.53	0.00	31.17	200.37	2.00	0.00	0.52	0.00
31.33	194.64	0.96	0.25	0.52	0.00	31.50	201.16	2.00	0.00	0.52	0.00
31.66	218.95	2.00	0.00	0.52	0.00	31.83	237.13	2.00	0.00	0.51	0.00
31.99	258.83	2.00	0.00	0.51	0.00	32.15	279.72	2.00	0.00	0.51	0.00
32.32	294.36	2.00	0.00	0.51	0.00	32.48	297.34	2.00	0.00	0.50	0.00
32.65	291.51	2.00	0.00	0.50	0.00	32.81	277.63	2.00	0.00	0.50	0.00
32.97	262.87	2.00	0.00	0.50	0.00	33.14	249.35	2.00	0.00	0.49	0.00
33.30	247.27	2.00	0.00	0.49	0.00	33.47	248.11	2.00	0.00	0.49	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)
33.63	248.25	2.00	0.00	0.49	0.00	33.79	242.43	2.00	0.00	0.48	0.00
33.96	235.86	2.00	0.00	0.48	0.00	34.12	231.57	2.00	0.00	0.48	0.00
34.29	230.94	2.00	0.00	0.48	0.00	34.45	233.42	2.00	0.00	0.47	0.00
34.61	237.56	2.00	0.00	0.47	0.00	34.78	243.35	2.00	0.00	0.47	0.00
34.94	240.44	2.00	0.00	0.47	0.00	35.11	216.99	2.00	0.00	0.46	0.00
35.27	178.48	2.00	0.00	0.46	0.00	35.43	137.56	2.00	0.00	0.46	0.00
35.60	120.13	2.00	0.00	0.46	0.00	35.76	113.96	2.00	0.00	0.45	0.00
35.93	113.22	2.00	0.00	0.45	0.00	36.09	117.90	2.00	0.00	0.45	0.00
36.26	129.17	0.34	0.85	0.45	0.02	36.42	140.28	2.00	0.00	0.44	0.00
36.58	138.09	2.00	0.00	0.44	0.00	36.75	136.05	2.00	0.00	0.44	0.00
36.91	147.51	2.00	0.00	0.44	0.00	37.08	176.21	2.00	0.00	0.43	0.00
37.24	202.47	2.00	0.00	0.43	0.00	37.40	218.02	2.00	0.00	0.43	0.00
37.57	230.38	2.00	0.00	0.43	0.00	37.73	249.89	2.00	0.00	0.42	0.00
37.90	276.12	2.00	0.00	0.42	0.00	38.06	303.02	2.00	0.00	0.42	0.00
38.22	332.03	2.00	0.00	0.42	0.00	38.39	351.48	2.00	0.00	0.41	0.00
38.55	366.93	2.00	0.00	0.41	0.00	38.72	379.49	2.00	0.00	0.41	0.00
38.88	387.98	2.00	0.00	0.41	0.00	39.04	395.16	2.00	0.00	0.40	0.00
39.21	396.87	2.00	0.00	0.40	0.00	39.37	400.30	2.00	0.00	0.40	0.00
39.54	405.00	2.00	0.00	0.40	0.00	39.70	408.00	2.00	0.00	0.39	0.00
39.86	405.88	2.00	0.00	0.39	0.00	40.03	393.27	2.00	0.00	0.39	0.00
40.19	378.18	2.00	0.00	0.39	0.00	40.36	364.10	2.00	0.00	0.38	0.00
40.52	359.92	2.00	0.00	0.38	0.00	40.68	358.96	2.00	0.00	0.38	0.00

Total estimated settlement: 0.87**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

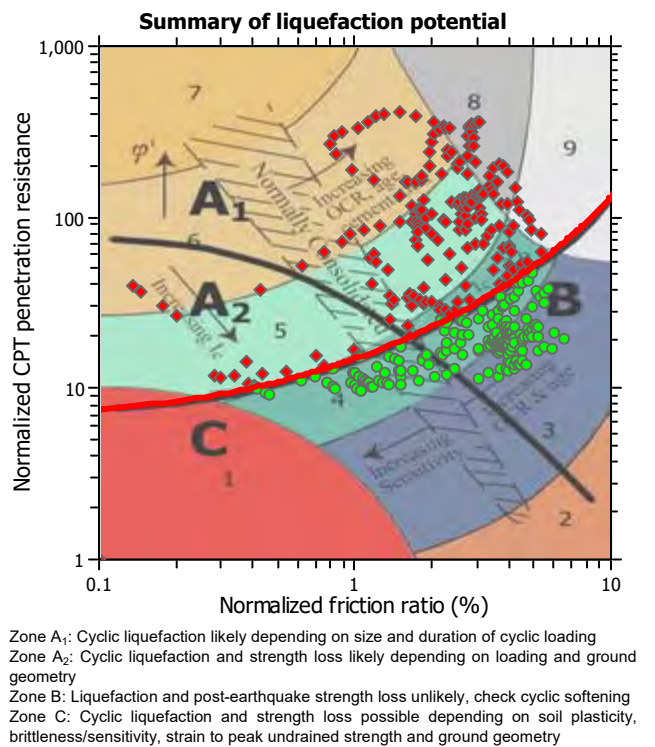
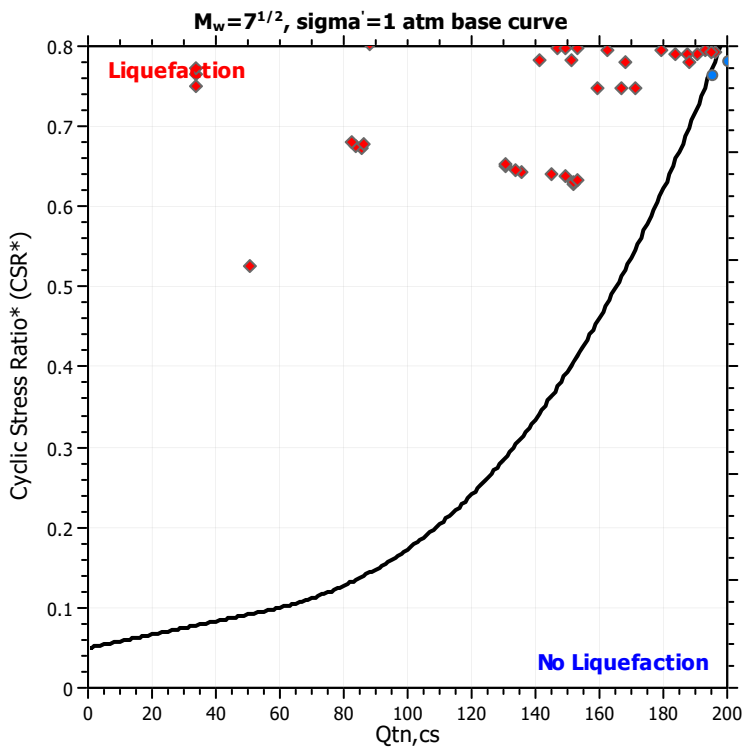
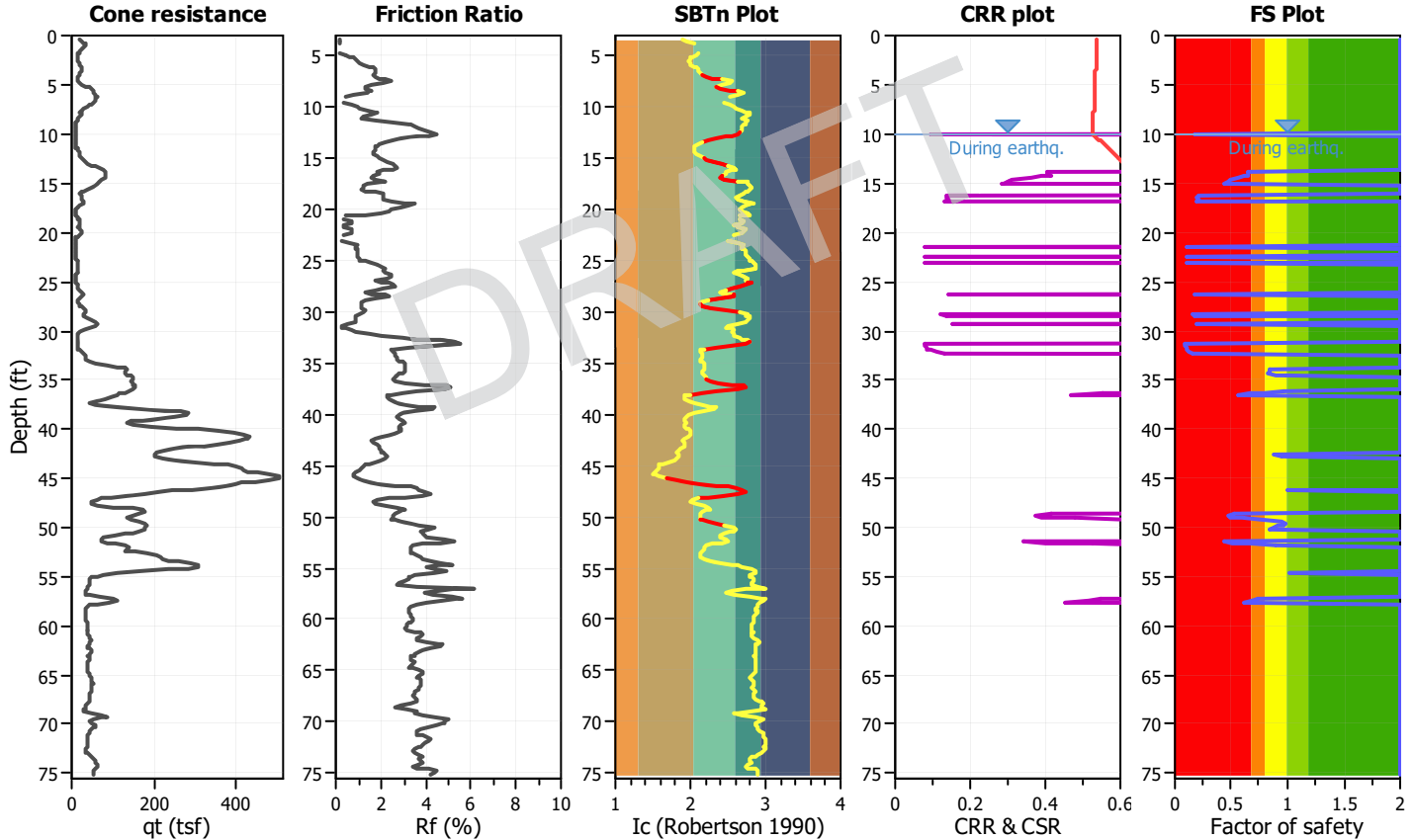
Project title : 210256003 - Compton HS

Location : Compton, CA

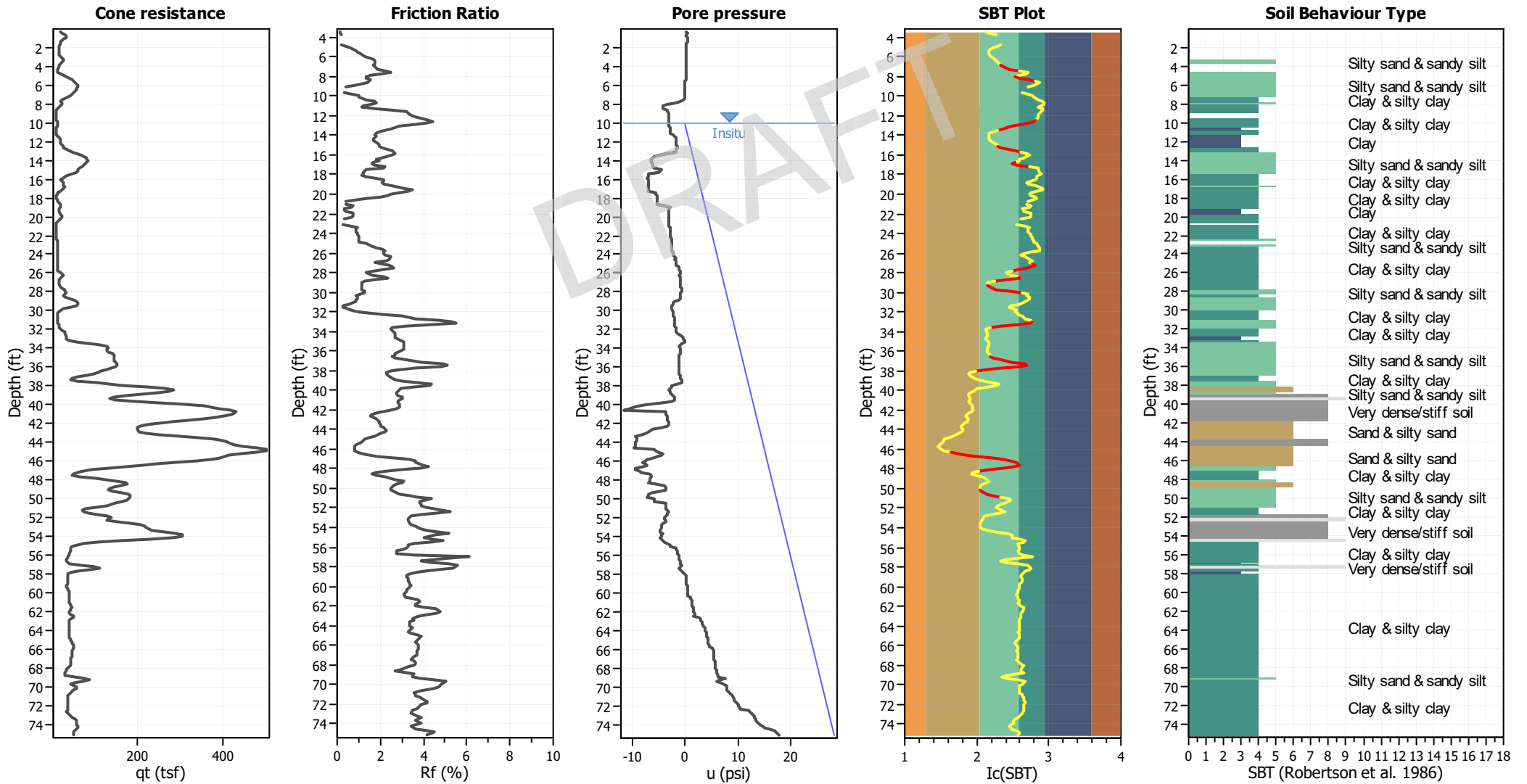
CPT file : CPT-18

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



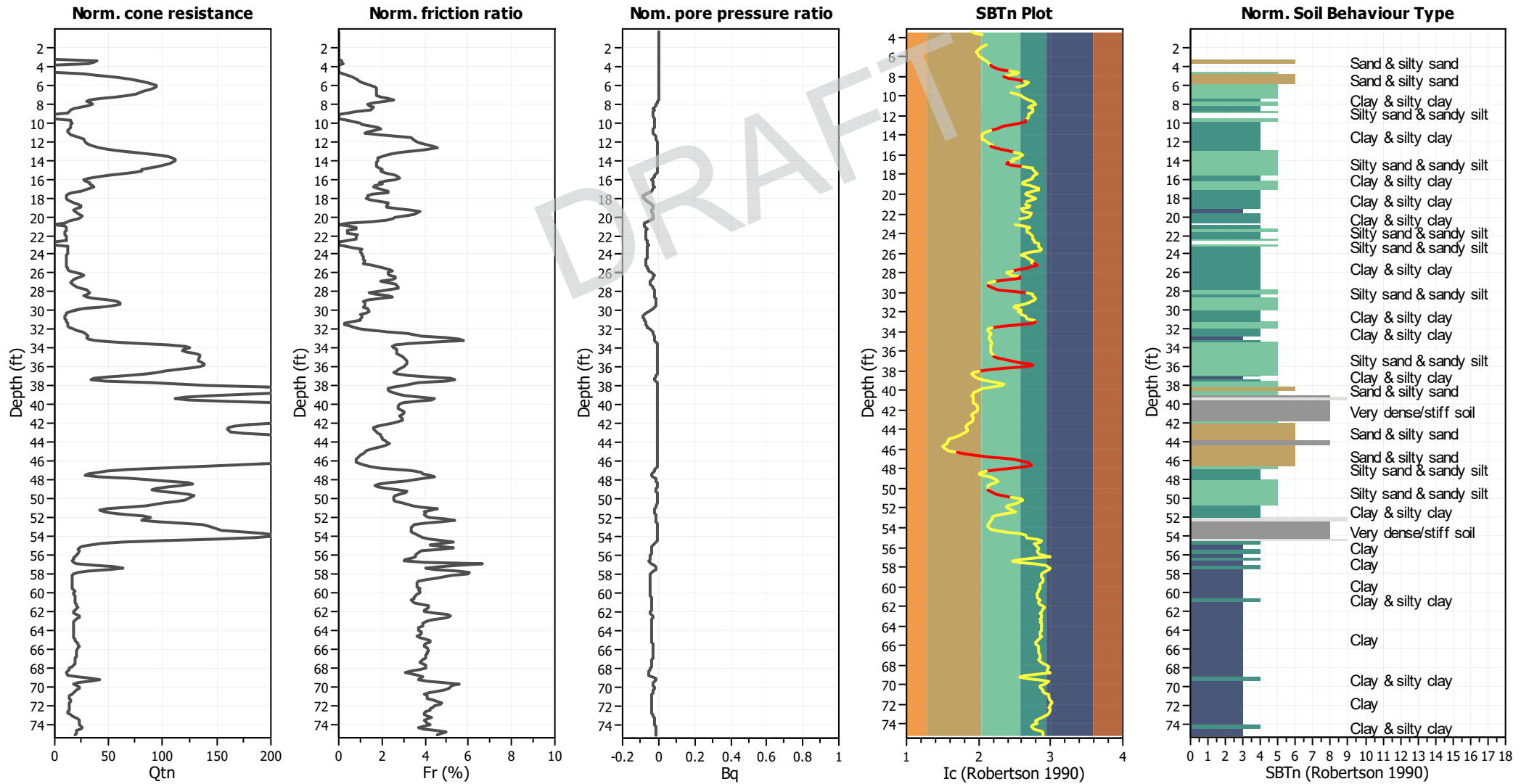
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



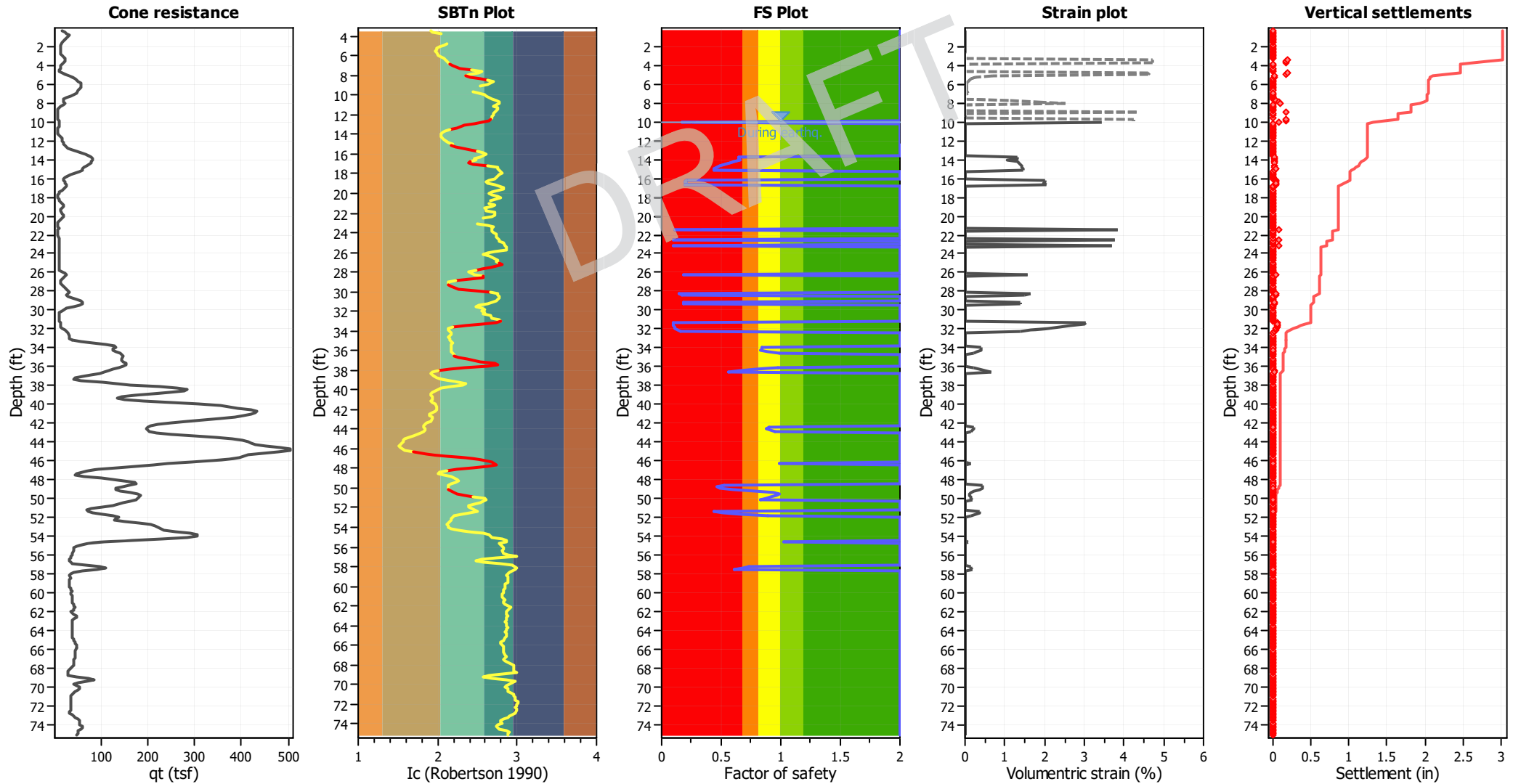
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.45	1.91	39.39	1.00	39.39	8	247	0.53	2.952	8.97	9.27	4.74	0.193
3.61	1.94	36.86	1.00	36.86	8	241	0.53	4.228	13.71	9.27	4.72	0.181
3.77	2.04	30.32	1.00	30.32	6	226	0.53	8.786	34.38	9.27	4.71	0.181
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.76	2.11	26.66	1.00	26.66	6	216	0.53	34.549	152.78	9.27	4.64	0.189
4.92	2.07	37.95	1.00	37.95	8	293	0.53	3.027	8.93	9.27	4.62	0.178
5.09	2.02	52.07	1.33	69.37	15	378	0.53	0.636	0.93	9.27	0.69	0.028
5.25	2.00	63.57	1.30	82.38	17	446	0.53	0.287	0.35	9.27	0.26	0.010
5.41	1.99	72.39	1.29	93.13	19	504	0.53	0.178	0.19	9.27	0.14	0.005
5.58	1.98	79.07	1.27	100.39	21	541	0.53	0.144	0.14	9.27	0.10	0.004
5.74	1.99	84.51	1.28	108.50	22	586	0.53	0.113	0.10	9.27	0.07	0.003
5.91	2.01	89.91	1.31	117.89	25	641	0.53	0.088	0.07	9.27	0.05	0.002
6.07	2.05	93.37	1.37	127.63	27	699	0.53	0.070	0.05	9.27	0.04	0.001
6.23	2.08	93.78	1.41	132.69	28	729	0.53	0.065	0.04	9.27	0.03	0.001
6.40	2.10	91.95	1.45	133.68	29	735	0.53	0.068	0.04	9.27	0.03	0.001
6.56	2.12	87.81	1.49	130.61	28	719	0.53	0.077	0.05	9.27	0.04	0.001
6.73	2.14	81.63	1.53	125.22	28	688	0.53	0.095	0.06	9.27	0.05	0.002
6.89	2.16	74.71	1.58	117.71	26	646	0.53	0.128	0.09	9.27	0.07	0.003
7.05	2.20	67.47	1.66	112.09	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.22	2.28	55.99	1.90	106.42	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.38	2.42	42.69	2.40	102.46	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.55	2.55	31.80	3.04	96.53	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.71	2.52	30.11	2.89	86.94	23	412	0.53	1.831	1.58	9.27	1.12	0.043
7.87	2.41	33.61	2.35	78.88	19	397	0.53	2.500	2.58	9.27	1.83	0.070
8.04	2.35	35.17	2.13	75.09	18	388	0.53	3.183	3.59	9.27	2.54	0.103

:: 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)
8.20	2.40	31.02	2.32	71.84	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.37	2.54	23.50	2.96	69.46	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.53	2.64	17.44	3.55	61.88	0	0	0.53	0.000	0.00	9.27	0.00	0.000
8.69	2.70	14.38	3.99	57.41	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.62	12.88	3.46	44.53	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.53	12.22	2.95	36.00	9	169	0.53	45461.069	11206/81	9.27	4.31	0.166
9.19	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.35	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.68	2.45	14.32	2.51	35.95	9	178	0.53	32938.874	85495.8	9.27	4.26	0.174
9.84	2.52	15.33	2.87	44.04	11	209	0.53	3539.238	6904.12	9.27	4.25	0.163
Total estimated settlement: 1.70												

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)
10.01	50.89	0.18	3.45	0.85	0.07	10.17	51.02	2.00	0.00	0.84	0.00
10.34	57.26	2.00	0.00	0.84	0.00	10.50	62.94	2.00	0.00	0.84	0.00
10.66	63.23	2.00	0.00	0.84	0.00	10.83	58.02	2.00	0.00	0.83	0.00
10.99	51.87	2.00	0.00	0.83	0.00	11.16	51.63	2.00	0.00	0.83	0.00
11.32	63.02	2.00	0.00	0.83	0.00	11.48	80.11	2.00	0.00	0.82	0.00
11.65	97.15	2.00	0.00	0.82	0.00	11.81	105.33	2.00	0.00	0.82	0.00
11.98	110.86	2.00	0.00	0.82	0.00	12.14	116.05	2.00	0.00	0.81	0.00
12.30	125.91	2.00	0.00	0.81	0.00	12.47	137.13	2.00	0.00	0.81	0.00
12.63	147.50	2.00	0.00	0.81	0.00	12.80	151.20	2.00	0.00	0.80	0.00
12.96	151.18	2.00	0.00	0.80	0.00	13.12	147.89	2.00	0.00	0.80	0.00
13.29	149.14	2.00	0.00	0.80	0.00	13.45	150.86	2.00	0.00	0.79	0.00
13.62	152.20	2.00	0.00	0.79	0.00	13.78	151.77	0.65	1.31	0.79	0.03
13.94	152.19	0.65	1.30	0.79	0.02	14.11	153.26	0.65	1.05	0.78	0.02
14.27	149.42	0.61	1.33	0.78	0.03	14.44	145.13	0.57	1.34	0.78	0.03
14.60	135.78	0.49	1.41	0.78	0.03	14.76	133.62	0.47	1.43	0.77	0.03
14.93	130.64	0.44	1.45	0.77	0.03	15.09	130.36	0.44	1.45	0.77	0.03
15.26	127.80	2.00	0.00	0.77	0.00	15.42	122.58	2.00	0.00	0.76	0.00
15.58	118.57	2.00	0.00	0.76	0.00	15.75	110.06	2.00	0.00	0.76	0.00
15.91	102.63	2.00	0.00	0.76	0.00	16.08	93.17	2.00	0.00	0.75	0.00
16.24	85.54	0.21	2.00	0.75	0.04	16.40	83.72	0.20	2.03	0.75	0.04
16.57	86.52	0.21	1.97	0.75	0.04	16.73	82.30	0.19	2.04	0.74	0.04
16.90	81.79	2.00	0.00	0.74	0.00	17.06	82.61	2.00	0.00	0.74	0.00
17.23	83.22	2.00	0.00	0.74	0.00	17.39	72.31	2.00	0.00	0.73	0.00
17.55	55.11	2.00	0.00	0.73	0.00	17.72	49.85	2.00	0.00	0.73	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)
17.88	49.88	2.00	0.00	0.73	0.00	18.05	49.60	2.00	0.00	0.72	0.00
18.21	54.75	2.00	0.00	0.72	0.00	18.37	63.65	2.00	0.00	0.72	0.00
18.54	74.49	2.00	0.00	0.72	0.00	18.70	79.59	2.00	0.00	0.71	0.00
18.87	81.38	2.00	0.00	0.71	0.00	19.03	81.56	2.00	0.00	0.71	0.00
19.19	83.42	2.00	0.00	0.71	0.00	19.36	88.22	2.00	0.00	0.70	0.00
19.52	96.46	2.00	0.00	0.70	0.00	19.69	99.80	2.00	0.00	0.70	0.00
19.85	97.91	2.00	0.00	0.70	0.00	20.01	89.36	2.00	0.00	0.69	0.00
20.18	81.76	2.00	0.00	0.69	0.00	20.34	69.88	2.00	0.00	0.69	0.00
20.51	53.64	2.00	0.00	0.69	0.00	20.67	34.04	2.00	0.00	0.68	0.00
20.83	-1.00	2.00	0.00	0.68	0.00	21.00	33.97	2.00	0.00	0.68	0.00
21.16	41.71	2.00	0.00	0.68	0.00	21.33	41.52	2.00	0.00	0.67	0.00
21.49	33.78	0.10	3.83	0.67	0.07	21.65	33.79	2.00	0.00	0.67	0.00
21.82	33.78	2.00	0.00	0.67	0.00	21.98	41.58	2.00	0.00	0.66	0.00
22.15	41.47	2.00	0.00	0.66	0.00	22.31	41.32	2.00	0.00	0.66	0.00
22.47	33.60	0.10	3.76	0.66	0.07	22.64	-1.00	2.00	0.00	0.65	0.00
22.80	-1.00	2.00	0.00	0.65	0.00	22.97	-1.00	2.00	0.00	0.65	0.00
23.13	33.46	0.10	3.71	0.65	0.07	23.30	40.83	2.00	0.00	0.64	0.00
23.46	46.97	2.00	0.00	0.64	0.00	23.62	46.74	2.00	0.00	0.64	0.00
23.79	46.70	2.00	0.00	0.64	0.00	23.95	46.82	2.00	0.00	0.63	0.00
24.12	46.93	2.00	0.00	0.63	0.00	24.28	46.95	2.00	0.00	0.63	0.00
24.44	46.92	2.00	0.00	0.63	0.00	24.61	46.94	2.00	0.00	0.62	0.00
24.77	47.00	2.00	0.00	0.62	0.00	24.94	46.93	2.00	0.00	0.62	0.00
25.10	52.18	2.00	0.00	0.62	0.00	25.26	56.70	2.00	0.00	0.61	0.00
25.43	60.85	2.00	0.00	0.61	0.00	25.59	64.63	2.00	0.00	0.61	0.00
25.76	68.00	2.00	0.00	0.61	0.00	25.92	75.57	2.00	0.00	0.60	0.00
26.08	81.85	2.00	0.00	0.60	0.00	26.25	88.02	0.18	1.56	0.60	0.03
26.41	89.34	2.00	0.00	0.60	0.00	26.58	83.10	2.00	0.00	0.59	0.00
26.74	75.52	2.00	0.00	0.59	0.00	26.90	65.86	2.00	0.00	0.59	0.00
27.07	69.36	2.00	0.00	0.59	0.00	27.23	75.69	2.00	0.00	0.58	0.00
27.40	85.13	2.00	0.00	0.58	0.00	27.56	90.87	2.00	0.00	0.58	0.00
27.72	88.22	2.00	0.00	0.58	0.00	27.89	82.34	2.00	0.00	0.57	0.00
28.05	74.25	2.00	0.00	0.57	0.00	28.22	77.29	0.15	1.64	0.57	0.03
28.38	86.06	0.17	1.50	0.57	0.03	28.54	92.13	2.00	0.00	0.56	0.00
28.71	88.86	2.00	0.00	0.56	0.00	28.87	86.09	2.00	0.00	0.56	0.00
29.04	87.41	2.00	0.00	0.56	0.00	29.20	91.41	0.18	1.40	0.55	0.03
29.36	91.38	0.18	1.39	0.55	0.03	29.53	86.37	2.00	0.00	0.55	0.00
29.69	74.99	2.00	0.00	0.55	0.00	29.86	66.48	2.00	0.00	0.54	0.00
30.02	56.51	2.00	0.00	0.54	0.00	30.19	49.41	2.00	0.00	0.54	0.00
30.35	44.66	2.00	0.00	0.54	0.00	30.51	44.76	2.00	0.00	0.53	0.00
30.68	44.72	2.00	0.00	0.53	0.00	30.84	44.60	2.00	0.00	0.53	0.00
31.01	44.42	2.00	0.00	0.53	0.00	31.17	38.71	2.00	0.00	0.52	0.00
31.33	32.16	0.09	3.03	0.52	0.06	31.50	32.17	0.09	3.01	0.52	0.06
31.66	38.41	0.10	2.65	0.52	0.05	31.83	43.51	0.10	2.38	0.51	0.05
31.99	51.36	0.11	2.07	0.51	0.04	32.15	66.99	0.13	1.65	0.51	0.03
32.32	83.21	0.16	1.38	0.51	0.03	32.48	103.71	2.00	0.00	0.50	0.00
32.65	117.45	2.00	0.00	0.50	0.00	32.81	133.21	2.00	0.00	0.50	0.00
32.97	146.08	2.00	0.00	0.50	0.00	33.14	161.53	2.00	0.00	0.49	0.00
33.30	164.38	2.00	0.00	0.49	0.00	33.47	164.81	2.00	0.00	0.49	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)
33.63	170.91	2.00	0.00	0.49	0.00	33.79	183.45	2.00	0.00	0.48	0.00
33.96	188.17	0.85	0.39	0.48	0.01	34.12	188.22	0.85	0.39	0.48	0.01
34.29	186.80	0.83	0.39	0.48	0.01	34.45	191.79	0.89	0.28	0.47	0.01
34.61	199.17	0.99	0.22	0.47	0.00	34.78	207.87	2.00	0.00	0.47	0.00
34.94	212.11	2.00	0.00	0.47	0.00	35.11	214.43	2.00	0.00	0.46	0.00
35.27	215.62	2.00	0.00	0.46	0.00	35.43	218.87	2.00	0.00	0.46	0.00
35.60	221.35	2.00	0.00	0.46	0.00	35.76	220.09	2.00	0.00	0.45	0.00
35.93	211.93	2.00	0.00	0.45	0.00	36.09	198.49	0.97	0.21	0.45	0.00
36.26	183.47	0.79	0.37	0.45	0.01	36.42	171.65	0.66	0.51	0.44	0.01
36.58	161.12	0.56	0.67	0.44	0.01	36.75	154.84	2.00	0.00	0.44	0.00
36.91	151.80	2.00	0.00	0.44	0.00	37.08	151.23	2.00	0.00	0.43	0.00
37.24	150.20	2.00	0.00	0.43	0.00	37.40	148.42	2.00	0.00	0.43	0.00
37.57	164.75	2.00	0.00	0.43	0.00	37.73	186.71	2.00	0.00	0.42	0.00
37.90	219.10	2.00	0.00	0.42	0.00	38.06	255.20	2.00	0.00	0.42	0.00
38.22	280.77	2.00	0.00	0.42	0.00	38.39	296.27	2.00	0.00	0.41	0.00
38.55	292.39	2.00	0.00	0.41	0.00	38.72	273.17	2.00	0.00	0.41	0.00
38.88	245.86	2.00	0.00	0.41	0.00	39.04	226.20	2.00	0.00	0.40	0.00
39.21	223.99	2.00	0.00	0.40	0.00	39.37	234.74	2.00	0.00	0.40	0.00
39.54	245.35	2.00	0.00	0.40	0.00	39.70	258.07	2.00	0.00	0.39	0.00
39.86	288.86	2.00	0.00	0.39	0.00	40.03	329.82	2.00	0.00	0.39	0.00
40.19	367.55	2.00	0.00	0.39	0.00	40.36	398.10	2.00	0.00	0.38	0.00
40.52	422.98	2.00	0.00	0.38	0.00	40.68	438.90	2.00	0.00	0.38	0.00
40.85	437.20	2.00	0.00	0.38	0.00	41.01	424.16	2.00	0.00	0.37	0.00
41.18	405.95	2.00	0.00	0.37	0.00	41.34	389.62	2.00	0.00	0.37	0.00
41.50	366.37	2.00	0.00	0.37	0.00	41.67	334.76	2.00	0.00	0.36	0.00
41.83	297.30	2.00	0.00	0.36	0.00	42.00	261.36	2.00	0.00	0.36	0.00
42.16	228.59	2.00	0.00	0.36	0.00	42.32	204.09	2.00	0.00	0.35	0.00
42.49	192.13	0.90	0.21	0.35	0.00	42.65	190.28	0.87	0.21	0.35	0.00
42.82	196.59	0.96	0.16	0.35	0.00	42.98	212.34	2.00	0.00	0.34	0.00
43.15	239.58	2.00	0.00	0.34	0.00	43.31	277.65	2.00	0.00	0.34	0.00
43.47	313.14	2.00	0.00	0.34	0.00	43.64	342.04	2.00	0.00	0.33	0.00
43.80	361.51	2.00	0.00	0.33	0.00	43.97	374.72	2.00	0.00	0.33	0.00
44.13	381.67	2.00	0.00	0.33	0.00	44.29	384.83	2.00	0.00	0.32	0.00
44.46	393.06	2.00	0.00	0.32	0.00	44.62	402.46	2.00	0.00	0.32	0.00
44.79	407.30	2.00	0.00	0.32	0.00	44.95	406.32	2.00	0.00	0.31	0.00
45.11	385.91	2.00	0.00	0.31	0.00	45.28	356.93	2.00	0.00	0.31	0.00
45.44	331.62	2.00	0.00	0.31	0.00	45.61	316.18	2.00	0.00	0.30	0.00
45.77	298.82	2.00	0.00	0.30	0.00	45.93	270.22	2.00	0.00	0.30	0.00
46.10	231.79	2.00	0.00	0.30	0.00	46.26	198.14	0.99	0.14	0.29	0.00
46.43	180.72	2.00	0.00	0.29	0.00	46.59	161.98	2.00	0.00	0.29	0.00
46.75	143.60	2.00	0.00	0.29	0.00	46.92	137.96	2.00	0.00	0.28	0.00
47.08	136.89	2.00	0.00	0.28	0.00	47.25	131.66	2.00	0.00	0.28	0.00
47.41	118.65	2.00	0.00	0.28	0.00	47.57	120.34	2.00	0.00	0.27	0.00
47.74	144.11	2.00	0.00	0.27	0.00	47.90	171.08	2.00	0.00	0.27	0.00
48.07	184.75	2.00	0.00	0.27	0.00	48.23	181.79	2.00	0.00	0.26	0.00
48.39	168.79	2.00	0.00	0.26	0.00	48.56	153.14	0.52	0.43	0.26	0.01
48.72	146.67	0.47	0.44	0.26	0.01	48.89	149.53	0.49	0.43	0.25	0.01
49.05	162.52	0.60	0.38	0.25	0.01	49.22	179.50	0.78	0.22	0.25	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)
49.38	192.95	0.94	0.15	0.25	0.00	49.54	196.30	0.99	0.12	0.24	0.00
49.71	194.72	0.97	0.12	0.24	0.00	49.87	190.41	0.91	0.14	0.24	0.00
50.04	187.54	0.88	0.15	0.24	0.00	50.20	183.98	0.84	0.20	0.23	0.00
50.36	179.90	2.00	0.00	0.23	0.00	50.53	177.42	2.00	0.00	0.23	0.00
50.69	174.82	2.00	0.00	0.23	0.00	50.86	166.30	2.00	0.00	0.22	0.00
51.02	158.00	2.00	0.00	0.22	0.00	51.18	143.40	2.00	0.00	0.22	0.00
51.35	141.54	0.44	0.38	0.22	0.01	51.51	151.38	0.51	0.36	0.21	0.01
51.68	168.36	0.67	0.25	0.21	0.01	51.84	187.88	0.89	0.13	0.21	0.00
52.00	200.83	2.00	0.00	0.21	0.00	52.17	214.61	2.00	0.00	0.20	0.00
52.33	221.76	2.00	0.00	0.20	0.00	52.50	225.57	2.00	0.00	0.20	0.00
52.66	227.89	2.00	0.00	0.20	0.00	52.82	231.02	2.00	0.00	0.19	0.00
52.99	234.43	2.00	0.00	0.19	0.00	53.15	236.71	2.00	0.00	0.19	0.00
53.32	245.32	2.00	0.00	0.19	0.00	53.48	264.02	2.00	0.00	0.18	0.00
53.64	287.65	2.00	0.00	0.18	0.00	53.81	305.91	2.00	0.00	0.18	0.00
53.97	309.70	2.00	0.00	0.18	0.00	54.14	298.16	2.00	0.00	0.17	0.00
54.30	270.15	2.00	0.00	0.17	0.00	54.46	234.06	2.00	0.00	0.17	0.00
54.63	195.85	1.02	0.08	0.17	0.00	54.79	153.43	2.00	0.00	0.16	0.00
54.96	130.17	2.00	0.00	0.16	0.00	55.12	121.34	2.00	0.00	0.16	0.00
55.28	123.29	2.00	0.00	0.16	0.00	55.45	113.58	2.00	0.00	0.15	0.00
55.61	104.94	2.00	0.00	0.15	0.00	55.78	98.38	2.00	0.00	0.15	0.00
55.94	94.99	2.00	0.00	0.15	0.00	56.11	92.62	2.00	0.00	0.14	0.00
56.27	88.93	2.00	0.00	0.14	0.00	56.43	83.77	2.00	0.00	0.14	0.00
56.60	82.40	2.00	0.00	0.14	0.00	56.76	94.62	2.00	0.00	0.13	0.00
56.93	128.85	2.00	0.00	0.13	0.00	57.09	155.14	2.00	0.00	0.13	0.00
57.25	171.23	0.73	0.15	0.13	0.00	57.42	167.01	0.69	0.15	0.12	0.00
57.58	159.17	0.61	0.19	0.12	0.00	57.75	144.77	2.00	0.00	0.12	0.00
57.91	127.65	2.00	0.00	0.12	0.00	58.07	114.18	2.00	0.00	0.11	0.00
58.24	105.19	2.00	0.00	0.11	0.00	58.40	98.81	2.00	0.00	0.11	0.00
58.57	93.32	2.00	0.00	0.11	0.00	58.73	89.81	2.00	0.00	0.10	0.00
58.89	88.55	2.00	0.00	0.10	0.00	59.06	88.45	2.00	0.00	0.10	0.00
59.22	88.35	2.00	0.00	0.10	0.00	59.39	88.26	2.00	0.00	0.09	0.00
59.55	90.49	2.00	0.00	0.09	0.00	59.71	92.66	2.00	0.00	0.09	0.00
59.88	94.76	2.00	0.00	0.09	0.00	60.04	93.57	2.00	0.00	0.08	0.00
60.21	92.36	2.00	0.00	0.08	0.00	60.37	92.25	2.00	0.00	0.08	0.00
60.53	92.14	2.00	0.00	0.08	0.00	60.70	92.03	2.00	0.00	0.07	0.00
60.86	90.80	2.00	0.00	0.07	0.00	61.03	92.92	2.00	0.00	0.07	0.00
61.19	98.16	2.00	0.00	0.07	0.00	61.35	103.12	2.00	0.00	0.06	0.00
61.52	105.89	2.00	0.00	0.06	0.00	61.68	103.85	2.00	0.00	0.06	0.00
61.85	98.78	2.00	0.00	0.06	0.00	62.01	94.51	2.00	0.00	0.05	0.00
62.17	99.48	2.00	0.00	0.05	0.00	62.34	112.65	2.00	0.00	0.05	0.00
62.50	120.41	2.00	0.00	0.05	0.00	62.67	118.57	2.00	0.00	0.04	0.00
62.83	108.71	2.00	0.00	0.04	0.00	63.00	100.01	2.00	0.00	0.04	0.00
63.16	96.91	2.00	0.00	0.04	0.00	63.32	95.80	2.00	0.00	0.03	0.00
63.49	95.70	2.00	0.00	0.03	0.00	63.65	92.49	2.00	0.00	0.03	0.00
63.82	91.32	2.00	0.00	0.03	0.00	63.98	91.23	2.00	0.00	0.02	0.00
64.14	93.24	2.00	0.00	0.02	0.00	64.31	93.15	2.00	0.00	0.02	0.00
64.47	92.02	2.00	0.00	0.02	0.00	64.64	90.88	2.00	0.00	0.01	0.00
64.80	93.91	2.00	0.00	0.01	0.00	64.96	98.81	2.00	0.00	0.01	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)
65.13	102.52	2.00	0.00	0.01	0.00	65.29	103.36	2.00	0.00	0.00	0.00
65.46	104.16	2.00	0.00	0.00	0.00	65.62	104.92	2.00	0.00	0.00	0.00
65.78	105.73	2.00	0.00	0.00	0.00	65.95	104.74	2.00	0.00	0.00	0.00
66.11	103.74	2.00	0.00	0.00	0.00	66.28	102.71	2.00	0.00	0.00	0.00
66.44	102.61	2.00	0.00	0.00	0.00	66.60	102.50	2.00	0.00	0.00	0.00
66.77	101.47	2.00	0.00	0.00	0.00	66.93	99.50	2.00	0.00	0.00	0.00
67.10	96.53	2.00	0.00	0.00	0.00	67.26	95.47	2.00	0.00	0.00	0.00
67.42	96.36	2.00	0.00	0.00	0.00	67.59	97.21	2.00	0.00	0.00	0.00
67.75	96.11	2.00	0.00	0.00	0.00	67.92	91.95	2.00	0.00	0.00	0.00
68.08	87.61	2.00	0.00	0.00	0.00	68.24	82.17	2.00	0.00	0.00	0.00
68.41	76.32	2.00	0.00	0.00	0.00	68.57	71.32	2.00	0.00	0.00	0.00
68.74	77.44	2.00	0.00	0.00	0.00	68.90	102.02	2.00	0.00	0.00	0.00
69.07	121.52	2.00	0.00	0.00	0.00	69.23	131.04	2.00	0.00	0.00	0.00
69.39	125.32	2.00	0.00	0.00	0.00	69.56	115.03	2.00	0.00	0.00	0.00
69.72	111.28	2.00	0.00	0.00	0.00	69.89	116.14	2.00	0.00	0.00	0.00
70.05	122.37	2.00	0.00	0.00	0.00	70.21	121.51	2.00	0.00	0.00	0.00
70.38	113.57	2.00	0.00	0.00	0.00	70.54	105.20	2.00	0.00	0.00	0.00
70.71	97.15	2.00	0.00	0.00	0.00	70.87	91.32	2.00	0.00	0.00	0.00
71.03	88.09	2.00	0.00	0.00	0.00	71.20	88.01	2.00	0.00	0.00	0.00
71.36	90.88	2.00	0.00	0.00	0.00	71.53	92.73	2.00	0.00	0.00	0.00
71.69	93.62	2.00	0.00	0.00	0.00	71.85	92.60	2.00	0.00	0.00	0.00
72.02	90.58	2.00	0.00	0.00	0.00	72.18	89.54	2.00	0.00	0.00	0.00
72.35	88.47	2.00	0.00	0.00	0.00	72.51	86.43	2.00	0.00	0.00	0.00
72.67	83.31	2.00	0.00	0.00	0.00	72.84	83.22	2.00	0.00	0.00	0.00
73.00	88.12	2.00	0.00	0.00	0.00	73.17	94.84	2.00	0.00	0.00	0.00
73.33	101.03	2.00	0.00	0.00	0.00	73.49	104.42	2.00	0.00	0.00	0.00
73.66	105.96	2.00	0.00	0.00	0.00	73.82	108.29	2.00	0.00	0.00	0.00
73.99	108.98	2.00	0.00	0.00	0.00	74.15	109.60	2.00	0.00	0.00	0.00
74.31	107.04	2.00	0.00	0.00	0.00	74.48	107.04	2.00	0.00	0.00	0.00
74.64	108.48	2.00	0.00	0.00	0.00	74.81	111.26	2.00	0.00	0.00	0.00
74.97	109.69	2.00	0.00	0.00	0.00	75.13	106.47	2.00	0.00	0.00	0.00

Total estimated settlement: 1.32

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

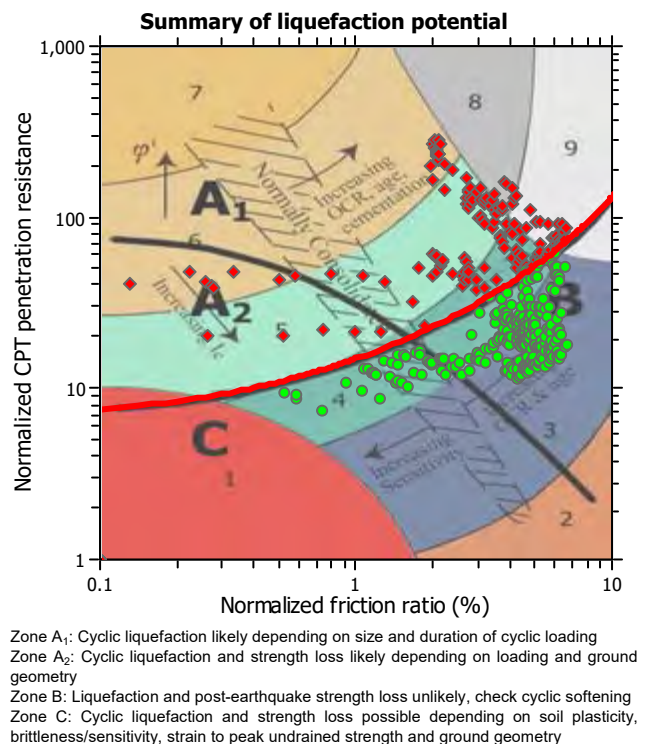
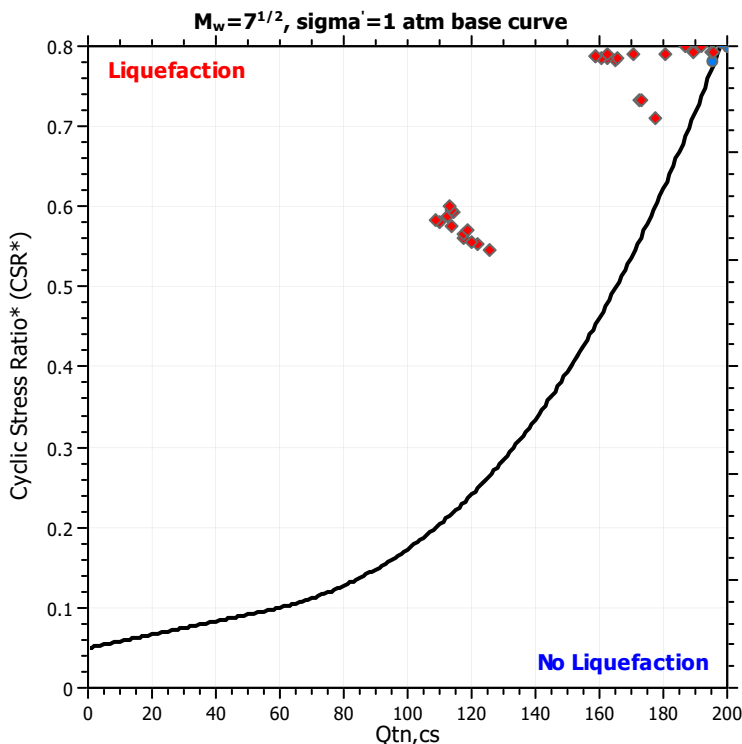
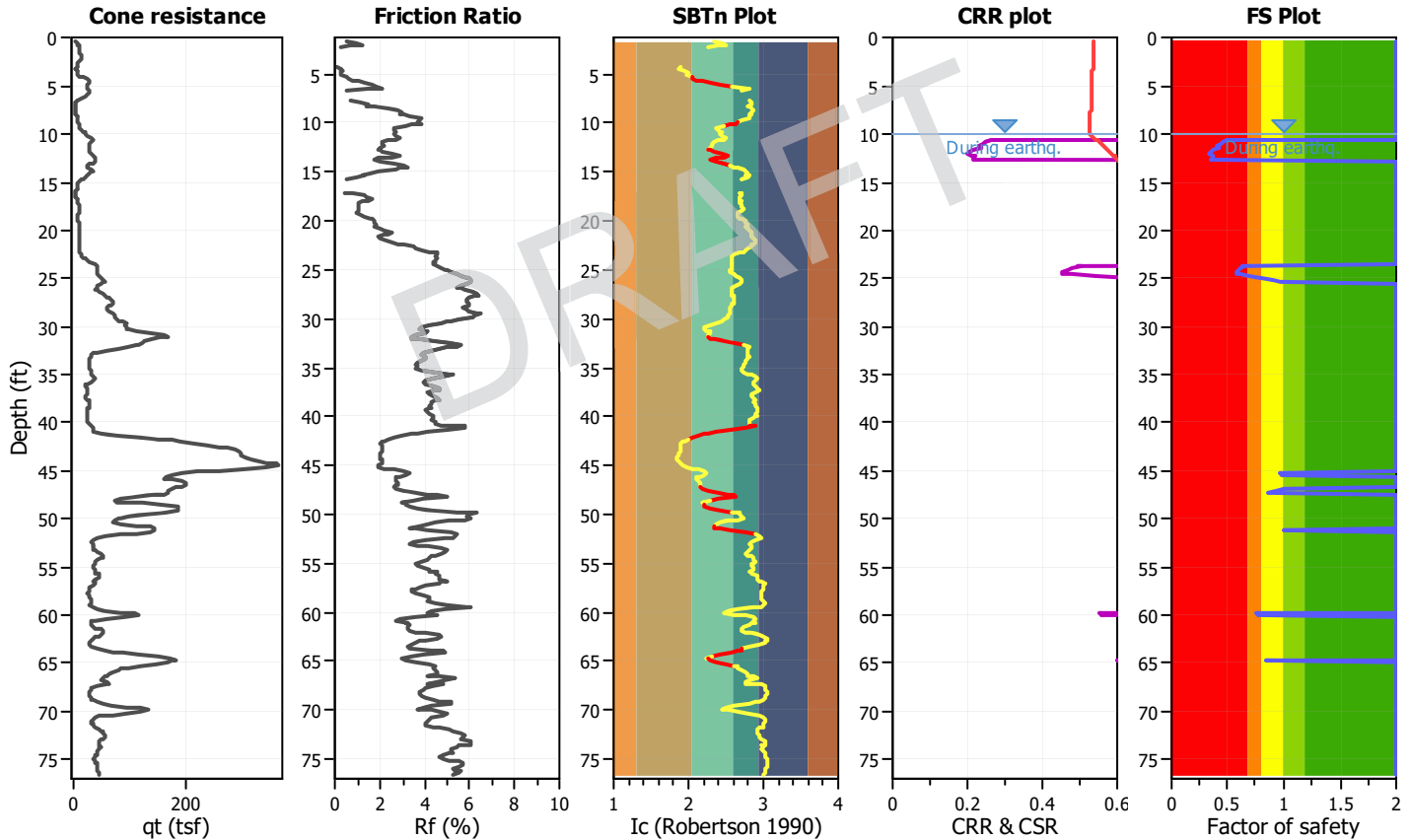
Project title : 210256003 - Compton HS

Location : Compton, CA

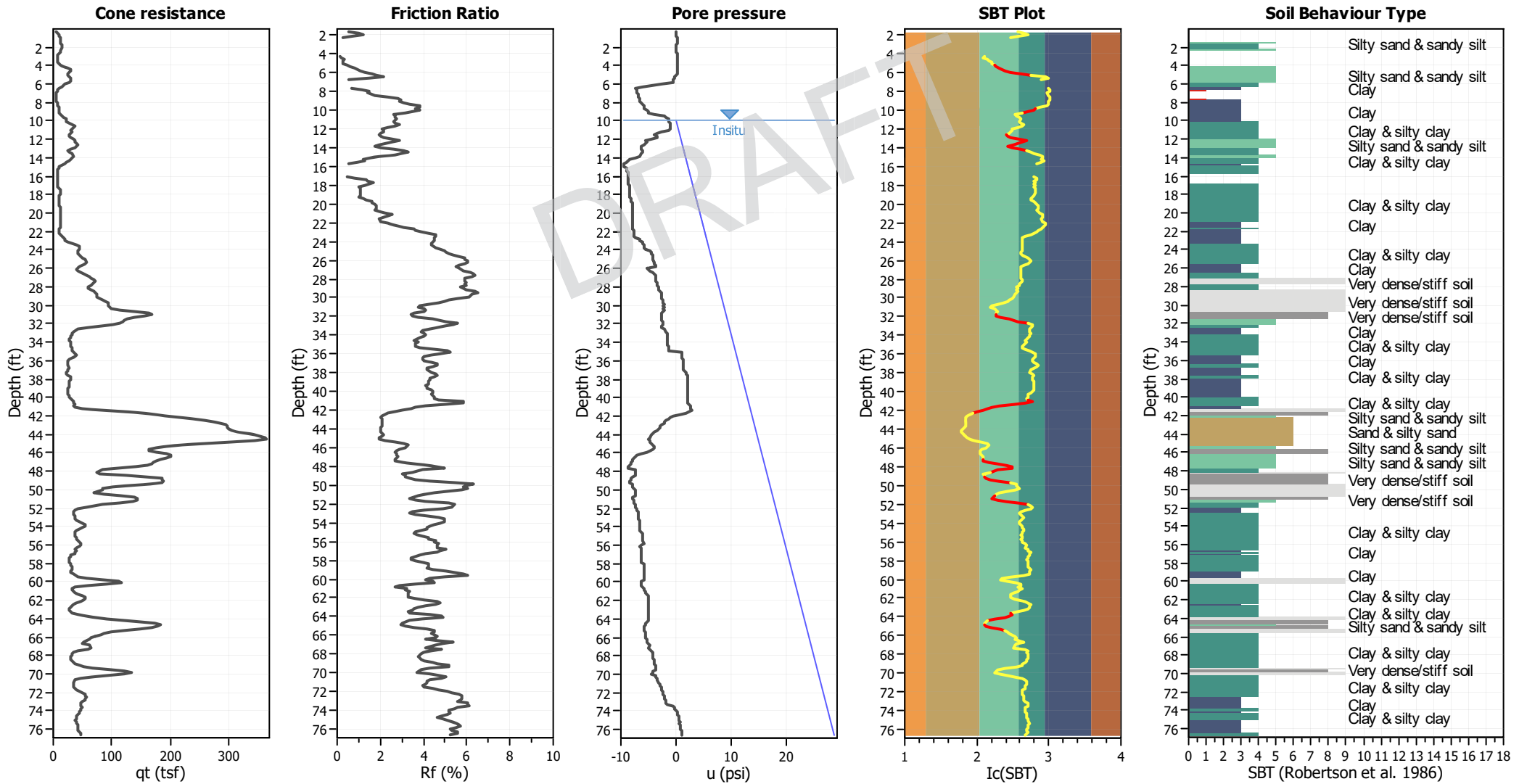
CPT file : CPT-19

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



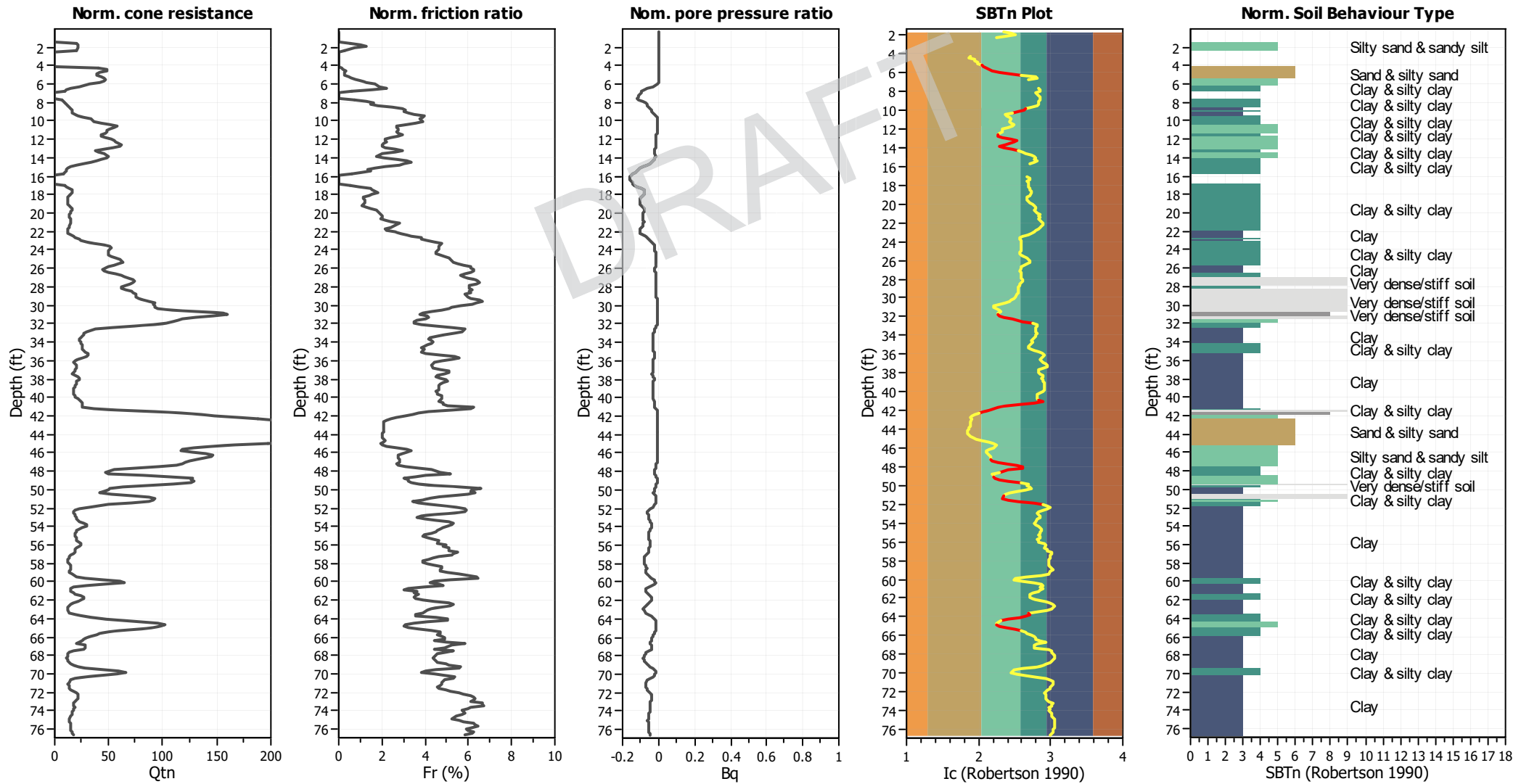
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



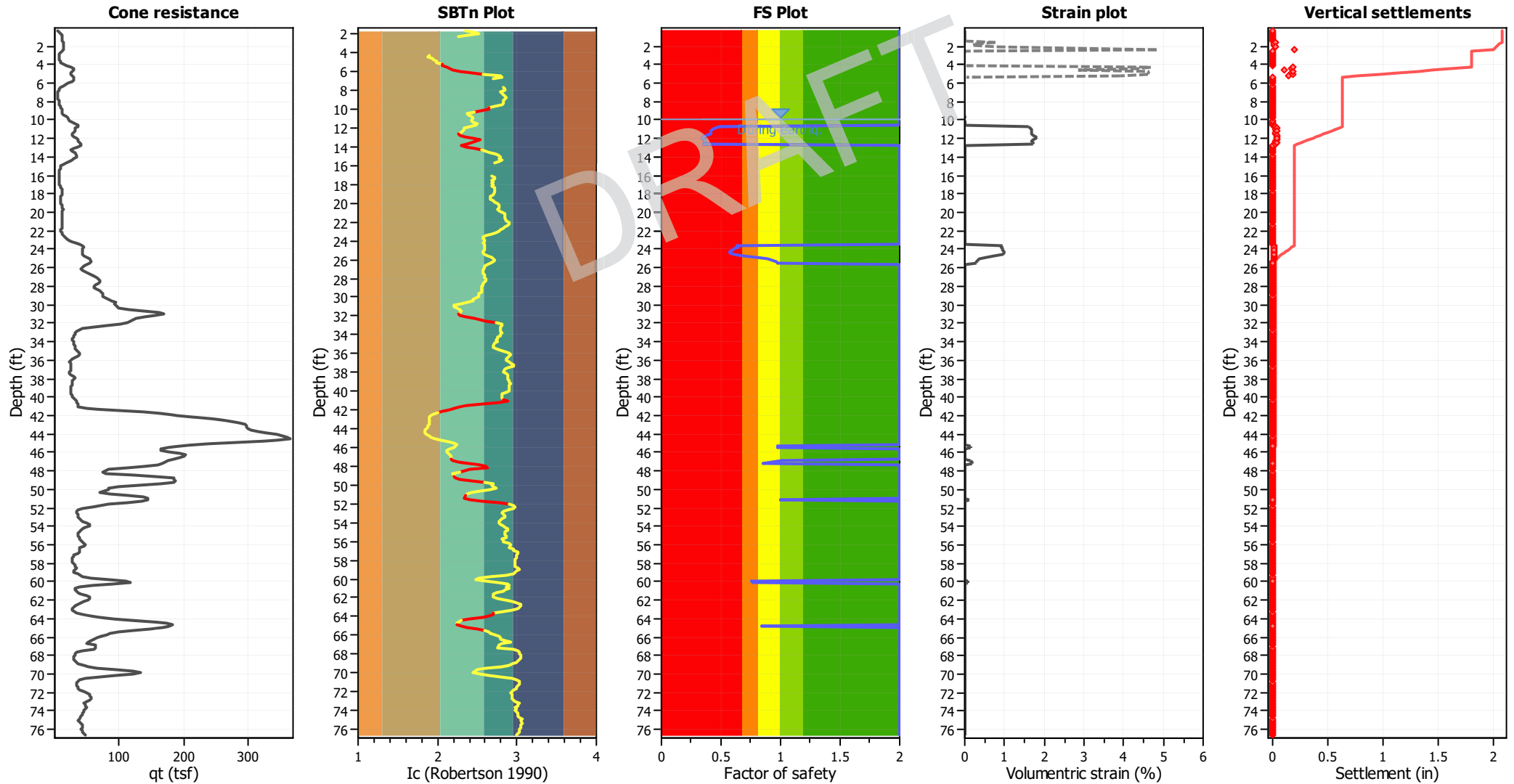
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.49	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.66	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.98	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	2.35	20.50	2.13	43.70	11	226	0.54	0.460	0.99	9.27	0.78	0.030
1.80	2.46	21.67	2.55	55.36	14	272	0.54	0.214	0.33	9.27	0.26	0.010
1.97	2.51	21.44	2.83	60.62	16	289	0.54	0.206	0.28	9.27	0.21	0.009
2.13	2.39	21.75	2.29	49.79	12	253	0.54	0.576	1.04	9.27	0.81	0.031
2.30	2.25	20.34	1.00	20.34	5	198	0.54	4.369	24.88	9.27	4.82	0.197
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.61	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	9.27	0.00	0.000
4.27	1.89	40.72	1.00	40.72	8	250	0.53	6.515	19.18	9.27	4.67	0.191
4.43	1.88	48.15	1.00	48.15	10	290	0.53	2.414	5.85	9.27	4.39	0.169
4.59	1.94	48.08	1.00	48.08	10	313	0.53	1.616	3.82	9.27	2.86	0.110
4.76	1.95	41.70	1.00	41.70	9	277	0.53	4.465	12.42	9.27	4.64	0.189
4.92	1.99	38.84	1.00	38.84	8	272	0.53	6.036	17.95	9.27	4.62	0.178
5.09	1.98	39.47	1.00	39.47	8	273	0.53	6.673	19.55	9.27	4.61	0.188
5.25	2.05	42.99	1.00	42.99	9	324	0.53	2.066	5.29	9.27	3.92	0.151
5.41	2.06	45.92	1.39	63.62	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.58	2.12	47.18	1.49	70.12	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.74	2.20	45.62	1.66	75.69	0	0	0.53	0.000	0.00	9.27	0.00	0.000
5.91	2.28	41.46	1.89	78.34	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.07	2.43	32.40	2.44	79.11	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.23	2.58	23.02	3.21	73.98	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.40	2.79	14.56	4.67	68.06	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.56	2.82	10.58	4.95	52.31	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.73	2.70	9.07	4.00	36.30	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.83	7.24	5.03	36.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.85	8.63	5.27	45.44	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.85	10.06	5.21	52.43	0	0	0.53	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)
8.20	2.79	11.02	4.74	52.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.82	11.71	4.98	58.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.85	13.09	5.24	68.53	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.86	14.58	5.30	77.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.84	15.70	5.17	81.12	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.83	16.12	5.02	80.97	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.84	16.60	5.11	84.83	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.82	18.37	5.00	91.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.81	21.59	4.83	104.24	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.72	27.43	4.16	114.11	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.65	33.00	3.64	120.23	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.45												

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)
10.01	127.25	2.00	0.00	0.85	0.00	10.17	129.57	2.00	0.00	0.84	0.00
10.34	131.79	2.00	0.00	0.84	0.00	10.50	127.75	2.00	0.00	0.84	0.00
10.66	125.81	0.48	1.62	0.84	0.03	10.83	121.90	0.45	1.66	0.83	0.03
10.99	120.00	0.43	1.68	0.83	0.03	11.16	117.40	0.41	1.70	0.83	0.03
11.32	117.76	0.41	1.69	0.83	0.03	11.48	118.74	0.41	1.67	0.82	0.03
11.65	113.55	0.38	1.73	0.82	0.04	11.81	109.81	0.35	1.77	0.82	0.03
11.98	108.46	0.34	1.79	0.82	0.04	12.14	112.67	0.36	1.73	0.81	0.03
12.30	114.50	0.37	1.70	0.81	0.03	12.47	113.68	0.36	1.70	0.81	0.03
12.63	113.09	0.36	1.71	0.81	0.03	12.80	112.88	2.00	0.00	0.80	0.00
12.96	111.09	2.00	0.00	0.80	0.00	13.12	113.73	2.00	0.00	0.80	0.00
13.29	111.68	2.00	0.00	0.80	0.00	13.45	107.06	2.00	0.00	0.79	0.00
13.62	98.69	2.00	0.00	0.79	0.00	13.78	97.41	2.00	0.00	0.79	0.00
13.94	102.88	2.00	0.00	0.79	0.00	14.11	112.41	2.00	0.00	0.78	0.00
14.27	117.32	2.00	0.00	0.78	0.00	14.44	114.60	2.00	0.00	0.78	0.00
14.60	99.83	2.00	0.00	0.78	0.00	14.76	86.12	2.00	0.00	0.77	0.00
14.93	67.27	2.00	0.00	0.77	0.00	15.09	57.44	2.00	0.00	0.77	0.00
15.26	51.40	2.00	0.00	0.77	0.00	15.42	51.65	2.00	0.00	0.76	0.00
15.58	44.62	2.00	0.00	0.76	0.00	15.75	35.75	2.00	0.00	0.76	0.00
15.91	-1.00	2.00	0.00	0.76	0.00	16.08	-1.00	2.00	0.00	0.75	0.00
16.24	-1.00	2.00	0.00	0.75	0.00	16.40	-1.00	2.00	0.00	0.75	0.00
16.57	-1.00	2.00	0.00	0.75	0.00	16.73	-1.00	2.00	0.00	0.74	0.00
16.90	-1.00	2.00	0.00	0.74	0.00	17.06	35.38	2.00	0.00	0.74	0.00
17.23	43.74	2.00	0.00	0.74	0.00	17.39	55.71	2.00	0.00	0.73	0.00
17.55	59.97	2.00	0.00	0.73	0.00	17.72	64.46	2.00	0.00	0.73	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)
17.88	59.88	2.00	0.00	0.73	0.00	18.05	55.07	2.00	0.00	0.72	0.00
18.21	49.46	2.00	0.00	0.72	0.00	18.37	49.64	2.00	0.00	0.72	0.00
18.54	49.62	2.00	0.00	0.72	0.00	18.70	49.62	2.00	0.00	0.71	0.00
18.87	49.57	2.00	0.00	0.71	0.00	19.03	49.35	2.00	0.00	0.71	0.00
19.19	48.93	2.00	0.00	0.71	0.00	19.36	54.11	2.00	0.00	0.70	0.00
19.52	58.66	2.00	0.00	0.70	0.00	19.69	63.21	2.00	0.00	0.70	0.00
19.85	63.40	2.00	0.00	0.70	0.00	20.01	63.79	2.00	0.00	0.69	0.00
20.18	63.92	2.00	0.00	0.69	0.00	20.34	63.90	2.00	0.00	0.69	0.00
20.51	63.78	2.00	0.00	0.69	0.00	20.67	63.43	2.00	0.00	0.68	0.00
20.83	67.57	2.00	0.00	0.68	0.00	21.00	71.47	2.00	0.00	0.68	0.00
21.16	75.46	2.00	0.00	0.68	0.00	21.33	71.64	2.00	0.00	0.67	0.00
21.49	67.76	2.00	0.00	0.67	0.00	21.65	63.57	2.00	0.00	0.67	0.00
21.82	63.66	2.00	0.00	0.67	0.00	21.98	67.89	2.00	0.00	0.66	0.00
22.15	71.57	2.00	0.00	0.66	0.00	22.31	78.20	2.00	0.00	0.66	0.00
22.47	86.90	2.00	0.00	0.66	0.00	22.64	97.46	2.00	0.00	0.65	0.00
22.80	103.77	2.00	0.00	0.65	0.00	22.97	112.30	2.00	0.00	0.65	0.00
23.13	125.65	2.00	0.00	0.65	0.00	23.30	143.55	2.00	0.00	0.64	0.00
23.46	157.96	2.00	0.00	0.64	0.00	23.62	164.83	0.63	0.94	0.64	0.02
23.79	165.72	0.64	0.93	0.64	0.02	23.95	162.70	0.61	0.95	0.63	0.02
24.12	160.79	0.59	0.96	0.63	0.02	24.28	158.78	0.57	0.98	0.63	0.02
24.44	158.50	0.57	0.98	0.63	0.02	24.61	162.64	0.61	0.94	0.62	0.02
24.77	170.54	0.69	0.72	0.62	0.01	24.94	180.37	0.79	0.53	0.62	0.01
25.10	189.13	0.90	0.38	0.62	0.01	25.26	194.69	0.97	0.29	0.61	0.01
25.43	195.61	0.98	0.29	0.61	0.01	25.59	193.16	2.00	0.00	0.61	0.00
25.76	189.82	2.00	0.00	0.61	0.00	25.92	186.07	2.00	0.00	0.60	0.00
26.08	182.63	2.00	0.00	0.60	0.00	26.25	185.53	2.00	0.00	0.60	0.00
26.41	191.15	2.00	0.00	0.60	0.00	26.58	196.76	2.00	0.00	0.59	0.00
26.74	200.39	2.00	0.00	0.59	0.00	26.90	208.51	2.00	0.00	0.59	0.00
27.07	219.56	2.00	0.00	0.59	0.00	27.23	232.74	2.00	0.00	0.58	0.00
27.40	239.14	2.00	0.00	0.58	0.00	27.56	238.96	2.00	0.00	0.58	0.00
27.72	231.48	2.00	0.00	0.58	0.00	27.89	217.34	2.00	0.00	0.57	0.00
28.05	210.23	2.00	0.00	0.57	0.00	28.22	209.70	2.00	0.00	0.57	0.00
28.38	219.80	2.00	0.00	0.57	0.00	28.54	225.15	2.00	0.00	0.56	0.00
28.71	230.14	2.00	0.00	0.56	0.00	28.87	227.38	2.00	0.00	0.56	0.00
29.04	230.04	2.00	0.00	0.56	0.00	29.20	236.91	2.00	0.00	0.55	0.00
29.36	253.26	2.00	0.00	0.55	0.00	29.53	264.65	2.00	0.00	0.55	0.00
29.69	266.59	2.00	0.00	0.55	0.00	29.86	259.50	2.00	0.00	0.54	0.00
30.02	246.49	2.00	0.00	0.54	0.00	30.19	236.58	2.00	0.00	0.54	0.00
30.35	234.45	2.00	0.00	0.54	0.00	30.51	243.34	2.00	0.00	0.53	0.00
30.68	252.56	2.00	0.00	0.53	0.00	30.84	264.23	2.00	0.00	0.53	0.00
31.01	265.83	2.00	0.00	0.53	0.00	31.17	262.75	2.00	0.00	0.52	0.00
31.33	247.61	2.00	0.00	0.52	0.00	31.50	230.88	2.00	0.00	0.52	0.00
31.66	211.97	2.00	0.00	0.52	0.00	31.83	202.41	2.00	0.00	0.51	0.00
31.99	198.20	2.00	0.00	0.51	0.00	32.15	195.43	2.00	0.00	0.51	0.00
32.32	191.27	2.00	0.00	0.51	0.00	32.48	179.82	2.00	0.00	0.50	0.00
32.65	163.18	2.00	0.00	0.50	0.00	32.81	144.87	2.00	0.00	0.50	0.00
32.97	134.04	2.00	0.00	0.50	0.00	33.14	126.63	2.00	0.00	0.49	0.00
33.30	120.45	2.00	0.00	0.49	0.00	33.47	112.55	2.00	0.00	0.49	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)
33.63	109.43	2.00	0.00	0.49	0.00	33.79	110.97	2.00	0.00	0.48	0.00
33.96	113.73	2.00	0.00	0.48	0.00	34.12	114.83	2.00	0.00	0.48	0.00
34.29	112.73	2.00	0.00	0.48	0.00	34.45	110.84	2.00	0.00	0.47	0.00
34.61	108.91	2.00	0.00	0.47	0.00	34.78	111.88	2.00	0.00	0.47	0.00
34.94	112.75	2.00	0.00	0.47	0.00	35.11	114.97	2.00	0.00	0.46	0.00
35.27	121.68	2.00	0.00	0.46	0.00	35.43	133.98	2.00	0.00	0.46	0.00
35.60	139.86	2.00	0.00	0.46	0.00	35.76	134.18	2.00	0.00	0.45	0.00
35.93	118.18	2.00	0.00	0.45	0.00	36.09	106.06	2.00	0.00	0.45	0.00
36.26	100.97	2.00	0.00	0.45	0.00	36.42	102.29	2.00	0.00	0.44	0.00
36.58	103.55	2.00	0.00	0.44	0.00	36.75	104.99	2.00	0.00	0.44	0.00
36.91	108.12	2.00	0.00	0.44	0.00	37.08	109.64	2.00	0.00	0.43	0.00
37.24	106.49	2.00	0.00	0.43	0.00	37.40	103.19	2.00	0.00	0.43	0.00
37.57	104.32	2.00	0.00	0.43	0.00	37.73	111.17	2.00	0.00	0.42	0.00
37.90	116.52	2.00	0.00	0.42	0.00	38.06	117.96	2.00	0.00	0.42	0.00
38.22	115.24	2.00	0.00	0.42	0.00	38.39	112.22	2.00	0.00	0.41	0.00
38.55	109.13	2.00	0.00	0.41	0.00	38.72	107.53	2.00	0.00	0.41	0.00
38.88	105.95	2.00	0.00	0.41	0.00	39.04	104.36	2.00	0.00	0.40	0.00
39.21	102.72	2.00	0.00	0.40	0.00	39.37	100.98	2.00	0.00	0.40	0.00
39.54	102.34	2.00	0.00	0.40	0.00	39.70	103.67	2.00	0.00	0.39	0.00
39.86	106.46	2.00	0.00	0.39	0.00	40.03	109.05	2.00	0.00	0.39	0.00
40.19	114.11	2.00	0.00	0.39	0.00	40.36	117.48	2.00	0.00	0.38	0.00
40.52	122.29	2.00	0.00	0.38	0.00	40.68	123.23	2.00	0.00	0.38	0.00
40.85	125.70	2.00	0.00	0.38	0.00	41.01	141.05	2.00	0.00	0.37	0.00
41.18	164.83	2.00	0.00	0.37	0.00	41.34	186.50	2.00	0.00	0.37	0.00
41.50	205.10	2.00	0.00	0.37	0.00	41.67	218.43	2.00	0.00	0.36	0.00
41.83	228.95	2.00	0.00	0.36	0.00	42.00	228.25	2.00	0.00	0.36	0.00
42.16	235.21	2.00	0.00	0.36	0.00	42.32	243.24	2.00	0.00	0.35	0.00
42.49	252.66	2.00	0.00	0.35	0.00	42.65	259.97	2.00	0.00	0.35	0.00
42.82	268.50	2.00	0.00	0.35	0.00	42.98	275.11	2.00	0.00	0.34	0.00
43.15	277.50	2.00	0.00	0.34	0.00	43.31	277.31	2.00	0.00	0.34	0.00
43.47	277.37	2.00	0.00	0.34	0.00	43.64	280.15	2.00	0.00	0.33	0.00
43.80	286.61	2.00	0.00	0.33	0.00	43.97	296.19	2.00	0.00	0.33	0.00
44.13	307.48	2.00	0.00	0.33	0.00	44.29	320.00	2.00	0.00	0.32	0.00
44.46	324.11	2.00	0.00	0.32	0.00	44.62	309.47	2.00	0.00	0.32	0.00
44.79	277.17	2.00	0.00	0.32	0.00	44.95	238.49	2.00	0.00	0.31	0.00
45.11	209.82	2.00	0.00	0.31	0.00	45.28	196.71	0.97	0.15	0.31	0.00
45.44	196.78	0.98	0.14	0.31	0.00	45.61	202.00	2.00	0.00	0.30	0.00
45.77	207.21	2.00	0.00	0.30	0.00	45.93	211.47	2.00	0.00	0.30	0.00
46.10	215.98	2.00	0.00	0.30	0.00	46.26	216.97	2.00	0.00	0.29	0.00
46.43	213.75	2.00	0.00	0.29	0.00	46.59	209.28	2.00	0.00	0.29	0.00
46.75	203.60	2.00	0.00	0.29	0.00	46.92	198.59	1.01	0.13	0.28	0.00
47.08	192.12	0.92	0.17	0.28	0.00	47.25	186.92	0.86	0.17	0.28	0.00
47.41	182.58	2.00	0.00	0.28	0.00	47.57	178.51	2.00	0.00	0.27	0.00
47.74	171.58	2.00	0.00	0.27	0.00	47.90	162.03	2.00	0.00	0.27	0.00
48.07	160.11	2.00	0.00	0.27	0.00	48.23	172.73	2.00	0.00	0.26	0.00
48.39	188.78	2.00	0.00	0.26	0.00	48.56	200.69	2.00	0.00	0.26	0.00
48.72	207.83	2.00	0.00	0.26	0.00	48.89	211.30	2.00	0.00	0.25	0.00
49.05	213.69	2.00	0.00	0.25	0.00	49.22	216.89	2.00	0.00	0.25	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)
49.38	211.03	2.00	0.00	0.25	0.00	49.54	203.72	2.00	0.00	0.24	0.00
49.71	201.92	2.00	0.00	0.24	0.00	49.87	202.02	2.00	0.00	0.24	0.00
50.04	193.16	2.00	0.00	0.24	0.00	50.20	182.71	2.00	0.00	0.23	0.00
50.36	177.96	2.00	0.00	0.23	0.00	50.53	191.84	2.00	0.00	0.23	0.00
50.69	204.66	2.00	0.00	0.23	0.00	50.86	210.88	2.00	0.00	0.22	0.00
51.02	205.23	2.00	0.00	0.22	0.00	51.18	195.90	1.00	0.10	0.22	0.00
51.35	178.21	2.00	0.00	0.22	0.00	51.51	168.20	2.00	0.00	0.21	0.00
51.68	154.47	2.00	0.00	0.21	0.00	51.84	147.17	2.00	0.00	0.21	0.00
52.00	130.30	2.00	0.00	0.21	0.00	52.17	119.63	2.00	0.00	0.20	0.00
52.33	114.59	2.00	0.00	0.20	0.00	52.50	110.20	2.00	0.00	0.20	0.00
52.66	103.67	2.00	0.00	0.20	0.00	52.82	97.75	2.00	0.00	0.19	0.00
52.99	96.39	2.00	0.00	0.19	0.00	53.15	100.96	2.00	0.00	0.19	0.00
53.32	109.52	2.00	0.00	0.19	0.00	53.48	122.22	2.00	0.00	0.18	0.00
53.64	133.66	2.00	0.00	0.18	0.00	53.81	138.38	2.00	0.00	0.18	0.00
53.97	134.74	2.00	0.00	0.18	0.00	54.14	124.12	2.00	0.00	0.17	0.00
54.30	115.63	2.00	0.00	0.17	0.00	54.46	109.58	2.00	0.00	0.17	0.00
54.63	106.37	2.00	0.00	0.17	0.00	54.79	100.90	2.00	0.00	0.16	0.00
54.96	97.42	2.00	0.00	0.16	0.00	55.12	97.30	2.00	0.00	0.16	0.00
55.28	101.58	2.00	0.00	0.16	0.00	55.45	104.68	2.00	0.00	0.15	0.00
55.61	110.67	2.00	0.00	0.15	0.00	55.78	116.20	2.00	0.00	0.15	0.00
55.94	121.70	2.00	0.00	0.15	0.00	56.11	118.80	2.00	0.00	0.14	0.00
56.27	113.02	2.00	0.00	0.14	0.00	56.43	109.89	2.00	0.00	0.14	0.00
56.60	112.74	2.00	0.00	0.14	0.00	56.76	114.33	2.00	0.00	0.13	0.00
56.93	108.45	2.00	0.00	0.13	0.00	57.09	99.21	2.00	0.00	0.13	0.00
57.25	91.28	2.00	0.00	0.13	0.00	57.42	87.62	2.00	0.00	0.12	0.00
57.58	85.08	2.00	0.00	0.12	0.00	57.75	82.46	2.00	0.00	0.12	0.00
57.91	82.37	2.00	0.00	0.12	0.00	58.07	86.02	2.00	0.00	0.11	0.00
58.24	91.78	2.00	0.00	0.11	0.00	58.40	97.19	2.00	0.00	0.11	0.00
58.57	98.12	2.00	0.00	0.11	0.00	58.73	95.92	2.00	0.00	0.10	0.00
58.89	92.55	2.00	0.00	0.10	0.00	59.06	95.75	2.00	0.00	0.10	0.00
59.22	108.78	2.00	0.00	0.10	0.00	59.39	127.95	2.00	0.00	0.09	0.00
59.55	148.91	2.00	0.00	0.09	0.00	59.71	163.31	2.00	0.00	0.09	0.00
59.88	172.21	0.76	0.08	0.09	0.00	60.04	172.84	0.77	0.08	0.08	0.00
60.21	158.49	2.00	0.00	0.08	0.00	60.37	130.89	2.00	0.00	0.08	0.00
60.53	95.85	2.00	0.00	0.08	0.00	60.70	79.69	2.00	0.00	0.07	0.00
60.86	78.39	2.00	0.00	0.07	0.00	61.03	85.57	2.00	0.00	0.07	0.00
61.19	88.98	2.00	0.00	0.07	0.00	61.35	95.35	2.00	0.00	0.06	0.00
61.52	101.97	2.00	0.00	0.06	0.00	61.68	106.34	2.00	0.00	0.06	0.00
61.85	107.15	2.00	0.00	0.06	0.00	62.01	108.32	2.00	0.00	0.05	0.00
62.17	109.38	2.00	0.00	0.05	0.00	62.34	109.00	2.00	0.00	0.05	0.00
62.50	103.41	2.00	0.00	0.05	0.00	62.67	95.41	2.00	0.00	0.04	0.00
62.83	87.86	2.00	0.00	0.04	0.00	63.00	83.23	2.00	0.00	0.04	0.00
63.16	81.99	2.00	0.00	0.04	0.00	63.32	86.43	2.00	0.00	0.03	0.00
63.49	94.08	2.00	0.00	0.03	0.00	63.65	108.66	2.00	0.00	0.03	0.00
63.82	134.33	2.00	0.00	0.03	0.00	63.98	161.71	2.00	0.00	0.02	0.00
64.14	183.54	2.00	0.00	0.02	0.00	64.31	188.27	2.00	0.00	0.02	0.00
64.47	187.39	2.00	0.00	0.02	0.00	64.64	181.96	2.00	0.00	0.01	0.00
64.80	177.37	0.84	0.01	0.01	0.00	64.96	175.99	2.00	0.00	0.01	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)
65.13	175.15	2.00	0.00	0.01	0.00	65.29	171.26	2.00	0.00	0.00	0.00
65.46	162.41	2.00	0.00	0.00	0.00	65.62	151.31	2.00	0.00	0.00	0.00
65.78	143.31	2.00	0.00	0.00	0.00	65.95	137.39	2.00	0.00	0.00	0.00
66.11	132.48	2.00	0.00	0.00	0.00	66.28	127.99	2.00	0.00	0.00	0.00
66.44	117.03	2.00	0.00	0.00	0.00	66.60	119.32	2.00	0.00	0.00	0.00
66.77	124.22	2.00	0.00	0.00	0.00	66.93	133.29	2.00	0.00	0.00	0.00
67.10	130.90	2.00	0.00	0.00	0.00	67.26	120.25	2.00	0.00	0.00	0.00
67.42	108.50	2.00	0.00	0.00	0.00	67.59	95.13	2.00	0.00	0.00	0.00
67.75	89.15	2.00	0.00	0.00	0.00	67.92	85.96	2.00	0.00	0.00	0.00
68.08	83.74	2.00	0.00	0.00	0.00	68.24	82.59	2.00	0.00	0.00	0.00
68.41	83.59	2.00	0.00	0.00	0.00	68.57	85.65	2.00	0.00	0.00	0.00
68.74	89.65	2.00	0.00	0.00	0.00	68.90	98.08	2.00	0.00	0.00	0.00
69.07	108.28	2.00	0.00	0.00	0.00	69.23	124.68	2.00	0.00	0.00	0.00
69.39	139.47	2.00	0.00	0.00	0.00	69.56	151.09	2.00	0.00	0.00	0.00
69.72	161.34	2.00	0.00	0.00	0.00	69.89	164.38	2.00	0.00	0.00	0.00
70.05	168.18	2.00	0.00	0.00	0.00	70.21	156.77	2.00	0.00	0.00	0.00
70.38	139.80	2.00	0.00	0.00	0.00	70.54	113.55	2.00	0.00	0.00	0.00
70.71	96.91	2.00	0.00	0.00	0.00	70.87	91.32	2.00	0.00	0.00	0.00
71.03	90.27	2.00	0.00	0.00	0.00	71.20	90.20	2.00	0.00	0.00	0.00
71.36	90.12	2.00	0.00	0.00	0.00	71.53	91.91	2.00	0.00	0.00	0.00
71.69	98.98	2.00	0.00	0.00	0.00	71.85	107.86	2.00	0.00	0.00	0.00
72.02	118.53	2.00	0.00	0.00	0.00	72.18	125.00	2.00	0.00	0.00	0.00
72.35	129.50	2.00	0.00	0.00	0.00	72.51	131.33	2.00	0.00	0.00	0.00
72.67	131.14	2.00	0.00	0.00	0.00	72.84	128.18	2.00	0.00	0.00	0.00
73.00	122.68	2.00	0.00	0.00	0.00	73.17	122.00	2.00	0.00	0.00	0.00
73.33	122.57	2.00	0.00	0.00	0.00	73.49	123.84	2.00	0.00	0.00	0.00
73.66	120.11	2.00	0.00	0.00	0.00	73.82	116.46	2.00	0.00	0.00	0.00
73.99	112.63	2.00	0.00	0.00	0.00	74.15	111.08	2.00	0.00	0.00	0.00
74.31	110.24	2.00	0.00	0.00	0.00	74.48	107.83	2.00	0.00	0.00	0.00
74.64	103.02	2.00	0.00	0.00	0.00	74.81	98.00	2.00	0.00	0.00	0.00
74.97	98.70	2.00	0.00	0.00	0.00	75.13	102.69	2.00	0.00	0.00	0.00
75.30	108.80	2.00	0.00	0.00	0.00	75.46	112.44	2.00	0.00	0.00	0.00
75.63	113.05	2.00	0.00	0.00	0.00	75.79	110.01	2.00	0.00	0.00	0.00
75.96	106.90	2.00	0.00	0.00	0.00	76.12	109.06	2.00	0.00	0.00	0.00
76.28	112.63	2.00	0.00	0.00	0.00	76.45	114.67	2.00	0.00	0.00	0.00
76.61	113.09	2.00	0.00	0.00	0.00						

Total estimated settlement: 0.63

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

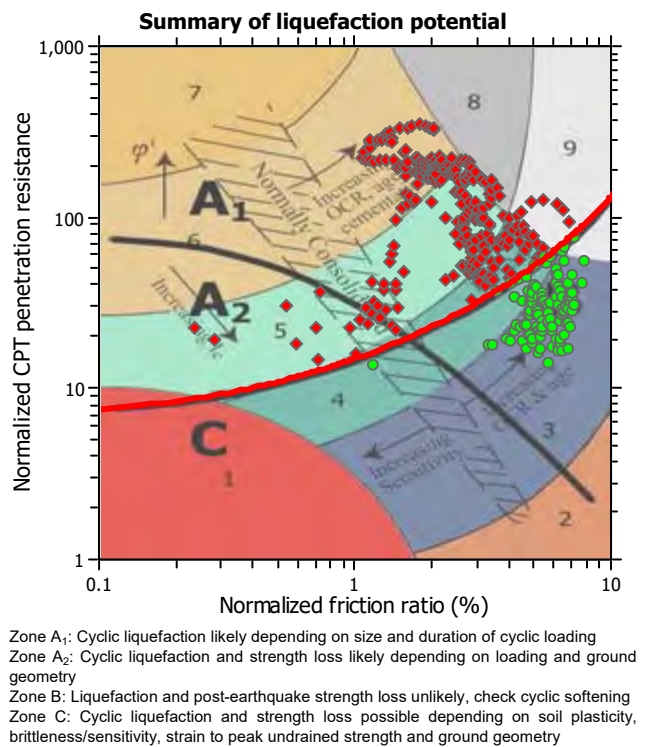
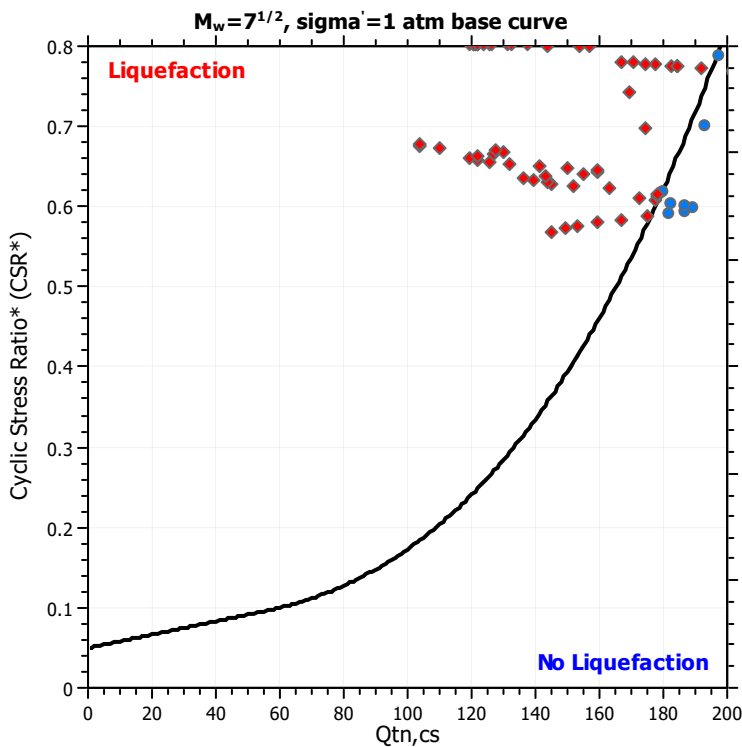
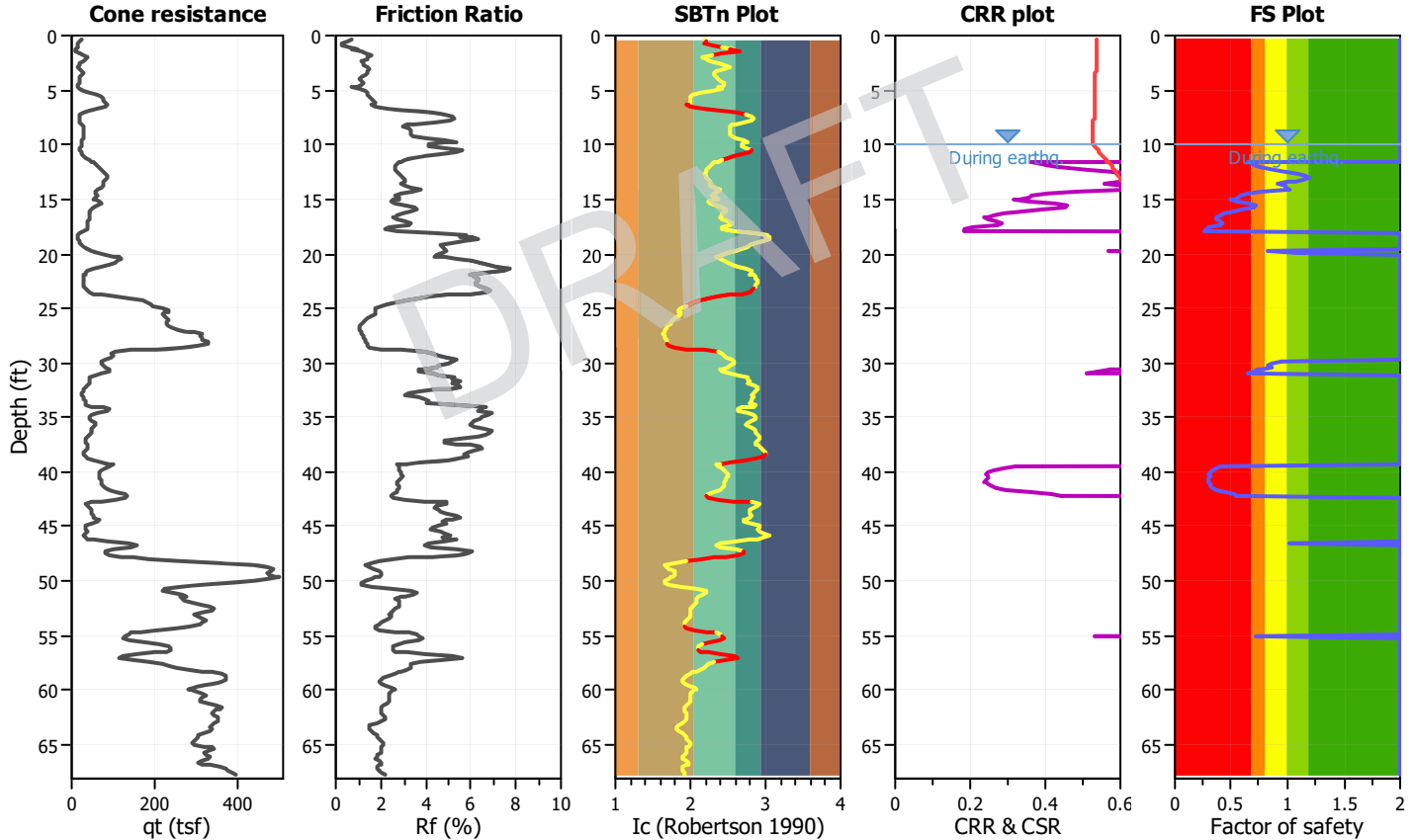
Project title : 210256003 - Compton HS

Location : Compton, CA

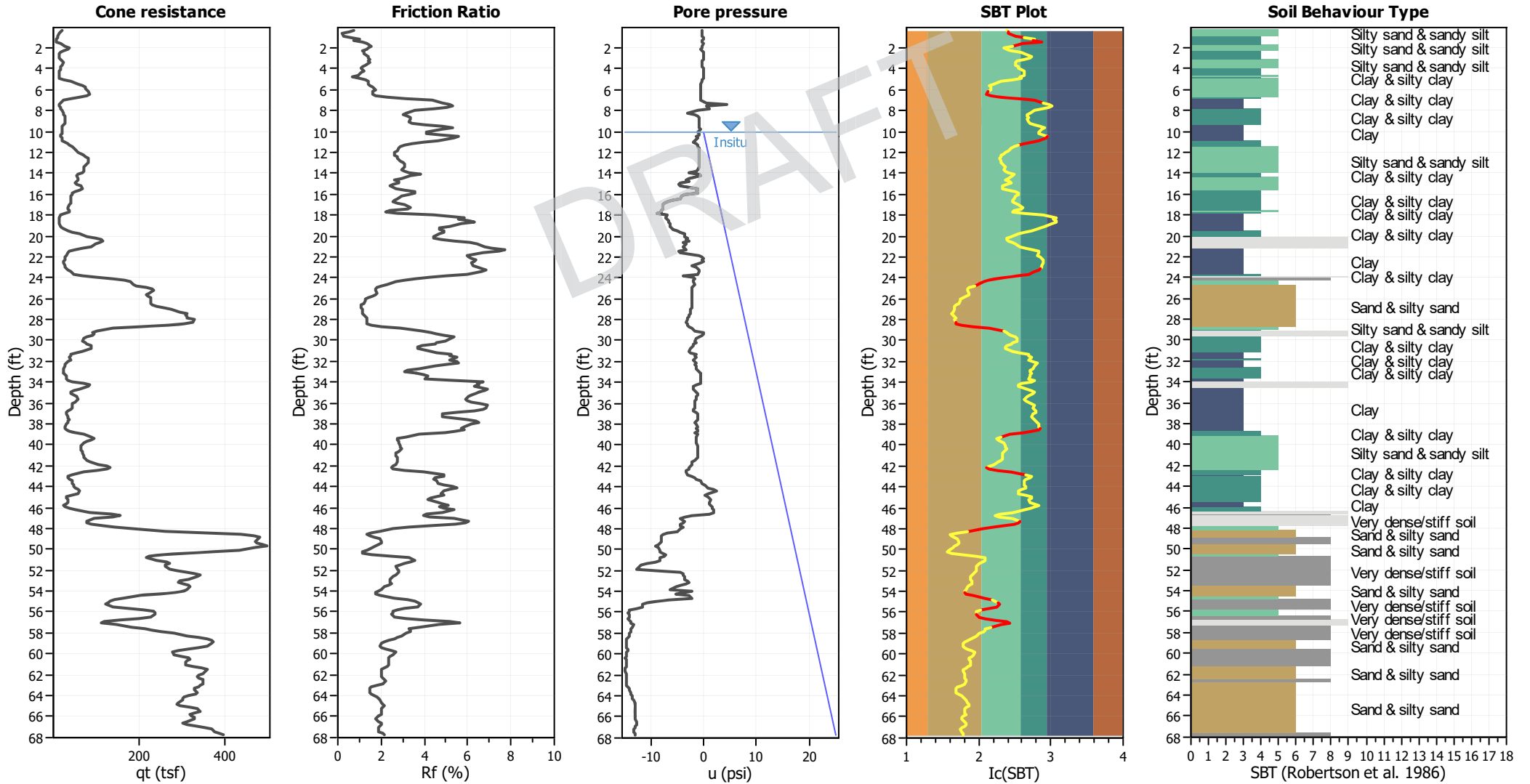
CPT file : CPT-20

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



CPT basic interpretation plots



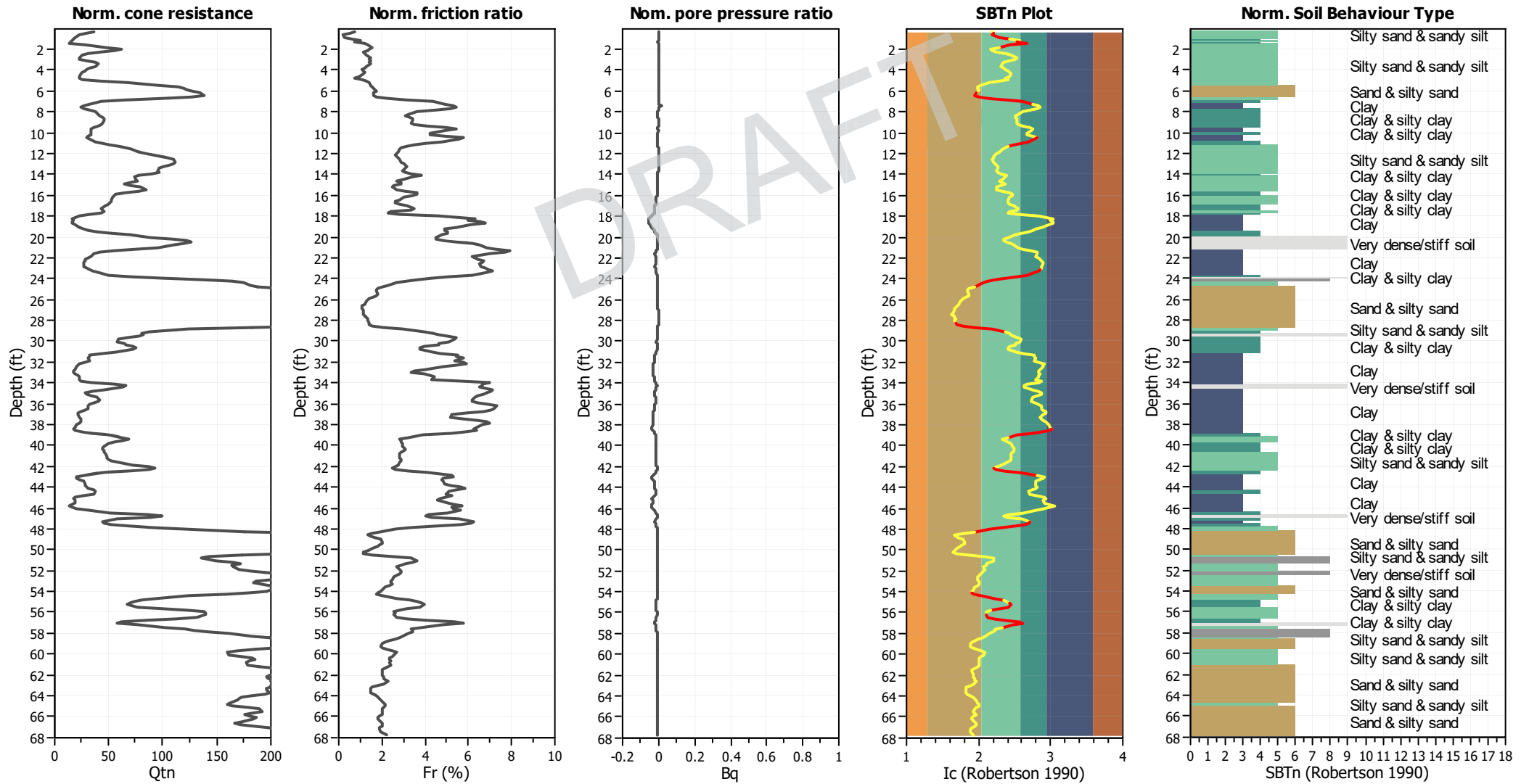
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_v applied:	Yes
Earthquake magnitude M_w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



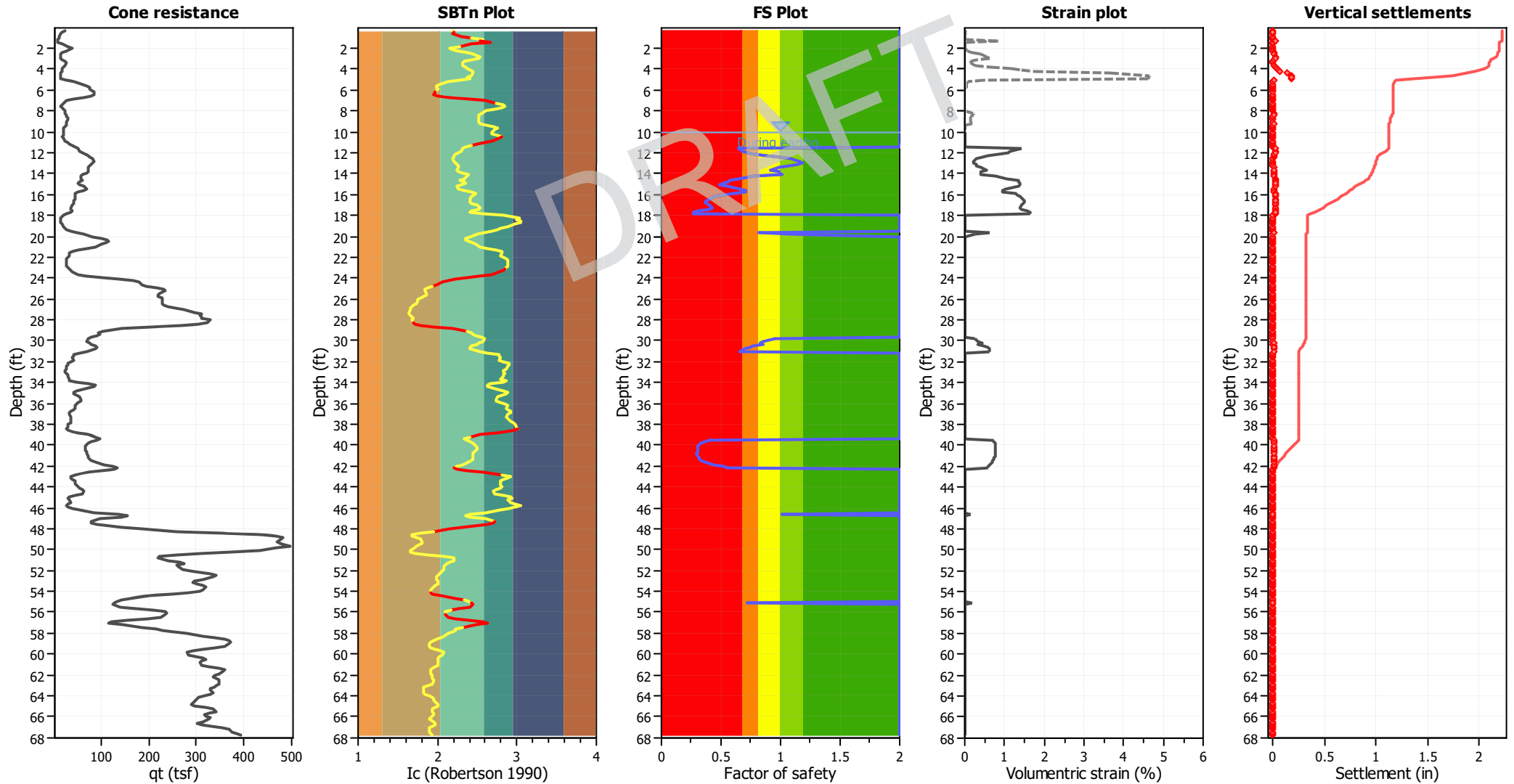
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.19	36.55	1.65	60.40	14	330	0.54	0.005	0.01	9.27	0.01	0.000
0.49	2.21	30.05	1.68	50.55	11	275	0.54	0.015	0.03	9.27	0.02	0.001
0.66	2.19	22.81	1.00	22.81	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.82	2.29	19.05	1.00	19.05	0	0	0.54	0.000	0.00	9.27	0.00	0.000
0.98	2.43	18.08	2.42	43.72	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.15	2.58	15.97	3.18	50.77	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.31	2.54	14.83	2.97	44.12	12	207	0.54	0.557	1.07	9.27	0.85	0.032
1.48	2.67	13.64	3.77	51.44	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.64	2.42	28.46	2.40	68.23	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.80	2.28	47.94	1.89	90.53	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.97	2.16	61.90	1.58	97.57	0	0	0.54	0.000	0.00	9.27	0.00	0.000
2.13	2.20	54.92	1.66	91.25	21	497	0.54	0.035	0.03	9.27	0.03	0.001
2.30	2.25	41.52	1.81	75.11	17	404	0.54	0.086	0.10	9.27	0.08	0.003
2.46	2.37	30.69	2.21	67.91	17	348	0.54	0.201	0.25	9.27	0.20	0.008
2.62	2.44	25.75	2.50	64.39	16	319	0.54	0.386	0.50	9.27	0.39	0.015
2.79	2.53	22.21	2.94	65.28	17	307	0.53	0.574	0.69	9.27	0.53	0.022
2.95	2.51	22.94	2.84	65.07	17	310	0.53	0.650	0.80	9.27	0.61	0.024
3.12	2.44	29.30	2.46	72.15	18	359	0.53	0.331	0.37	9.27	0.29	0.012
3.28	2.34	37.37	2.10	78.41	19	407	0.53	0.198	0.21	9.27	0.16	0.006
3.45	2.32	40.51	2.01	81.55	19	428	0.53	0.179	0.19	9.27	0.14	0.006
3.61	2.32	37.34	2.01	74.97	18	394	0.53	0.306	0.35	9.27	0.27	0.010
3.77	2.35	31.81	2.13	67.82	16	351	0.53	0.663	0.85	9.27	0.64	0.025
3.94	2.37	29.33	2.18	63.89	15	329	0.53	1.146	1.56	9.27	1.18	0.048
4.10	2.40	27.61	2.32	64.08	16	324	0.53	1.438	1.91	9.27	1.44	0.055
4.27	2.44	25.99	2.48	64.35	16	319	0.53	1.818	2.36	9.27	1.77	0.072
4.43	2.44	24.05	2.50	60.03	15	297	0.53	3.459	4.86	9.27	3.65	0.140
4.59	2.43	22.48	2.46	55.23	14	275	0.53	7.276	11.36	9.27	4.65	0.179
4.76	2.37	22.79	2.18	49.74	12	256	0.53	15.275	28.04	9.27	4.64	0.189
4.92	2.41	25.45	2.35	59.81	15	301	0.53	4.501	6.47	9.27	4.62	0.178
5.09	2.29	41.13	1.90	78.33	18	417	0.53	0.586	0.65	9.27	0.48	0.020
5.25	2.14	67.62	1.53	103.51	23	569	0.53	0.141	0.12	9.27	0.09	0.003
5.41	2.03	96.14	1.34	128.85	27	704	0.53	0.070	0.05	9.27	0.04	0.001
5.58	1.99	113.42	1.29	146.02	30	790	0.53	0.053	0.03	9.27	0.02	0.001
5.74	1.99	119.51	1.29	154.50	32	837	0.53	0.048	0.03	9.27	0.02	0.001
5.91	2.00	122.65	1.30	160.01	33	869	0.53	0.046	0.02	9.27	0.02	0.001
6.07	2.00	127.35	1.30	164.93	34	894	0.53	0.045	0.02	9.27	0.02	0.001
6.23	1.97	133.98	1.26	168.40	35	904	0.53	0.045	0.02	9.27	0.02	0.001
6.40	1.95	137.92	1.24	170.59	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.56	2.00	126.44	1.30	164.48	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.73	2.16	99.28	1.57	155.58	0	0	0.53	0.000	0.00	9.27	0.00	0.000
6.89	2.38	66.22	2.24	148.35	0	0	0.53	0.000	0.00	9.27	0.00	0.000
7.05	2.62	42.65	3.44	146.80	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.74	31.69	4.32	137.01	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.82	26.33	5.00	131.53	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.85	24.66	5.25	129.51	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.81	26.87	4.89	131.30	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.72	32.03	4.11	131.62	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.60	37.02	3.35	123.95	0	0	0.53	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)
8.20	2.55	39.72	3.02	120.13	32	561	0.53	0.508	0.29	9.27	0.21	0.008
8.37	2.52	41.74	2.86	119.38	31	567	0.53	0.508	0.30	9.27	0.21	0.009
8.53	2.52	44.09	2.87	126.41	33	600	0.53	0.403	0.22	9.27	0.16	0.006
8.69	2.52	45.32	2.89	131.04	34	620	0.53	0.361	0.19	9.27	0.13	0.005
8.86	2.52	45.57	2.87	130.95	34	621	0.53	0.378	0.20	9.27	0.14	0.006
9.02	2.52	44.65	2.88	128.76	34	610	0.53	0.433	0.23	9.27	0.16	0.006
9.19	2.54	43.08	3.00	129.35	34	605	0.53	0.475	0.25	9.27	0.17	0.007
9.35	2.61	40.38	3.42	138.05	0	0	0.53	0.000	0.00	9.27	0.00	0.000
9.51	2.70	36.67	4.01	147.16	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.76	33.44	4.45	148.67	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.73	33.59	4.20	141.21	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 1.10												

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)
10.01	130.59	2.00	0.00	0.85	0.00	10.17	130.60	2.00	0.00	0.84	0.00
10.34	137.09	2.00	0.00	0.84	0.00	10.50	145.43	2.00	0.00	0.84	0.00
10.66	146.95	2.00	0.00	0.84	0.00	10.83	144.58	2.00	0.00	0.83	0.00
10.99	141.97	2.00	0.00	0.83	0.00	11.16	139.45	2.00	0.00	0.83	0.00
11.32	139.95	2.00	0.00	0.83	0.00	11.48	141.32	2.00	0.00	0.82	0.00
11.65	145.27	0.64	1.41	0.82	0.03	11.81	149.30	0.68	1.14	0.82	0.02
11.98	153.39	0.72	1.09	0.82	0.02	12.14	159.27	0.79	0.84	0.81	0.02
12.30	166.65	0.87	0.60	0.81	0.01	12.47	175.22	0.99	0.42	0.81	0.01
12.63	182.04	1.09	0.30	0.81	0.01	12.80	187.06	1.16	0.21	0.80	0.00
12.96	189.13	1.19	0.21	0.80	0.00	13.12	187.14	1.15	0.29	0.80	0.01
13.29	182.43	1.07	0.30	0.80	0.01	13.45	177.70	0.99	0.41	0.79	0.01
13.62	172.77	0.92	0.55	0.79	0.01	13.78	178.03	0.99	0.41	0.79	0.01
13.94	178.14	0.98	0.41	0.79	0.01	14.11	180.27	1.01	0.40	0.78	0.01
14.27	163.11	0.78	0.78	0.78	0.01	14.44	152.17	0.65	1.06	0.78	0.02
14.60	144.89	0.58	1.34	0.78	0.03	14.76	143.75	0.56	1.34	0.77	0.03
14.93	139.10	0.52	1.38	0.77	0.03	15.09	136.01	0.49	1.40	0.77	0.03
15.26	143.12	0.55	1.34	0.77	0.03	15.42	154.73	0.66	1.01	0.76	0.02
15.58	159.56	0.71	0.97	0.76	0.02	15.75	159.08	0.70	0.97	0.76	0.02
15.91	149.81	0.61	1.28	0.76	0.02	16.08	141.15	0.52	1.33	0.75	0.03
16.24	131.60	0.45	1.40	0.75	0.03	16.40	125.68	0.40	1.45	0.75	0.03
16.57	121.58	0.38	1.49	0.75	0.03	16.73	119.58	0.36	1.50	0.74	0.03
16.90	121.85	0.37	1.48	0.74	0.03	17.06	126.72	0.40	1.42	0.74	0.03
17.23	129.74	0.42	1.39	0.74	0.03	17.39	127.21	0.41	1.41	0.73	0.03
17.55	109.77	0.30	1.59	0.73	0.03	17.72	103.77	0.27	1.65	0.73	0.03

:: 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)
17.88	103.46	0.27	1.65	0.73	0.03	18.05	115.94	2.00	0.00	0.72	0.00
18.21	115.76	2.00	0.00	0.72	0.00	18.37	115.43	2.00	0.00	0.72	0.00
18.54	117.32	2.00	0.00	0.72	0.00	18.70	121.23	2.00	0.00	0.71	0.00
18.87	122.78	2.00	0.00	0.71	0.00	19.03	125.20	2.00	0.00	0.71	0.00
19.19	127.02	2.00	0.00	0.71	0.00	19.36	136.04	2.00	0.00	0.70	0.00
19.52	152.80	2.00	0.00	0.70	0.00	19.69	174.13	0.82	0.63	0.70	0.01
19.85	192.93	1.07	0.25	0.70	0.00	20.01	211.08	2.00	0.00	0.69	0.00
20.18	233.32	2.00	0.00	0.69	0.00	20.34	261.46	2.00	0.00	0.69	0.00
20.51	285.50	2.00	0.00	0.69	0.00	20.67	299.74	2.00	0.00	0.68	0.00
20.83	296.04	2.00	0.00	0.68	0.00	21.00	283.18	2.00	0.00	0.68	0.00
21.16	259.78	2.00	0.00	0.68	0.00	21.33	233.44	2.00	0.00	0.67	0.00
21.49	200.43	2.00	0.00	0.67	0.00	21.65	176.12	2.00	0.00	0.67	0.00
21.82	160.18	2.00	0.00	0.67	0.00	21.98	154.96	2.00	0.00	0.66	0.00
22.15	152.28	2.00	0.00	0.66	0.00	22.31	152.32	2.00	0.00	0.66	0.00
22.47	150.52	2.00	0.00	0.66	0.00	22.64	147.22	2.00	0.00	0.65	0.00
22.80	149.71	2.00	0.00	0.65	0.00	22.97	157.60	2.00	0.00	0.65	0.00
23.13	167.60	2.00	0.00	0.65	0.00	23.30	176.94	2.00	0.00	0.64	0.00
23.46	184.85	2.00	0.00	0.64	0.00	23.62	191.28	2.00	0.00	0.64	0.00
23.79	201.24	2.00	0.00	0.64	0.00	23.95	218.41	2.00	0.00	0.63	0.00
24.12	235.77	2.00	0.00	0.63	0.00	24.28	246.79	2.00	0.00	0.63	0.00
24.44	240.95	2.00	0.00	0.63	0.00	24.61	233.45	2.00	0.00	0.62	0.00
24.77	230.33	2.00	0.00	0.62	0.00	24.94	242.33	2.00	0.00	0.62	0.00
25.10	252.00	2.00	0.00	0.62	0.00	25.26	253.77	2.00	0.00	0.61	0.00
25.43	245.59	2.00	0.00	0.61	0.00	25.59	239.62	2.00	0.00	0.61	0.00
25.76	235.11	2.00	0.00	0.61	0.00	25.92	234.06	2.00	0.00	0.60	0.00
26.08	231.57	2.00	0.00	0.60	0.00	26.25	228.35	2.00	0.00	0.60	0.00
26.41	224.53	2.00	0.00	0.60	0.00	26.58	223.69	2.00	0.00	0.59	0.00
26.74	227.75	2.00	0.00	0.59	0.00	26.90	240.89	2.00	0.00	0.59	0.00
27.07	257.27	2.00	0.00	0.59	0.00	27.23	272.21	2.00	0.00	0.58	0.00
27.40	286.48	2.00	0.00	0.58	0.00	27.56	284.40	2.00	0.00	0.58	0.00
27.72	289.40	2.00	0.00	0.58	0.00	27.89	293.02	2.00	0.00	0.57	0.00
28.05	304.50	2.00	0.00	0.57	0.00	28.22	303.18	2.00	0.00	0.57	0.00
28.38	287.31	2.00	0.00	0.57	0.00	28.54	262.15	2.00	0.00	0.56	0.00
28.71	226.09	2.00	0.00	0.56	0.00	28.87	200.70	2.00	0.00	0.56	0.00
29.04	194.74	2.00	0.00	0.56	0.00	29.20	195.53	2.00	0.00	0.55	0.00
29.36	205.93	2.00	0.00	0.55	0.00	29.53	210.15	2.00	0.00	0.55	0.00
29.69	205.40	2.00	0.00	0.55	0.00	29.86	191.64	0.95	0.26	0.54	0.01
30.02	184.49	0.86	0.34	0.54	0.01	30.19	182.21	0.83	0.46	0.54	0.01
30.35	184.18	0.85	0.34	0.54	0.01	30.51	177.21	0.77	0.47	0.53	0.01
30.68	174.52	0.74	0.59	0.53	0.01	30.84	170.61	0.70	0.61	0.53	0.01
31.01	166.75	0.66	0.63	0.53	0.01	31.17	155.33	2.00	0.00	0.52	0.00
31.33	147.68	2.00	0.00	0.52	0.00	31.50	145.21	2.00	0.00	0.52	0.00
31.66	148.75	2.00	0.00	0.52	0.00	31.83	145.60	2.00	0.00	0.51	0.00
31.99	140.80	2.00	0.00	0.51	0.00	32.15	130.45	2.00	0.00	0.51	0.00
32.32	121.24	2.00	0.00	0.51	0.00	32.48	111.42	2.00	0.00	0.50	0.00
32.65	99.25	2.00	0.00	0.50	0.00	32.81	90.84	2.00	0.00	0.50	0.00
32.97	88.96	2.00	0.00	0.50	0.00	33.14	98.71	2.00	0.00	0.49	0.00
33.30	107.23	2.00	0.00	0.49	0.00	33.47	112.57	2.00	0.00	0.49	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)
33.63	112.13	2.00	0.00	0.49	0.00	33.79	132.76	2.00	0.00	0.48	0.00
33.96	172.81	2.00	0.00	0.48	0.00	34.12	211.21	2.00	0.00	0.48	0.00
34.29	230.05	2.00	0.00	0.48	0.00	34.45	222.12	2.00	0.00	0.47	0.00
34.61	199.93	2.00	0.00	0.47	0.00	34.78	173.84	2.00	0.00	0.47	0.00
34.94	157.72	2.00	0.00	0.47	0.00	35.11	157.30	2.00	0.00	0.46	0.00
35.27	164.07	2.00	0.00	0.46	0.00	35.43	173.11	2.00	0.00	0.46	0.00
35.60	175.77	2.00	0.00	0.46	0.00	35.76	174.72	2.00	0.00	0.45	0.00
35.93	169.84	2.00	0.00	0.45	0.00	36.09	167.63	2.00	0.00	0.45	0.00
36.26	167.64	2.00	0.00	0.45	0.00	36.42	166.38	2.00	0.00	0.44	0.00
36.58	158.69	2.00	0.00	0.44	0.00	36.75	142.65	2.00	0.00	0.44	0.00
36.91	126.10	2.00	0.00	0.44	0.00	37.08	118.74	2.00	0.00	0.43	0.00
37.24	121.94	2.00	0.00	0.43	0.00	37.40	130.87	2.00	0.00	0.43	0.00
37.57	140.32	2.00	0.00	0.43	0.00	37.73	144.24	2.00	0.00	0.42	0.00
37.90	141.00	2.00	0.00	0.42	0.00	38.06	130.35	2.00	0.00	0.42	0.00
38.22	122.38	2.00	0.00	0.42	0.00	38.39	118.73	2.00	0.00	0.41	0.00
38.55	125.32	2.00	0.00	0.41	0.00	38.72	135.44	2.00	0.00	0.41	0.00
38.88	146.62	2.00	0.00	0.41	0.00	39.04	146.88	2.00	0.00	0.40	0.00
39.21	145.35	2.00	0.00	0.40	0.00	39.37	141.14	2.00	0.00	0.40	0.00
39.54	137.39	0.40	0.72	0.40	0.01	39.70	131.03	0.36	0.74	0.39	0.01
39.86	125.51	0.33	0.76	0.39	0.01	40.03	121.72	0.31	0.78	0.39	0.02
40.19	120.81	0.30	0.78	0.39	0.01	40.36	121.74	0.31	0.77	0.38	0.02
40.52	121.34	0.31	0.76	0.38	0.01	40.68	120.97	0.30	0.76	0.38	0.01
40.85	119.56	0.30	0.76	0.38	0.02	41.01	120.35	0.30	0.75	0.37	0.01
41.18	122.16	0.31	0.74	0.37	0.02	41.34	123.89	0.32	0.72	0.37	0.01
41.50	126.45	0.33	0.71	0.37	0.01	41.67	132.45	0.37	0.68	0.36	0.01
41.83	143.68	0.44	0.63	0.36	0.01	42.00	153.76	0.52	0.59	0.36	0.01
42.16	157.05	0.55	0.58	0.36	0.01	42.32	154.99	2.00	0.00	0.35	0.00
42.49	151.21	2.00	0.00	0.35	0.00	42.65	146.41	2.00	0.00	0.35	0.00
42.82	133.50	2.00	0.00	0.35	0.00	42.98	116.57	2.00	0.00	0.34	0.00
43.15	111.97	2.00	0.00	0.34	0.00	43.31	118.09	2.00	0.00	0.34	0.00
43.47	125.85	2.00	0.00	0.34	0.00	43.64	129.51	2.00	0.00	0.33	0.00
43.80	135.07	2.00	0.00	0.33	0.00	43.97	144.04	2.00	0.00	0.33	0.00
44.13	149.84	2.00	0.00	0.33	0.00	44.29	153.06	2.00	0.00	0.32	0.00
44.46	152.27	2.00	0.00	0.32	0.00	44.62	145.51	2.00	0.00	0.32	0.00
44.79	130.37	2.00	0.00	0.32	0.00	44.95	109.13	2.00	0.00	0.31	0.00
45.11	102.15	2.00	0.00	0.31	0.00	45.28	105.49	2.00	0.00	0.31	0.00
45.44	110.88	2.00	0.00	0.31	0.00	45.61	107.47	2.00	0.00	0.30	0.00
45.77	102.90	2.00	0.00	0.30	0.00	45.93	104.98	2.00	0.00	0.30	0.00
46.10	118.59	2.00	0.00	0.30	0.00	46.26	145.43	2.00	0.00	0.29	0.00
46.43	172.53	2.00	0.00	0.29	0.00	46.59	197.47	1.01	0.14	0.29	0.00
46.75	208.58	2.00	0.00	0.29	0.00	46.92	205.11	2.00	0.00	0.28	0.00
47.08	194.01	2.00	0.00	0.28	0.00	47.25	184.38	2.00	0.00	0.28	0.00
47.41	184.54	2.00	0.00	0.28	0.00	47.57	187.17	2.00	0.00	0.27	0.00
47.74	185.78	2.00	0.00	0.27	0.00	47.90	179.22	2.00	0.00	0.27	0.00
48.07	185.94	2.00	0.00	0.27	0.00	48.23	217.66	2.00	0.00	0.26	0.00
48.39	270.13	2.00	0.00	0.26	0.00	48.56	318.04	2.00	0.00	0.26	0.00
48.72	342.50	2.00	0.00	0.26	0.00	48.89	358.36	2.00	0.00	0.25	0.00
49.05	365.02	2.00	0.00	0.25	0.00	49.22	360.66	2.00	0.00	0.25	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)
49.38	364.11	2.00	0.00	0.25	0.00	49.54	366.94	2.00	0.00	0.24	0.00
49.71	369.99	2.00	0.00	0.24	0.00	49.87	345.67	2.00	0.00	0.24	0.00
50.04	311.01	2.00	0.00	0.24	0.00	50.20	264.54	2.00	0.00	0.23	0.00
50.36	225.43	2.00	0.00	0.23	0.00	50.53	202.06	2.00	0.00	0.23	0.00
50.69	202.71	2.00	0.00	0.23	0.00	50.86	225.41	2.00	0.00	0.22	0.00
51.02	248.99	2.00	0.00	0.22	0.00	51.18	258.19	2.00	0.00	0.22	0.00
51.35	252.89	2.00	0.00	0.22	0.00	51.51	237.83	2.00	0.00	0.21	0.00
51.68	233.09	2.00	0.00	0.21	0.00	51.84	240.69	2.00	0.00	0.21	0.00
52.00	253.98	2.00	0.00	0.21	0.00	52.17	267.91	2.00	0.00	0.20	0.00
52.33	278.56	2.00	0.00	0.20	0.00	52.50	282.11	2.00	0.00	0.20	0.00
52.66	274.13	2.00	0.00	0.20	0.00	52.82	257.05	2.00	0.00	0.19	0.00
52.99	242.73	2.00	0.00	0.19	0.00	53.15	241.06	2.00	0.00	0.19	0.00
53.32	248.70	2.00	0.00	0.19	0.00	53.48	252.39	2.00	0.00	0.18	0.00
53.64	250.78	2.00	0.00	0.18	0.00	53.81	241.47	2.00	0.00	0.18	0.00
53.97	234.50	2.00	0.00	0.18	0.00	54.14	216.93	2.00	0.00	0.17	0.00
54.30	194.06	2.00	0.00	0.17	0.00	54.46	169.44	2.00	0.00	0.17	0.00
54.63	162.69	2.00	0.00	0.17	0.00	54.79	167.47	2.00	0.00	0.16	0.00
54.96	170.14	2.00	0.00	0.16	0.00	55.12	169.37	0.72	0.19	0.16	0.00
55.28	169.94	2.00	0.00	0.16	0.00	55.45	175.66	2.00	0.00	0.15	0.00
55.61	182.82	2.00	0.00	0.15	0.00	55.78	194.88	2.00	0.00	0.15	0.00
55.94	202.26	2.00	0.00	0.15	0.00	56.11	204.47	2.00	0.00	0.14	0.00
56.27	202.37	2.00	0.00	0.14	0.00	56.43	200.07	2.00	0.00	0.14	0.00
56.60	197.03	2.00	0.00	0.14	0.00	56.76	192.48	2.00	0.00	0.13	0.00
56.93	195.24	2.00	0.00	0.13	0.00	57.09	197.77	2.00	0.00	0.13	0.00
57.25	203.48	2.00	0.00	0.13	0.00	57.42	205.00	2.00	0.00	0.12	0.00
57.58	210.82	2.00	0.00	0.12	0.00	57.75	221.07	2.00	0.00	0.12	0.00
57.91	235.35	2.00	0.00	0.12	0.00	58.07	245.99	2.00	0.00	0.11	0.00
58.24	258.24	2.00	0.00	0.11	0.00	58.40	268.75	2.00	0.00	0.11	0.00
58.57	276.49	2.00	0.00	0.11	0.00	58.73	275.29	2.00	0.00	0.10	0.00
58.89	269.84	2.00	0.00	0.10	0.00	59.06	264.00	2.00	0.00	0.10	0.00
59.22	256.74	2.00	0.00	0.10	0.00	59.39	245.82	2.00	0.00	0.09	0.00
59.55	235.66	2.00	0.00	0.09	0.00	59.71	229.05	2.00	0.00	0.09	0.00
59.88	226.72	2.00	0.00	0.09	0.00	60.04	224.59	2.00	0.00	0.08	0.00
60.21	231.17	2.00	0.00	0.08	0.00	60.37	236.94	2.00	0.00	0.08	0.00
60.53	240.95	2.00	0.00	0.08	0.00	60.70	236.01	2.00	0.00	0.07	0.00
60.86	232.17	2.00	0.00	0.07	0.00	61.03	233.72	2.00	0.00	0.07	0.00
61.19	240.81	2.00	0.00	0.07	0.00	61.35	248.80	2.00	0.00	0.06	0.00
61.52	253.59	2.00	0.00	0.06	0.00	61.68	250.84	2.00	0.00	0.06	0.00
61.85	245.99	2.00	0.00	0.06	0.00	62.01	240.92	2.00	0.00	0.05	0.00
62.17	239.16	2.00	0.00	0.05	0.00	62.34	242.32	2.00	0.00	0.05	0.00
62.50	248.55	2.00	0.00	0.05	0.00	62.67	250.67	2.00	0.00	0.04	0.00
62.83	245.98	2.00	0.00	0.04	0.00	63.00	235.40	2.00	0.00	0.04	0.00
63.16	226.57	2.00	0.00	0.04	0.00	63.32	219.89	2.00	0.00	0.03	0.00
63.49	219.63	2.00	0.00	0.03	0.00	63.65	222.48	2.00	0.00	0.03	0.00
63.82	221.93	2.00	0.00	0.03	0.00	63.98	215.93	2.00	0.00	0.02	0.00
64.14	210.81	2.00	0.00	0.02	0.00	64.31	210.20	2.00	0.00	0.02	0.00
64.47	211.16	2.00	0.00	0.02	0.00	64.64	208.59	2.00	0.00	0.01	0.00
64.80	207.86	2.00	0.00	0.01	0.00	64.96	212.05	2.00	0.00	0.01	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)
65.13	223.60	2.00	0.00	0.01	0.00	65.29	232.36	2.00	0.00	0.00	0.00
65.46	234.69	2.00	0.00	0.00	0.00	65.62	226.55	2.00	0.00	0.00	0.00
65.78	220.21	2.00	0.00	0.00	0.00	65.95	218.82	2.00	0.00	0.00	0.00
66.11	222.45	2.00	0.00	0.00	0.00	66.28	220.16	2.00	0.00	0.00	0.00
66.44	214.16	2.00	0.00	0.00	0.00	66.60	210.45	2.00	0.00	0.00	0.00
66.77	215.71	2.00	0.00	0.00	0.00	66.93	225.58	2.00	0.00	0.00	0.00
67.10	235.64	2.00	0.00	0.00	0.00	67.26	243.44	2.00	0.00	0.00	0.00
67.42	248.34	2.00	0.00	0.00	0.00	67.59	257.75	2.00	0.00	0.00	0.00
67.75	265.06	2.00	0.00	0.00	0.00						

Total estimated settlement: 1.12**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

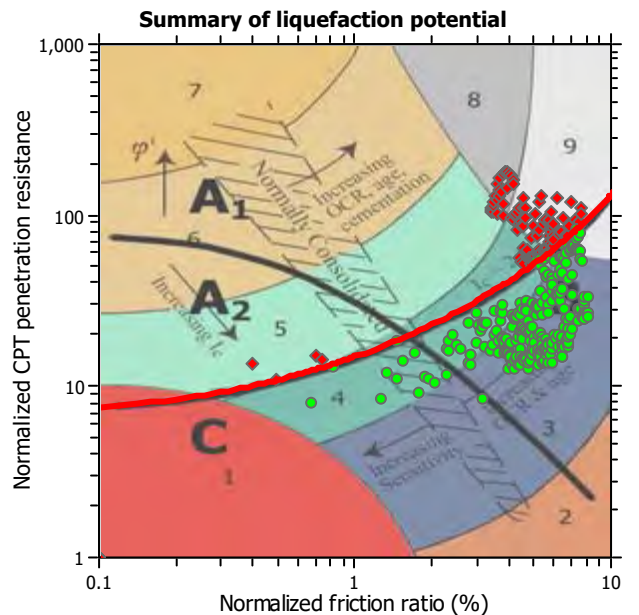
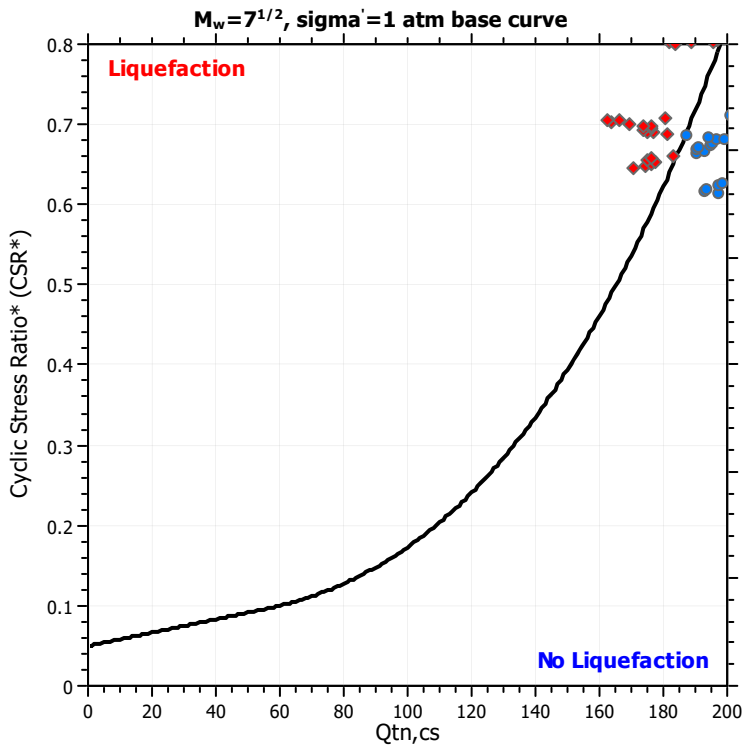
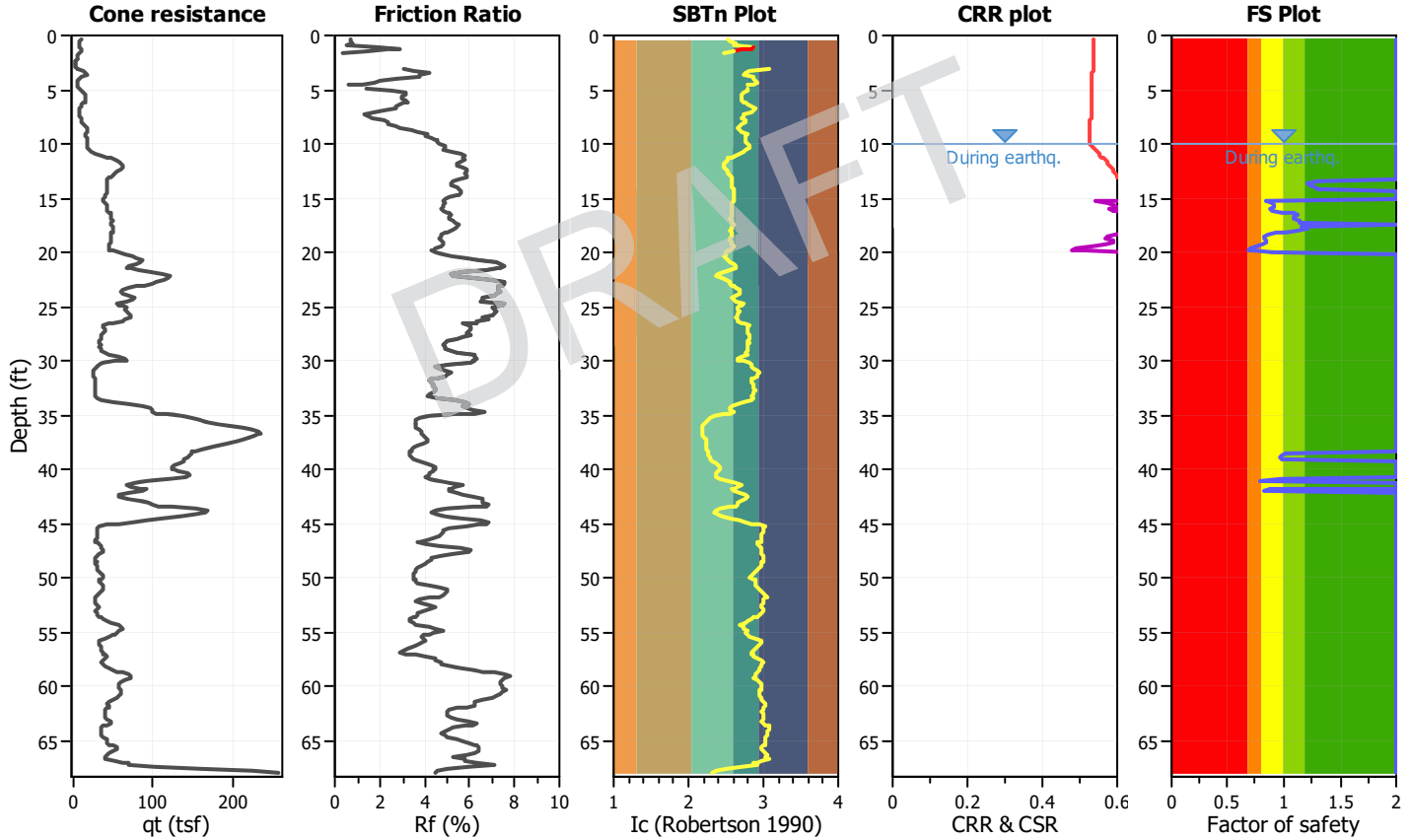
Project title : 210256003 - Compton HS

Location : Compton, CA

CPT file : CPT-21

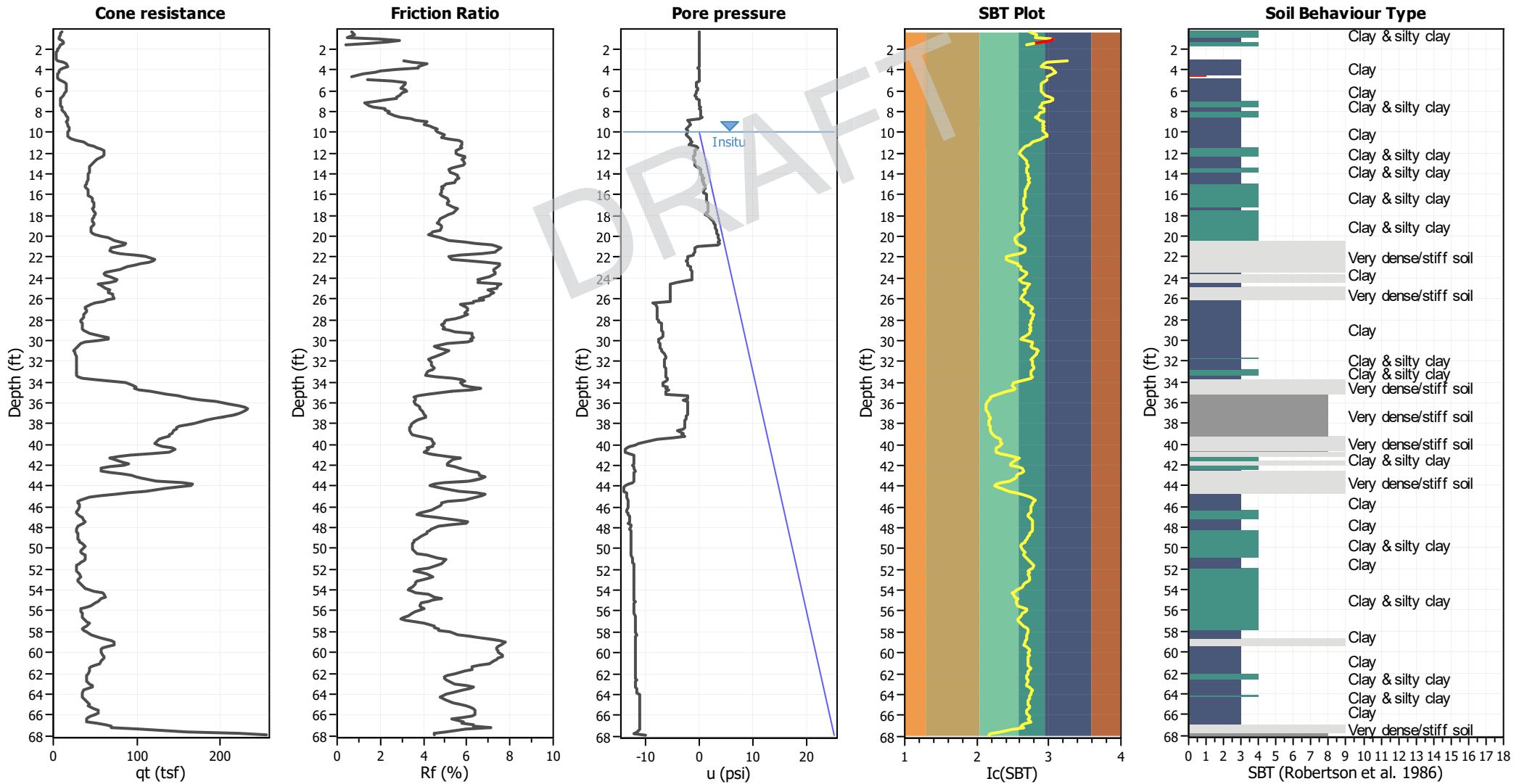
Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	10.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	10.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	65.60 ft
Earthquake magnitude M_w :	6.79	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.82	Unit weight calculation:	Based on SBT	K_0 applied:	Yes		



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



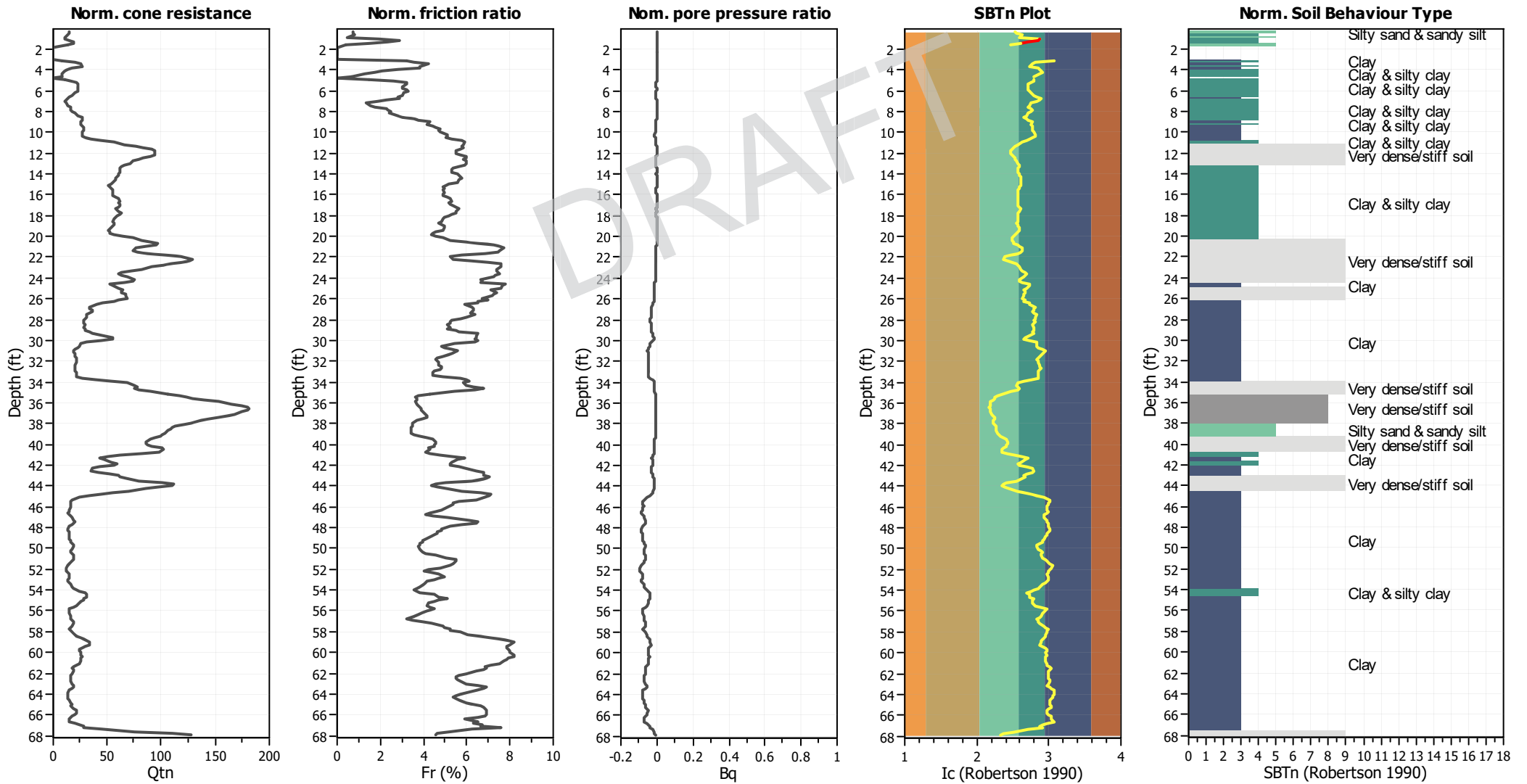
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	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 :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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)



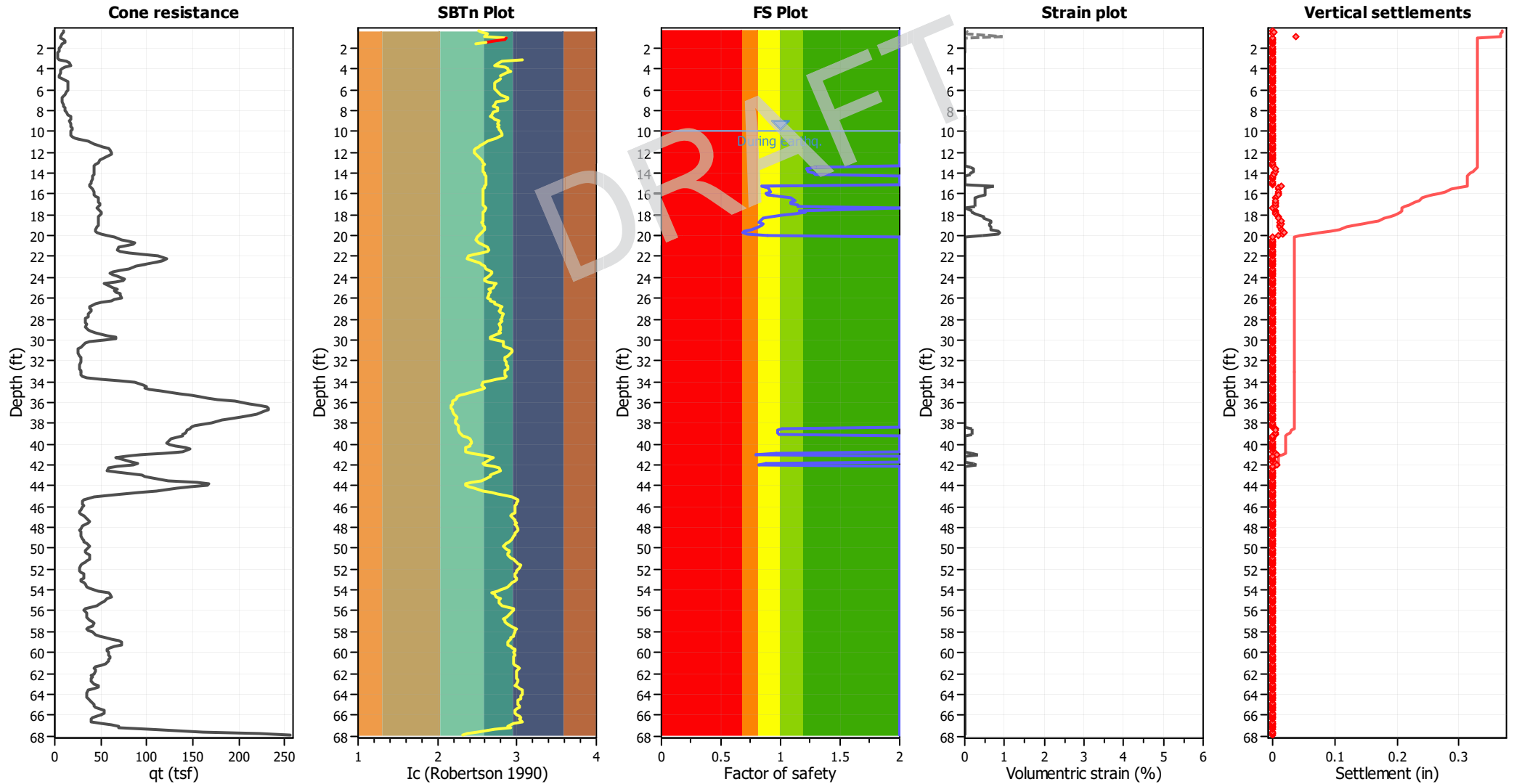
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	10.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on I _c value	I _c cut-off value:	2.60	K _σ applied:	Yes
Earthquake magnitude M _w :	6.79	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.82	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	10.00 ft	Fill height:	N/A	Limit depth:	65.60 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

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)	Ic	Q _{tn}	Kc	Q _{tn,cs}	N _{1,60} (blows)	G _{max} (tsf)	CSR	Shear, γ (%)	e _{vol(15)} (%)	N _c	e _v (%)	Settle. (in)
0.33	2.53	15.18	2.90	44.06	11	208	0.54	0.015	0.03	9.27	0.02	0.001
0.49	2.56	14.42	3.06	44.20	12	205	0.54	0.037	0.07	9.27	0.06	0.002
0.66	2.62	12.86	3.46	44.54	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.82	2.60	10.86	3.32	36.11	10	164	0.54	0.515	1.22	9.27	0.97	0.037
0.98	2.86	10.90	5.36	58.46	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.15	2.84	14.90	5.18	77.16	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.31	2.72	18.32	4.14	75.86	0	0	0.54	0.000	0.00	0.00	0.00	0.000
1.48	2.61	18.25	3.38	61.60	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.64	2.48	13.58	2.65	35.95	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.80	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	9.27	0.00	0.000
1.97	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.13	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.30	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.46	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.62	-1.00	-1.00	1.00	-1.00	0	0	0.54	0.000	0.00	0.00	0.00	0.000
2.79	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
2.95	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.12	3.08	8.39	7.62	63.91	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.28	2.81	19.62	4.84	94.87	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.45	2.77	25.39	4.53	115.04	0	0	0.53	0.000	0.00	9.27	0.00	0.000
3.61	2.73	26.60	4.19	111.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.77	2.86	18.07	5.28	95.46	0	0	0.53	0.000	0.00	0.00	0.00	0.000
3.94	2.88	13.40	5.46	73.17	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.10	2.89	10.44	5.61	58.55	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.27	2.91	9.04	5.82	52.58	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.43	2.87	8.43	5.39	45.46	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.59	2.78	7.83	4.65	36.40	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.76	-1.00	-1.00	1.00	-1.00	0	0	0.53	0.000	0.00	0.00	0.00	0.000
4.92	2.80	10.97	4.76	52.22	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.09	2.78	16.52	4.64	76.58	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.25	2.74	21.75	4.32	93.97	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.41	2.72	23.45	4.13	96.72	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.58	2.71	22.84	4.09	93.48	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.74	2.71	22.88	4.08	93.47	0	0	0.53	0.000	0.00	0.00	0.00	0.000
5.91	2.72	23.35	4.14	96.76	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.07	2.73	22.91	4.23	96.96	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.23	2.75	20.69	4.39	90.81	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.40	2.79	17.89	4.71	84.34	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.56	2.84	15.09	5.11	77.10	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.73	2.89	13.05	5.61	73.26	0	0	0.53	0.000	0.00	0.00	0.00	0.000
6.89	2.88	11.65	5.48	63.83	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.05	2.84	11.37	5.13	58.35	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.22	2.75	11.95	4.35	51.95	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.38	2.73	13.76	4.19	57.62	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.55	2.71	15.51	4.03	62.58	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.71	2.75	16.36	4.41	72.16	0	0	0.53	0.000	0.00	0.00	0.00	0.000
7.87	2.76	16.13	4.48	72.24	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.04	2.76	17.13	4.46	76.34	0	0	0.53	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)
8.20	2.70	19.74	4.03	79.51	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.37	2.69	23.05	3.89	89.77	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.53	2.66	26.73	3.69	98.64	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.69	2.69	27.34	3.95	108.05	0	0	0.53	0.000	0.00	0.00	0.00	0.000
8.86	2.71	27.15	4.10	111.22	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.02	2.78	25.08	4.59	115.18	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.19	2.76	25.87	4.44	114.82	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.35	2.77	26.66	4.51	120.32	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.51	2.76	28.03	4.47	125.34	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.68	2.77	28.28	4.53	127.98	0	0	0.53	0.000	0.00	0.00	0.00	0.000
9.84	2.77	28.37	4.51	127.94	0	0	0.53	0.000	0.00	0.00	0.00	0.000
Total estimated settlement: 0.04												

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)
10.01	125.77	2.00	0.00	0.85	0.00	10.17	128.89	2.00	0.00	0.84	0.00
10.34	128.85	2.00	0.00	0.84	0.00	10.50	135.20	2.00	0.00	0.84	0.00
10.66	150.18	2.00	0.00	0.84	0.00	10.83	175.10	2.00	0.00	0.83	0.00
10.99	198.08	2.00	0.00	0.83	0.00	11.16	212.60	2.00	0.00	0.83	0.00
11.32	226.39	2.00	0.00	0.83	0.00	11.48	239.05	2.00	0.00	0.82	0.00
11.65	245.96	2.00	0.00	0.82	0.00	11.81	244.95	2.00	0.00	0.82	0.00
11.98	246.41	2.00	0.00	0.82	0.00	12.14	250.55	2.00	0.00	0.81	0.00
12.30	251.28	2.00	0.00	0.81	0.00	12.47	242.01	2.00	0.00	0.81	0.00
12.63	233.24	2.00	0.00	0.81	0.00	12.80	228.04	2.00	0.00	0.80	0.00
12.96	223.88	2.00	0.00	0.80	0.00	13.12	215.16	2.00	0.00	0.80	0.00
13.29	204.80	2.00	0.00	0.80	0.00	13.45	197.20	1.30	0.14	0.79	0.00
13.62	193.09	1.22	0.20	0.79	0.00	13.78	194.04	1.23	0.20	0.79	0.00
13.94	197.60	1.28	0.14	0.79	0.00	14.11	198.89	1.30	0.14	0.78	0.00
14.27	198.60	2.00	0.00	0.78	0.00	14.44	198.22	2.00	0.00	0.78	0.00
14.60	194.33	2.00	0.00	0.78	0.00	14.76	189.38	2.00	0.00	0.77	0.00
14.93	178.56	2.00	0.00	0.77	0.00	15.09	173.35	2.00	0.00	0.77	0.00
15.26	170.63	0.84	0.71	0.77	0.01	15.42	174.63	0.89	0.53	0.76	0.01
15.58	176.44	0.91	0.52	0.76	0.01	15.75	177.46	0.92	0.51	0.76	0.01
15.91	175.12	0.88	0.52	0.76	0.01	16.08	176.16	0.89	0.51	0.75	0.01
16.24	183.07	0.98	0.38	0.75	0.01	16.40	190.61	1.09	0.27	0.75	0.01
16.57	192.99	1.12	0.27	0.75	0.01	16.73	190.66	1.08	0.27	0.74	0.01
16.90	191.39	1.09	0.27	0.74	0.01	17.06	195.29	1.15	0.26	0.74	0.01
17.23	195.57	1.15	0.26	0.74	0.01	17.39	195.96	2.00	0.00	0.73	0.00
17.55	196.91	1.16	0.19	0.73	0.00	17.72	199.66	1.20	0.18	0.73	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)
17.88	194.39	1.12	0.26	0.73	0.00	18.05	187.38	1.01	0.36	0.72	0.01
18.21	181.26	0.92	0.47	0.72	0.01	18.37	176.60	0.86	0.49	0.72	0.01
18.54	174.70	0.83	0.65	0.72	0.01	18.70	173.71	0.82	0.65	0.71	0.01
18.87	176.28	0.85	0.63	0.71	0.01	19.03	176.40	0.85	0.63	0.71	0.01
19.19	173.75	0.81	0.64	0.71	0.01	19.36	169.26	0.76	0.66	0.70	0.01
19.52	163.59	0.69	0.86	0.70	0.02	19.69	162.54	0.68	0.86	0.70	0.02
19.85	166.32	0.72	0.83	0.70	0.02	20.01	180.70	0.89	0.45	0.69	0.01
20.18	201.08	2.00	0.00	0.69	0.00	20.34	221.48	2.00	0.00	0.69	0.00
20.51	252.23	2.00	0.00	0.69	0.00	20.67	275.53	2.00	0.00	0.68	0.00
20.83	293.64	2.00	0.00	0.68	0.00	21.00	285.67	2.00	0.00	0.68	0.00
21.16	273.74	2.00	0.00	0.68	0.00	21.33	264.10	2.00	0.00	0.67	0.00
21.49	268.09	2.00	0.00	0.67	0.00	21.65	270.31	2.00	0.00	0.67	0.00
21.82	266.26	2.00	0.00	0.67	0.00	21.98	269.50	2.00	0.00	0.66	0.00
22.15	284.94	2.00	0.00	0.66	0.00	22.31	308.78	2.00	0.00	0.66	0.00
22.47	325.01	2.00	0.00	0.66	0.00	22.64	326.72	2.00	0.00	0.65	0.00
22.80	314.38	2.00	0.00	0.65	0.00	22.97	295.27	2.00	0.00	0.65	0.00
23.13	275.20	2.00	0.00	0.65	0.00	23.30	256.92	2.00	0.00	0.64	0.00
23.46	242.71	2.00	0.00	0.64	0.00	23.62	238.73	2.00	0.00	0.64	0.00
23.79	239.16	2.00	0.00	0.64	0.00	23.95	246.72	2.00	0.00	0.63	0.00
24.12	246.88	2.00	0.00	0.63	0.00	24.28	244.69	2.00	0.00	0.63	0.00
24.44	230.38	2.00	0.00	0.63	0.00	24.61	226.93	2.00	0.00	0.62	0.00
24.77	230.56	2.00	0.00	0.62	0.00	24.94	239.31	2.00	0.00	0.62	0.00
25.10	238.66	2.00	0.00	0.62	0.00	25.26	236.83	2.00	0.00	0.61	0.00
25.43	241.00	2.00	0.00	0.61	0.00	25.59	244.83	2.00	0.00	0.61	0.00
25.76	244.72	2.00	0.00	0.61	0.00	25.92	235.62	2.00	0.00	0.60	0.00
26.08	226.89	2.00	0.00	0.60	0.00	26.25	210.65	2.00	0.00	0.60	0.00
26.41	191.06	2.00	0.00	0.60	0.00	26.58	169.78	2.00	0.00	0.59	0.00
26.74	160.74	2.00	0.00	0.59	0.00	26.90	162.76	2.00	0.00	0.59	0.00
27.07	165.54	2.00	0.00	0.59	0.00	27.23	165.09	2.00	0.00	0.58	0.00
27.40	160.22	2.00	0.00	0.58	0.00	27.56	157.00	2.00	0.00	0.58	0.00
27.72	151.34	2.00	0.00	0.58	0.00	27.89	143.51	2.00	0.00	0.57	0.00
28.05	136.33	2.00	0.00	0.57	0.00	28.22	133.47	2.00	0.00	0.57	0.00
28.38	135.67	2.00	0.00	0.57	0.00	28.54	135.19	2.00	0.00	0.56	0.00
28.71	135.16	2.00	0.00	0.56	0.00	28.87	134.74	2.00	0.00	0.56	0.00
29.04	142.31	2.00	0.00	0.56	0.00	29.20	151.38	2.00	0.00	0.55	0.00
29.36	171.74	2.00	0.00	0.55	0.00	29.53	192.54	2.00	0.00	0.55	0.00
29.69	208.52	2.00	0.00	0.55	0.00	29.86	205.97	2.00	0.00	0.54	0.00
30.02	187.11	2.00	0.00	0.54	0.00	30.19	157.36	2.00	0.00	0.54	0.00
30.35	132.99	2.00	0.00	0.54	0.00	30.51	119.19	2.00	0.00	0.53	0.00
30.68	117.86	2.00	0.00	0.53	0.00	30.84	116.69	2.00	0.00	0.53	0.00
31.01	116.65	2.00	0.00	0.53	0.00	31.17	116.36	2.00	0.00	0.52	0.00
31.33	116.06	2.00	0.00	0.52	0.00	31.50	114.13	2.00	0.00	0.52	0.00
31.66	112.26	2.00	0.00	0.52	0.00	31.83	111.92	2.00	0.00	0.51	0.00
31.99	111.85	2.00	0.00	0.51	0.00	32.15	111.74	2.00	0.00	0.51	0.00
32.32	111.61	2.00	0.00	0.51	0.00	32.48	111.52	2.00	0.00	0.50	0.00
32.65	111.37	2.00	0.00	0.50	0.00	32.81	111.12	2.00	0.00	0.50	0.00
32.97	109.30	2.00	0.00	0.50	0.00	33.14	109.03	2.00	0.00	0.49	0.00
33.30	108.83	2.00	0.00	0.49	0.00	33.47	115.81	2.00	0.00	0.49	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)
33.63	136.95	2.00	0.00	0.49	0.00	33.79	168.03	2.00	0.00	0.48	0.00
33.96	197.29	2.00	0.00	0.48	0.00	34.12	215.45	2.00	0.00	0.48	0.00
34.29	229.82	2.00	0.00	0.48	0.00	34.45	240.80	2.00	0.00	0.47	0.00
34.61	249.45	2.00	0.00	0.47	0.00	34.78	246.14	2.00	0.00	0.47	0.00
34.94	236.86	2.00	0.00	0.47	0.00	35.11	224.56	2.00	0.00	0.46	0.00
35.27	220.79	2.00	0.00	0.46	0.00	35.43	222.52	2.00	0.00	0.46	0.00
35.60	230.38	2.00	0.00	0.46	0.00	35.76	240.09	2.00	0.00	0.45	0.00
35.93	253.11	2.00	0.00	0.45	0.00	36.09	268.16	2.00	0.00	0.45	0.00
36.26	281.27	2.00	0.00	0.45	0.00	36.42	289.35	2.00	0.00	0.44	0.00
36.58	292.04	2.00	0.00	0.44	0.00	36.75	291.72	2.00	0.00	0.44	0.00
36.91	289.56	2.00	0.00	0.44	0.00	37.08	285.87	2.00	0.00	0.43	0.00
37.24	280.50	2.00	0.00	0.43	0.00	37.40	272.26	2.00	0.00	0.43	0.00
37.57	256.27	2.00	0.00	0.43	0.00	37.73	239.98	2.00	0.00	0.42	0.00
37.90	223.60	2.00	0.00	0.42	0.00	38.06	214.19	2.00	0.00	0.42	0.00
38.22	206.09	2.00	0.00	0.42	0.00	38.39	200.60	2.00	0.00	0.41	0.00
38.55	199.47	1.02	0.19	0.41	0.00	38.72	196.76	0.98	0.19	0.41	0.00
38.88	196.27	0.97	0.19	0.41	0.00	39.04	197.14	0.98	0.19	0.40	0.00
39.21	202.42	2.00	0.00	0.40	0.00	39.37	207.08	2.00	0.00	0.40	0.00
39.54	209.13	2.00	0.00	0.40	0.00	39.70	208.36	2.00	0.00	0.39	0.00
39.86	208.08	2.00	0.00	0.39	0.00	40.03	208.93	2.00	0.00	0.39	0.00
40.19	213.22	2.00	0.00	0.39	0.00	40.36	216.59	2.00	0.00	0.38	0.00
40.52	219.57	2.00	0.00	0.38	0.00	40.68	208.40	2.00	0.00	0.38	0.00
40.85	195.33	0.96	0.18	0.38	0.00	41.01	181.82	0.80	0.32	0.37	0.01
41.18	176.90	2.00	0.00	0.37	0.00	41.34	174.51	2.00	0.00	0.37	0.00
41.50	174.91	2.00	0.00	0.37	0.00	41.67	183.22	2.00	0.00	0.36	0.00
41.83	188.83	0.88	0.22	0.36	0.00	42.00	183.79	0.82	0.30	0.36	0.01
42.16	170.32	2.00	0.00	0.36	0.00	42.32	160.69	2.00	0.00	0.35	0.00
42.49	166.57	2.00	0.00	0.35	0.00	42.65	186.83	2.00	0.00	0.35	0.00
42.82	207.38	2.00	0.00	0.35	0.00	42.98	222.15	2.00	0.00	0.34	0.00
43.15	231.39	2.00	0.00	0.34	0.00	43.31	237.21	2.00	0.00	0.34	0.00
43.47	242.62	2.00	0.00	0.34	0.00	43.64	241.83	2.00	0.00	0.33	0.00
43.80	238.80	2.00	0.00	0.33	0.00	43.97	231.80	2.00	0.00	0.33	0.00
44.13	224.72	2.00	0.00	0.33	0.00	44.29	220.13	2.00	0.00	0.32	0.00
44.46	216.95	2.00	0.00	0.32	0.00	44.62	211.44	2.00	0.00	0.32	0.00
44.79	196.62	2.00	0.00	0.32	0.00	44.95	171.89	2.00	0.00	0.31	0.00
45.11	143.51	2.00	0.00	0.31	0.00	45.28	120.29	2.00	0.00	0.31	0.00
45.44	107.48	2.00	0.00	0.31	0.00	45.61	105.08	2.00	0.00	0.30	0.00
45.77	106.04	2.00	0.00	0.30	0.00	45.93	105.87	2.00	0.00	0.30	0.00
46.10	103.49	2.00	0.00	0.30	0.00	46.26	98.75	2.00	0.00	0.29	0.00
46.43	93.81	2.00	0.00	0.29	0.00	46.59	89.88	2.00	0.00	0.29	0.00
46.75	91.04	2.00	0.00	0.29	0.00	46.92	98.22	2.00	0.00	0.28	0.00
47.08	108.12	2.00	0.00	0.28	0.00	47.25	121.22	2.00	0.00	0.28	0.00
47.41	127.65	2.00	0.00	0.28	0.00	47.57	125.65	2.00	0.00	0.27	0.00
47.74	113.85	2.00	0.00	0.27	0.00	47.90	102.11	2.00	0.00	0.27	0.00
48.07	95.09	2.00	0.00	0.27	0.00	48.23	93.79	2.00	0.00	0.26	0.00
48.39	93.65	2.00	0.00	0.26	0.00	48.56	94.71	2.00	0.00	0.26	0.00
48.72	93.40	2.00	0.00	0.26	0.00	48.89	92.04	2.00	0.00	0.25	0.00
49.05	90.73	2.00	0.00	0.25	0.00	49.22	90.69	2.00	0.00	0.25	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)
49.38	91.81	2.00	0.00	0.25	0.00	49.54	94.09	2.00	0.00	0.24	0.00
49.71	96.24	2.00	0.00	0.24	0.00	49.87	97.23	2.00	0.00	0.24	0.00
50.04	94.92	2.00	0.00	0.24	0.00	50.20	92.49	2.00	0.00	0.23	0.00
50.36	92.37	2.00	0.00	0.23	0.00	50.53	96.87	2.00	0.00	0.23	0.00
50.69	105.36	2.00	0.00	0.23	0.00	50.86	111.22	2.00	0.00	0.22	0.00
51.02	113.82	2.00	0.00	0.22	0.00	51.18	110.89	2.00	0.00	0.22	0.00
51.35	106.85	2.00	0.00	0.22	0.00	51.51	101.60	2.00	0.00	0.21	0.00
51.68	96.04	2.00	0.00	0.21	0.00	51.84	90.23	2.00	0.00	0.21	0.00
52.00	85.30	2.00	0.00	0.21	0.00	52.17	83.94	2.00	0.00	0.20	0.00
52.33	88.75	2.00	0.00	0.20	0.00	52.50	95.48	2.00	0.00	0.20	0.00
52.66	99.69	2.00	0.00	0.20	0.00	52.82	95.28	2.00	0.00	0.19	0.00
52.99	89.54	2.00	0.00	0.19	0.00	53.15	87.05	2.00	0.00	0.19	0.00
53.32	89.24	2.00	0.00	0.19	0.00	53.48	91.56	2.00	0.00	0.18	0.00
53.64	92.66	2.00	0.00	0.18	0.00	53.81	93.65	2.00	0.00	0.18	0.00
53.97	97.71	2.00	0.00	0.18	0.00	54.14	105.49	2.00	0.00	0.17	0.00
54.30	116.89	2.00	0.00	0.17	0.00	54.46	128.93	2.00	0.00	0.17	0.00
54.63	133.64	2.00	0.00	0.17	0.00	54.79	133.86	2.00	0.00	0.16	0.00
54.96	126.34	2.00	0.00	0.16	0.00	55.12	120.35	2.00	0.00	0.16	0.00
55.28	113.20	2.00	0.00	0.16	0.00	55.45	107.67	2.00	0.00	0.15	0.00
55.61	100.81	2.00	0.00	0.15	0.00	55.78	94.33	2.00	0.00	0.15	0.00
55.94	91.01	2.00	0.00	0.15	0.00	56.11	89.82	2.00	0.00	0.14	0.00
56.27	89.86	2.00	0.00	0.14	0.00	56.43	87.59	2.00	0.00	0.14	0.00
56.60	85.25	2.00	0.00	0.14	0.00	56.76	85.17	2.00	0.00	0.13	0.00
56.93	89.60	2.00	0.00	0.13	0.00	57.09	97.91	2.00	0.00	0.13	0.00
57.25	104.61	2.00	0.00	0.13	0.00	57.42	107.09	2.00	0.00	0.12	0.00
57.58	103.16	2.00	0.00	0.12	0.00	57.75	102.21	2.00	0.00	0.12	0.00
57.91	104.87	2.00	0.00	0.12	0.00	58.07	114.53	2.00	0.00	0.11	0.00
58.24	124.16	2.00	0.00	0.11	0.00	58.40	136.94	2.00	0.00	0.11	0.00
58.57	149.58	2.00	0.00	0.11	0.00	58.73	163.93	2.00	0.00	0.10	0.00
58.89	177.95	2.00	0.00	0.10	0.00	59.06	185.33	2.00	0.00	0.10	0.00
59.22	183.41	2.00	0.00	0.10	0.00	59.39	171.05	2.00	0.00	0.09	0.00
59.55	162.47	2.00	0.00	0.09	0.00	59.71	157.89	2.00	0.00	0.09	0.00
59.88	158.33	2.00	0.00	0.09	0.00	60.04	159.96	2.00	0.00	0.08	0.00
60.21	162.89	2.00	0.00	0.08	0.00	60.37	165.65	2.00	0.00	0.08	0.00
60.53	162.33	2.00	0.00	0.08	0.00	60.70	159.68	2.00	0.00	0.07	0.00
60.86	156.35	2.00	0.00	0.07	0.00	61.03	151.10	2.00	0.00	0.07	0.00
61.19	139.02	2.00	0.00	0.07	0.00	61.35	127.52	2.00	0.00	0.06	0.00
61.52	125.14	2.00	0.00	0.06	0.00	61.68	126.48	2.00	0.00	0.06	0.00
61.85	123.30	2.00	0.00	0.06	0.00	62.01	115.37	2.00	0.00	0.05	0.00
62.17	109.53	2.00	0.00	0.05	0.00	62.34	108.54	2.00	0.00	0.05	0.00
62.50	108.44	2.00	0.00	0.05	0.00	62.67	107.51	2.00	0.00	0.04	0.00
62.83	109.08	2.00	0.00	0.04	0.00	63.00	116.97	2.00	0.00	0.04	0.00
63.16	126.58	2.00	0.00	0.04	0.00	63.32	130.10	2.00	0.00	0.03	0.00
63.49	121.97	2.00	0.00	0.03	0.00	63.65	110.87	2.00	0.00	0.03	0.00
63.82	103.23	2.00	0.00	0.03	0.00	63.98	100.53	2.00	0.00	0.02	0.00
64.14	99.59	2.00	0.00	0.02	0.00	64.31	98.60	2.00	0.00	0.02	0.00
64.47	101.17	2.00	0.00	0.02	0.00	64.64	105.35	2.00	0.00	0.01	0.00
64.80	112.55	2.00	0.00	0.01	0.00	64.96	117.07	2.00	0.00	0.01	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)
65.13	119.20	2.00	0.00	0.01	0.00	65.29	123.48	2.00	0.00	0.00	0.00
65.46	130.32	2.00	0.00	0.00	0.00	65.62	137.40	2.00	0.00	0.00	0.00
65.78	137.25	2.00	0.00	0.00	0.00	65.95	132.58	2.00	0.00	0.00	0.00
66.11	124.92	2.00	0.00	0.00	0.00	66.28	116.05	2.00	0.00	0.00	0.00
66.44	107.39	2.00	0.00	0.00	0.00	66.60	111.95	2.00	0.00	0.00	0.00
66.77	126.97	2.00	0.00	0.00	0.00	66.93	145.34	2.00	0.00	0.00	0.00
67.10	153.39	2.00	0.00	0.00	0.00	67.26	163.74	2.00	0.00	0.00	0.00
67.42	182.65	2.00	0.00	0.00	0.00	67.59	209.88	2.00	0.00	0.00	0.00
67.75	239.04	2.00	0.00	0.00	0.00	67.92	258.94	2.00	0.00	0.00	0.00

Total estimated settlement: 0.33**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

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