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APPENDIX I

Preliminary Geotechnical Investigation Report

GEOTECHNICAL INVESTIGATION REPORT
SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY
SAN JOSE, CALIFORNIA
KLEINFELDER PROJECT NO.: 26002624.001A

February 27, 2026

February 27, 2026
Kleinfelder Project No.: 26002624.001A

Prologis, Inc.
2141 Rosecrans Avenue, Suite 1151
El Segundo, CA 90245

Attention: Claudia Tarpin,
Director of Development

SUBJECT: Geotechnical Investigation Report
Silver Creek Data Center
NW Corner of Silver Creek Valley Road and Fontanoso Way
San Jose, California

Dear Ms. Tarpin:

Kleinfelder is pleased to present this report to provide geotechnical engineering services for the proposed data center to be located at the northwest corner of Silver Creek Valley Road and Fontanoso Way in San Jose, California. The report presents the results of our field investigation and laboratory testing for the project, and our conclusions and recommendations pertaining to geotechnical design and construction.

We appreciate the opportunity to provide geotechnical engineering services on this project. Should you have any questions, please contact the undersigned.

Respectfully submitted,

KLEINFELDER, INC.

Aryan Noroozi, PE
Project Engineer

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1 INTRODUCTION

1.1 GENERAL

Kleinfelder conducted a geotechnical study for the proposed data center to be located at the northwest corner of Silver Creek Valley Road and Fontanoso Way in San Jose, California. A vicinity map is provided on Figure 1. This report summarizes the results of our geotechnical study and presents conclusions and recommendations to guide the geotechnical aspects of project design and construction.

The conclusions and recommendations presented in this report are based on subsurface information encountered in our explorations, our site observations, and our experience with similar projects. The recommendations contained in this report are subject to the provisions and requirements outlined in the Limitations section of this report.

1.2 PROJECT DESCRIPTION

We understand the proposed project will involve the construction of a 3-story data center with a total footprint of about 186,000 square feet. The data center will include six data halls, an office area, dedicated electrical, mechanical, and support areas, and a loading dock. In addition to the data center, a new electrical substation will be constructed with a plan area of about 37,000 square feet.

We anticipate the new building will be a steel-framed structure with Insulated Metal Panels (IMP) or an Exterior Insulation and Finish System (EIFS). We anticipate the building will be supported by shallow reinforced foundations with a slab-on-grade floor system. Ancillary equipment located outside of the building may be supported on drilled piers and/or mat foundations. Appurtenant construction may include truck loading docks, asphalt concrete and Portland cement concrete pavements, concrete flatwork, underground utilities, and landscaping. Additional details regarding site development, including foundation load demands, are unknown to us at this time.

Although grading plans are not yet available, a review of available information suggests that the site is relatively flat. As such, we anticipate relatively minor cuts and fills of up to about 2 to 4 feet to provide a level foundation pad and pavements with positive site drainage. Excavations for underground utilities are not anticipated to exceed 10 feet below final site grade.

Elevations cited in this report are in feet, referenced to the North American Vertical Datum of 1988 (NAVD88).

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this study is to characterize the geologic and geotechnical conditions of the project site and provide geotechnical recommendations for the design and construction of the subject project. Our scope of services for this project included the following:

- Review of pertinent existing geotechnical (including Kleinfelder's Geotechnical Investigation Report, Project No. 20221404.001A, dated, 07.01.2022) and published geologic information for the project vicinity.
- Field exploration at the project site to explore subsurface conditions and obtain samples for laboratory testing.
- Laboratory testing on selected samples obtained from the borings to evaluate pertinent geotechnical properties.
- Engineering analyses to develop geotechnical conclusions and recommendations to guide geotechnical aspects of design and construction planning.
- Preparation of this report

Kleinfelder previously conducted a geotechnical investigation at the project site in 2022 for a warehouse (Geotechnical Investigation Report, Project No. 20221404.001A, dated 07.01.2022). At the time of preparing this report, the warehouse has not been built. The data collected from our previous study will be used to supplement the data collected for this study.

Environmental studies or analyses, particularly studies involving potentially hazardous substances in the soil and groundwater at the project site, are outside the scope of this study.

2 FIELD EXPLORATION

2.1 FIELD EXPLORATION

Five borings were drilled to explore subsurface conditions and to obtain soil samples for laboratory testing. The boring locations and depths were selected based on the project scope. Boring locations were located by measuring from existing landmarks and interpreting location coordinates based on mobile phone location apps.

2.1.1 Underground Utility Locating

Prior to mobilization of the field exploration crew, we obtained a drilling permit from Santa Clara Valley Water District (SCVWD or Valley Water). Planned drilling locations were cleared of known or detectable underground utilities and other subsurface obstructions by GPRS Inc. of El Cerrito, CA. Underground Service Alert (USA) was also contacted to mark the locations of underground utilities at the planned exploration locations.

Additionally, to confirm the absence of utilities or other underground obstructions, we employed hand auger drilling methods in the upper 5 feet. Below about 5 feet, the borings were completed using the drilling methods described below.

2.1.2 Drilling Methods

The borings were drilled on November 17 through November 20, 2025. Drilling services were provided by Pitcher, LLC of East Palo Alto, California. Following the initial 5-foot hand auger as described above, the borings were drilled using a CME 850 track-mounted drill rig using hollow stem auger (HSA) until free groundwater was noticed. After free groundwater was first noticed, the drilling was halted for about 10 minutes for periodic depth-to-water measurements. The borings were then completed using mud-rotary drilling methods.

Logs of the borings and the hammer energy data report provided by the drillers for the drill rig used on the project are included in Appendix A.

A summary of the borings drilled for this study, including date completed and depth, is shown in Table 2-1. The approximate locations of borings are shown in Figure 2.

Table 2-1: Summary of Explorations

Exploration No.	Coordinates[1]		Completion Date	Completion Depth[2] (ft)	Hammer Efficiency %	Approx. Ground Surface El[3]. (NAVD88, ft)	Groundwater Depth[2] (ft)
	Latitude (°)	Longitude (°)					
B-1	37.25833	121.78732	11.18.2025	81.5	90%	199	-
B-2	37.25861	121.78891	11.19.2025	81.5	90%	200	-
B-3	37.25890	121.78921	11.20.2025	44.5	90%	199	-
B-4	37.25930	121.78917	11.19.2025	61.5	90%	199	24.6
B-5	37.25932	121.78853	11.20.2025	26.5	90%	198	-
Previous Exploration 2022							
KB-1	37.25913	-121.78974	07.29.2021	11.5	79.1%	204	-
KB-2	37.25817	-121.78940	07.30.2021	26.5	61%	204	-
KB-3	37.25897	-121.78847	07.29.2021	15	79.1%	203	-
KB-4	37.25844	-121.78822	07.30.2021	44.5	61%	203	23
KB-5	37.25803	-121.78809	07.29.2021	15	79.1%	203	-
KB-6	37.25765	-121.78791	07.29.2021	11.5	79.1%	204	-
KB-7	37.25960	-121.78793	07.29.2021	11.5	79.1%	203	-
KB-8	37.25884	-121.78703	07.29.2021	25	79.1%	202	-
SCPT-01	37.258619	-121.789520	07.29.2021	44.5	-	204	25.4
CPT-02	37.257715	-121.789208	07.29.2021	44.5	-	205	25.8
CPT-03	37.259312	-121.787592	07.29.2021	44.5	-	202	23.3
SCPT-04	37.258401	-121.786727	07.29.2021	44.5	-	203	23.8
SCPT-05	37.258180	-121.788840	01.20.2022	88	-	204	36.1
SCPT-06	37.258890	-121.787757	01.20.2022	61.75	-	202	29.6

Notes:
1. Approximate horizontal coordinates were obtained from Google Earth.
2. Measured below the existing ground surface. For "-", the groundwater table was not observed after halting the drilling for 10 minutes before switching to mud-rotary drilling.
3. Ground surface elevations were obtained as follows:

a) From Google Earth for the borings completed in this study.
b) From historical boring logs for previous borehole investigations, provided in Appendix B.
c) From ConeTec reports for CPTs included in Appendix C.

2.1.3 Soil Sampling

A Kleinfelder field engineer logged the borings and handled the samples from the borings. Bulk samples of the hand auger cuttings were placed in plastic bags. Below a depth of 5 feet samples were typically collected at approximate 2.5-foot intervals in the upper 10 feet and at 5-foot intervals thereafter by driving either a 2-inch outside diameter (O.D.), 1.4-inch inside diameter (I.D.) Standard Penetration Test (SPT) sampler or a 3-inch O.D., 2.4-inch I.D. California split barrel sampler using a standard 140-pound automatic trip hammer free-falling a height of 30 inches. The California sampler is in general conformance with ASTM D3550 and was used with stainless steel liners. The SPT sampler is in general conformance with ASTM D1586 and was used without liners to obtain SPT blow counts for use in engineering analyses. The blow counts are noted on the boring logs in Appendix A.

At every sampling interval, blow counts were recorded for each 6-inch interval for an 18-inch drive, or until refusal was met (defined as 50 blows for less than 6 inches). The blow counts listed on the boring logs are raw values and have not been corrected for the effects of overburden pressure, rod length, sampler size, sampler type, or hammer efficiency.

2.1.4 Soil Classification and Sample Handling

Kleinfelder's field engineer visually classified the soils encountered in the borings in general accordance with the Unified Soil Classification System (ASTM D2488). The undrained shear strengths of cohesive samples were estimated in the field using a hand-held penetrometer to aid in field classification of the soil. Shear strength estimates from the pocket penetrometer readings are shown on the boring logs. Soil samples obtained from the borings were packaged and transported to Kleinfelder's geotechnical laboratory for further examination and testing. Logs of the borings and a key to the terms and symbols used on the boring logs are presented in Appendix A.

2.1.5 Boring Abandonment and Handling of Drill Cuttings and Fluids

The borings were grouted with cement grout upon completion using a tremie pipe, from the bottom of the hole filling upward, under the inspection of Valley Water.

Soil cuttings and water (investigation derived wastes (IDW)) were contained in DOT-approved 55-gallon steel drums and sampled for analytical testing for waste classification for disposal purposes. Following receipt of analytical testing results, the IDW were disposed of as non-hazardous waste. The results of the analytical testing on IDW are presented in Appendix F.

3 LABORATORY TESTING

3.1 GEOTECHNICAL LABORATORY TESTING

Laboratory tests were performed on selected soil samples to measure engineering properties of selected materials. Testing was performed by Kleinfelder's laboratory in Hayward, California in general accordance with applicable ASTM Standards. The following laboratory test types were conducted:

- Natural water content (ASTM D2216)
- Dry unit weight (ASTM D2937)
- Grain-size analyses (ASTM D6913)
- R-Value (ASTM D2844)
- Atterberg limits (ASTM D4318)
- Pavement Subgrade R-Value (ASTM D2844)
- Compaction Testing – Modified Proctor (ASTM D1557)
- Triaxial Shear Strength (ASTM D2850)
- Thermal Resistivity (ASTM D5334)

The geotechnical test results are presented on the boring logs Appendix A and in Appendix D.

3.2 SOIL CORROSION POTENTIAL TESTING

Kleinfelder submitted one near-surface sample from combined bulk samples of boring B-4 for corrosivity testing to aid in the evaluation of soil corrosivity potential with respect to concrete and ferrous metals. Laboratory testing was performed by CERCO Analytical, Inc. of Concord, California. The sample was tested for corrosion as follow:

- Redox potential (ASTM D1498)
- pH (ASTM D4972)
- Resistivity (ASTM G187)
- Sulfide (ASTM D4658M)
- Soluble chloride (ASTM D4327)
- Soluble sulfate (ASTM D4327)

The soil corrosivity test results are attached to Appendix D and are summarized below in Table 3-1. If fill materials need to be imported to the project site, similar corrosion potential laboratory testing should be completed on the imported material.

Table 3-1: Preliminary Corrosion Potential Test Results

Boring	Depth, feet	Soil Description	Resistivity (As Received), ohm-cm	Resistivity (100% Saturated), ohm-cm	pH	Redox, mV	Water-Soluble Ion Concentration, ppm		
							Chloride	Sulfide	Sulfate
B-4	0-5	Lean Clay (CL)	8,700	2,600	7.81	+240	N.D.	N.D.	N.D.
KB-4[2]	0-5	Lean Clay with Gravel (CL)	-	2,600	8.10	-	N.D.	-	65

Note:

1. N.D. none detected (<50 mg/kg for Sulfide, <15 mg/kg for Chloride and Sulfate)
2. Kleinfelder (2022) (Project No. 20221404.001A)

The project structural and civil engineers should review this data from CERCO to determine if remedial measures are necessary for the buried concrete, reinforcing steel, and ferrous metal. Metal and concrete elements in contact with soil, whether part of a foundation or part of the supported structure, might be subject to degradation due to corrosion or chemical attack. Therefore, buried ferrous metal and concrete elements should be designed to resist corrosion and degradation based on accepted practices.

Data from the USDA Natural Resources Conservation Service website (Web Soil Survey) indicate a "moderate to high" corrosion potential for uncoated steel and "low to moderate" corrosion potential for concrete at the project site.

According to the soil resistivity classification presented by Roberge (2000), the native clayey material at the site is expected to be "moderately" corrosive at the "as-received" moisture and is expected to be "highly" corrosive at 100% saturation.

Kleinfelder recommends that a Corrosion Engineer be consulted for the development of site-specific corrosion protection measures.

3.3 THERMAL RESISTIVITY TESTING

Thermal resistivity testing was performed by Geotherm of Cypress, Texas. The tests were performed on selected samples from Borings B-1 through B-5 at depths ranging from about 0 to 15 feet below ground surface. In addition, thermal resistivity testing was performed on a bulk sample of soils from the upper 15 and 5 feet of Borings B-1, B-2, and B-5. The composite sample was remolded to 90 percent relative compaction (ASTM D1557). The tests were conducted in general accordance with IEEE Standard 442-2017, Guide for Thermal Resistivity Measurements of Soil and Backfill Materials. Results of the thermal resistivity testing are presented in Appendix G .

4 GEOLOGIC CONDITIONS

4.1 AREA GEOLOGY

The San Francisco Bay Area lies within the Coast Ranges geomorphic province, a series of discontinuous northwest trending mountain ranges, ridges, and intervening valleys characterized by complex folding and faulting. Geologic and geomorphic structures within the San Francisco Bay Area are dominated by the San Andreas fault, a right-lateral strike-slip fault that extends from the Gulf of California in Mexico to Cape Mendocino, on the Coast of Humboldt County in northern California. It forms a portion of the boundary between two independent tectonic plates on the surface of the earth. To the west of the San Andreas is the Pacific plate, which moves north relative to the North American plate, located east of the fault. In the San Francisco Bay Area, movement across this plate boundary is concentrated on the San Andreas fault; however, it is also distributed, to a lesser extent across a number of other faults that include the Hayward, Calaveras, and Concord among others. Together, these faults are referred to as the San Andreas Fault system. Movement along the system has been ongoing for about the last 25 million years. The northwest trend of the faults within this fault system is largely responsible for the strong northwest structural orientation of geologic and geomorphic features in the San Francisco Bay Area. Currently, active compressional forces normal to the northwest structural trend of the Coast Range province are also partially responsible for the strong structural trend and uplift of the mountains within the province. These compressional forces are responsible for the movements associated with the Great Valley fault system, a series of blind (no surface expressions of the faults are evident) thrust faults along the eastern margin of the Coast Range province and for the folding of the younger rocks within the region.

Basement rocks west of the San Andreas fault are generally granitic, while to the east they consist of a chaotic mixture of highly deformed marine sedimentary, submarine volcanic and metamorphic rocks of the Franciscan Complex. Both are typically Jurassic to Cretaceous in age (approximately 66.0 to 201.3 million years old). Overlying the basement rocks are Cretaceous (approximately 66.0 to 145.0 million years old) marine, as well as Tertiary (approximately 66.0 to 2.6 million years old) marine and non-marine sedimentary rocks with some continental volcanic rock. These Cretaceous and Tertiary rocks have typically been extensively folded and faulted as a result of Late Tertiary and Quaternary age (less than approximately 5.3 million years old) regional compressional forces. The inland valleys as well as the structural depression within which the San Francisco Bay is located are filled with unconsolidated to semi-consolidated deposits of Quaternary age (less than approximately 2.6 million years old). Continental surficial deposits (alluvium, colluvium, and landslide deposits) generally consist of unconsolidated to semi-consolidated sand, silt, clay, and gravel while the Bay deposits typically consist of very soft organic-rich silt and clay (Bay Mud) and sand.

4.2 SITE GEOLOGY

The site has been mapped by Wentworth et al. (1999), the California Geological Survey (2000), and Witter et al. (2006), among others. Wentworth et al. (1999) indicate the site is underlain by Holocene age (less than approximately 12,000 years old) alluvial fan deposits, consisting of moderately dense to dense gravelly sand, sandy and clayey gravel, grading upward to sandy and silty clay. The California Geological Survey (2000) and Witter et al. (2006) are in agreement and indicate the northeast half of the site is underlain by Holocene age alluvial fan deposits, while the southwest half the site is underlain by Holocene age alluvial fan levee deposits. According to Witter et al. (2006), the fan deposits consist of moderately to poorly sorted, moderately to poorly bedded sand, gravel, silt and clay, and the levee deposits are comprised of loose, moderately to well sorted sand, silt and clay.

According to the CGS (2001) and the County of Santa Clara (2025), the site is located within a zone of potential liquefaction, where liquefaction related ground surface effects have historically occurred, or where subsurface soil and groundwater conditions indicate the potential for liquefaction to occur during a seismic event. Witter et al. (2006) indicate the alluvial fan deposits and alluvial fan levee deposits are "moderately susceptible" to liquefaction. Discussion of liquefaction potential based on the field exploration and analyses conducted for this study is provided in Section 6.4 of this report.

The portion of the Wentworth et al. (1999) geologic map that encompasses the site is presented in Figure 3.

4.3 FAULT-RELATED GROUND SURFACE RUPTURE

The site is not located within an Earthquake Fault Zone as defined by the CGS (2025) in accordance with the Alquist-Priolo Earthquake Fault Zone Act of 1972. According to the CGS (2025), the nearest zoned active fault to the site is the Hayward, located approximately 3.1 miles northeast of the site. The Working Group on California Earthquake Probabilities (2015) however indicates the most proximal fault to the site is the Silver Creek, located approximately 2.0 miles to the northeast. Moderate to major earthquakes generated on these and other faults in the region can be expected to cause strong ground shaking at the site.

The proximities of significant faults in the vicinity of the site, relative to the approximate center of the site, are listed in Table 4-1. The locations of the faults presented on Table 4-1 are based on the Working Group on California Earthquake Probabilities (2015), and the CGS (2025), where noted.

Table 4-1: Significant Faults

Fault Name	Closest Distance to Site (miles)
Silver Creek	2.0
Hayward	3.4 (3.1, CGS)
Monte Vista-Shannon	4.0
Calaveras	6.2
Sargent	11.0
San Andreas	12.0
Butano	12.2
Mission	13.8
Zayante-Vergeles	15.3
Greenville	17.5
Pilarcitos	21.0
Ortigalita	27.0
Reliz	29.0
Monterey Bay-Tularcitos	29.7
Quien Sabe	31.8
Great Valley 07 (Orestimba)	32.1
Mount Diablo Thrust	32.1
San Gregorio	32.4
Great Valley 08 (Quinto)	38.3
Great Valley 06 (Midland)	41.2
Clayton	41.7
Franklin	42.9
Great Valley 09 (Laguna Seca)	45.5
Concord	45.6

The United States Geological Survey (2021) identifies the Coyote Creek fault zone located approximately 0.2 miles northeast of the site. According to the U.S. Geological Survey (2021), the trace is designated undifferentiated Quaternary (exhibits deformation in the last 1.6 million years). This trace is not zoned as active by the CGS (2025) and is not considered a source of seismic shaking by the Working Group on California Earthquake Probabilities (2015). That said, the County of Santa Clara (2021) has incorporated the Coyote Creek fault zone in their County Geologic Hazard Zonation program. The site is located approximately 600 feet southwest of this County Fault Rupture Hazard Zone boundary at its closest point (i.e., outside the zone of County ordinance required investigation).

Future seismic events in this region can be expected to produce strong seismic ground shaking at this site. The intensity of future shaking will depend on the distance from the site to the earthquake focus, magnitude of the earthquake, and the response of the underlying soil and bedrock.

5 SITE AND SUBSURFACE CONDITIONS

5.1 SITE CONDITIONS

At the time of a site reconnaissance conducted by Kleinfelder on November 6, 2025, the project site was unoccupied, relatively flat, and the majority of the site was covered with short grass. The site was fenced with two gates at the southern and northwestern perimeter. Several trees were located near the central and northwestern portion of the site. Debris including cinder block metal rope, pieces of wood and concrete, a couple of rusted car frames were located at the site.

As shown on Figure 1, the northwest and southwest corners of the fenced property site are located within about 200 feet of the eastern bank of Coyote Creek channel. According to an elevation profile interpreted from Google Earth, the Coyote Creek channel is about 15 to 20 feet deep.

5.2 SUBSURFACE CONDITIONS

The subsurface conditions described below are based on the soil conditions encountered in the borings drilled for this project and the explorations presented in the 2022 Kleinfelder report. The boring logs and laboratory test data from borings drilled for this investigation are presented in Appendices A and D, respectively. Boring logs and CPT results from the 2022 Kleinfelder study are provided in Appendices B and C, respectively.

5.2.1 Stratigraphy

The borings were drilled in the generally flat ground level, where we encountered medium stiff to very stiff lean clay and lean clay with sand in the upper approximately 56 to 65 feet. In the upper approximately 10 feet, the liquid limit ranges from 25 to 35 and the plasticity index ranges from 8 to 15. Discontinuous layers of silty to clayey sand, sandy silt, and poorly graded fine sand occur within the clayey alluvium at various depths between depths of 7 and 13 feet (in the northwestern area of the site) and in thin layers of up to about 2 to 4 feet between depths of about 35 and 45 feet. Below a depth of about 56 to 65 feet, the deeper explorations encountered dense to very dense poorly graded sand and gravels with variable quantities of clay.

Further details on the expected stratigraphy can be find in Section 6.2 and Table 6-1.

5.2.2 Groundwater

Groundwater was measured during drilling of boring B-4 and at a depth of approximately 24 ½ feet below the ground surface. In other boreholes, groundwater table was not observed after halting the drilling for 10 minutes before switching to mud-rotary drilling.

In Kleinfelder's GIR (2022), groundwater levels were encountered in one boring at approximately 23 feet below the ground surface and interpreted in the CPTs between 23 and 36 feet based on pore pressure dissipation tests. It is possible that groundwater conditions at the site could change due to variations in rainfall and runoff, construction activities, well pumping and irrigation, or other factors not apparent at the time the field investigation was performed. Based on the above groundwater levels, we recommend a design groundwater depth of 20 feet below the ground surface.

It is possible that groundwater conditions at the site could change due to variations in rainfall, groundwater withdrawal or recharge, construction activities, well pumping, or other factors not apparent at the time the explorations were performed.

5.2.3 Variations in Subsurface Conditions

Our interpretations of soil and groundwater conditions at the site are based on the conditions encountered in the borings drilled for this project, published geologic maps, and our knowledge of geologic and hydrogeologic conditions in the site vicinity. If soil or groundwater conditions exposed during construction vary from those presented in this report, Kleinfelder should be notified to evaluate whether our conclusions or recommendations should be modified.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 GENERAL

From a geotechnical standpoint, the proposed construction is feasible provided the recommendations presented in this report are incorporated into project design and construction. The following sections discuss conclusions and recommendations with respect to geologic and seismic hazards, CBC seismic design considerations, site preparation for earthwork, foundation design, pavement design, and other construction considerations. These conclusions and recommendations are based on the data collected during our investigations and are subject to the limitations stated in this report.

6.2 GEOTECHNICAL DESIGN PARAMETERS

Geotechnical parameters have been developed based on the subsurface conditions encountered during the field exploration and laboratory testing program.

Table 6-1 summarizes the recommended design geotechnical parameters for foundations constructed in the alluvial soils. These parameters were utilized in the development of conclusions and recommendations that follow.

Table 6-1: Generalized Soil Profile and Geotechnical Design Parameters

Depth (feet)	Generalized Soil Profile	Effective Unit Weight (lb/ft^3)	Cohesion (c, psf)	Internal Friction Angle, Φ (degrees)
0 – 20	Lean Clay or Lean Clay with Sand	120	1,800	--
20 – 60	Lean Clay to Sandy Lean Clay	61	1,500	--
60+	Poorly Graded Sand to Poorly Graded Gravel	67	--	40
Note: 1. Recommended design groundwater depth at 20-foot depth				

6.3 SEISMIC DESIGN PARAMETERS

Appendix H of this report includes the results of a site-specific site response analysis that was conducted in general accordance with Section 21.1 of ASCE 7-22. However, for estimating the free-field maximum considered earthquake design peak ground acceleration (PGA_M) to be used in the liquefaction analysis, we used ASCE 7 Hazard Tool using Site Class D which resulted in a PGA_M of 0.63g. The earthquake moment magnitude (M_w) associated with this PGA_M was estimated using USGS Disaggregation Hazard Tool resulting in a mean magnitude of about 6.7 most likely associated with the Hayward fault South Extension. However, the site is also close to the Calaveras and the San Andreas faults which could generate earthquakes with much higher magnitudes. Therefore, M7.6 was used in our liquefaction analysis.

6.4 LIQUEFACTION POTENTIAL AND SEISMIC SETTLEMENTS

The term liquefaction describes a phenomenon in which saturated, cohesionless soils temporarily lose shear strength (liquefy) due to increased pore water pressures induced by strong, cyclic ground motions during an earthquake. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and undergo lateral spreading. The factors known to influence liquefaction potential include soil type, relative density, grain size, confinement, depth to groundwater, and the intensity and duration of seismic ground shaking. Liquefaction is most prevalent in loose to medium dense sandy and gravely soils below the groundwater level but can also occur in non-plastic to low plasticity fine-grained soil.

The California Geological Survey (Seismic Hazard Zone Report for the San Jose East 7.5-minute Quadrangle indicates the site is located within a liquefaction hazard zone. However, a review of maps of historical liquefaction occurrences in San Jose by Youd and Hoose (1978) suggest that the nearest documented occurrences of earthquake-induced liquefaction are in a site on or near Coyote Creek about 3 miles southeast of the site.

Liquefaction triggering analyses were conducted for the CPTs that were conducted in 2021 and 2022 for the Kleinfelder (2022) investigation. The CPTs were conducted to depths of about 45 feet to 88 feet. CPT-1 through CPT-4 terminated in the very stiff clayey alluvium at depths of about 45 feet. CPT-5 and CPT-6, which included seismic shear wave velocity measurements, terminated in the very dense sandy and gravelly soils encountered below depths of about 58 to 60 feet.

The analyses were performed using the liquefaction assessment software program CLiq (v.3.5.3.18 by GeoLogismiki) and the method proposed by Boulanger and Idriss (2014). The factor of safety against liquefaction triggering (e.g., cyclic resistance ratio to cyclic stress ratio) for design purposes considered a factor of safety of 1.3 per CGS (2008). For the analysis, the moment magnitude of 7.6 , and peak ground acceleration (PGAm) of 0.63g were used.

Generally, soils in the upper approximately 50 feet are considered relevant to liquefaction triggering and post-liquefaction settlement analyses. The detailed results of our liquefaction triggering and settlement analyses are presented in Appendix E of this report. Based on the results of the liquefaction triggering analyses, liquefaction-induced volumetric settlements were estimated using the Idriss and Boulanger (2008) method. The estimated liquefaction-induced volumetric settlements are presented in Table 6-2.

Table 6-2: Computed Liquefaction-Induced Total Vertical Settlement

Exploration	Depth of Potentially Liquefiable Materials (ft)	Computed Total Settlement (in.)
CPT-1	No significant liquefaction	Nil
CPT-2	No significant liquefaction	Nil
CPT-3	38 – 39	< ½
CPT-4	38 – 40	< ½
SCPT-5	30 – 49	< ½
SCPT-6	40 – 42	< ½

In general accordance with SCEC (1999), differential post-liquefaction settlement of up to two-thirds the total settlement may be considered for the free-field condition. This differential settlement estimate accounts for variability in subsurface conditions.

Another type of seismically induced ground failure that can occur as a result of seismic shaking is dynamic compaction, or seismic settlement. This phenomenon typically occurs in unsaturated, very loose to medium dense granular material or poorly compacted fill soils. As soils encountered above the design groundwater depth of 20 feet were predominantly cohesive soils, the potential for shaking-related dynamic compaction, in our opinion, is expected to be low.

6.4.1 Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occurs as a response to lateral migration of subsurface liquefiable material. These phenomena typically occur adjacent to free faces such as slopes and creek channels. The Coyote Creek channel is about 200 feet from the northwest corner of the site. However, based on the generally low computed potential for liquefaction triggering at the site, in our opinion the potential for liquefaction-induced lateral spread toward Coyote Creek is low.

6.5 SHRINK/SWELL POTENTIAL

Expansive soils undergo volume changes (shrinkage and swelling) with changes in moisture content. These cycles have the potential to cause distress and damage to structures that are constructed on/within expansive soils unless mitigation measures are implemented. The near-surface clayey soils encountered in the borings have reported liquid limits that range from 25 to 35, and the plasticity index ranges from 8 to 15. Soils with these plasticity characteristics are considered to have a low to moderate potential for volume change (shrink/swell behavior) with changes in moisture content.

6.6 RETAINING WALLS

Details regarding proposed retaining walls, including wall type (restrained or unrestrained) and heights, are not yet available. The following recommendations apply to retaining walls up to 10 feet tall.

6.6.1 Wall Earth Pressures

Retaining walls should be designed to resist lateral pressures caused by water, backfill, seismic pressures, and external surface loads. The magnitude of the lateral pressures will depend on wall flexibility, the backfill type and method of placement, the magnitude of external loads (e.g., seismic or surcharge loads), and back drainage provisions. If retaining walls are expected to be braced and restrained from deflection, the pressures against retaining walls should be modeled based on the at-rest earth pressure. Retaining walls that are free to translate or rotate at least 0.002 times the height (unrestrained) should be designed with pressures against retaining walls modeled based on the active earth pressure. Earth pressures recommended below apply for level backslopes behind the walls. If sloped backfill is planned behind walls, Kleinfelder can provide supplementary recommendations for design. The lateral earth pressures provided below assume no excess pore water pressure developed in the retained soil and the wall backfill is fully drained. Additionally, the lateral earth pressures provided below do not include the effects of surcharges (e.g., traffic, footings), compaction, or truck-induced wall pressures. Any surcharge (live load, including traffic, or dead load) located within a 1H:1V plane drawn upward from the base of the excavation should be added to the lateral earth pressures. The lateral contribution of a uniform surcharge load located immediately behind walls may be calculated by multiplying the surcharge by 0.33 for cantilevered walls under active conditions, and 0.50 for restrained walls under at-rest conditions. Walls adjacent to areas subject to vehicular traffic should be designed for a 2-foot equivalent soil surcharge (250 psf). Lateral load contributions from other surcharges located behind walls may be provided once the load configurations and layouts are known.

6.6.1.1 Restrained Walls

For restrained walls backfilled with drained, granular (i.e., no more than 20 percent passing the No. 200 sieve) selected soil backfill, placed and compacted in accordance with the recommendations provided in Section 6.9.5, we recommend an "at-rest," triangular earth pressure distribution based on an equivalent fluid weight of 60 pounds per cubic foot (pcf). The at-rest pressure distribution may be taken as triangular, with the resultant force applied at a distance of H/3 above the bottom of the wall, where H = wall height.

The additional pressure due to a surcharge at the ground surface acting against restrained walls with soil backfill may be taken as a uniform earth pressure estimated by multiplying the surface load by a factor of 0.5.

6.6.1.2 Unrestrained Walls

For unrestrained retaining walls with drained, granular soil backfill selected, and placed in accordance with the recommendations provided below, we recommend an "active," triangular earth pressure distribution based on an active equivalent fluid weight of 40 pcf. The active equivalent fluid pressure assumes the wall is free to move at least 0.002 times the height of the wall to mobilize the active condition. The additional pressure due to a surcharge at the ground surface acting against unrestrained walls may be taken as a uniform pressure estimated by multiplying the surface load by a factor of 0.33.

6.6.1.3 Seismic Increment

For seismic design of retaining walls more than 6 feet tall, the active earth pressure may be used in conjunction with a seismic pressure increment. For seismic design, an active earth pressure distribution based on an equivalent fluid weight of 40 pcf may be used in conjunction with a seismic increment based on an equivalent fluid weight of 18 pcf. The seismic pressure increment is an ultimate value, with no load factor. All pressure distributions may be taken as triangular, and all resultant forces may be assumed to apply at a distance of H/3 above the bottom of the wall, where H = wall height.

6.6.1.4 Passive Resistance

Ultimate passive pressures will develop under lateral deflections of about 2 percent of the wall height. For passive resistance, an equivalent fluid weight of 320 pcf acting against the side of the wall may be used. This value generally corresponds to a lateral deflection of less than about ½ inch. Passive resistance in the upper 12 inches should be neglected. For foundations placed neat against properly prepared subgrade soils, a friction coefficient of 0.34 may be used to estimate sliding resistance between the bottoms of wall footings and the underlying soil. The friction resistance and passive resistance may be used concurrently without reduction.

6.6.2 Wall Backfill and Drainage

Soil backfill should consist of granular soil (maximum passing the No. 200 sieve of 20 percent), compacted according to the recommendations provided in Section 6.11.4.2. Kleinfelder should review and approve the proposed backfill materials before they are used in construction. Over-compaction of wall backfill should be avoided because increased compaction effort can result in lateral pressures significantly greater than those used in design. Granular backfill, which meets the requirements for imported fill as defined in Section 6.8, should extend behind walls a horizontal distance of at least one-half the height of the wall. We recommend that all backfills placed within 3 feet of the walls be compacted with hand-operated equipment.

The walls may be designed without hydrostatic pressures if they are fully drained. Wall drainage should consist of either a prefabricated drainage material or a layer of drain rock placed behind the wall that is connected to a suitable drainage location. Prefabricated drainage material (such as Miradrain or an approved alternative) may be used behind retaining walls. Prefabricated drainage material should be installed in accordance with the manufacturer's recommendations.

As an alternative to prefabricated drainage material, a drain rock layer may be used. The drain rock should be at least 12 inches thick and extend to within 2 feet of the ground surface. Four-inch diameter perforated plastic pipe should be installed (with perforations facing down) along the base of the walls on a 2-inch-thick bed of drain rock. The pipe should be sloped to drain by gravity to a sump or other drainage facility. Elevations of subsurface drainage pipes will need to account for the design ground water depth. If gravity drainage is not possible, the drainage system may need to incorporate sumps and pumps. Drainpipes should be rigid-walled PVC or similar material that is capable of withstanding all applied loads.

Drain rock should conform to Caltrans specifications for Class 2 Permeable Material. Alternatively, clean, ½ to ¾-inch maximum size crushed rock or gravel could be used, provided it is encapsulated in a nonwoven geotextile filter fabric, such as Mirafi 140N or an approved alternative. A 1-foot-thick cap of clayey soil should be placed over the drain rock to inhibit surface water infiltration.

6.6.3 Hydrostatic Pressure

Earth pressures discussed above are "drained" earth pressures. If walls extend below grade or have no provision for permanent drainage, the walls should be designed for hydrostatic pressure in addition to the earth pressure and seismic pressure discussed above. We recommend that hydrostatic pressure be based on a triangular pressure distribution and a fluid weight of 63 pcf, extending from the ground surface to the bottom of the wall.

6.7 SHALLOW FOUNDATION DESIGN

Foundations should satisfy two independent criteria with respect to foundation soils. First, the foundation should have an adequate safety factor against bearing failure with respect to the shear strength of the foundation soils. Second, the vertical movements of the foundation due to settlement (both immediate elastic settlement and consolidation settlement) should be within tolerable limits for the structure.

Lightly loaded structures may be supported on conventional, shallow, reinforced concrete mat foundations or spread footings, provided they are designed and constructed in accordance with the recommendations presented in this report and the site structures can tolerate the anticipated settlement. The shallow foundation design criteria presented below has been developed based on our understanding of the current project needs and settlement tolerances. Increased capacities may be available depending on the specific structural tolerances, foundation dimensions, and foundation loading. Kleinfelder should be consulted should additional capacity be required.

6.7.1 Spread and Strip Footings

6.7.1.1 Allowable Bearing Pressure

Shallow spread and strip footings constructed of reinforced concrete may be founded on approved non-expansive, engineered fill or approved undisturbed native soil. The footings should be founded at least 18 inches below lowest adjacent finished grade on subgrade soils that have been prepared in accordance with the recommendations provided in this report. Continuous and isolated rectangular footings should have a minimum width of 18 inches.

Spread and strip footings may be designed for a net allowable bearing pressure of up to 3,000 psf due to dead plus live loads. The weight of the foundation that extends below grade may be neglected when computing dead loads. The allowable bearing pressure includes a safety factor of at least 3 with respect to shear failure of the foundation soils and may be increased by one-third for transient loading due to wind or seismic forces.

The upper 18 inches of soil beneath spread foundations should consist of on-site or imported non-expansive engineered fill.

To maintain the desired support, foundations adjacent to utility trenches or other existing foundations should be deepened so that their bearing surfaces are below an imaginary plane having an inclination of 1H:1V (horizontal to vertical), extending upward from the bottom edge of the adjacent foundations or utility trenches.

6.7.1.2 Lateral Load Resistance

Lateral loads may be resisted by a combination of friction between the foundation bottoms and the supporting subgrade, and by friction resistance acting against the vertical faces of the foundations. For spread and strip footings placed neat on properly prepared subgrade soils, a coefficient of sliding friction of 0.34 between the foundation and the supporting subgrade may be used for design. For passive resistance, an equivalent fluid weight of 320 pcf acting against the side of the foundation may be used for design. This value generally corresponds to a lateral deflection of less than ½ inch. Passive resistance in the upper 12 inches of soil should be neglected unless the area in front of the footing is protected from disturbance by concrete or pavement. The resistance coefficient and passive resistance may be used concurrently without reduction.

The effective at-rest pressures normal to the sides of the structural elements should be used in estimating frictional resistance along the sides. We recommend using equivalent fluid weight of 60 pcf for the effective at-rest earth pressure in soils above the groundwater level.

The resistance from the upper 12 inches of footings should be neglected in lateral resistance calculations unless the adjacent soil surface is covered by a permanent pavement or floor slab. However, the pressure distribution for any case should be calculated from the soil surface. The friction coefficient and passive resistance may be used concurrently, and the passive resistance can be increased by one-third for wind and/or seismic loading.

6.7.1.3 Spread Footing Settlement

Total settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. Total settlement of foundations designed and constructed for the recommended net allowable bearing pressure is estimated to be up to about ½ inch. Over the life of the structure, differential settlement between similarly loaded, adjacent footings (spaced at approximately 60 feet apart) is estimated to be about half the total settlement.

6.7.1.4 Shallow Foundation Construction Considerations

Prior to placing steel or concrete, foundation excavations should be cleaned of any debris, disturbed soil, or water. All foundation excavations should be observed by a representative of Kleinfelder just prior to placing fill and/or steel or concrete. The purpose of these observations is to check that the bearing soils actually encountered in the foundation excavations are similar to those assumed in analysis and to verify the recommendations contained herein are implemented during construction.

6.7.2 Mat Foundations

Recommendations for design and construction of typical mat slab foundations up to about 20 feet wide are presented below. Kleinfelder should be consulted to provide supplementary mat foundation recommendations if larger mat slab foundations are planned.

6.7.2.1 Allowable Bearing Pressure

For properly prepared subgrades as recommended herein, reinforced concrete mat slab foundations may be designed for a net allowable bearing pressure of 2,800 psf due to dead plus live loads. The recommended net allowable bearing pressure includes a safety factor of at least 3 with respect to shear failure of the foundation soils. A one-third increase in the allowable bearing pressure may be applied for considering transient loading such as wind or seismic.

Beneath cast-in-place concrete mat foundations, we recommend the design include a base course of well-graded aggregate (such as Caltrans Class 2 Aggregate Base) at least 4 inches thick. Under slabs that will be subjected to vehicle loading, the aggregate base course thickness should be increased to a minimum of 6 inches. The base course should be compacted to at least 95 percent relative compaction at a moisture content slightly above optimum. Mat slabs should have turned down or thickened edges at least 18 inches deep to reduce water infiltration beneath the slabs.

6.7.2.2 Lateral Load Resistance

Lateral loads may be resisted by a combination of friction between the foundation bottoms and the supporting subgrade, and by passive resistance acting against the vertical faces of the foundations. For foundations placed on properly prepared subgrade soils, a coefficient of sliding friction of 0.34 between the foundation and the supporting subgrade may be used for design. For passive resistance, an equivalent fluid weight of 320 pcf acting against the side of the foundation may be used for design. This value generally corresponds to a lateral deflection of less than ½ inch. Passive resistance in the upper 12 inches should be neglected unless the area in front of the foundation is protected from disturbance by concrete or pavement. The friction coefficient and passive resistance may be used concurrently without reduction.

6.7.2.3 Mat Foundation Settlement

Total settlement of an individual foundation will vary depending on the plan dimensions of the foundation and the actual load supported. Based on typical substation foundation dimensions and loads, we estimate maximum total settlement of foundations with dimensions up to 20 feet wide that are designed and constructed in accordance with the preceding recommendations to be up to about 1½ inches. Differential settlement between the center and corners of the mat is estimated to be up to one-half of the total settlement.

6.7.2.4 Mat Foundation Construction Considerations

Underground utilities that are 4 feet deep or shallower and that run parallel to shallow mat foundations generally should be located no closer than 2 feet horizontally away from the perimeter edges of the slab. Deeper utilities should be located above a 1H:1V (horizontal to vertical) slope projected downward from the bottom edges of the slab. Utility plans should be reviewed by Kleinfelder prior to trenching to evaluate conformance with this requirement.

6.7.3 Subgrade Modulus

A design modulus of subgrade reaction, K_{v1}, of 60 pounds per square inch per inch of deflection (for a 1 square-foot bearing plate) may be used for design of mat slabs supported on the on-site lean clay soils. The modulus should be adjusted for the actual slab size using appropriate formulas or software.

6.7.4 Hydrostatic Uplift

Groundwater conditions are described in Section 5.2.2. For purposes of hydrostatic uplift design, the groundwater level should be taken at a depth of 20 feet below existing ground surface. For uplift resistance computation purposes, we recommend a total unit weight of concrete of 150 pcf and a total unit weight of soil of 120 pcf.

6.8 DRILLED PIER FOUNDATIONS

We anticipate the new building will be a steel-framed structure with Insulated Metal Panels (IMP) or an Exterior Insulation and Finish System (EIFS). Ancillary equipment located outside of the building may be supported on drilled piers and/or mat foundations. Appurtenant construction may include truck loading docks, asphalt concrete and Portland cement concrete pavements, concrete flatwork, underground utilities, and landscaping. Foundation loads are unknown at this time. Recommendations for geotechnical design of drilled pier foundations are provided below.

6.8.1 Axial Resistance

Axial resistance of drilled piers was developed based on Federal Highway Administration methods using the commercial computer software SHAFT v2023, produced by Ensoft, Inc. For our analysis, the adopted parameters are presented in Table 6-1. Axial loads on drilled piers should be supported by the frictional capacity of the pier. End bearing is not considered in the axial capacity due to strain incompatibility issues between skin friction and end bearing, settlement issues, and the potential for loose materials to exist at the bottoms of the pier holes during construction that cannot be effectively cleaned out.

A curve illustrating the nominal axial compressive capacity of a unit (1-foot) diameter straight-sided drilled pier installed from existing grade is shown on Figure 4a. Corresponding tabulated values are presented on Figure 4b. Capacities for drilled piers with diameters other than 1-foot may be obtained by multiplying the capacity for the 1-foot diameter pier by the actual pier diameter (in feet). Ultimate tensile capacity may be taken as the ultimate compressive capacity and adding the weight of the foundation. For evaluation of allowable axial capacity, we recommend a factor of safety of 3 be applied to the ultimate capacity. Note that the weight of the foundation need not be considered for evaluation of allowable axial capacity. For allowable tension capacity under transient flood, wind or seismic conditions, a safety factor of at least 1.5 may be used. For allowable sustained tension, a safety factor of 3 should be used.

Consideration of group effects for axial loading of drilled pier foundations is usually not necessary for piers spaced at least three diameters (center-to-center) apart. If pier spacings are closer than three diameters, Kleinfelder should review the proposed pier group configuration and comment on group efficiency on a case-by-case basis.

6.8.2 Lateral Resistance

The lateral resistance of a drilled pier is a function of the surrounding soil strength and stiffness, size and stiffness of the pier, pier top connection, and induced moments and forces at the top of the pier. Resistance to lateral loads on piers will be provided by passive soil pressure against the pile and by the bending strength of the pier itself.

For piers or pier caps located within the native clay soils, the passive pressure may be calculated using an equivalent fluid pressure of 320 pcf. This is a triangular distribution that may be applied over a projected area based on twice the pier diameter.

If the lateral response analyses of drilled pier foundations will be conducted using the commercial computer software LPILE (by Ensoft, Inc.), default values may be used for strain factor ($\varepsilon 50$) and horizontal subgrade reaction (k). Recommended input soil parameter has been provided in Table 6-1.

Frictional resistance may also be assumed to act along one side of the pier cap or grade beam, but not both sides at the same time. For pier caps founded in the native clay soils, the frictional resistance along the sides of pier caps may be estimated by using a coefficient of friction of 0.34. The effective at-rest pressures normal to the sides of the structural elements should be used in estimating frictional resistance along the sides. We recommend using an at-rest pressure based on an equivalent fluid weight of 60 pcf. The resistance from pile caps and the pressure distribution may be calculated from the ground surface.

The discussion of lateral resistance is applicable for piers spaced at least seven effective diameters apart. For pier groups with spacings closer than about seven effective diameters Kleinfelder should refine our conclusions once the foundation layout and load demands are refined.

6.8.3 Drilled Pier Construction Considerations

Based on the soil conditions encountered at the site during the field exploration, caving within the granular layer is expected during drilling for piers deeper than 60 feet below ground surface. Also, due to ground variation, interbedded granular layers should be expected within the clays in the upper 60 feet.

Drilled pier excavations should be observed and approved by the geotechnical engineer prior to installation of reinforcement. The depths of all pier excavations should be checked immediately prior to concrete placement to verify sloughing and/or caving has not reduced the required hole depth. This may be done with a weighted tape measure or similar measuring device.

If water is more than 6 inches deep is present during concrete placement, the water should be pumped out. Concrete should be placed into the hole using tremie methods and the end of the tremie pipe must remain below the surface of the in-place concrete at all times. Steel reinforcement and concrete should be placed on the same day of completion of each pier excavation. Additionally, drilled excavations should be scheduled to allow concrete in each pier to set overnight before drilling adjacent holes that are closer than four diameters on center.

Concrete used for pier construction should have a design slump of from 4 to 6 inches if placed in a dry shaft without temporary casing, and from 6 to 8 inches if temporary casing is used. The concrete mix should be designed with appropriate admixtures and/or water/cement ratios to achieve these recommended slumps. Adding water to a conventional mix to achieve the recommended slump should not be allowed. For concrete mixes with slumps over 6 inches, vibration of the concrete during placement is generally not recommended as aggregate settlement may result in the lack of aggregate within the upper portion of the pier.

If temporary straight-sided steel casing is used for conventional drilled pier construction, it should be removed from the hole as concrete is being placed. The bottom of the casing should be maintained below the top of the concrete during casing withdrawal and concrete placement operations. Casing should not be withdrawn until sufficient quantities of concrete have been placed into the excavation to balance the groundwater head outside the casing. Continuous vibration of the casing or other methods may be required to reduce the potential for voids occurring within the concrete mass during casing withdrawal. Casing should not be left in the ground except by permission of the project geotechnical and structural engineers.

6.9 SITE PREPARATION AND EARTHWORK CONSTRUCTION

6.9.1 General

It is anticipated that the site excavations and grading can be performed with conventional excavation and grading equipment and techniques. Recommendations for site preparation and earthwork construction are presented below. References to compaction, maximum density and optimum moisture content are based on ASTM D1557, unless otherwise noted.

6.9.2 Stripping and Demolition

As part of the demolition process, existing structures, foundations, and underground utilities should be removed in designated areas per the project plans. If applicable, excavations from removal of slabs, foundations, underground utilities, or other below ground obstructions should be cleaned of loose soil and deleterious material and backfilled with compacted engineered fill.

Areas to receive fill and structures should be stripped of existing surface vegetation, tree roots, organic topsoil, debris, and any other deleterious materials prior to compaction followed by placement of engineered fill. Any stripped organic materials or debris should not be reused as engineered fill.

Soft or loose areas may be encountered during construction that may require over-excavation. Unit prices for over-excavation and replacement with engineered fill should be obtained during bidding.

6.9.3 Existing Utilities

Active or inactive utilities within the construction area should be protected, relocated, or abandoned as appropriate. All utilities in conflict with future structure foundations will need to be removed and relocated. Pipes may be left in place beyond the limits of the structure footprint if they are filled with grout or sand/cement slurry and capped at both ends. Active utilities to be reused should be carefully located and protected during demolition and construction.

6.9.4 Disturbed Soil, Undocumented Fill, and Subsurface Obstructions

Initial site grading should include a reasonable search to locate soil disturbed by previous activity, undocumented fill soils, abandoned underground structures and/or existing utilities that may exist within the areas of construction. Any loose or disturbed soil, or undocumented fill should be over-excavated to a minimum depth of 12 inches as observed and approved by Kleinfelder and be replaced as low to non-expansive engineered fill (NEF). The limits of over-excavation should extend horizontally a distance of 5 feet beyond the perimeter of the below-grade structure.

6.9.5 Scarification and Compaction

After stripping and performing any necessary over-excavation, the bottoms of excavations should be observed and approved by a qualified geotechnical engineer or their representative from Kleinfelder prior to the placement of engineered fill or concrete improvements. The bottom of excavations to receive engineered fill should be scarified to a depth of at least 8 inches, uniformly moisture conditioned to at least 2 percent above the optimum moisture content and compacted to at least 90 percent relative compaction. In pavement areas, the scarified subgrade should be moisture conditioned to at least 2 percent above the optimum moisture content and compacted to at least 95 percent relative compaction. The subgrade should not be allowed to dry out prior to the placement of engineered fill or aggregate base materials. The Class 2 Aggregate Base material may be placed directly over scarified, moisture conditioned, and recompacted material as approved by the geotechnical engineer.

6.9.6 Construction in Wet Weather

Should site grading be performed during or after wet weather, near-surface site soils may be significantly above the optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Disking to aerate, replacement with drier material, stabilization with a geotextile fabric or geogrid, or stabilization with quicklime may be required to reduce excessive soil moisture and facilitate earthwork operations. We recommend that during wet weather, earthen berms or other controls be used to prevent surface runoff from entering excavations. Surface runoff water and groundwater pumped from excavations should be collected and disposed of outside the construction limits.

6.9.7 Construction Testing and Observation

Field testing and construction observation should take place under the presence of a representative of Kleinfelder. Furthermore, the opinions and recommendations expressed in a geotechnical report are based on interpretation of limited information obtained from Kleinfelder's field exploration. It is therefore not uncommon to find that actual site conditions differ locally from those indicated in the report. Kleinfelder should remain involved throughout the project to evaluate such differing conditions as they appear, and to modify or add to the geotechnical recommendations, as necessary.

6.10 ENGINEERED FILL

Material for use in engineered fill should generally be free of visible organic materials, debris, and other deleterious materials, be essentially non-expansive, and have a maximum particle size less than 3 inches in maximum dimension, as described in Table 6-3 below. Onsite, near-surface soils have more than 50% passing #200 sieve. Therefore, on-site near-surface clayey soils are not likely to be suitable for reuse as engineered fill. However, the on-site clayey soils may be used outside of engineered fill areas or as a general fill outside of foundation, slab, or pavement areas. Any imported material to be used as engineered fill should be processed to meet the requirements presented in Table 6-3 below.

Table 6-3: Engineered Fill Requirements for Non-Expansive Fill

Fill Requirement		Test Procedures	
		ASTM	Caltrans
Gradation			
Sieve Size	**Percent Passing**		
3-inch	100	D6913	202
¾ inch	70-100	D6913	202
No. 200	20-50	D6913	202
Plasticity			
Liquid Limit	**Plasticity Index**		
<30	<12	D4318	204
Organic Content			
No visible organics		---	---
Expansion Potential			---
20 or less		D4829	---
Soluble Sulfates			
Less than 2,000 ppm		---	417
Soluble Chloride			
Less than 300 ppm		---	422
Resistivity			
Greater than 2,000 ohm-cm		---	643

Imported materials to be used for engineered fill should be sampled and tested by Kleinfelder prior to being transported to the site. Highly pervious materials such as clean crushed stone or aggregate base are not recommended for use as engineered fill because they can permit transmission of water into the underlying materials. We recommend representative samples of imported materials proposed for use as engineered fill be submitted to Kleinfelder for testing and approval at least one week prior to the start of grading and import of the material.

In addition, we recommend that a laboratory corrosion test series (pH, resistivity, redox, sulfides, chlorides, and sulfates) be performed on all proposed import materials.

6.11 TEMPORARY EXCAVATIONS

6.11.1 Temporary Excavations, Shoring, and Dewatering

Construction site safety is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below solely for general information. Under no circumstances should the information provided be interpreted to mean that Kleinfelder assumes responsibility for construction site safety or the Contractor's activities. Such responsibility is not implied and should not be inferred.

Excavations should comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Shoring and bracing should be designed by a California registered professional engineer.

Appropriate excavation and shoring methods will depend on the soil and groundwater conditions encountered. The contractor should evaluate the need for dewatering and select appropriate dewatering methods based on the soil and groundwater conditions described in this report and their experience working in similar subsurface conditions of the site region. Based on the expected maximum excavation of 10 feet, we do not anticipate groundwater table level to be encountered during exaction. However, perched groundwater may be present.

In addition to the soil and groundwater conditions, the restraint condition at the top of the shoring system will affect the magnitude of lateral pressures. Our experience indicates that properly designed and constructed cantilevered or unbraced shoring frequently is viable for excavations less than about 10 feet deep, depending on the tolerance for shoring deflection and disturbance to nearby underground or above-ground structures and pavements. Beyond about 10 feet, braced shoring usually is necessary. Where existing underground infrastructure (e.g., utilities) that are sensitive to movement are located within the “active wedge” along the side of an excavation, defined by an approximately 1H:1V imaginary plane projecting from the bottom of the excavation to the ground surface, the excavation should be braced. All braced shoring and excavations should be designed by a California-registered professional engineer.

6.11.2 Protection of Existing Facilities

The shoring designer should perform a deflection analysis for the proposed shoring system. A survey of existing utilities, pavements, and structures adjacent to those portions of the proposed excavation that will be shored should also be performed prior to construction. The purpose of the analysis and survey would be to evaluate the ability of existing structures, pipelines, or conduits to withstand anticipated horizontal and vertical movements associated with a shored excavation. If movements are greater than the tolerance of existing project features (utilities, structures, etc.), alternative shoring systems employing at-rest earth pressure, tiebacks, dead-man anchors, or cross bracing may be needed to reduce deflections to acceptable levels. The Contractor should anticipate repairing cracks in pavements adjacent to shored excavations due to anticipated lateral displacements of the shoring system.

In areas where new excavations will encroach upon or pass under existing utilities, stabilization of these utilities and backfill materials may be necessary. Alternatives for stabilization include shoring or bracing systems, and various in-situ compaction or permeation grouting methods. Where pressure sensitive utility lines are present, pressure grouting methods may not be applicable. The stabilization method chosen for support of adjacent utilities (and backfilling) should be determined based on a thorough review of existing conditions and with the approval of the utility owner.

We recommend the proposed shoring system design be submitted (along with the appropriate design calculations) in advance for review by the design team. The purpose of the review would be to evaluate whether the proper soil parameters have been used, and the anticipated shoring deflections are within the tolerance established by the owners of adjacent improvements that may be affected by nearby trench installations.

6.11.3 Surcharges

The contractor should avoid stockpiling excavated materials adjacent to open excavations. We recommend that stockpiled materials, building materials, vehicular traffic, and heavy construction equipment be kept back from the excavation a distance of at least the excavation depth to reduce surcharges on shoring and open cuts. If this is impractical due to space constraints, the shoring system should be designed to accommodate stockpiled materials and construction equipment by a California-registered professional engineer.

6.11.4 Bedding and Backfill

6.11.4.1 Bottom Preparation

The contractor should evaluate the need for dewatering and select appropriate dewatering methods based on the soil and groundwater conditions described in this report and their experience working in similar subsurface conditions of the site region. In addition, the contractor should monitor groundwater levels well in advance of the start of construction to plan for an appropriate dewatering system.

If present, loose and soft soils at trench bottoms should be removed to firm soil and be replaced with additional bedding material to provide a firm and stable subgrade. Where firm soils are not present within a few feet below the excavation bottom, it has been our experience that up to about 2 feet of over-excavation may be needed to stabilize soft and wet excavation bottoms using clean crushed rock surrounded by a geotextile, such as Mirafi® 140N or equivalent, to prevent migration of surrounding fine soils into the crushed rock zone. The actual depth of over-excavation needed will depend on the field conditions and should be evaluated by the geotechnical engineer on a case-by-case bases during construction. Clean crushed rock should be hard, durable, clean gravel and should be free from significant organic material, clay balls or other deleterious materials.

6.11.4.2 Backfill Materials and Placement

Native materials on this site have more than 50% passing #200, therefore, should not be used as structure backfill.

Structure backfill should not contain corrosive agents or soft, friable, or thin elongated particles, and highly plastic clay, and material larger than 3 inches should be removed.

Structure backfill materials used between the sidewalls of the structure and the sides of the excavation should be brought up uniformly on all sides of the structure and be placed in lifts not exceeding 8 inches in loose thickness, if mechanically compacted, and compacted to at least 90 percent of the maximum dry density per ASTM D1557 and at a moisture content at least 2 percent above optimum.

6.11.5 Trench Backfill

General trench backfill should be placed and compacted in accordance with recommendations provided in this report for engineered fill (Section 6.9.5). Separate bedding and backfill recommendations for pipes are provided below.

6.11.6 Pipe Bedding and Pipe Zone Backfill Placement

In pipe bedding zones, special pipe bedding and backfill materials should be used to a minimum depth of 6 inches below the pipe and to a height of at least 12 inches above the top of pipe. The recommended pipe zone bedding and backfill gradation is provided below in Table 6-4.

Table 6-4: Select Pipe Bedding Backfill Gradation

Sieve Size	Percent Passing by Weight
¾ inch	100
No. 4	25 – 90
No. 200	0 – 12

In general, almost all of the soils that are likely to be encountered in trench excavations for this project contain fines (material passing the No. 200 sieve) that exceed the limits noted above.

Bedding materials (select backfill) should be compacted to a firm condition prior to placement of pipes. Initial backfill materials around the pipe zone should be placed in a manner to eliminate voids beneath the pipe. Select backfill materials should be placed in lifts approximately 8 inches in thickness and be compacted to at least 95 percent relative compaction based on ASTM D1557. Class 2 Aggregate Base material may be placed directly over pipe zone bedding/shading material in lieu of engineered fill.

6.12 EXTERIOR FLATWORK

Exterior flatwork includes items such as reinforced concrete sidewalks and steps exposed to pedestrian traffic. Reinforced concrete flatwork should be underlain by at least 4 inches of aggregate base. Prior to casting exterior flatwork, the subgrade soils should be scarified, moisture conditioned and recompacted or over excavated, as recommended in Section 6.9.5. The moisture content of the subgrade soils should be maintained at least 2 to 3 percent above optimum prior to the placement of any flatwork or engineered fill. Careful control of the water/cement ratio should be performed to avoid shrinkage cracking due to excess water or poor concrete finishing or curing. Exterior flatwork should be sloped away from the buildings to prevent water from flowing towards the existing foundations.

6.13 PAVEMENTS

Based on Caltrans design methods and measured subgrade resistance value (R-value) test result, the recommended pavement sections for TIs ranging between 5.0 and 8.0 are provided below. Each TI represents a different level of use. The owner or designer should determine which level of use best reflects the project and select appropriate pavement sections. A TI of 5 is commonly used for automobile parking spaces. A TI of 6 is commonly used for automobile access lanes. A TI of 8 is commonly used for heavy-duty traffic areas.

The recommended pavement section will depend on the subgrade soils. The existing near-surface subgrade soils consist of lean clay soil. The bulk sample obtained from the near-surface soil during the field investigation from boring B-3 was tested for R value. The results of the laboratory testing indicate an R-value of 9 as provided in Appendix D. Based on potential variability of the existing subgrade, an R-value of 5 has been used for design.

Pavement design recommendations provided below are based on the assumption that subgrades will be similar to the clayey soils encountered in our borings. If site grading exposes soil other than that assumed or imported "non-expansive" fill is used to construct pavement subgrades, we should perform additional tests to confirm or revise the recommended pavement sections for actual field conditions.

For flexible pavements, pavement section parameters include flexible asphalt concrete (AC) over Caltrans Class II aggregate base (AB) are presented in Table 6-5.

Table 6-5: Recommended AC Flexible Pavement Sections, R=5

Traffic Index	AC Over AB	
	AC (inches)	AB (inches)
5.0	3.0	10.0
5.5	3.0	12.0
6.0	3.5	13.0
6.5	4.0	14.0
7.0	4.0	16.0
7.5	4.5	17.0
8.0	5.0	18.0
Note: AC = Type B Asphalt Concrete AB = Class 2 Aggregate Base (Minimum R-Value = 78)		

6.14 GROUNDWATER AND CONTRUCTION DEWATERING

6.14.1 Groundwater Considerations During Construction

Discussion of groundwater depth is provided in Section 5.2.2. Groundwater is not expected to be encountered within the anticipated maximum excavation depth of 10 feet for shallow foundations or utility excavations. Although groundwater is not anticipated, the contractor should be prepared to address any localized occurrences of groundwater or perched water that may be encountered during excavation. Perched groundwater within planned excavation depths may occur during or following periods of extended rainfall and runoff.

We recommend that during wet weather, earthen berms or other controls be used to prevent surface runoff from entering excavations. Surface runoff water and groundwater pumped from excavations should be collected and disposed of outside of the construction limits.

6.15 CONSTRUCTION PERFORMACE MONITORING

We recommend that a survey of all existing utilities, pavements and any other above ground and underground structures be completed for locations adjacent to proposed excavations. The purpose of this review will be to evaluate the ability of existing pipelines and conduits to withstand horizontal movements associated with a shored excavation and to establish the pre-construction condition in the event of claims. Lateral movement of shored excavations should be expected. Therefore, cracks may open in sidewalks and pavements adjacent to shored portions of the excavations.

Construction-related settlement around the excavations may occur due to shoring deflection and increased effective stress due to dewatering. The magnitudes of such settlements will depend on the shoring and dewatering systems selected by the contractor.

Horizontal and vertical movements of the shoring system and at points outside of the immediate construction area should be monitored regularly by a surveyor and the results reviewed by a geotechnical engineer.

7 ADDITIONAL SERVICES

We recommend that a general review of the project plans and specifications be conducted by Kleinfelder before they are finalized to check that our geotechnical recommendations have been properly interpreted and implemented during design. If Kleinfelder does not review the final design, we can assume no responsibility for misinterpretation of our recommendations.

The construction process is an integral design component with respect to the geotechnical aspects of a project. Because geotechnical engineering is an inexact science due to the variability of natural processes and because we sample only a small portion of the soils affecting the performance of the proposed structure, unanticipated or changed conditions can be disclosed during grading. Proper geotechnical observation and testing during construction is imperative to allow the geotechnical engineer the opportunity to verify assumptions made during the design process. Therefore, we recommend that Kleinfelder be retained during the construction of the proposed project to observe compliance with the design concepts and geotechnical recommendations and to allow design changes in the event that sub-surface conditions or methods of construction differ from those assumed while completing this study. This may avoid misinterpretation of the information by other parties and will allow us to review and modify our recommendations if variations in the soil conditions are encountered. As a minimum, Kleinfelder should be retained to provide the following services for the project prior to, and during construction:

- Review the project plans and specifications to check that the recommendations provided in this report are incorporated into the construction documents,
- Perform laboratory testing of any engineered fill that is proposed to be used on site,
- Observe and evaluate any soil modification or improvements performed on site,
- Observe and evaluate the site earthwork operations to check that subgrade soils are suitable for construction of foundations, and placement of engineered fill,
- Check that engineered fill for the structure and other improvements is placed and compacted per the project specifications, and
- Observe foundation bearing soils to confirm conditions are as anticipated.

Kleinfelder cannot be made responsible for interpretation by others of this report, or the conditions encountered in the field.

8 LIMITATIONS

Kleinfelder's geotechnical services for this project were performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions, and at the date the services are provided. Kleinfelder's conclusions, opinions, and recommendations are based on a limited number of observations and data. It is likely that conditions could vary between or beyond the data evaluated. Consequently, there may be undisclosed subsurface conditions that may require special treatment or preparation once these conditions are revealed during construction. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Recommendations contained in this report are based on our field observations and subsurface exploration, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, then Prologis Inc. is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report.

This report may be used only by Prologis Inc. and their consultants, and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two years from the date of the report.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. Prologis Inc. and key members of the design team should discuss the issues covered in this report with Kleinfelder so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

The work performed was based on project information provided by Prologis Inc. Once the project plans are completed, Kleinfelder should be retained to review the plans and specifications and confirm that its recommendations were properly incorporated.

9 REFERENCES

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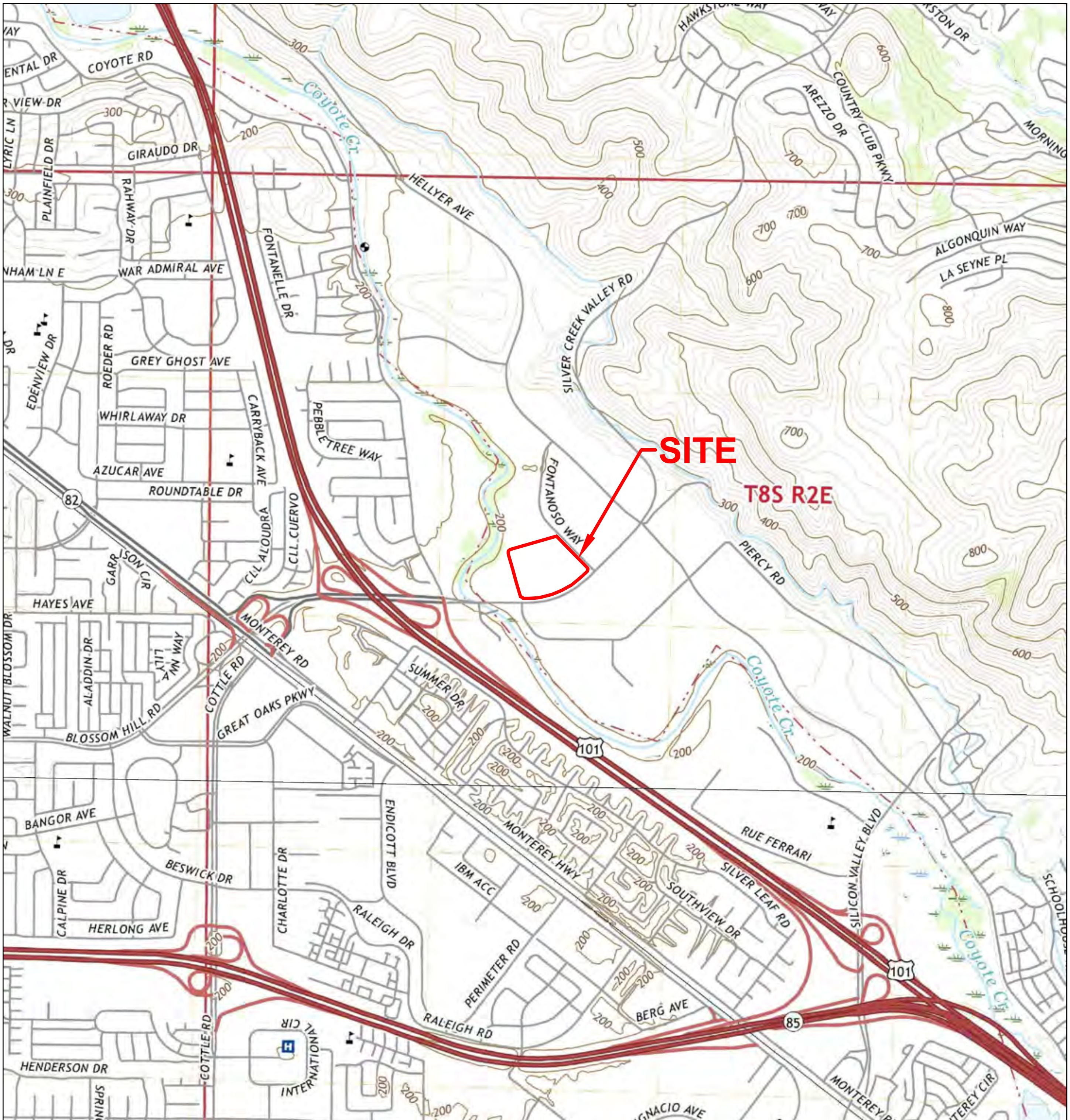
Figures



0 2000 4000

SCALE: 1" = 2000' SCALE IN FEET

N

REFERENCE:
U.S.G.S. 7.5' TOPOGRAPHIC SERIES,
SAN JOSE EAST & SANTA TERESA
HILLS, CALIFORNIA, QUADRANGLES,
DATED 2021.

KLEINFELDER
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PROJECT NO. 26002624	VICINITY MAP	FIGURE
DRAWN BY: JDS		1
CHECKED BY: KT	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	
DATE: 12-17-2025		
REVISED:		

PLOTTED: 12/17/2025 3:13 PM BY: jeff sala

CAD FILE: C:\Users\JSala\OneDrive - Kleinfelder\CADD\-2026\26002624\26002624.001A - Silver Creek Data Center\26002624.dwg

LEGEND

- BORING LOCATIONS (KLEINFELDER 2025)
- BORING LOCATIONS (KLEINFELDER 2022)
- PERCOLATION TEST LOCATIONS (KLEINFELDER 2022)
- CPT LOCATIONS (KLEINFELDER 2022)
- SCPT LOCATIONS (KLEINFELDER 2022)

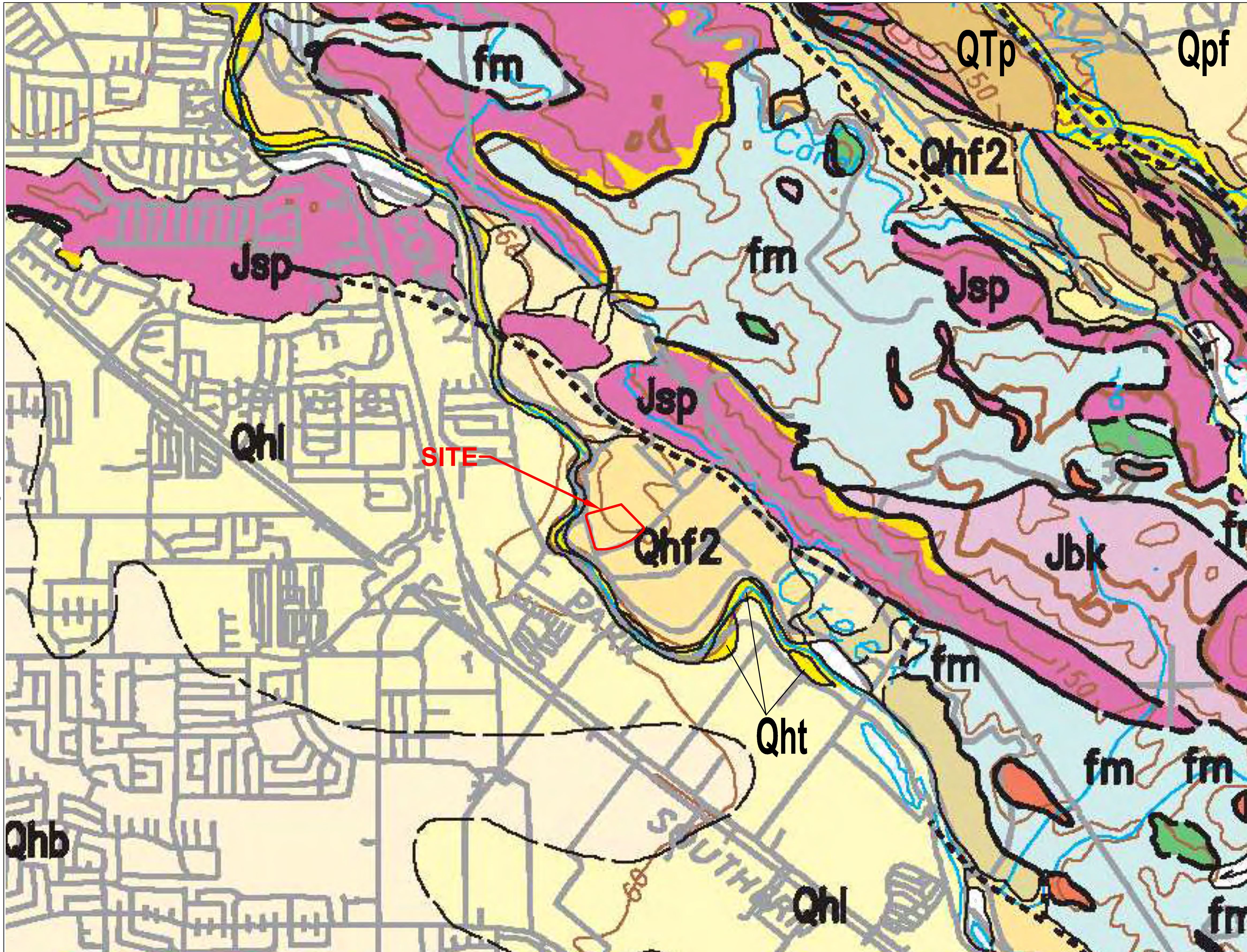
N

0 140 280

SCALE: 1" = 140' SCALE IN FEET

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO. 26002624	EXPLORATION LOCATION MAP		FIGURE
DRAWN BY JDS			
CHECKED BY KT	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA		2
DATE: 12-17-2025			
REVISED:			



MAP UNITS

Qhb	BASIN DEPOSITS (HOLOCENE)
Qhl	LEVEE DEPOSITS (HOLOCENE)
Qht	STREAM TERRACE DEPOSITS (HOLOCENE)
Qhf2	ALLUVIAL FAN DEPOSITS OLDER (HOLOCENE)
Qpf	ALLUVIAL FAN DEPOSITS (UPPER PLEISTOCENE)
Jbk	BASALT, ANDESITE, AND QUARTZ KERATOPHYRE (UPPER TO MIDDLE JURASSIC)
Jsp	SERPENTINIZED HARZBURGITE AND DUNITE (JURASSIC)
fm	MELANGE (LOWER TERTIARY? AND UPPER CRETACEOUS)
QTp	PACKWOOD GRAVELS OF SILVER CREEK BLOCK (PLEISTOCENE AND PLIOCENE?)

N

0 2000 4000

SCALE: 1" = 2000' SCALE IN FEET

REFERENCE:
PRELIMINARY GEOLOGIC DESCRIPTION OF THE SAN JOSE 30 X 60 MINUTE QUADRANGLE. CALIFORNIA, BY CARL M. WENTWORTH, M. CLARK BLAKE, JR., ROBERT J. MCLAUGHLIN, AND RUSSELL W. GRAYMER, DATED 1999

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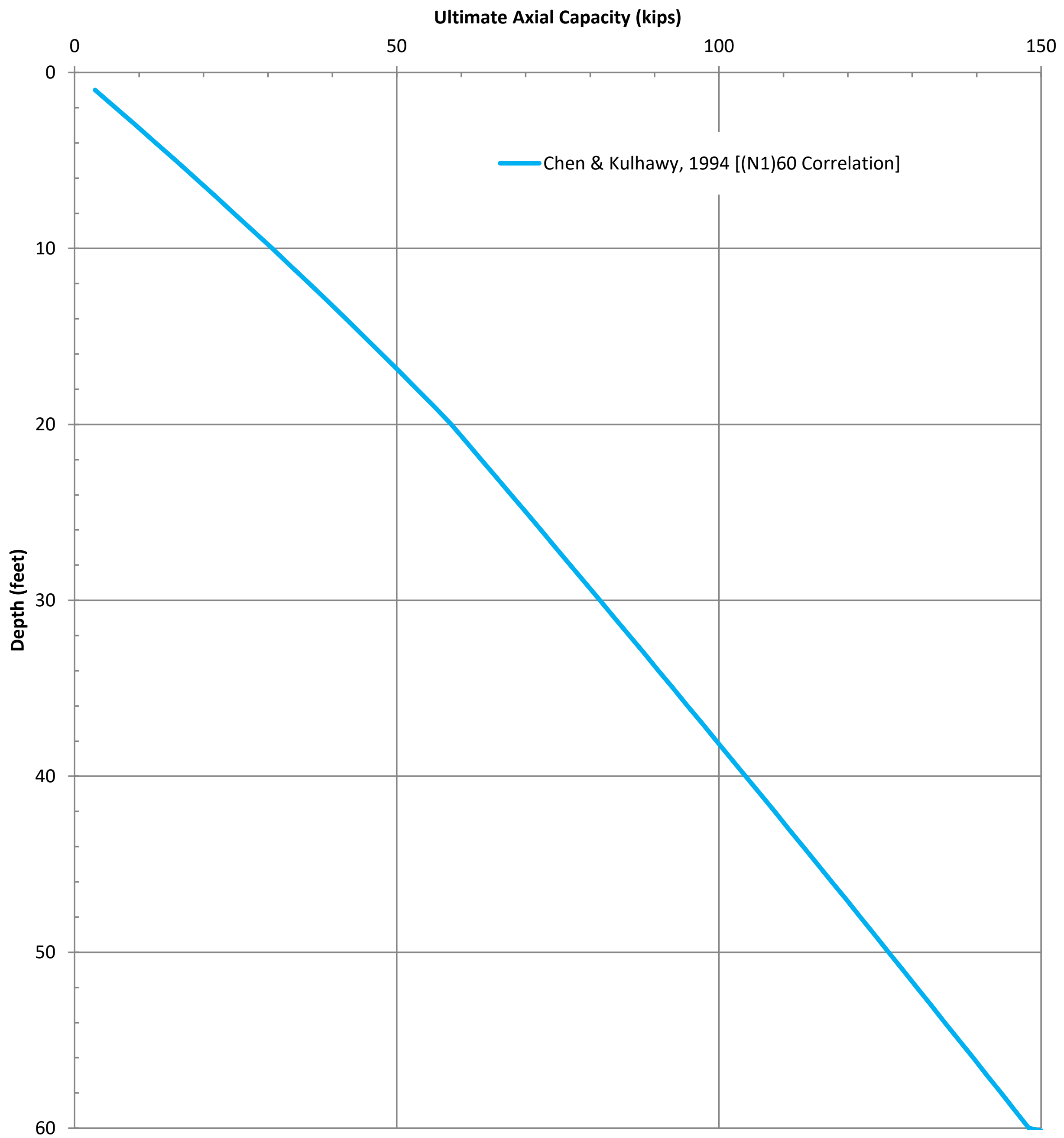
PROJECT NO.	26002624
DRAWN BY	JDS
CHECKED BY	KT
DATE:	12-17-2025
REVISED:	

GEOLOGIC MAP

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE

3



Notes:

1. Axial capacities of drilled piers with diameters other than one foot may be obtained by multiplying the unit capacity by the diameter of the pile (in feet).
2. Ultimate tensile capacity may be taken as the ultimate compressive capacity and adding the weight of the foundation.
3. The curve represents ultimate axial capacity of a straight-sided drilled pier. See text discussion for factor of safety and group effects.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A DRAWN BY: AN CHECKED BY: KT DATE: 2/18/2026 REVISED:	ULTIMATE AXIAL CAPACITY OF UNIT DIAMETER DRILLED PIER SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	FIGURE 4a

Depth (ft)	Chen & Kulhawy, 1994 [(N1)60 Correlation] (Kips)	Depth (ft)	Chen & Kulhawy, 1994 [(N1)60 Correlation] (Kips)
1	3	31	84
2	6	32	86
3	10	33	88
4	13	34	91
5	16	35	93
6	19	36	95
7	22	37	97
8	25	38	100
9	28	39	102
10	31	40	104
11	34	41	106
12	36	42	109
13	39	43	111
14	42	44	113
15	45	45	115
16	48	46	118
17	50	47	120
18	53	48	122
19	56	49	124
20	58	50	126
21	61	51	129
22	63	52	131
23	65	53	133
24	68	54	135
25	70	55	137
26	72	56	139
27	75	57	142
28	77	58	144
29	79	59	146
30	82	60	148

Notes:

1. Axial capacities of drilled piers with diameters other than one foot may be obtained by multiplying the unit capacity by the diameter of the pile (in feet).
2. Ultimate tensile capacity may be taken as the ultimate compressive capacity and adding the weight of the foundation.
3. The curve represents ultimate axial capacity of a straight-sided drilled pier. See text discussion for factor of safety and group effects.

Appendix A

Boring Logs

DRILLING METHOD/SAMPLER TYPE GRAPHICS

- BULK SAMPLE
- CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)
- MODIFIED CALIFORNIA SAMPLER (2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)
- SHELBY TUBE SAMPLER
- STANDARD PENETRATION SPLIT SPOON SAMPLER (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after stabilizing period)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

C_u - Coefficients of Uniformity
C_c - Coefficients of Curvature
WOH - Weight of Hammer
WOR - Weight of Rod

REFERENCES

1. American Society for Testing and Materials (ASTM), 2011, ASTM D2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System).

UNIFIED SOIL CLASSIFICATION SYSTEM[1]

COARSE GRAINED SOILS (More than 50% retained on No. 200 Sieve)	**GRAVELS** (More than 50% of coarse fraction retained on No. 4 Sieve)	CLEAN GRAVEL WITH <5% FINES	**GW**	WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP	POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH 5% TO 12% FINES	**GW-GM**	WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND
			GW-GC	WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND)
			GP-GM	POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND
			GP-GC	POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND)
		GRAVELS WITH > 12% FINES	**GM**	SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
			GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND
	SANDS (50% or more of coarse fraction passes the No. 4 Sieve)	CLEAN SANDS WITH <5% FINES	**SW**	WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP	POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH 5% TO 12% FINES	**SW-SM**	WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL
			SW-SC	WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
			SP-SM	POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL
			SP-SC	POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)
		SANDS WITH > 12% FINES	**SM**	SILTY SAND, SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND, CLAYEY SAND WITH GRAVEL
			SC-SM	SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS (50% or more passes the No. #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)		**ML**	SILT, SILT WITH SAND, SILT WITH GRAVEL
			CL	LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL
			CL-ML	SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL
			OL	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL
	SILTS AND CLAYS (Liquid Limit 50 or greater)		**MH**	ELASTIC SILT. ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A DRAWN BY: MAP CHECKED BY: KT DATE: 12/17/2025	GRAPHICS KEY Silver Creek Data Center NWC of Silver Creek Valley Rd. & Fontanoso Way San Jose, California	APPENDIX A-1

GRAIN SIZE[1]

DESCRIPTION		SIEVE SIZE	GRAIN SIZE
Boulders		>12 in.	>12 in. (304.8 mm.)
Cobbles		3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)
Gravel	coarse	3/4 -3 in.	3/4 -3 in. (19 - 76.2 mm.)
	fine	#4 - 3/4 in.	0.19 - 0.75 in. (4.8 - 19 mm.)
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)
Fines		Passing #200	<0.0029 in. (<0.07 mm.)

SECONDARY CONSTITUENT[1]

Term of Use	AMOUNT	
	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

PLASTICITY[1]

DESCRIPTION	CRITERIA
Non-Plastic	A 1/8 in. (3 mm) thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT[1]

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CONSISTENCY - FINE-GRAINED SOIL[2, 3]

CONSISTENCY	SPT - N (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Easily penetrated several inches by fist
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1,000	Easily penetrated several inches by thumb
Medium Stiff	4 - 8	0.5 ≤ PP <1	1,000 - 2,000	Can be penetrated several inches by thumb with moderate effort
Stiff	8 - 15	1 ≤ PP <2	2,000 - 4,000	Readily indented by thumb but penetrated only with great effort
Very Stiff	15 - 30	2 ≤ PP <4	4,000 - 8,000	Readily indented by thumbnail
Hard	>30	4 ≤ PP	>8,000	Indented by thumbnail with difficulty

APPARENT DENSITY - COARSE-GRAINED SOIL[2]

APPARENT DENSITY	SPT-N (# blows / ft)
Very Loose	<4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

STRUCTURE[1]

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness.
Laminated	Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.
Homogeneous	Same color and appearance throughout

ANGULARITY[1]

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

REACTION WITH HYDROCHLORIC ACID[1]

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

CEMENTATION[1]

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or little finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

REFERENCES

1. American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
2. Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
3. United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

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Bright People. Right Solutions.

PROJECT NO.: 26002624.001A

DRAWN BY: MAP

CHECKED BY: KT

DATE: 12/17/2025

SOIL DESCRIPTION KEY
(For additional tables, see ASTM D2488)

Silver Creek Data Center
NWC of Silver Creek Valley Rd. & Fontanoso Way
San Jose, California

APPENDIX

A-2

BORING LOG B-1

Date Begin - End:	11/17/2025 - 11/18/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Fraste	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	53°-56° F, Rain	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25834°
Longitude: -121.78732°
Approximate Ground Surface Elevation (ft.): 203
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0	**GRASS**: 3 in. thick								35	14	Hand auger to 5 feet
		Lean CLAY (CL): low plasticity, brown, moist, stiff										Proctor
200												
	5	- medium plasticity, brown to dark brown, very stiff below 5 feet	BC=3 7 7 PP=4.0	14"								Switch to HSA
195			BC=3 5 7 PP=3.75	14"								
	10	- trace fine sand below 10 feet	BC=3 4 6 PP=2.5	16"	CL	19.1	98.3		95	35	16	
190												
	15		BC=3 6 9	9"								
185												
	20	- light brown mottled gray, trace fine gravel below 20 feet	BC=5 10 11 PP=3.75	15"		18.1	108.8					Switch to mud rotary, casing installed to 20 feet
180												
	25	**Lean CLAY with Sand (CL)**: brown mottled gray, moist to wet, stiff	BC=3 4 5 PP=0.75	15"								
175		**Lean CLAY (CL)**: medium plasticity, reddish brown, wet, very stiff	PP=2.0	18"	CL	25.0	100.3		88	38	19	TXUU: c = 1.53 ksf
	30											
170												

KLEINFELDER
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PROJECT NO.: 26002624.001A	BORING LOG B-1		APPENDIX
DRAWN BY: MAP	Silver Creek Data Center		A-3
CHECKED BY: KT	NWC of Silver Creek Valley Rd. & Fontanoso Way		
DATE: 12/17/2025	San Jose, California		

Date Begin - End:	11/17/2025 - 11/18/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		**BORING LOG B-1**
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Fraste	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	53°-56° F, Rain	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 37.25834°
Longitude: -121.78732°
Approximate Ground Surface Elevation (ft.): 203
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		- yellowish brownish dark gray below 35 feet		BC=2 4 8 PP=1.75	15"				99	79			
		Sandy Lean CLAY (CL) to Clayey SAND (SC): low plasticity, brown, wet, stiff											
165													
	40	**Lean CLAY with Sand (CL)**: fine sand, low plasticity, brown, wet, stiff		BC=3 5 5 PP=0.75	18"		25.1	103.3					
160													
	45	- brown mottled gray and yellowish brown below 45 feet		BC=1 4 4 PP=0.75	18"		26.2	99.3	100	83			
155													
	50			BC=3 9 10 PP=0.5	17"		28.6	98.4					
150													
	55	- gray below 55 feet		BC=4 7 12 PP=1.25	18"		20.7	109.3					
145													
	60	**Well-Graded GRAVEL with Clay and Sand (GW-GC)**: subrounded gravel, fine to coarse sand, dark greenish gray, wet, very dense		BC=20 29 29	6"	GW-GC			53	9.4			
140													
	65			BC=18 18 19	6"								
		Poorly Graded GRAVEL with Sand (GP): gray, wet, very dense				GP							
135													

BORING LOG B-1

Date Begin - End:	11/17/2025 - 11/18/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Fraste	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	53°-56° F, Rain	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION

Latitude: 37.25834°
Longitude: -121.78732°
Approximate Ground Surface Elevation (ft.): 203
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Poorly Graded GRAVEL with Sand (GP): gray, wet, very dense		BC=22 23 28	12"								
130													
	75	- with clay below 75 feet		BC=21 23 33	6"								
125													
	80	**Poorly Graded SAND with Gravel and Clay (SP-SC)**: light brownish gray, wet, very dense		BC=15 33 28	6"	SP-SC							
120													
	85												
115													
	90												
110													
	95												
105													
	100												
100													

LABORATORY RESULTS

The boring was terminated at approximately 81.5 ft. below ground surface. The boring was backfilled with cement grout on November 18, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 26002624.001A		BORING LOG B-1	APPENDIX
DRAWN BY:	MAP	Silver Creek Data Center NWC of Silver Creek Valley Rd. & Fontanoso Way San Jose, California	A-3
CHECKED BY:	KT		
DATE:	12/17/2025		

Date Begin - End:	11/18/2025 - 11/19/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895	**BORING LOG B-2**	
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Fraste	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	47°-59° F	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION						LABORATORY RESULTS							
Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		GRASS: 3 in. thick **Lean CLAY (CL)**: brown, moist, stiff											Hand auger to 5 feet
5		- hard below 5 feet		BC=2 8 8 PP=>4.5	14"	CL	16.8	95.1		87	33	14	Switch to HSA
				BC=2 3 7 PP=4.5	15"								
10		- very stiff below 10 feet		BC=5 5 5 PP=3.75	17"								
15				BC=4 7 10 PP=4.5	17"								
20		- brown to dark brown below 20 feet		BC=4 8 11 PP=4.25	17"								
25		- medium stiff below 25 feet		BC=3 3 4 PP=<0.25	18"		25.9	97.6					
				PP=0.5	18"					88			Switch to mud rotary at 28 feet
30							28.1	95.3					TXUU: c = 1.55 ksf

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PROJECT NO.: 26002624.001A	BORING LOG B-2		APPENDIX
DRAWN BY: MAP	Silver Creek Data Center NWC of Silver Creek Valley Rd. & Fontanoso Way San Jose, California		A-4
CHECKED BY: KT			
DATE: 12/17/2025			PAGE: 1 of 3

Date Begin - End:	11/18/2025 - 11/19/2025	Drilling Co.-Lic.#:	Pitcher Services, LLC - #1044895		BORING LOG B-2
Logged By:	LF	Drill Crew:			
Hor.-Vert. Datum:	NAVD88	Drilling Equipment:	Fraste	Hammer Type - Drop:	140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Hand Auger / HSA / Mud Rotary	Hammer Efficiency:	90%
Weather:	47°-59° F	Exploration Diameter:	6 in. O.D.	Hammer Cal. Date:	11/18/2025

Depth (feet)	Graphical Log	Lithologic Description (FIELD EXPLORATION)	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol (LABORATORY RESULTS)	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		- trace fine sand below 35 feet		BC=3 3 4 PP=0.5	18"		27.7	98.5					
40				BC=3 13 10 PP=0.5	16"								
		Poorly Graded SAND (SP): fine to coarse, brown, wet, medium dense, trace clay				SP							
45		**Lean CLAY (CL)**: low to medium plasticity, brown to dark brown, wet, stiff		BC=6 6 11 PP=1.5	15"	CL							
50		**Lean CLAY with Sand (CL)**: brown to dark brown, wet, very stiff		BC=6 9 13 PP=0.75	16"				100	71			
55				BC=7 11 17 PP=1.0	14"								
60		**Lean CLAY (CL)**: low plasticity, gray, wet, stiff		BC=3 9 13 PP=1.25	18"								
65		**Poorly Graded SAND with Gravel (SP)**: greenish black mottled red and yellow, wet, dense, trace fines		BC=20 24 24	6"	SP							

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PROJECT NO.: 26002624.001A	BORING LOG B-2	APPENDIX
DRAWN BY: MAP	Silver Creek Data Center	A-4
CHECKED BY: KT	NWC of Silver Creek Valley Rd. & Fontanoso Way	
DATE: 12/17/2025	San Jose, California	PAGE: 2 of 3

Date Begin - End:	11/18/2025 - 11/19/2025	Drilling Co.-Lic.#:	Pitcher Services, LLC - #1044895		BORING LOG B-2
Logged By:	LF	Drill Crew:			
Hor.-Vert. Datum:	NAVD88	Drilling Equipment:	Fraste	Hammer Type - Drop:	140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Hand Auger / HSA / Mud Rotary	Hammer Efficiency:	90%
Weather:	47°-59° F	Exploration Diameter:	6 in. O.D.	Hammer Cal. Date:	11/18/2025

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		FIELD EXPLORATION				LABORATORY RESULTS							
		Well-Graded GRAVEL with Sand and Clay (GW-GC): greenish black, wet, dense		BC=15 25 21	6"	GW-GC							
75		**Poorly Graded SAND with Gravel (SP)**: greenish black, wet, dense, trace fines		BC=20 21 19	6"	SP							
80		**Poorly Graded GRAVEL with Sand and Clay (GP-GC)**: olive, wet, very dense		BC=20 21 30		GP-GC							

The boring was terminated at approximately 81.5 ft. below ground surface. The boring was backfilled with cement grout on November 19, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:

85

90

95

100

BORING LOG B-3

Date Begin - End:	11/20/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	51° F, Rain	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION

Latitude: 37.25889°
Longitude: -121.78917°
Approximate Ground Surface Elevation (ft.): 200
Surface Condition: Grass

LABORATORY RESULTS

Approximate Elevation (feet)	Depth (feet)	Lithologic Description	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		GRASS: 1 in. thick										
		Lean CLAY (CL): brown, moist, stiff			CL			100	89	34	14	Hand auger to 5 feet; R-Value
195	5	- hard below 5 feet	BC=7 10 9 PP=>4.5	11"								Switch to HSA
			BC=6 7 9 PP=>4.5	11"								
190	10	**Silty Clayey SAND (SC-SM)**: brown, moist, medium dense	BC=5 7 6 PP=>4.5	11"	SC-SM	12.4	112.2		46	20	4	
185	15	**Lean CLAY (CL)**: low to medium plasticity, brown, moist to wet, very stiff	BC=4 6 10 PP=3.0	11"	CL							
												Switch to mud rotary at 19 feet
180	20	low plasticity, brown to dark brown below 20 feet	BC=6 10 13 PP=3.75	14"		19.7	112.1					Push casing lower to reduce water usage
175	25	- brown, stiff below 25 feet	BC=5 5 7 PP=1.0	11"		28.3	99.1					
		- low to medium plasticity, very stiff below 28 feet	PP=2.25	31"		27.9	95.3		89			
170	30											

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A	BORING LOG B-3	APPENDIX
	DRAWN BY: MAP	Silver Creek Data Center	A-5
	CHECKED BY: KT	NWC of Silver Creek Valley Rd. & Fontanoso Way	
	DATE: 12/17/2025	San Jose, California	

Date Begin - End:	11/20/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		**BORING LOG B-3**
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	51° F, Rain	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION — LABORATORY RESULTS

Latitude: 37.25889°
Longitude: -121.78917°
Approximate Ground Surface Elevation (ft.): 200
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Sandy Lean CLAY (CL): low plasticity, brown, wet, very soft		BC=3 11 12 PP=0.25	15"								
			Poorly Graded SAND (SP): fine to coarse sand, fine to coarse gravel, dark greenish gray, medium dense				SP							
160	40		**Lean CLAY (CL)**: medium plasticity, brown, wet, medium stiff		BC=5 10 13 PP=0.5	15"	CL							
			Clayey SAND (SC): brown, wet, medium dense				SC							
			Poorly Graded SAND (SP): greenish black, wet, medium dense, trace clay		BC=10 7 7	15"	SP							
155	45													
150	50													
145	55													
140	60													
135	65													

The boring was terminated at approximately 44.5 ft. below ground surface. The boring was backfilled with cement grout on November 20, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A	BORING LOG B-3	APPENDIX
	DRAWN BY: MAP	Silver Creek Data Center	A-5
	CHECKED BY: KT	NWC of Silver Creek Valley Rd. & Fontanoso Way	
	DATE: 12/17/2025	San Jose, California	PAGE: 2 of 2

Date Begin - End:	11/19/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		**BORING LOG B-4**
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	52°-57° F, Cloudy	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

Latitude: 37.25917°
Longitude: -121.78917°
Approximate Ground Surface Elevation (ft.): 200
Surface Condition: Grass and Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0		**GRASS**: 3 in. thick **Lean CLAY (CL)**: low plasticity, brown, moist											Hand auger to 5 feet Proctor
195	5		- very stiff below 5 feet		BC=2 4 4 PP=2.5	11"								Switch to HSA
			Lean CLAY with Sand (CL): medium plasticity, dark brown, moist, very stiff		BC=3 4 7 PP=4.25	14"	CL	13.5	96.4		79	26	8	
190	10				BC=3 4 4 PP=2.75	15"								
185	15				BC=3 6 8 PP=3.5	17"								
180	20		- hard below 20 feet		BC=4 9 12 PP=4.0	17"								
175	25		**Lean to Fat CLAY (CL-CH)**: medium to high plasticity, brown, moist to wet, very stiff		BC=4 6 10 PP=2.0	18"								Switch to mud rotary at 27 feet
170	30		**Lean CLAY (CL)**: medium to high plasticity, brown, wet, very soft, trace fine sand - medium stiff below 31 feet		BC=2 3 5 PP=0.25	17"		25.6	99.4					
						34"		21.8	104.2			31	14	
			- medium plasticity, very stiff below 34 feet		PP=3.0									

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A DRAWN BY: MAP CHECKED BY: KT DATE: 12/17/2025	BORING LOG B-4 Silver Creek Data Center NWC of Silver Creek Valley Rd. & Fontanoso Way San Jose, California	APPENDIX A-6 PAGE: 1 of 2

Date Begin - End:	11/19/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		**BORING LOG B-4**
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA / Mud Rotary	**Hammer Efficiency:**	90%
Weather:	52°-57° F, Cloudy	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25917°
Longitude: -121.78917°
Approximate Ground Surface Elevation (ft.): 200
Surface Condition: Grass and Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY with Sand (CL): medium plasticity, brown mottled gray, wet, soft		BC=2 3 5 PP=0.25	18"		23.5	90.8					
160	40		**Lean CLAY (CL)**: low to medium plasticity, brown mottled gray, wet, stiff, trace fine sand		BC=5 7 9 PP=1.0	14"								
155	45													
150	50		**Lean CLAY with Sand (CL)**: low plasticity, brown, wet, medium stiff		BC=0 2 4 PP=0.5	18"		29.8	94.6					
					PP=0.75	34"		28.6	96.2					
145	55													
140	60		**Poorly Graded GRAVEL with Sand and Clay (GP-GC)**: brown to greenish black, wet, very dense		BC=34 40 33	17"	GP-GC			55	12			
135	65													

The boring was terminated at approximately 61.5 ft. below ground surface. The boring was backfilled with cement grout on November 19, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 24.5 ft. below ground surface during drilling.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 26002624.001A	BORING LOG B-4	APPENDIX
	DRAWN BY: MAP	Silver Creek Data Center	A-6
	CHECKED BY: KT	NWC of Silver Creek Valley Rd. & Fontanoso Way San Jose, California	
	DATE: 12/17/2025		PAGE: 2 of 2

Date Begin - End:	11/20/2025	**Drilling Co.-Lic.#:**	Pitcher Services, LLC - #1044895		**BORING LOG B-5**
Logged By:	LF	**Drill Crew:**			
Hor.-Vert. Datum:	NAVD88	**Drilling Equipment:**	Track Rig	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hand Auger / HSA	**Hammer Efficiency:**	90%
Weather:	55° F, Cloudy	**Exploration Diameter:**	6 in. O.D.	**Hammer Cal. Date:**	11/18/2025

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25917°
Longitude: -121.78694°
Approximate Ground Surface Elevation (ft.): 200
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. blows/6 in; Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0		**GRASS**: 3 in. thick											Hand auger to 5 feet
			Lean CLAY with Sand (CL): low plasticity, brown, moist											Proctor
195	5		- dark brown, very stiff below 5 feet		BC=2 4 4 PP=3.5	17"								Switch to HSA
					BC=3 4 4 PP=2.75	16"	CL	13.9	95.3		76	26	9	
190	10				BC=3 4 5 PP=2.5	15"								
185	15		- hard below 15 feet		BC=4 6 10 PP=4.25	17"								
180	20				BC=3 8 10 PP=3.5	17"								
175	25		- moist to wet, soft below 25 feet		BC=3 3 3 PP=0.25	18"	CL	31.1	94.2		84	31	11	
170	30													

The boring was terminated at approximately 26.5 ft. below ground surface. The boring was backfilled with cement grout on November 20, 2025.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

Summary of SPT Test Results

Project: PD81, Test Date: 11/14/2025

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

Instr. Length ft	Blows Applied /6"	**N Value**	**N60 Value**	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
24.58	**8-7-11**	**18**	**26**	43	17.6	30.8	286	81.6
26.58	**5-6-8**	**14**	**20**	41	18.3	46.1	321	91.7
29.46	**4-6-8**	**14**	**20**	43	19.4	46.6	330	94.2
31.75	**2-3-4**	**7**	**10**	88	18.4	40.9	323	92.3
34.75	**3-4-5**	**9**	**13**	43	18.8	42.3	326	93.1
36.75	**4-6-0**	**6**	**8**	41	17.9	39.8	317	90.7
			Overall Average Values:	47	18.4	40.6	314	89.7
			Standard Deviation:	21	0.8	6.3	19	5.3
			Overall Maximum Value:	159	20.8	46.9	342	97.6
			Overall Minimum Value:	36	16.7	30.6	275	78.5

Appendix

A-8

Appendix B

Previous Boring Logs (Kleinfelder, 2022)

SAMPLE/SAMPLER TYPE GRAPHICS

- BULK SAMPLE
- CALIFORNIA SAMPLER (3 in. (76.2 mm.) outer diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	$Cu \geq 4$ and $1 \leq Cc \leq 3$	**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			$Cu < 4$ and/ or $1 > Cc > 3$	**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	$Cu \geq 4$ and $1 \leq Cc \leq 3$	**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			$Cu < 4$ and/ or $1 > Cc > 3$	**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES		**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	$Cu \geq 6$ and $1 \leq Cc \leq 3$	**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			$Cu < 6$ and/ or $1 > Cc > 3$	**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	$Cu \geq 6$ and $1 \leq Cc \leq 3$	**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			$Cu < 6$ and/ or $1 > Cc > 3$	**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES		**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

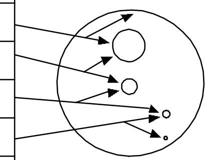
NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221404.001A		GRAPHICS KEY	FIGURE
DRAWN BY:	DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-1
CHECKED BY:	RY		
DATE:	12/8/2021		

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

Term of Use	AMOUNT: Secondary Constituent is Fine Grained	AMOUNT: Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL		PI
Non-Plastic	NP	Either the LL or the PI (or both) may be used to describe the soil plasticity. The ranges of numbers shown here do not imply that the LL ranges correlate with the PI ranges for all soils.	NP
Low	< 30		< 15
Medium	30 - 50		15 - 25
High	> 50		> 25

LL is from Casagrande, 1948. PI is from Holtz , 1959.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

KLEINFELDER
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PROJECT NO.: 20221404.001A

DRAWN BY: DJS

CHECKED BY: RY

DATE: 12/8/2021

SOIL DESCRIPTION KEY

DUKE WAREHOUSE SILVER CREEK
5977 & 6001 SILVER CREEK ROAD
SAN JOSE, CALIFORNIA

FIGURE

A-2

Date Begin - End:	7/29/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-1**
Logged By:	D. Sullivan	**Drill Crew:**	Kyle, Abraham		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53R	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	79.1%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25913°
Longitude: -121.78974°
Approximate Ground Surface Elevation (ft.): 204.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY with Sand (CL): dark brown, moist, medium stiff to very stiff, fine sand												
						BC=6	12"								
				1B		BC=4									
200				1C		BC=3 PP=3.0			17.2	103.7					
	5		**Sandy Lean CLAY (CL)**: brown, moist, medium stiff to hard, fine to medium sand												
						BC=3	12"								
				2B		BC=3									
				2C		BC=5 PP=4.5									
			Poorly Graded SAND (SP): brown, moist, loose, fine to medium sand												
						BC=3	12"								
				3B		BC=4									
195				3C		BC=6									
	10		mostly medium sand			BC=4	9"								
				4B		BC=5									
				4C		BC=7									
190															
	15														
185															

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20221404.001A		BORING LOG KB-1	FIGURE
DRAWN BY:	DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-3
CHECKED BY:	RY		
DATE:	12/8/2021		PAGE: 1 of 1

BORING LOG KB-2

Date Begin - End:	7/30/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		
Logged By:	D. Sullivan	**Drill Crew:**	Loren, Lyle		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53B	**Hammer Type - Drop:**	140 lb. Wireline - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	61.0%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25817°
Longitude: -121.78940°
Approximate Ground Surface Elevation (ft.): 204.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): dark brown, moist, stiff to hard												
200			brown, hard	1B 1C		BC=7 BC=8 BC=8 PP=4.5	12"		12.1	92.7					
	5			2B 2C		BC=7 BC=6 BC=9	11"								
			Silty SAND (SM): brown, moist, loose to medium dense, fine to medium sand												
195				3B 3C		BC=6 BC=7 BC=8	13"					37			
	10			4B 4C		BC=5 BC=6 BC=7	15"								
190			**Sandy Lean CLAY (CL)**: dark brown, moist, very stiff, fine to medium sand												
	15			5B 5C		BC=6 BC=9 BC=12 PP=3.5	18"		17.3	106.9					
185			**Lean CLAY (CL)**: mottled brown and brownish gray, moist, very stiff to hard												
	20			6B 6C		BC=9 BC=16 BC=20 PP=4.0	15"								
180			**Lean CLAY with Sand (CL)**: mottled brown and brownish gray, moist, stiff, fine to medium sand												
	25			7A 7B 7C		BC=5 BC=7 BC=8 PP=1.5	18"		25.9	99.5		70			
175															

The boring was terminated at approximately 26.5 ft. below ground surface. The boring was backfilled with cement grout on July 30, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20221404.001A	BORING LOG KB-2	FIGURE
DRAWN BY: DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-4
CHECKED BY: RY		
DATE: 12/8/2021		PAGE: 1 of 1

Date Begin - End: 7/29/2021	**Drilling Co.-Lic.#:** Exploration Geoservices Inc. - #484288		**BORING LOG KB-3**		
Logged By: D. Sullivan	**Drill Crew:** Kyle, Abraham				
Hor.-Vert. Datum: WGS84	**Drilling Equipment:** B-53R		**Hammer Type - Drop:** 140 lb. Auto - 30 in.		
Plunge: -90 degrees	**Drilling Method:** Hollow Stem Auger		**Hammer Efficiency:** 79.1%		
Weather: Sunny, Warm	**Exploration Diameter:** 7 in. O.D.		**Hammer Cal. Date:** 8/08/2020		

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25897°
Longitude: -121.78847°
Approximate Ground Surface Elevation (ft.): 203.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): dark brown, moist, very stiff to hard												
200				1B 1C		BC=5 BC=7 BC=12 PP=4.5+	8"		12.1	99.2			34	14	
	5			2B 2C		BC=3 BC=7 BC=11 PP=4.5+	10"								
			Sandy Lean CLAY (CL): brown, moist, very stiff to hard, fine sand												
195				3B 3C		BC=5 BC=7 BC=10 PP=4.5+	9"								
	10		**Lean CLAY with Sand (CL)**: light brown to brown, moist, stiff, fine sand	4B 4C		BC=4 BC=5 BC=6	11"					83			
190			very stiff												
	15			5B 5C		BC=5 BC=10 BC=13 PP=3.0	10"		18.7	110.1					
185															

The boring was terminated at approximately 15 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20221404.001A	BORING LOG KB-3	FIGURE
	DRAWN BY: DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-5
	CHECKED BY: RY		
	DATE: 12/8/2021		PAGE: 1 of 1

Date Begin - End:	7/30/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-4**
Logged By:	D. Sullivan	**Drill Crew:**	Loren, Lyle		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53B	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Mud Rotary	**Hammer Efficiency:**	61.0%
Weather:	Sunny, Warm	**Exploration Diameter:**	4 in. O.D.	**Hammer Cal. Date:**	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25844°
Longitude: -121.78822°
Approximate Ground Surface Elevation (ft.): 203.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY with Gravel (CL): dark brown, brownish black, moist, stiff to very stiff, fine to coarse grained sand, subangular to subrounded gravel to 1"	1											
200				2B 2C		BC=3 BC=4 BC=4 PP=2.0	9"								
	5			3B 3C		BC=7 BC=10 BC=8 PP=4.5	11"								
			Lean CLAY with Sand (CL): dark brown, moist, very stiff, fine to medium sand												
195				4B 4C		BC=4 BC=4 BC=5 PP=3.0	9"		18.0	111.2					
	10		medium stiff	5B 5C		BC=2 BC=3 BC=3 PP=1.0	10"		22.0	102.5			29	11	TXUU: c = 0.65 ksf
190			brown to dark brown, moist, stiff to very stiff, fine sand												
	15			6B 6C		BC=4 BC=5 BC=6 PP=2.5	12"								
185			mottled brown and brownish gray, moist, stiff, fine to coarse sand												
	20			7B 7C		BC=4 BC=6 BC=9 PP=2.0	14"	CL	21.0	106.2		81	32	13	
180 ▽			**Sandy Lean CLAY (CL)**: mottled brown and grayish brown, black, wet, soft, fine to medium sand												
	25			8B 8C		BC=2 BC=2 BC=3 PP=0.5	14"		28.5	96.8			31	11	TXUU: c = 0.40 ksf
175															

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20221404.001A	BORING LOG KB-4	FIGURE
	DRAWN BY: DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-6
	CHECKED BY: RY		
	DATE: 12/8/2021		PAGE: 1 of 2

Date Begin - End:	7/30/2021	Drilling Co.-Lic.#:	Exploration Geoservices Inc. - #484288		**BORING LOG KB-4**
Logged By:	D. Sullivan	Drill Crew:	Loren, Lyle		
Hor.-Vert. Datum:	WGS84	Drilling Equipment:	B-53B	Hammer Type - Drop:	140 lb. Auto - 30 in.
Plunge:	-90 degrees	Drilling Method:	Mud Rotary	Hammer Efficiency:	61.0%
Weather:	Sunny, Warm	Exploration Diameter:	4 in. O.D.	Hammer Cal. Date:	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25844°
Longitude: -121.78822°
Approximate Ground Surface Elevation (ft.): 203.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): wet, medium stiff, trace rootlets	9B 9C		BC=Push BC=5 BC=5 PP=1.0	14"								
170															
	35		moist	10B 10C		BC=Push BC=4 BC=5 PP=1.0	13"		29.8	95.3		90			
165			**Sandy SILT (ML)**: brown, wet, stiff, fine to medium sand												
	40			11B 11C		BC=4 BC=5 BC=7	14"	ML	25.6	102.0		68	NP	NP	
			Lean CLAY (CL): mottled brown and gray, wet, stiff												
160				12B 12C		BC=4 BC=6 BC=7 PP=2.0	10"								
	45														
155	50														
150	55														
145															

The boring was terminated at approximately 44.5 ft. below ground surface. The boring was backfilled with cement grout on July 30, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was observed at approximately 23 ft. below ground surface during drilling.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

Date Begin - End:	7/29/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-5**
Logged By:	D. Sullivan	**Drill Crew:**	Kyle, Abraham		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53R	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	79.1%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

Latitude: 37.25803°
Longitude: -121.78809°
Approximate Ground Surface Elevation (ft.): 203.00
Surface Condition: Grass

FIELD EXPLORATION								LABORATORY RESULTS							
Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): brown to dark brown, moist, very stiff to hard, occasional subrounded gravel to 3/4"	1											
200				2B 2C		BC=5 BC=8 BC=10 PP=4.5+	12"								
	5		occasional fine sand	3B 3C		BC=7 BC=9 BC=12 PP=4.5+	9"								
195			**Lean CLAY with Sand (CL)**: brown, moist, very stiff to hard, fine sand	4B 4C		BC=5 BC=8 BC=13 PP=4.5+	7"								
	10		**Sandy Lean CLAY (CL)**: brown to dark brown, moist, very stiff to hard	5B 5C		BC=4 BC=7 BC=10 PP=4.5+	9"		13.8	111.1			26	10	TXUU: c = 4.13 ksf
190			occasional fine to medium sand	6B 6C		BC=5 BC=11 BC=15 PP=4.0	12"								
	15														
185															

The boring was terminated at approximately 15 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER Bright People. Right Solutions.	PROJECT NO.: 20221404.001A	BORING LOG KB-5	FIGURE
	DRAWN BY: DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-7
	CHECKED BY: RY		
	DATE: 12/8/2021		PAGE: 1 of 1

Date Begin - End:	7/29/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-6**
Logged By:	D. Sullivan	**Drill Crew:**	Kyle, Abraham		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53R	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	79.1%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25765°
Longitude: -121.78791°
Approximate Ground Surface Elevation (ft.): 204.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): brown and dark brown, dry to moist, very stiff to hard												
				1B 1C		BC=5 BC=7 BC=11 PP=4.5+	9"								
200															
	5		dark brown, moist	2B 2C		BC=7 BC=6 BC=10 PP=4.5+	10"								
			Lean CLAY with Sand (CL): dark brown, moist, very stiff to hard, fine sand												
				3B 3C		BC=5 BC=11 BC=13 PP=4.5+	11"								
195															
	10			4B 4C		BC=5 BC=12 BC=17 PP=4.5	12"								
190															
	15														
185															

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20221404.001A	BORING LOG KB-6		FIGURE
DRAWN BY: DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA		A-8
CHECKED BY: RY			
DATE: 12/8/2021			PAGE: 1 of 1

Date Begin - End:	7/29/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-7**
Logged By:	D. Sullivan	**Drill Crew:**	Kyle, Abraham		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53R	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	79.1%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

FIELD EXPLORATION / LABORATORY RESULTS

Latitude: 37.25960°
Longitude: -121.78793°
Approximate Ground Surface Elevation (ft.): 203.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	0		**Lean CLAY (CL)**: brown and dark brown, moist, stiff to hard, trace rootlets												
200				1B 1C		BC=7 BC=13 BC=17 PP=4.5+	8"		12.4	107.5					
	5		occasional fine sand	2B 2C		BC=5 BC=7 BC=8	7"								
195				3B 3C		BC=5 BC=6 BC=7	15"								
			Silty SAND (SM): brown, moist, loose, fine to medium sand												
	10		**Poorly Graded SAND with Silt (SP-SM)**: brown, moist, loose, fine to medium sand	4B 4C		BC=4 BC=5 BC=5	12"								

190

15

185

The boring was terminated at approximately 11.5 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

Date Begin - End:	7/29/2021	**Drilling Co.-Lic.#:**	Exploration Geoservices Inc. - #484288		**BORING LOG KB-8**
Logged By:	D. Sullivan	**Drill Crew:**	Kyle. Abraham		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	B-53R	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger	**Hammer Efficiency:**	79.1%
Weather:	Sunny, Warm	**Exploration Diameter:**	7 in. O.D.	**Hammer Cal. Date:**	8/08/2020

Latitude: 37.25884°
Longitude: -121.78703°
Approximate Ground Surface Elevation (ft.): 202.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Number	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. Pocket Pen(PP)= tsf	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Lean CLAY (CL): brown and dark brown, moist, very stiff to hard												
200															
				1B 1C		BC=5 BC=7 BC=10 PP=4.5+	9"								
	5														
195			dark brown	2B 2C		BC=5 BC=7 BC=10 PP=4.5+	6"	CL	16.8	106.5		95	34	15	
				3B 3C		BC=4 BC=6 BC=11 PP=4.5+	7"								
	10														
190			trace fine sand	4B 4C		BC=5 BC=7 BC=12 PP=4.5+	6"								
			brown and dark brown, moist, very stiff to hard, trace fine to coarse sand												
	15			5B 5C		BC=5 BC=10 BC=16 PP=4.5+	10"								
185															
	20		becomes mottled brown and brownish gray	6B 6C		BC=5 BC=11 BC=17	12"		19.3	110.9					
180															
	25		stiff, trace subrounded gravel to 1/4"	7A 7B 7C		BC=4 BC=5 BC=7 PP=1.5	18"		23.0	105.2					
175															

The boring was terminated at approximately 25 ft. below ground surface. The boring was backfilled with cement grout on July 29, 2021.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20221404.001A		BORING LOG KB-8	FIGURE
DRAWN BY:	DJS	DUKE WAREHOUSE SILVER CREEK 5977 & 6001 SILVER CREEK ROAD SAN JOSE, CALIFORNIA	A-10
CHECKED BY:	RY		
DATE:	12/8/2021		PAGE: 1 of 1

Appendix C

Previous Cone Penetrometer Test Results (2022)

PRESENTATION OF SITE INVESTIGATION RESULTS

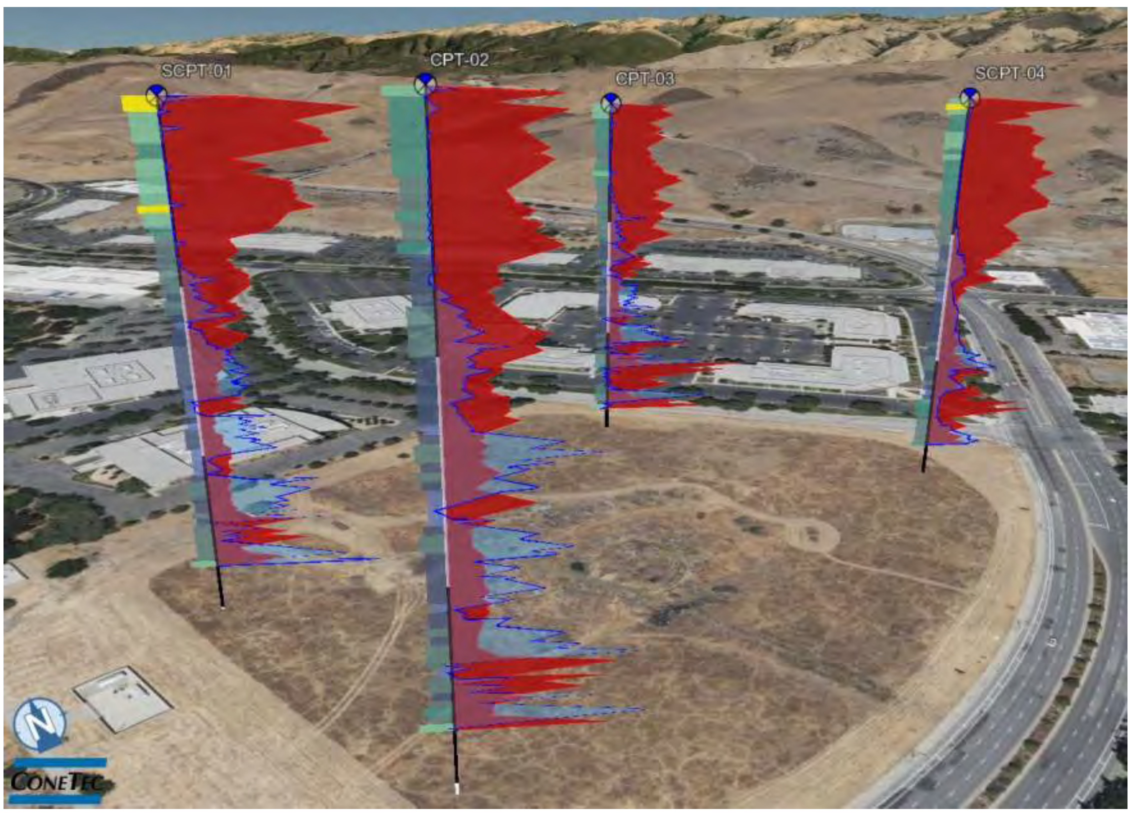
Duke Warehouse Silver Creek

Prepared for:

Kleinfelder

ConeTec Job No: 21-56-22781

Project Start Date: 29-Jul-2021
Project End Date: 29-Jul-2021
Report Date: 02-Aug-2021



Prepared by:

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ConeTecCA@conetec.com
www.conetec.com
www.conetecdataservices.com

Introduction

The enclosed report presents the results of the site investigation program conducted by ConeTec, Inc. for Kleinfelder of Oakland, California. The program consisted of cone penetration testing (CPTu) at four (4) locations. Shear wave velocities were recorded in two (2) soundings. The assumed phreatic surface used for the calculated parameters is based on the shallowest pore pressure dissipation test to reach equilibrium within each sounding.

Project Information

Project	
Client	Kleinfelder
Project	Duke Warehouse Silver Creek
ConeTec Project #	21-56-22781

An aerial overview from Google Earth including the CPT test locations is presented below.

Rig Description	Deployment System	Test Type
CPT truck rig (C17)	30-ton truck mounted cylinder	CPTu/SCPTu

Coordinates		
Test Type	Collection Method	EPSG Number
CPTu/SCPTu	Consumer grade GPS	32610

Cone Penetrometers Used for this Project						
Cone Description	Cone Number	Cross Sectional Area (cm^2)	Sleeve Area (cm^2)	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (psi)
446:T1500F15U500	446	15	225	1500	15	500
Cone 446 was used on all soundings.						

Cone Penetration Test	
Depth reference	Depths are referenced to the existing ground surface at the time of test.
Tip and sleeve data offset	0.1 Meter This has been accounted for in the CPT data files.
Additional Plots	Advanced, Seismic, and Soil Behavior Type (SBT) scatter plots
Additional Comments	None

Calculated Geotechnical Parameter Tables	
Additional information	The Normalized Soil Behaviour Type Chart based on Q_{tn} (SBT Q_{tn}) (Robertson, 2009) was used to classify the soil for this project. A detailed set of calculated CPTu parameters have been generated and are provided in Excel format files in the release folder. The CPTu parameter calculations are based on values of corrected tip resistance (q_t) sleeve friction (f_s) and pore pressure (u_2). Effective stresses are calculated based on unit weights that have been assigned to the individual soil behaviour type zones and the assumed equilibrium pore pressure profile. Soils were classified as either drained or undrained based on the Q_{tn} Normalized Soil Behaviour Type Chart (Robertson, 2009). Calculations for both drained and undrained parameters were included for materials that classified as silt mixtures (zone 4).

Limitations

This report has been prepared for the exclusive use of Kleinfelder (Client) for the project titled "Duke Warehouse Silver Creek". The report's contents may not be relied upon by any other party without the express written permission of ConeTec, Inc. (ConeTec). ConeTec has provided site investigation services, prepared the factual data reporting, and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to ConeTec by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

Cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd., a subsidiary of ConeTec.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in 5 cm^2, 10 cm^2 and 15 cm^2 tip base area configurations in order to maximize signal resolution for various soil conditions. The specific piezocone used for each test is described in the CPT summary table presented in the first appendix. The 15 cm^2 penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm^2 piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross-sectional area (typically forty-four millimeter diameter over a length of thirty-two millimeter with tapered leading and trailing edges) located at a distance of 585 millimeters above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a sixty-degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u_2" position (ASTM Type 2). The filter is six millimeters thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meets or exceeds those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

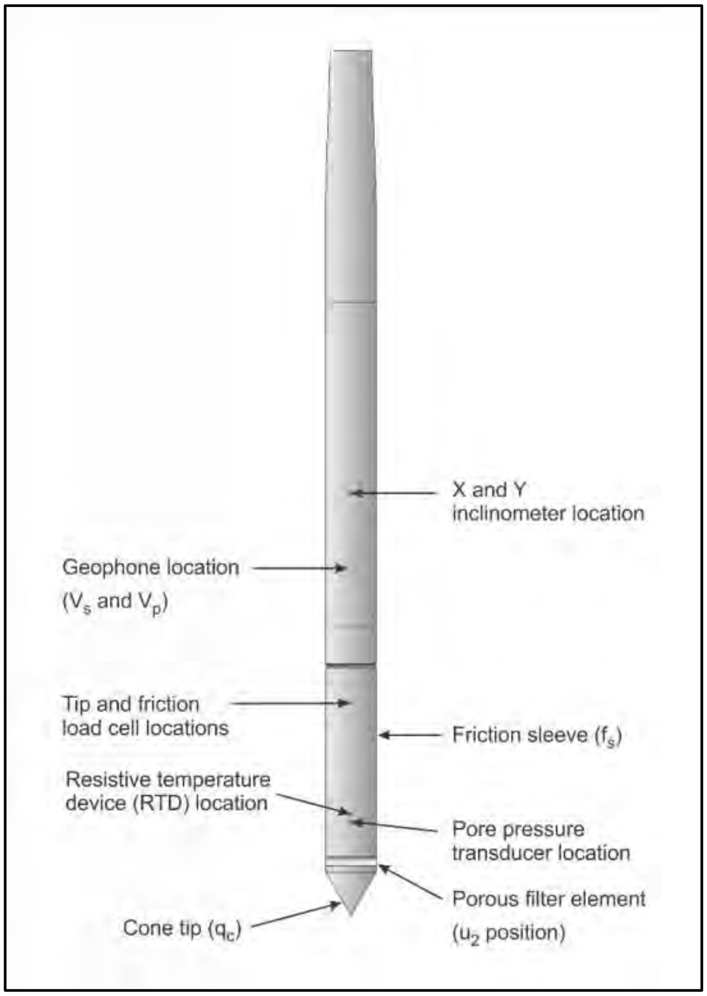

Figure CPTu. Piezocone Penetrometer (15 cm^2)

The ConeTec data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a sixteen bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording interval is 2.5 centimeters; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of two centimeters per second, within acceptable tolerances. Typically, one-meter length rods with an outer diameter of 1.5 inches (38.1 millimeters) are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson et al. (1986) and Robertson (1990, 2009). It should be noted that it is not always possible to accurately identify a soil behavior type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al. (1986):

$$q_t = q_c + (1\text{-}a) \bullet u_2$$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (Rf) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of files with calculated geotechnical parameters were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the methods used is also included in the data release folder.

For additional information on CPTu interpretations and calculated geotechnical parameters, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

Shear wave velocity (Vs) testing is performed in conjunction with the piezocone penetration test (SCPTu) in order to collect interval velocities. For some projects seismic compression wave velocity (Vp) testing is also performed.

ConeTec's piezocone penetrometers are manufactured with a horizontally active geophone (28 hertz) that is rigidly mounted in the body of the cone penetrometer, 0.2 meters behind the cone tip.

Shear waves are typically generated by using an impact hammer horizontally striking a beam that is held in place by a normal load. In some instances, an auger source or an imbedded impulsive source may be used for both shear waves and compression waves. The hammer and beam act as a contact trigger that initiates the recording of the seismic wave traces. For impulsive devices an accelerometer trigger may be used. The traces are recorded using an uphole integrated digital oscilloscope which is part of the SCPTu data acquisition system. An illustration of the shear wave testing configuration is presented in Figure SCPTu-1.

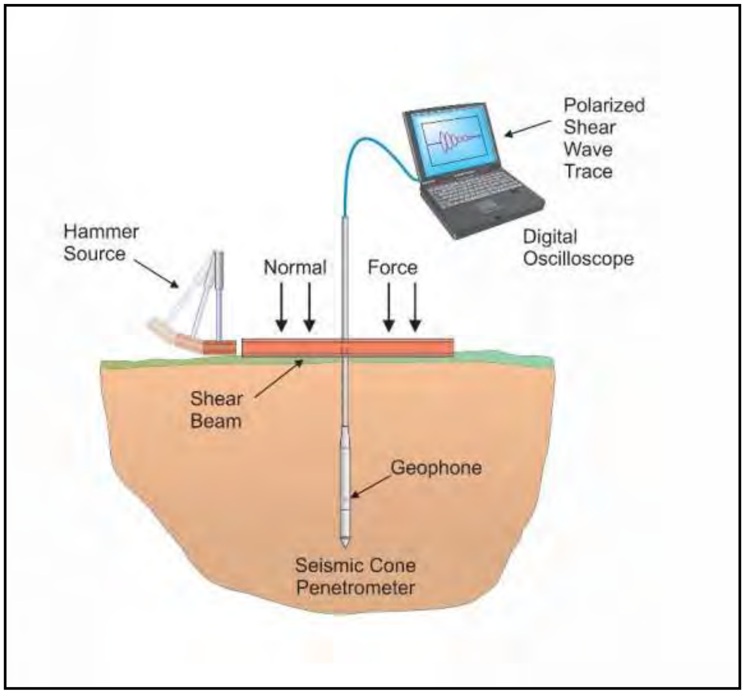

Figure SCPTu-1. Illustration of the SCPTu system

All testing is performed in accordance to ConeTec's SCPTu operating procedures which are in general accordance with the current ASTM D5778 and ASTM D7400 standards.

Prior to the start of a SCPTu sounding, the procedures described in the Cone Penetration Test section are followed. In addition, the active axis of the geophone is aligned parallel to the beam (or source) and the horizontal offset between the cone and the source is measured and recorded.

Prior to recording seismic waves at each test depth, cone penetration is stopped and the rods are decoupled from the rig to avoid transmission of rig energy down the rods. Typically, five wave traces for each orientation are recorded for quality control and uncertainty analysis purposes. After reviewing wave traces for consistency the cone is pushed to the next test depth (typically one meter intervals or as requested by the client). Figure SCPTu-2 presents an illustration of a SCPTu test.

For additional information on seismic cone penetration testing refer to Robertson et al. (1986).

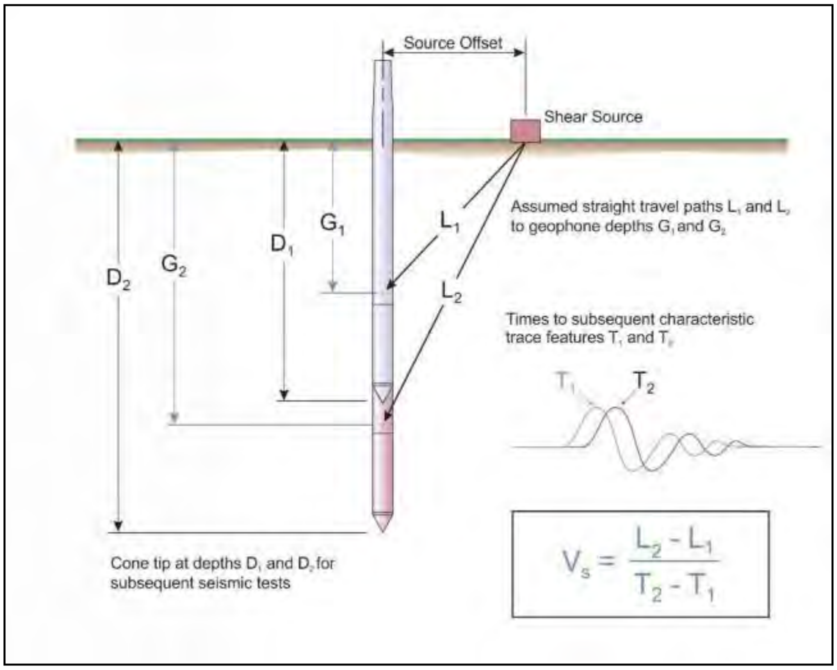

Figure SCPTu-2. Illustration of a seismic cone penetration test

Calculation of the interval velocities are performed by visually picking a common feature (e.g. the first characteristic peak, trough, or crossover) on all of the recorded wave sets and taking the difference in ray path divided by the time difference between subsequent features. Ray path is defined as the straight line distance from the seismic source to the geophone, accounting for beam offset, source depth and geophone offset from the cone tip.

For all SCPTu soundings that have achieved a depth of at least 100 feet (30 meters), the average shear wave velocity to a depth of 100 feet ($\bar{v}_s$) has been calculated and provided for all applicable soundings using the following equation presented in ASCE (2010).

$$\bar{v}_s = \frac{\sum_{i=1}^{n} d_i}{\sum_{i=1}^{n} \frac{d_i}{v_{si}}}$$

where: $\bar{v}_s$ = average shear wave velocity ft/s (m/s)

d_i = the thickness of any layer between 0 and 100 ft (30 m)

v_{si} = the shear wave velocity in ft/s (m/s)

$\sum_{i=1}^{n} d_i$ = the total thickness of all layers between 0 and 100 ft (30 m)

Average shear wave velocity, $\bar{v}_s$ is also referenced to V_{s100} or V_{s30}.

The layer travel times refers to the travel times propagating in the vertical direction, not the measured travel times from an offset source.

Tabular results and SCPTu plots are presented in the relevant appendix.

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

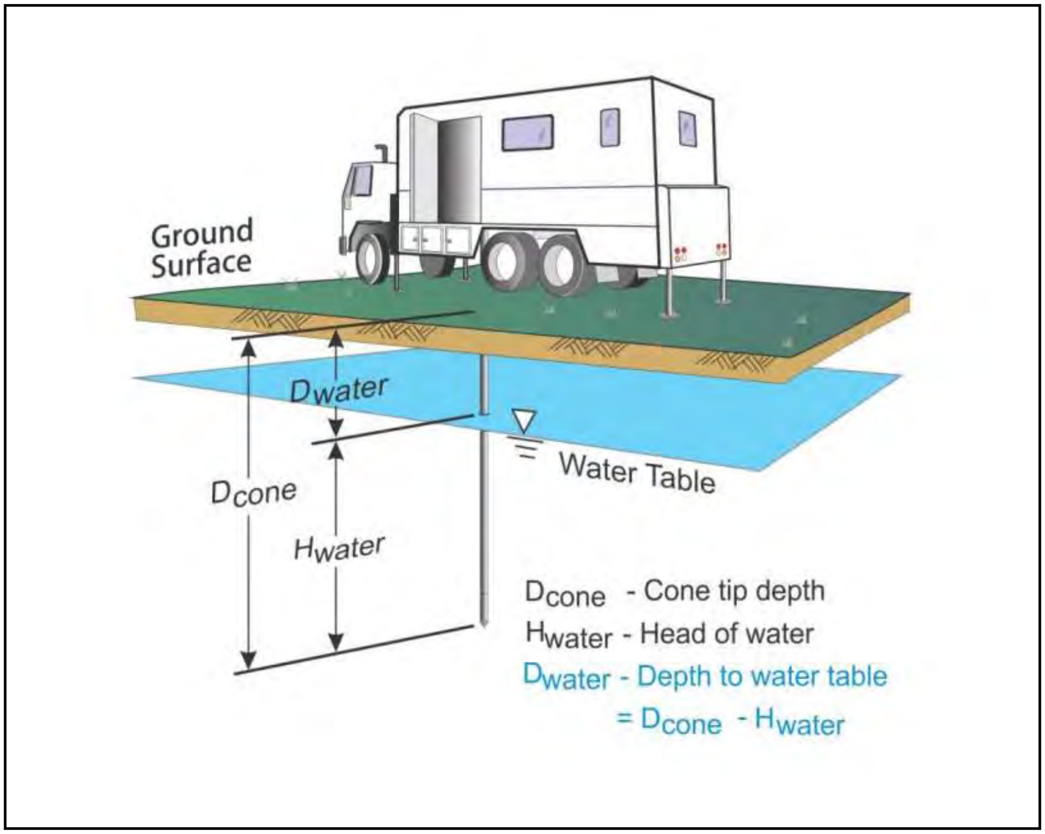

Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

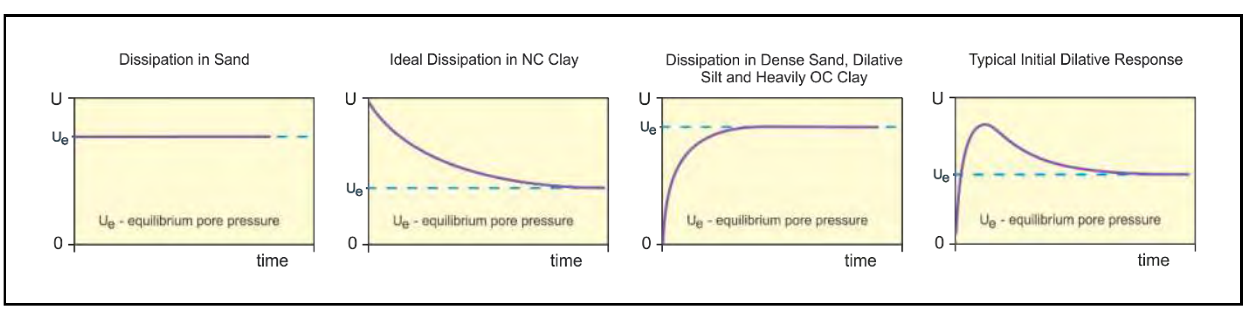

Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve in Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100}. In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100}. A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

T* is the dimensionless time factor (Table Time Factor)
a is the radius of the cone
I_r is the rigidity index
t is the time at the degree of consolidation

Table Time Factor. T* versus degree of dissipation (Teh and Houlsby (1991))

Degree of Dissipation (%)	20	30	40	50	60	70	80
T* (u_2)	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50}, dissipation tests must be taken to a pressure less than u_{50}. The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100}. To estimate u_{50}, both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby (1991)), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50}. In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r, the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50}, other methods should be applied to confirm the results for c_h.

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

American Society of Civil Engineers (ASCE), 2010, “Minimum Design Loads for Buildings and Other Structures”, Standard ASCE/SEI 7-10, American Society of Civil Engineers, ISBN 978-0-7844-1085-1, Reston, Virginia. DOI: 10.1061/9780784412916.

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The following appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Advanced Cone Penetration Test Plots
- SBT Zone Scatter Plots
- Seismic Cone Penetration Plots
- Seismic Cone Penetration Test Tabular Results
- Seismic Cone Penetration Wave Traces
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and Standard Cone Penetration Test Plots

CONETEC

Job No: 21-56-22781
Client: Kleinfelder
Project: Duke Warehouse Silver Creek
Start Date: 29-Jul-2021
End Date: 29-Jul-2021

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Northing[2] (m)	Easting[2] (m)	Elevation[3] (ft)	Refer to Notation Number
SCPT-01	21-56-22781_SP01	29-Jul-2021	446:T1500F15U500	25.4	44.54	4124249	607340	204	
CPT-02	21-56-22781_CP02	29-Jul-2021	446:T1500F15U500	25.8	44.54	4124149	607369	205	
CPT-03	21-56-22781_CP03	29-Jul-2021	446:T1500F15U500	23.3	44.54	4124328	607510	202	
SCPT-04	21-56-22781_SP04	29-Jul-2021	446:T1500F15U500	23.8	44.54	4124228	607588	203	

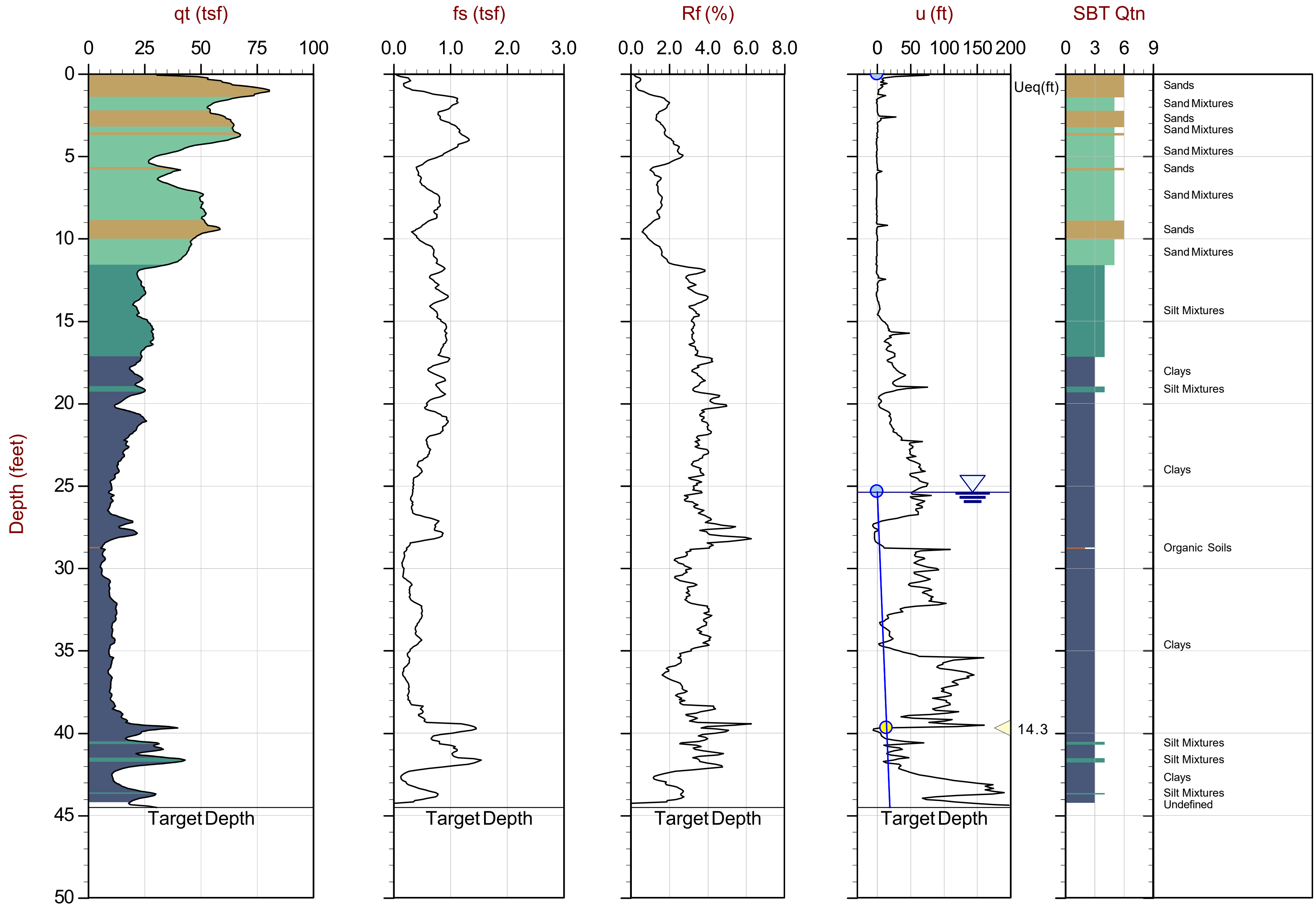
1. The assumed phreatic surface is based on the shallowest pore pressure dissipation test performed within the sounding. Hydrostatic conditions are assumed for the calculated parameters.
2. The coordinates were acquired using consumer grade GPS equipment, datum: WGS 1984 / UTM Zone 10S.
3. Elevations are referenced to the ground surface and are derived from the Google Earth Elevation for the recorded coordinates.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 08:50
Site: Duke Warehouse Silver Creek

Sounding: SCPT-01
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP01.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124249m E: 607340m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

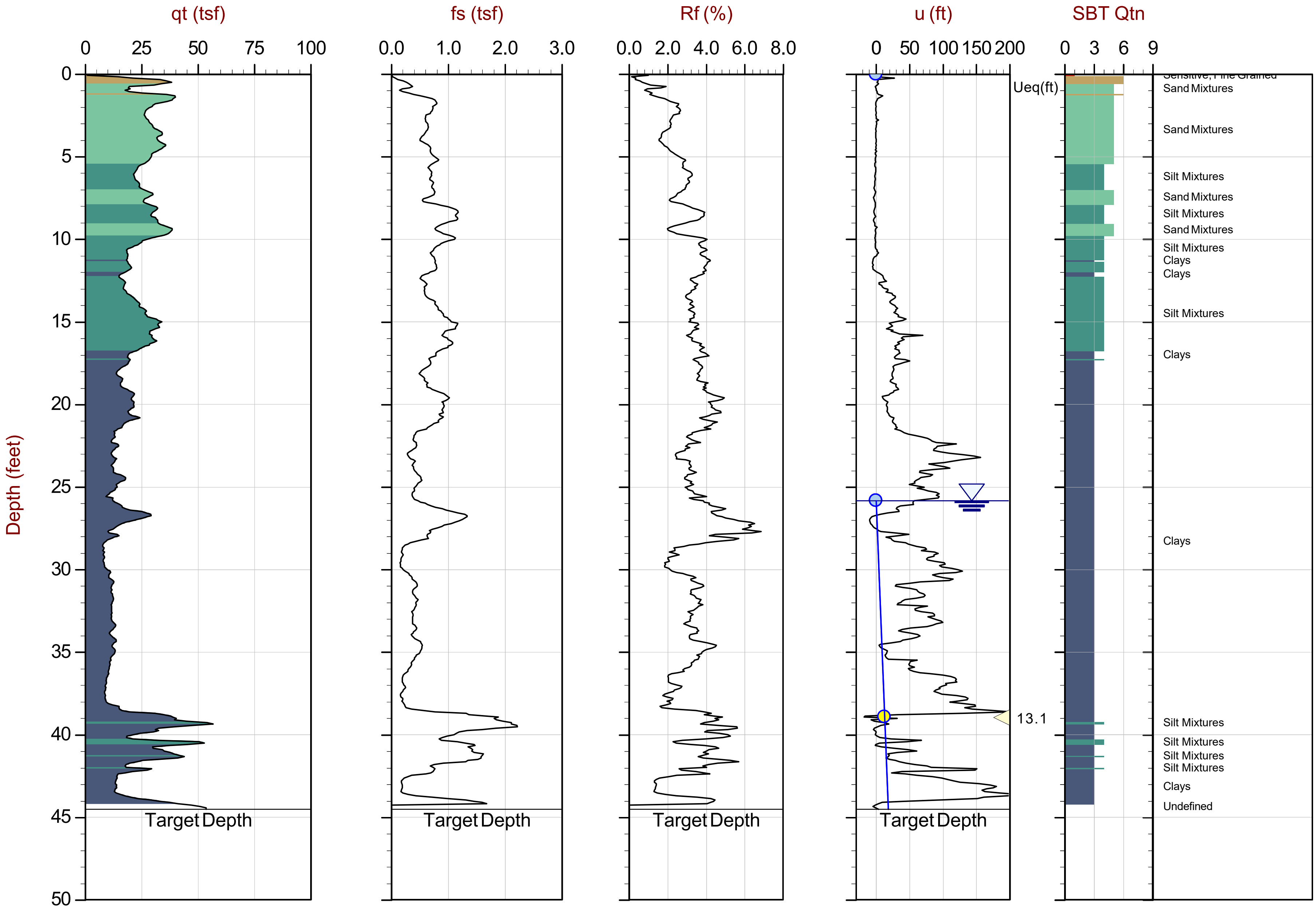
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 09:37
Site: Duke Warehouse Silver Creek

Sounding: CPT-02
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_CP02.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124149m E: 607369m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

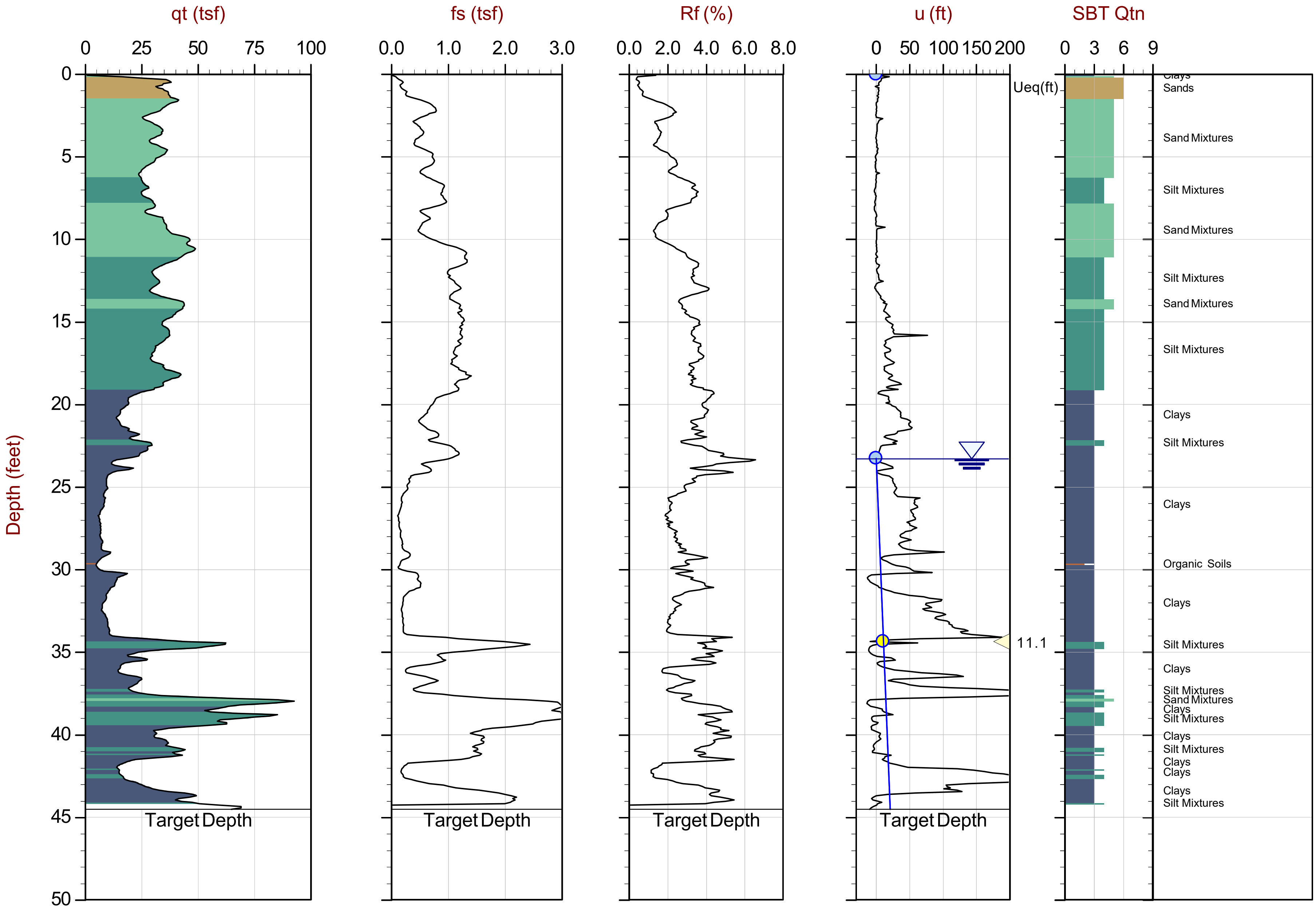
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 10:19
Site: Duke Warehouse Silver Creek

Sounding: CPT-03
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_CP03.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124328m E: 607510m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

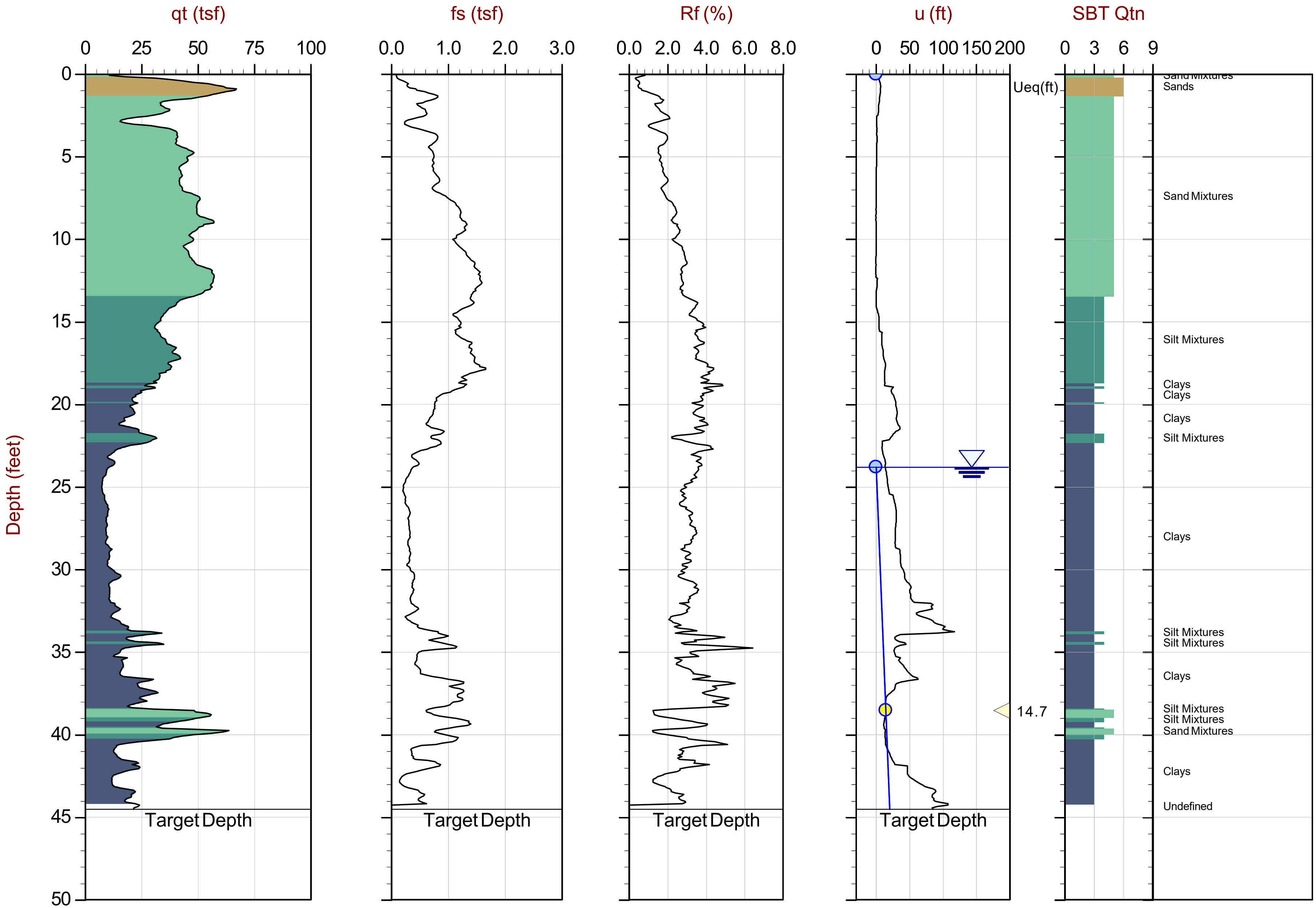
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 08:03
Site: Duke Warehouse Silver Creek

Sounding: SCPT-04
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP04.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124228m E: 607588m

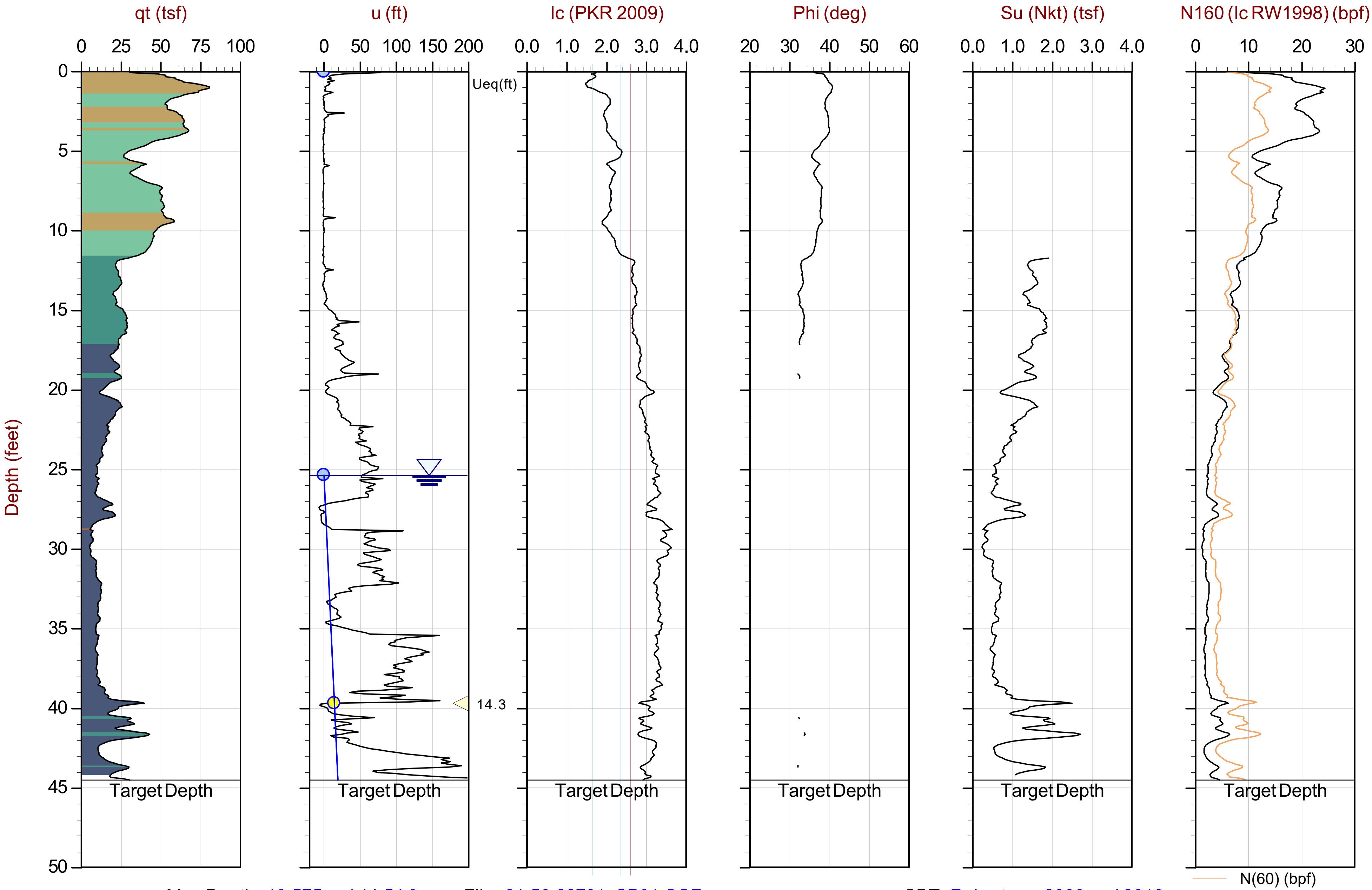
Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Advanced Cone Penetration Test Plots

ConeTec

Job No: 21-56-22781
Date: 2021-07-29 08:50
Site: Duke Warehouse Silver Creek
Sounding: SCPT-01
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP01.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124249m E: 607340m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

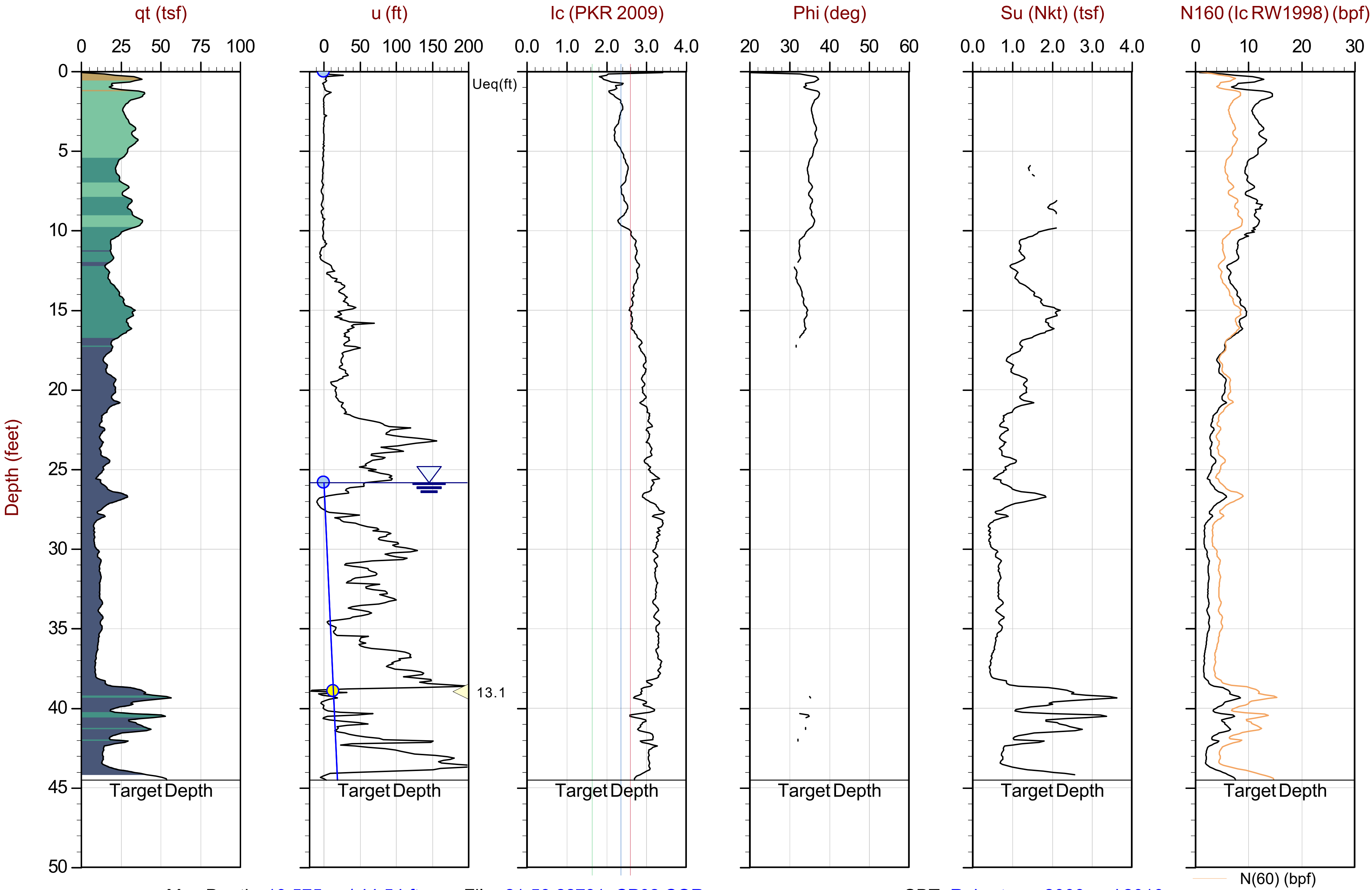
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 09:37
Site: Duke Warehouse Silver Creek

Sounding: CPT-02
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_CP02.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124149m E: 607369m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

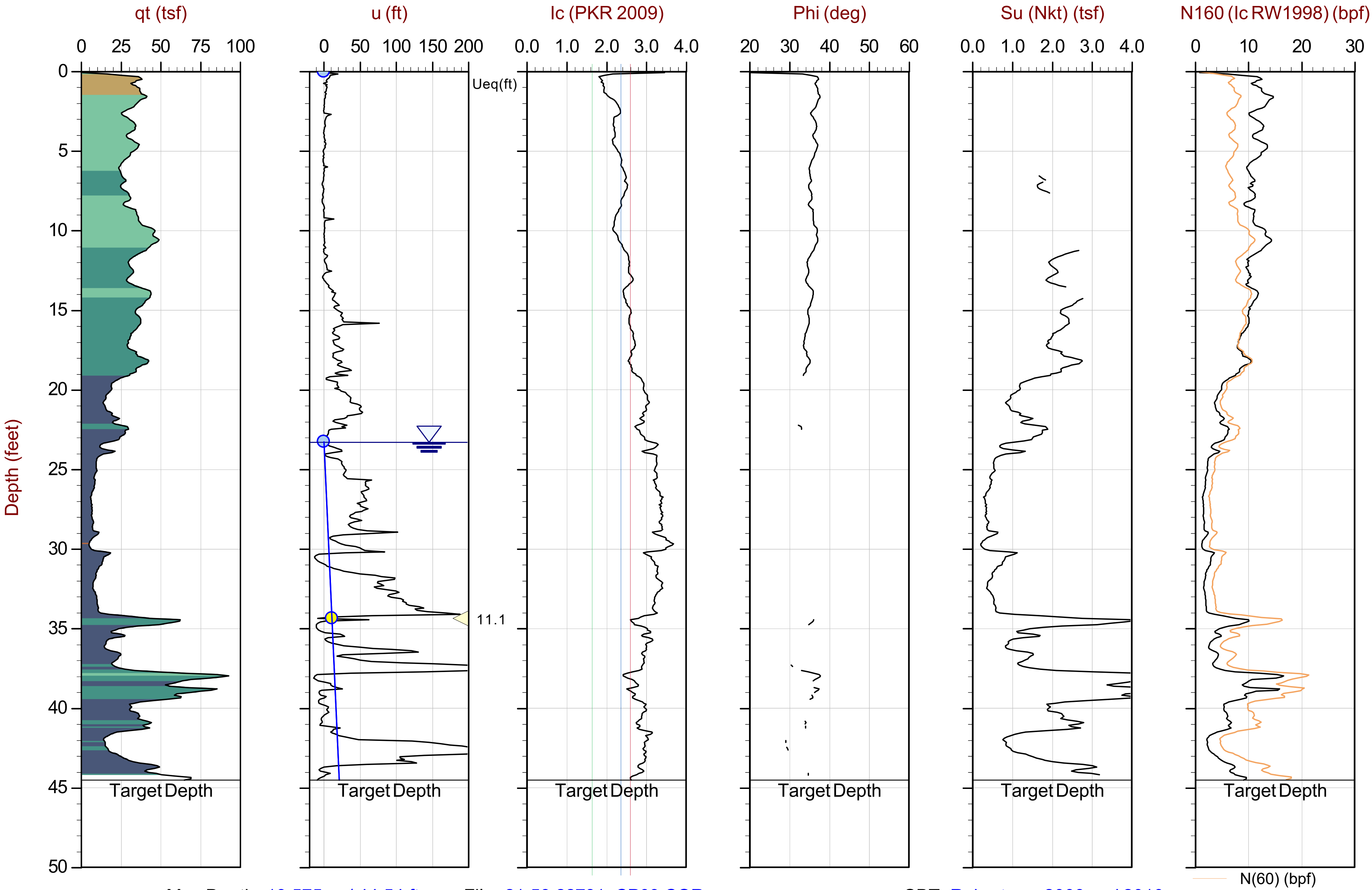
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 10:19
Site: Duke Warehouse Silver Creek

Sounding: CPT-03
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_CP03.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124328m E: 607510m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

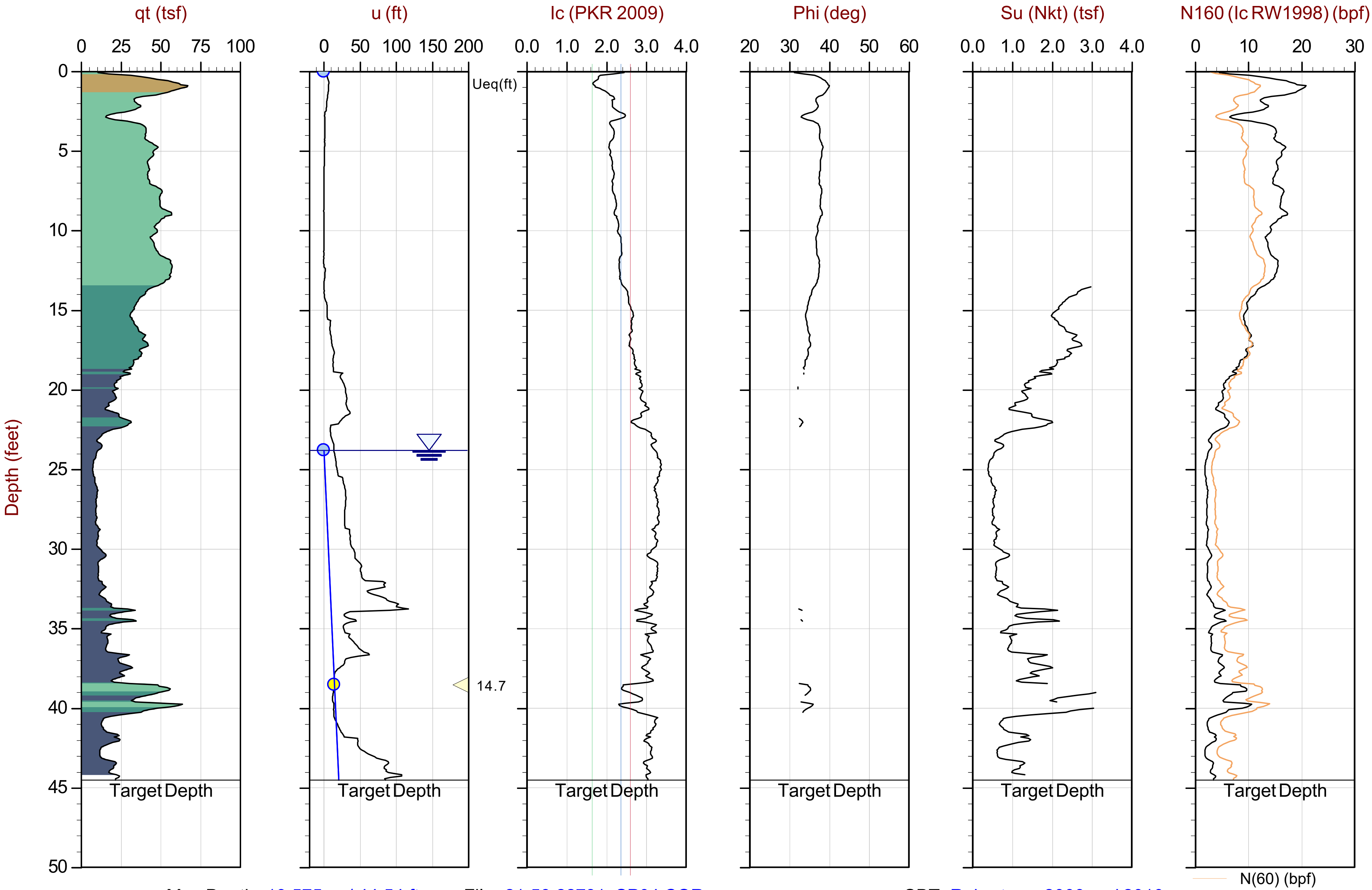
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

ConeTec

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 08:03
Site: Duke Warehouse Silver Creek

Sounding: SCPT-04
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP04.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124228m E: 607588m

Equilibrium Pore Pressure (Ueq) — Assumed Ueq — Dissipation, Ueq achieved — Dissipation, Ueq not achieved — Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Soil Behavior Type (SBT) Scatter Plots

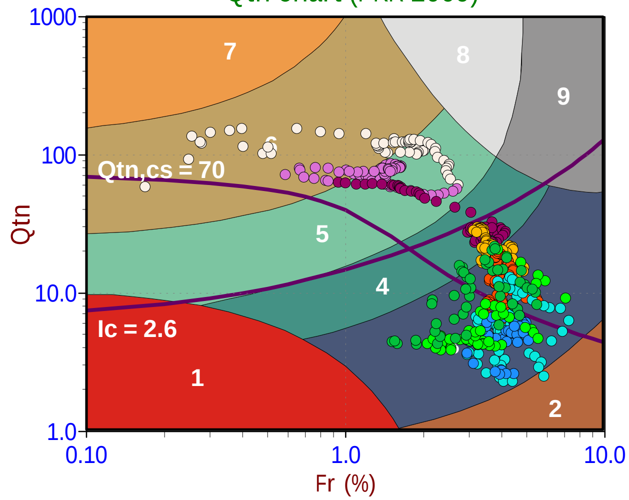
ConeTec

Kleinfelder

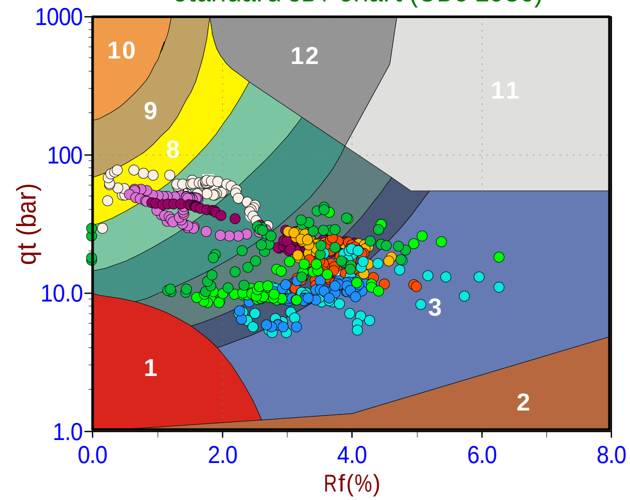
Job No: 21-56-22781
Date: 2021-07-29 08:50
Site: Duke Warehouse Silver Creek

Sounding: SCPT-01
Cone: 446:T1500F15U500

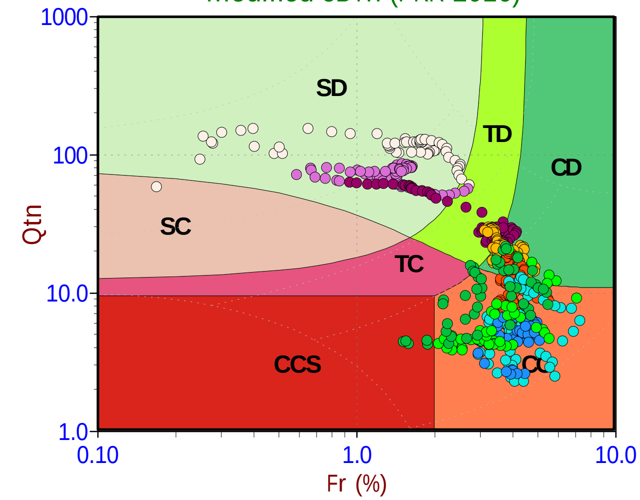
Qtn Chart (PKR 2009)



Standard SBT Chart (UBC 1986)



Modified SBTn (PKR 2016)



Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

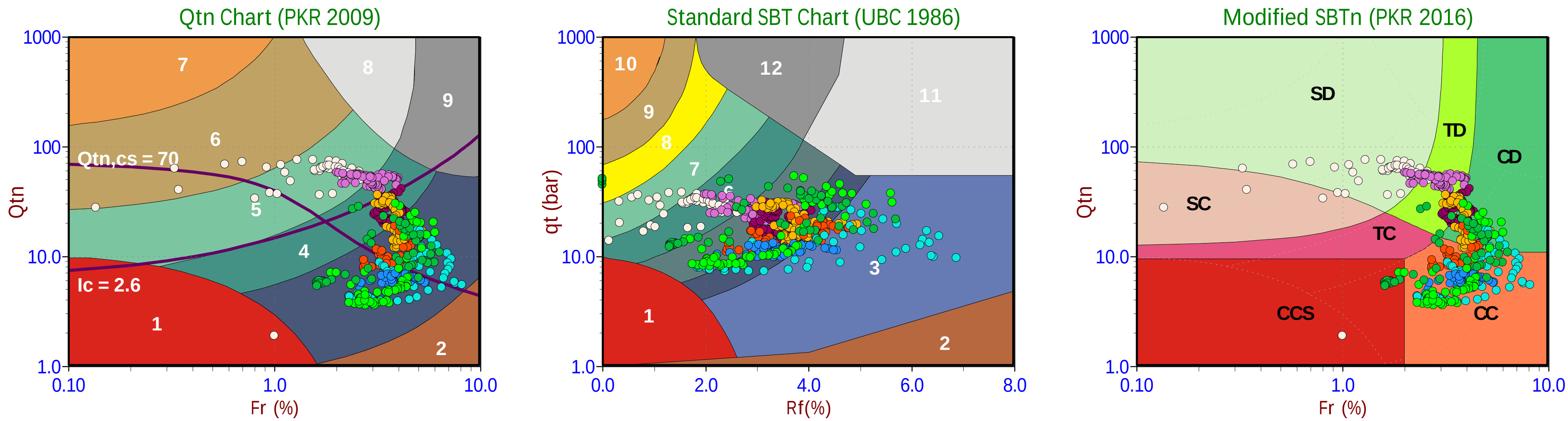
Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 09:37
Site: Duke Warehouse Silver Creek

Sounding: CPT-02
Cone: 446:T1500F15U500



Depth Ranges
- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend
- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend
- Sensitive Fines
- Organic Soil
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- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

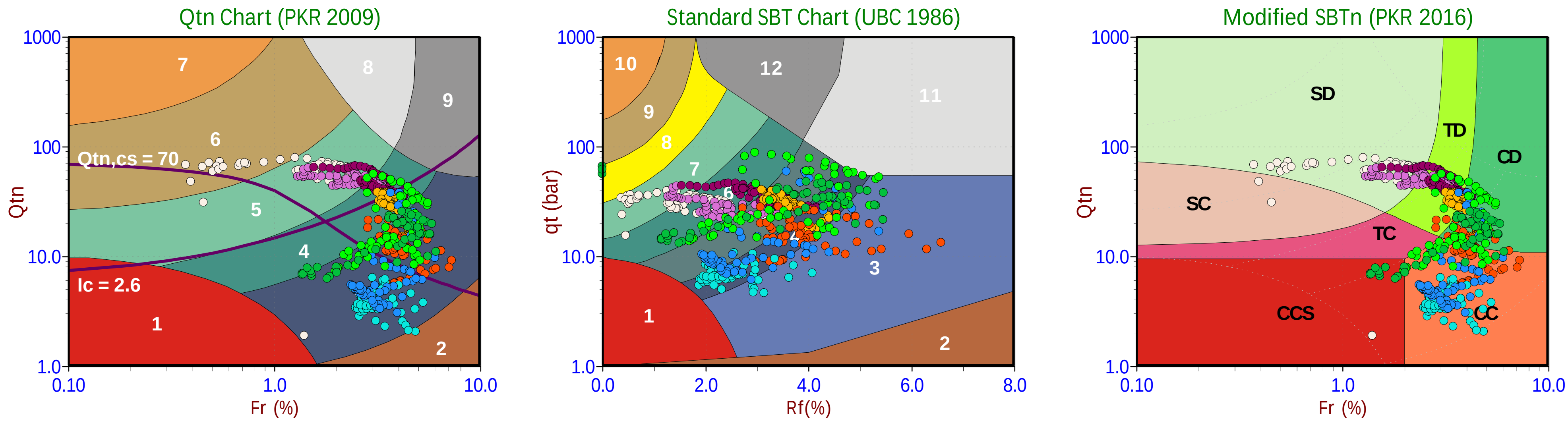
Legend
- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 10:19
Site: Duke Warehouse Silver Creek

Sounding: CPT-03
Cone: 446:T1500F15U500



Depth Ranges
- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend
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Legend
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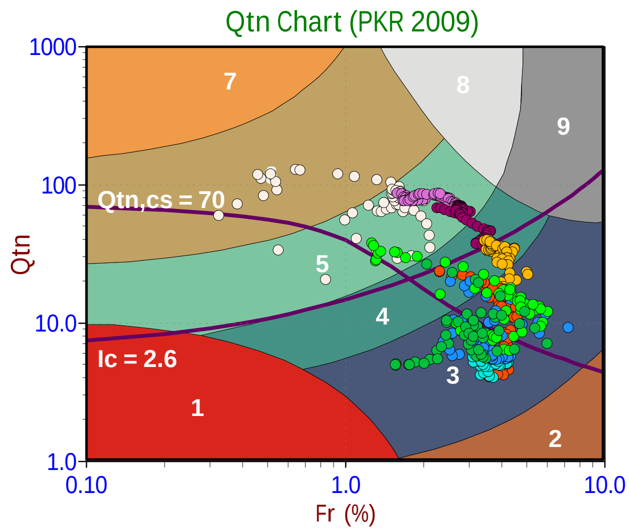
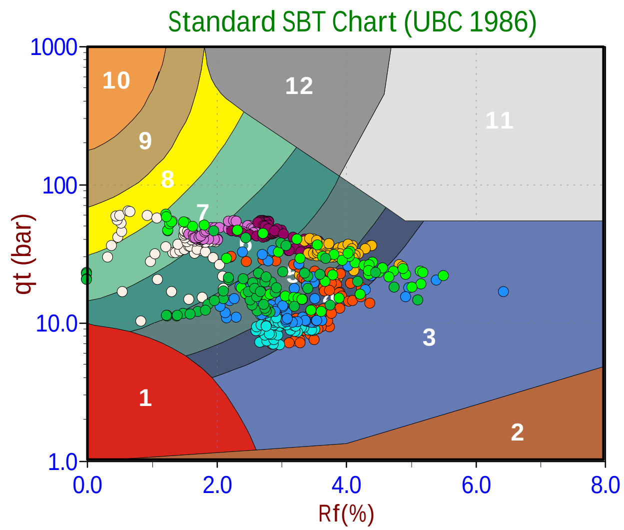
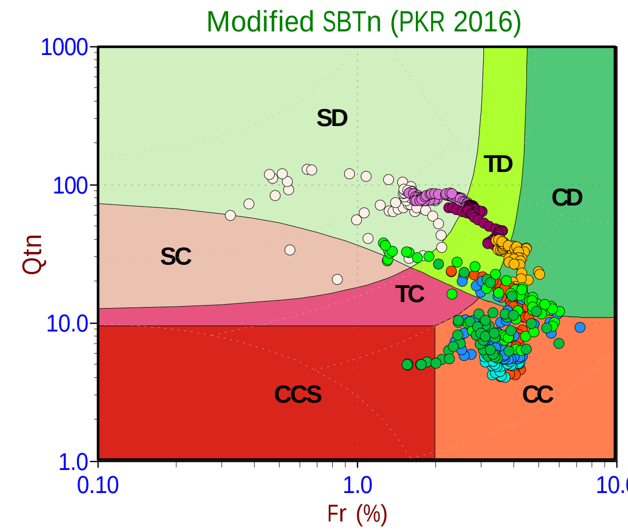
Legend
- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

CONETEC	Kleinfelder	Job No: 21-56-22781 Date: 2021-07-29 08:03 Site: Duke Warehouse Silver Creek
		Sounding: SCPT-04 Cone: 446:T1500F15U500







Depth Ranges

- >0.0 to 5.0 ft
- >5.0 to 10.0 ft
- >10.0 to 15.0 ft
- >15.0 to 20.0 ft
- >20.0 to 25.0 ft
- >25.0 to 30.0 ft
- >30.0 to 35.0 ft
- >35.0 to 40.0 ft
- >40.0 to 45.0 ft
- >45.0 to 50.0 ft
- >50.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

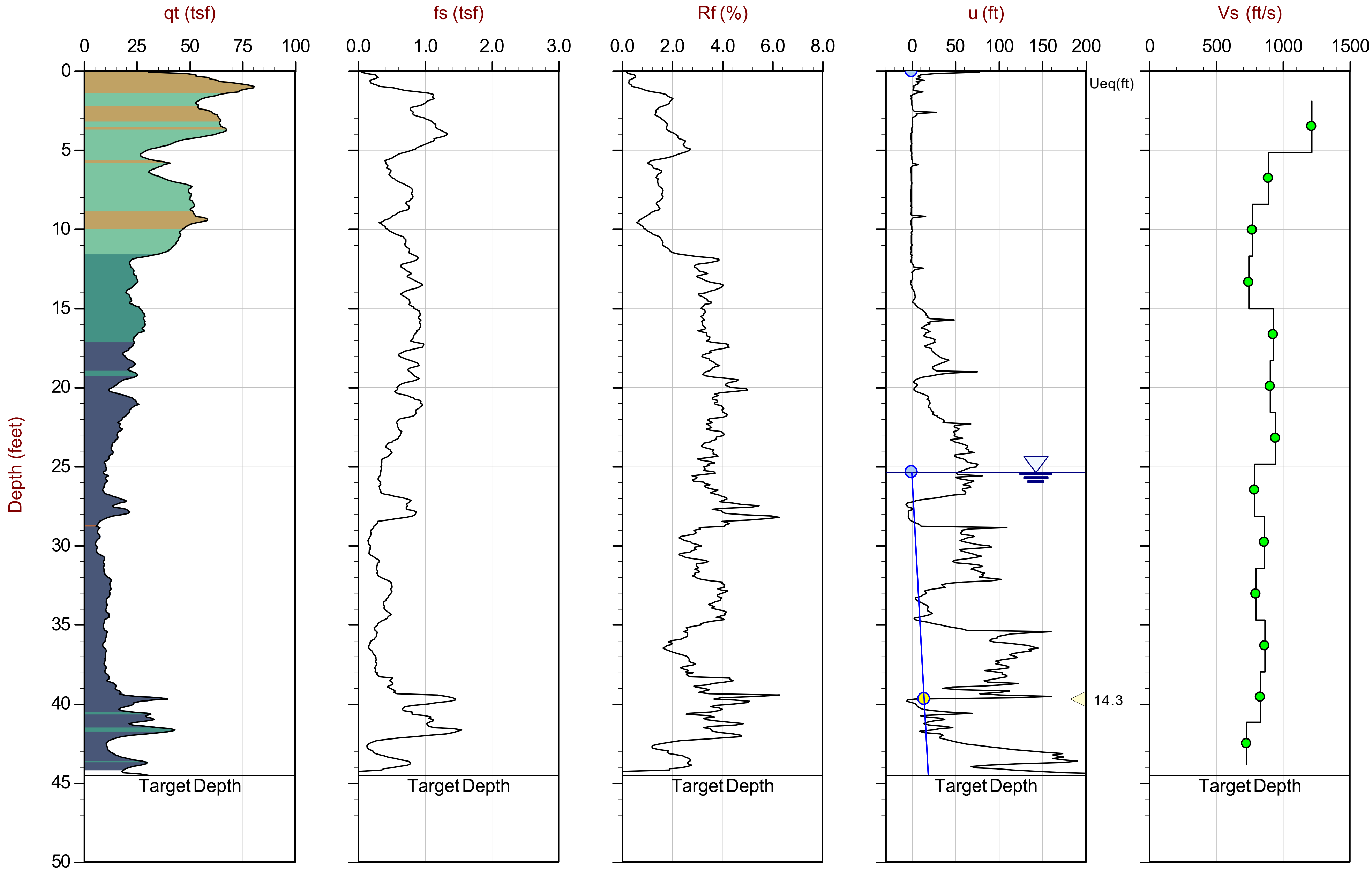
Seismic Cone Penetration Test Plots

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 08:50
Site: Duke Warehouse Silver Creek

Sounding: SCPT-01
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP01.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124249m E: 607340m

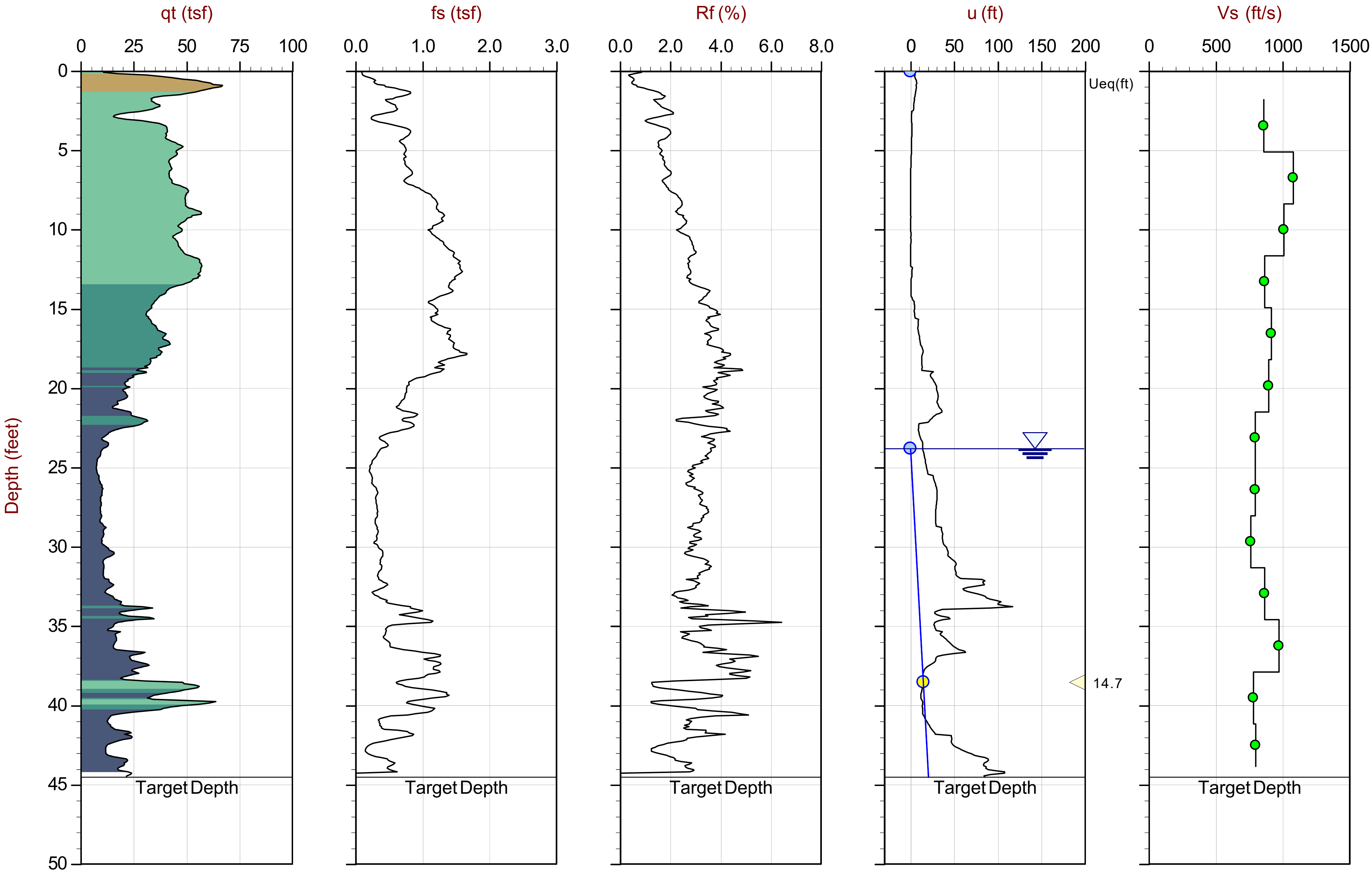
Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Kleinfelder

Job No: 21-56-22781
Date: 2021-07-29 08:03
Site: Duke Warehouse Silver Creek

Sounding: SCPT-04
Cone: 446:T1500F15U500



Max Depth: 13.575 m / 44.54 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP04.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124228m E: 607588m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Seismic Cone Penetration Test Tabular Results

Job No:	21-56-22781
Client:	Kleinfelder
Project:	Duke Warehouse Silver Creek
Sounding ID:	SCPT-01
Date:	07:29:21 08:50
Seismic Source:	Beam
Seismic Offset (ft):	2.10
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
2.56	1.90	2.83			
5.81	5.15	5.56	2.73	2.24	1217
9.09	8.43	8.69	3.13	3.50	893
12.37	11.71	11.90	3.21	4.16	771
15.68	15.03	15.17	3.27	4.39	745
18.96	18.31	18.43	3.26	3.50	930
22.24	21.59	21.69	3.26	3.60	906
25.53	24.87	24.96	3.27	3.46	945
28.81	28.15	28.23	3.27	4.15	788
32.09	31.43	31.50	3.27	3.80	861
35.37	34.71	34.77	3.27	4.10	798
38.65	37.99	38.05	3.28	3.79	865
41.83	41.18	41.23	3.18	3.83	831
44.52	43.86	43.91	2.69	3.69	728

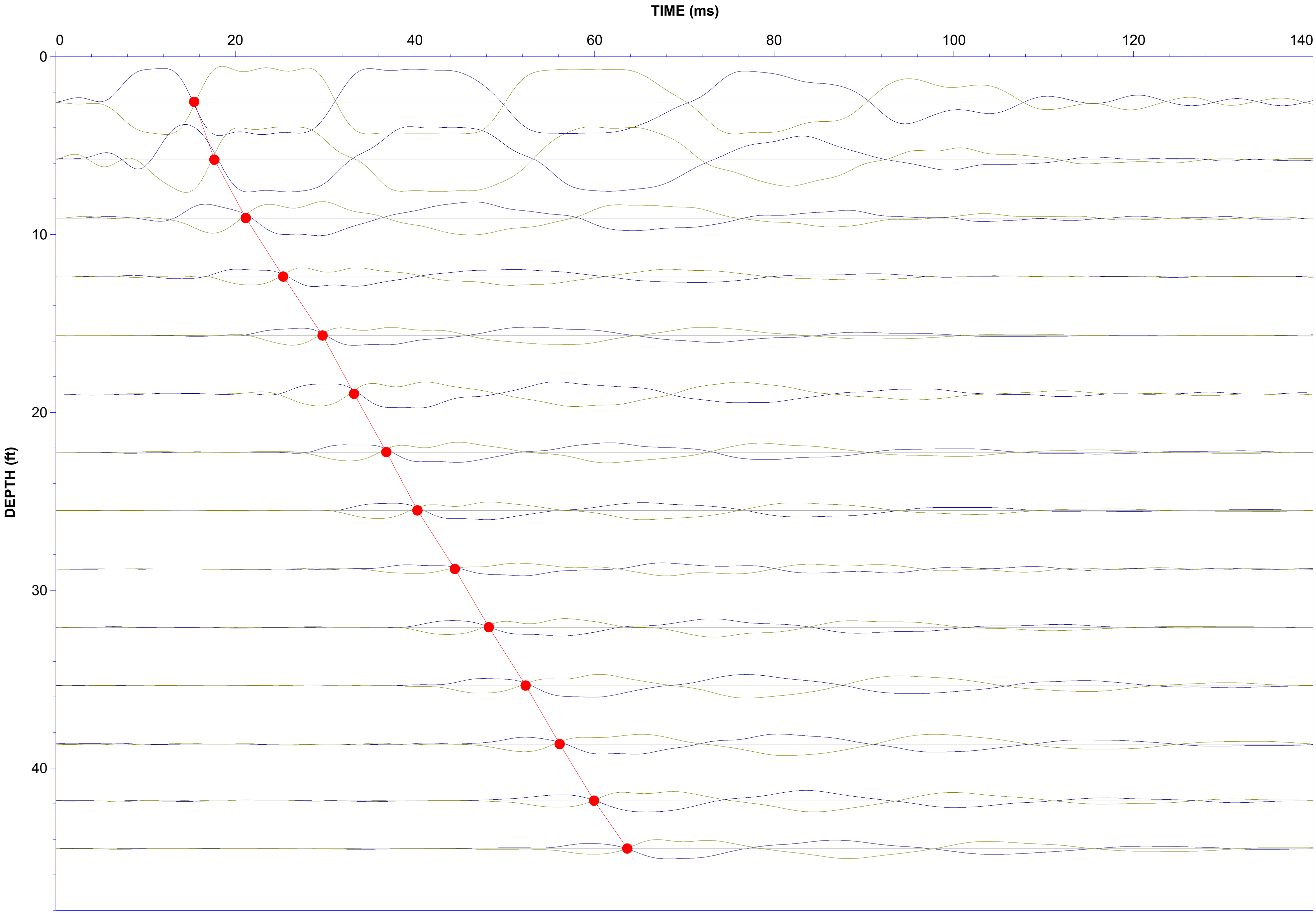
Job No:	21-56-22781
Client:	Kleinfelder
Project:	Duke Warehouse Silver Creek
Sounding ID:	SCPT-04
Date:	07:29:21 08:03
Seismic Source:	Beam
Seismic Offset (ft):	2.10
Source Depth (ft):	0.00
Geophone Offset (ft):	0.66

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

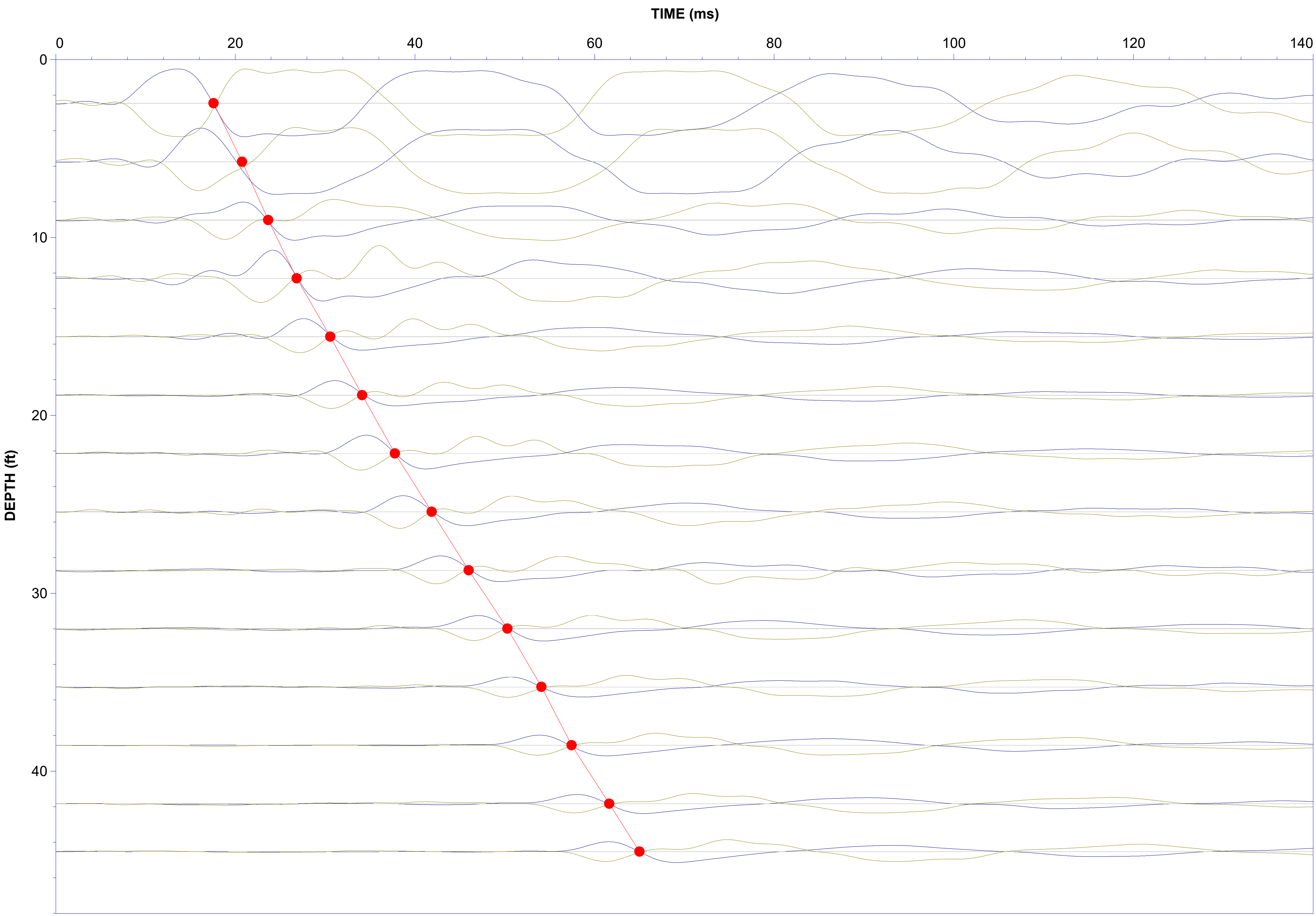
Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
2.46	1.80	2.77			
5.74	5.09	5.50	2.73	3.18	860
9.02	8.37	8.63	3.12	2.90	1078
12.30	11.65	11.84	3.21	3.18	1010
15.58	14.93	15.08	3.24	3.74	867
18.87	18.21	18.33	3.26	3.55	916
22.15	21.49	21.59	3.26	3.64	895
25.43	24.77	24.86	3.27	4.11	795
28.71	28.05	28.13	3.27	4.11	795
31.99	31.33	31.40	3.27	4.30	761
35.27	34.61	34.68	3.28	3.79	864
38.55	37.89	37.95	3.28	3.36	974
41.83	41.18	41.23	3.28	4.20	780
44.52	43.86	43.91	2.69	3.36	799

Seismic Cone Penetration Test Shear Wave (Vs) Traces

Job No: 21-56-22781 | Client: Kleinfelder | Project: Duke Warehouse Silver Creek | Filter: BP 0-200 Hz | Sounding: SCPT-01
Date: 07:29:21 08:50 | Cone: 446:T1500F15U500



Job No: 21-56-22781 Client: Kleinfelder Project: Duke Warehouse Silver Creek Filter: BP 0-200 Hz Sounding: SCPT-04
Date: 07:29:21 08:03 Cone: 446:T1500F15U500



Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Job No: 21-56-22781
Client: Kleinfelder
Project: Duke Warehouse Silver Creek
Start Date: 29-Jul-2021
End Date: 29-Jul-2021

CPTu PORE PRESSURE DISSIPATION SUMMARY

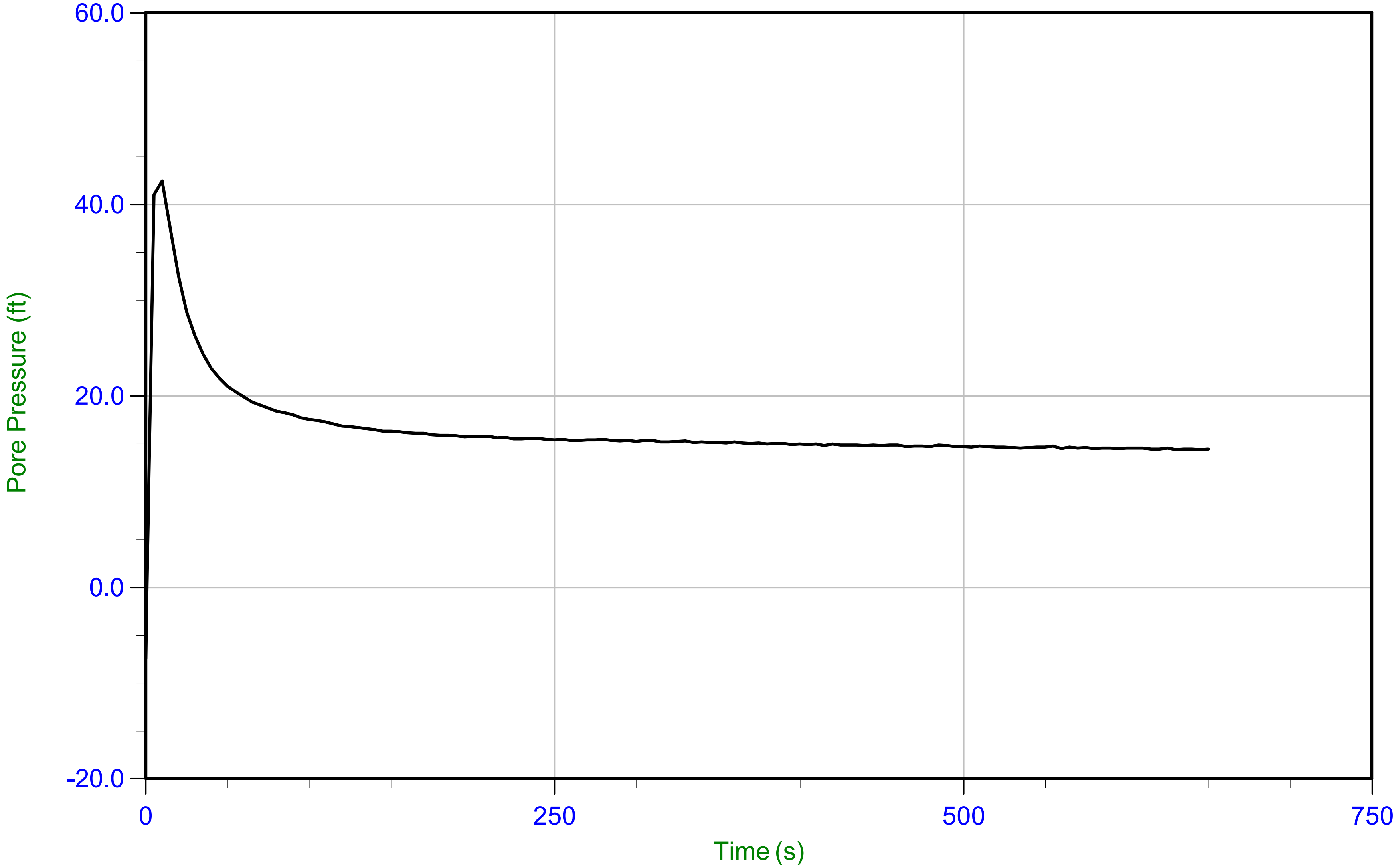
Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft)	Calculated Phreatic Surface (ft)
SCPT-01	21-56-22781_SP01	15	650	39.70	14.3	25.4
CPT-02	21-56-22781_CP02	15	300	38.96	13.1	25.8
CPT-03	21-56-22781_CP03	15	320	34.37	11.1	23.3
SCPT-04	21-56-22781_SP04	15	300	38.55	14.7	23.8

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 07/29/2021 08:50
Site: Duke Warehouse Silver Creek

Sounding: SCPT-01
Cone: 446:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 21-56-22781_SP01.PPF
Depth: 12.100 m / 39.698 ft
Duration: 650.0 s

u Min: -7.5 ft
u Max: 42.4 ft
u Final: 14.4 ft

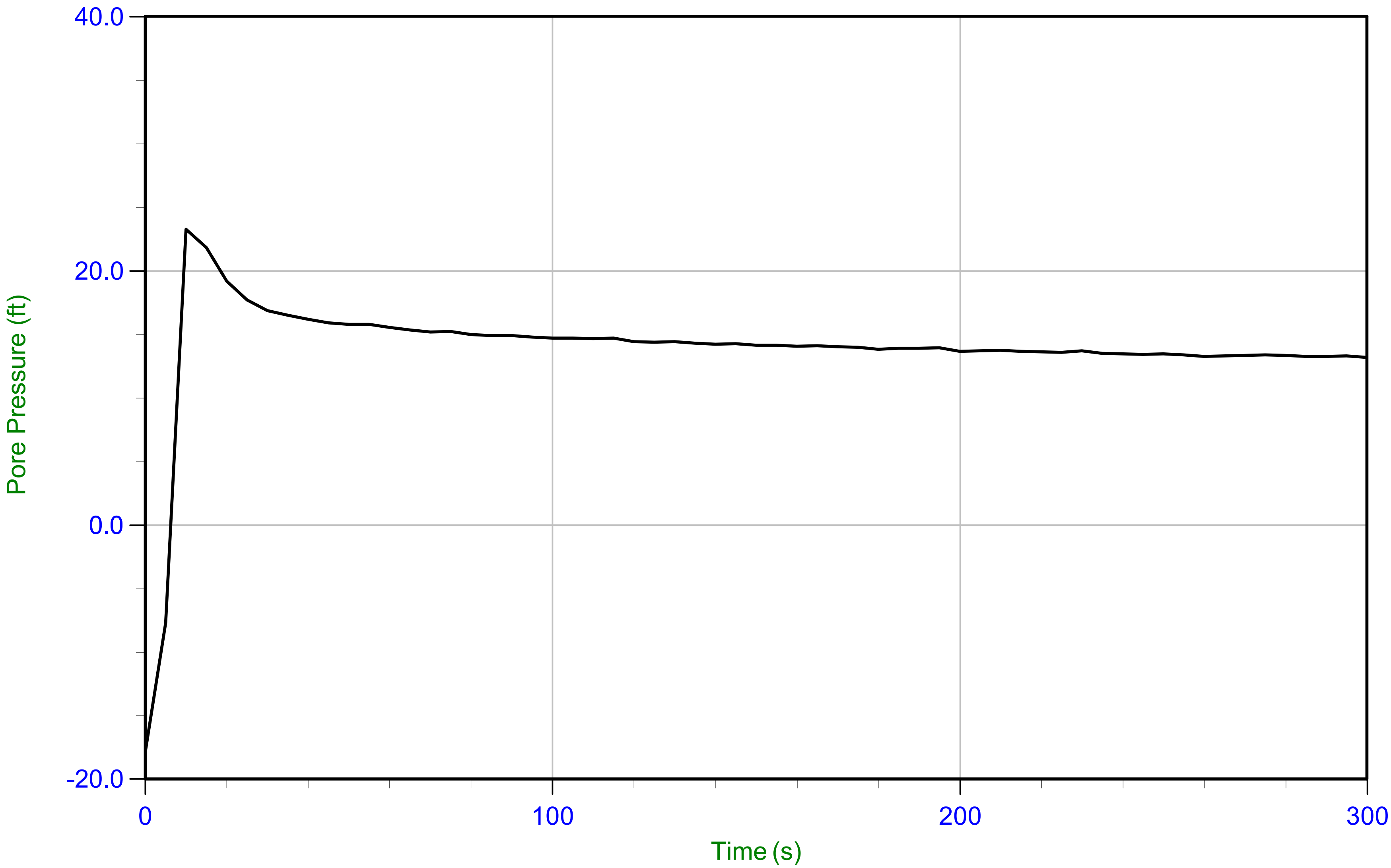
WT: 7.732 m / 25.367 ft
Ueq: 14.3 ft

ConeTec

Kleinfelder

Job No: 21-56-22781
Date: 07/29/2021 09:37
Site: Duke Warehouse Silver Creek

Sounding: CPT-02
Cone: 446:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 21-56-22781_CP02.PPF
Depth: 11.875 m / 38.959 ft
Duration: 300.0 s

u Min: -17.8 ft
u Max: 23.3 ft
u Final: 13.2 ft

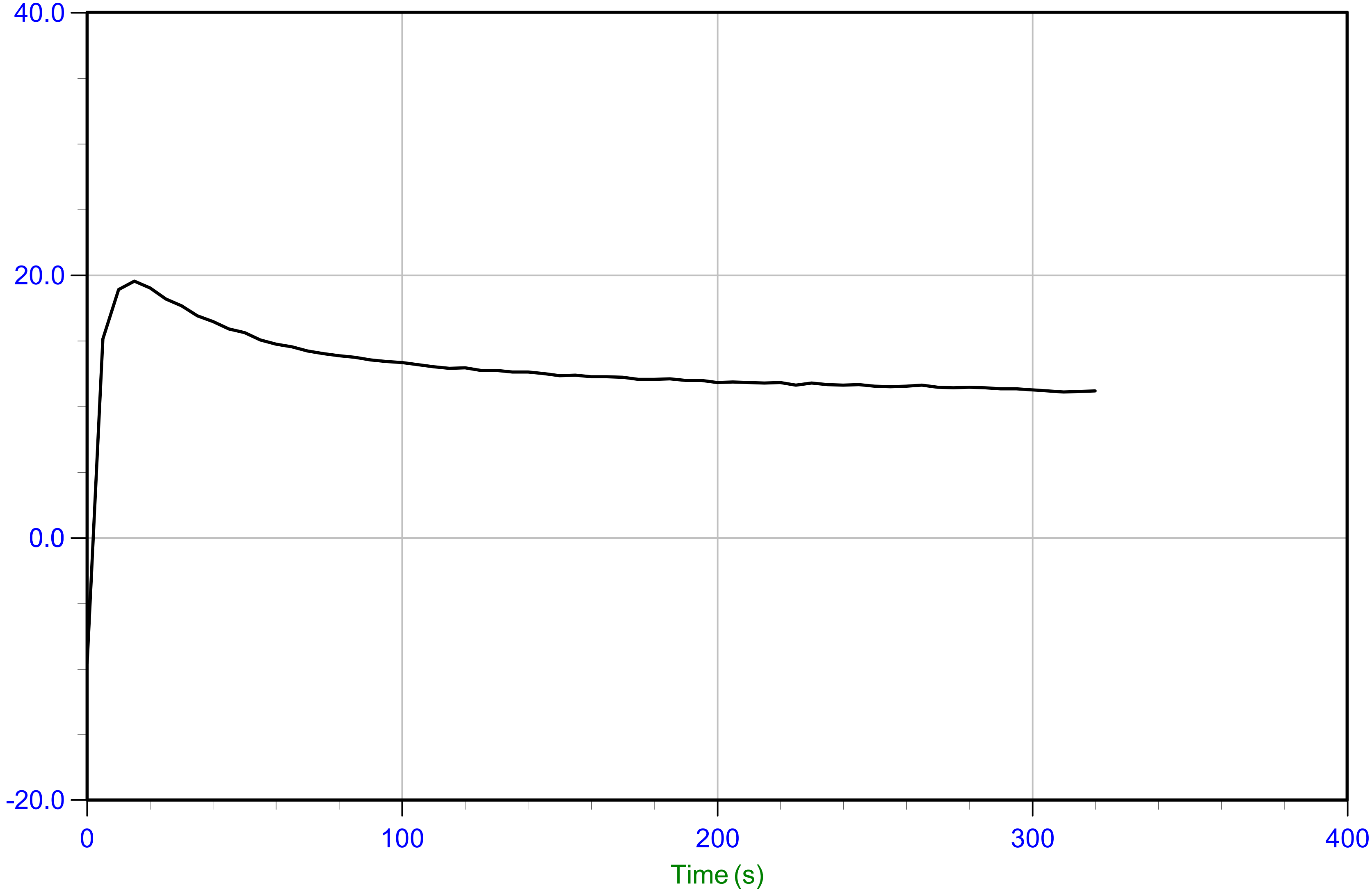
WT: 7.876 m / 25.839 ft
Ueq: 13.1 ft

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 07/29/2021 10:19
Site: Duke Warehouse Silver Creek

Sounding: CPT-03
Cone: 446:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 21-56-22781_CP03.PPF
Depth: 10.475 m / 34.366 ft
Duration: 320.0 s

u Min: -9.6 ft
u Max: 19.5 ft
u Final: 11.2 ft

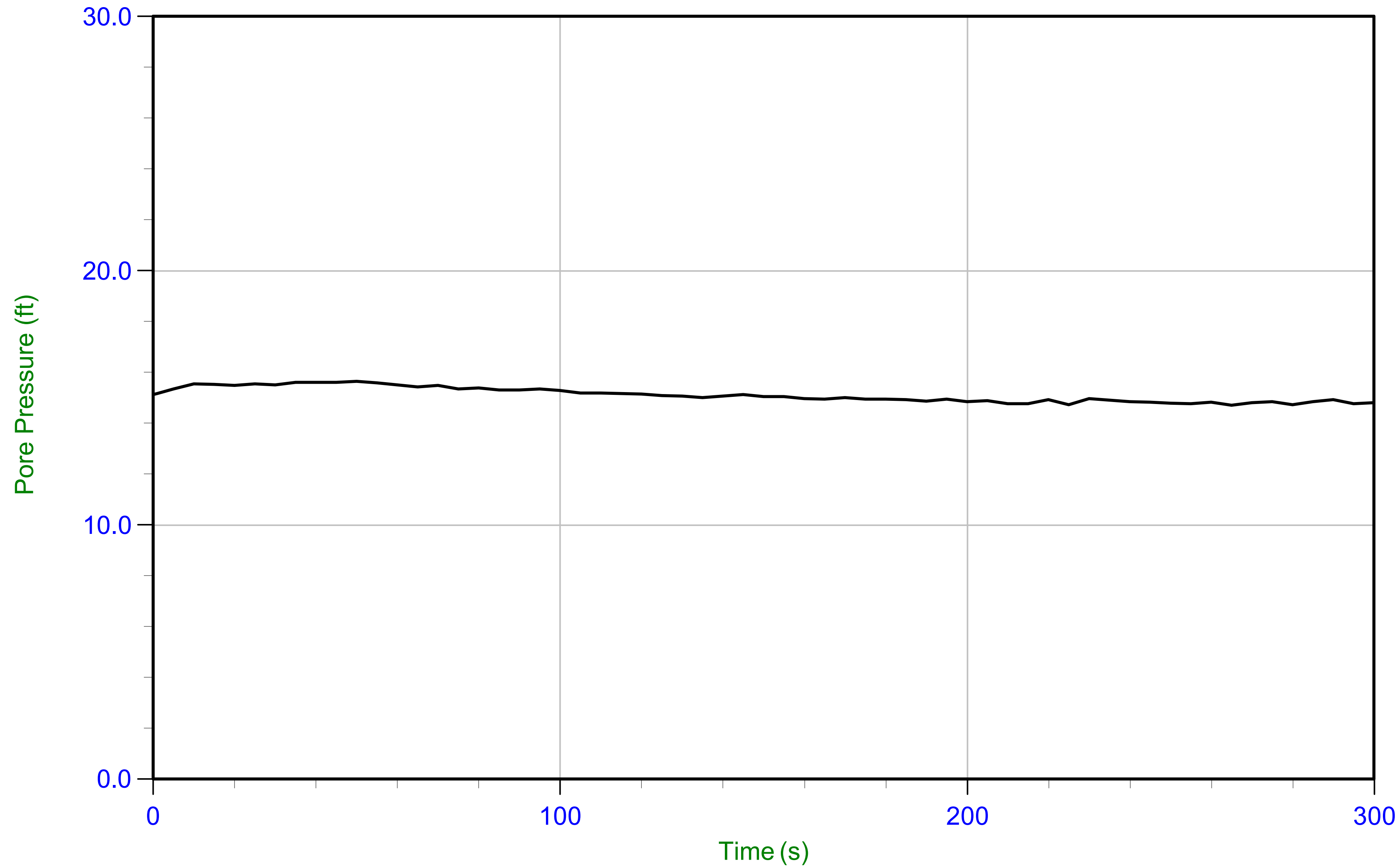
WT: 7.097 m / 23.284 ft
Ueq: 11.1 ft

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 07/29/2021 08:03
Site: Duke Warehouse Silver Creek

Sounding: SCPT-04
Cone: 446:T1500F15U500 Area=15 cm²



Trace Summary:

Filename: 21-56-22781_SP04.PPF
Depth: 11.750 m / 38.549 ft
Duration: 300.0 s

u Min: 14.7 ft
u Max: 15.6 ft
u Final: 14.8 ft

WT: 7.259 m / 23.815 ft
Ueq: 14.7 ft

PRESENTATION OF SITE INVESTIGATION RESULTS

Duke Warehouse Silver Creek

Prepared for:

Kleinfelder

ConeTec Job No: 21-56-22781

Project Start Date: 2022-Jan-20
Project End Date: 2022-Jan-20
Report Date: 2022-Jan-25

Prepared by:

ConeTec Inc.

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Tel: (510) 357-3677

ConeTecCA@conetec.com

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www.conetecdataservices.com

ABOUT THIS REPORT

The enclosed report presents the results of the site investigation program conducted by ConeTec, Inc. The program consisted of Seismic Piezocone Penetration Testing and Pore Pressure Dissipation Testing. Please note that this report, which also includes all accompanying data, are subject to the 3rd Party Disclaimer and Client Disclaimer that follow in the 'Limitations' section of this report.

Project Information	
Client	Kleinfelder
Project	Duke Warehouse Silver Creek
ConeTec Project Number	21-56-22781
Rig Description	30-ton Truck CPT Rig (C-15)

Coordinates	
Collection Method	Consumer Grade GPS
EPSG Number	32610 (WGS 84 / UTM 10S)

Cone Penetration Test (CPTu)	
Depth Reference	Existing ground surface at the time of the investigation
Sleeve data offset	0.1 Meters

Calculated Geotechnical Parameters Tables	
Additional Information	The Normalized Soil Behaviour Type Chart based on Q_{tn} (SBT Q_{tn}) (Robertson, 2009) was used to classify the soil for this project. A detailed set of calculated CPTu parameters have been generated and are provided in Excel format files in the release folder. The CPTu parameter calculations are based on values of corrected tip resistance (q_t) sleeve friction (f_s) and pore pressure (u_2). Effective stresses are calculated based on unit weights that have been assigned to the individual soil behaviour type zones and the assumed equilibrium pore pressure profile. Soils were classified as either drained or undrained based on the Q_{tn} Normalized Soil Behaviour Type Chart (Robertson, 2009). Calculations for both drained and undrained parameters were included for materials that classified as silt mixtures (zone 4).

Please refer to the list of attached documents following the text of this report. A test summary, location map, and plots are included. Thank you for the opportunity to work on this project.

LIMITATIONS

3rd Party Disclaimer

- The "Report" refers to this report titled Duke Warehouse Silver Creek
- The Report was prepared by ConeTec for Kleinfelder

The Report is confidential and may not be distributed to or relied upon by any third parties without the express written consent of ConeTec. Any third parties gaining access to the Report do not acquire any rights as a result of such access. Any use which a third party makes of the Report, or any reliance on or decisions made based on it, are the responsibility of such third parties. ConeTec accepts no responsibility for loss, damage and/or expense, if any, suffered by any third parties as a result of decisions made, or actions taken or not taken, which are in any way based on, or related to, the Report or any portion(s) thereof.

Client Disclaimer

- ConeTec was retained by Kleinfelder
- The "Report" refers to this report titled Duke Warehouse Silver Creek
- ConeTec was retained to collect and provide the raw data ("Data") which is included in the Report.

ConeTec has collected and reported the Data in accordance with current industry standards. No other warranty, express or implied, with respect to the Data is made by ConeTec. In order to properly understand the Data included in the Report, reference must be made to the documents accompanying and other sources referenced in the Report in their entirety. Other than the Data, the contents of the Report (including any Interpretations) should not be relied upon in any fashion without independent verification and ConeTec is in no way responsible for any loss, damage or expense resulting from the use of, and/or reliance on, such material by any party.

CONTENTS

The following listed below are included in the report:

SITE MAP

ConeTec Job Number: 21-56-22781

Client: Kleinfelder

Project: Duke Warehouse Silver Creek

Report Date: 2022-Jan-25

Sounding Location

All sounding locations are approximate

Cone Penetration Test Summary and Standard Cone Penetration Test Plots

Job No: 21-56-22781
Client: Kleinfelder
Project: Duke Warehouse Silver Creek
Start Date: 20-Jan-2022
End Date: 20-Jan-2022

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Cone Area (cm^2)	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Northing[2]	Easting[2]	Elevation[3] (ft)	Refer to Notation Number
SCPT-05	21-56-22781_SP05	20-Jan-2022	EC741:T1500F15U35	15	36.1	88.09	4124201	607401	204	
SCPT-06	21-56-22781_SP06	20-Jan-2022	EC741:T1500F15U35	15	29.6	61.84	4124281	607496	202	

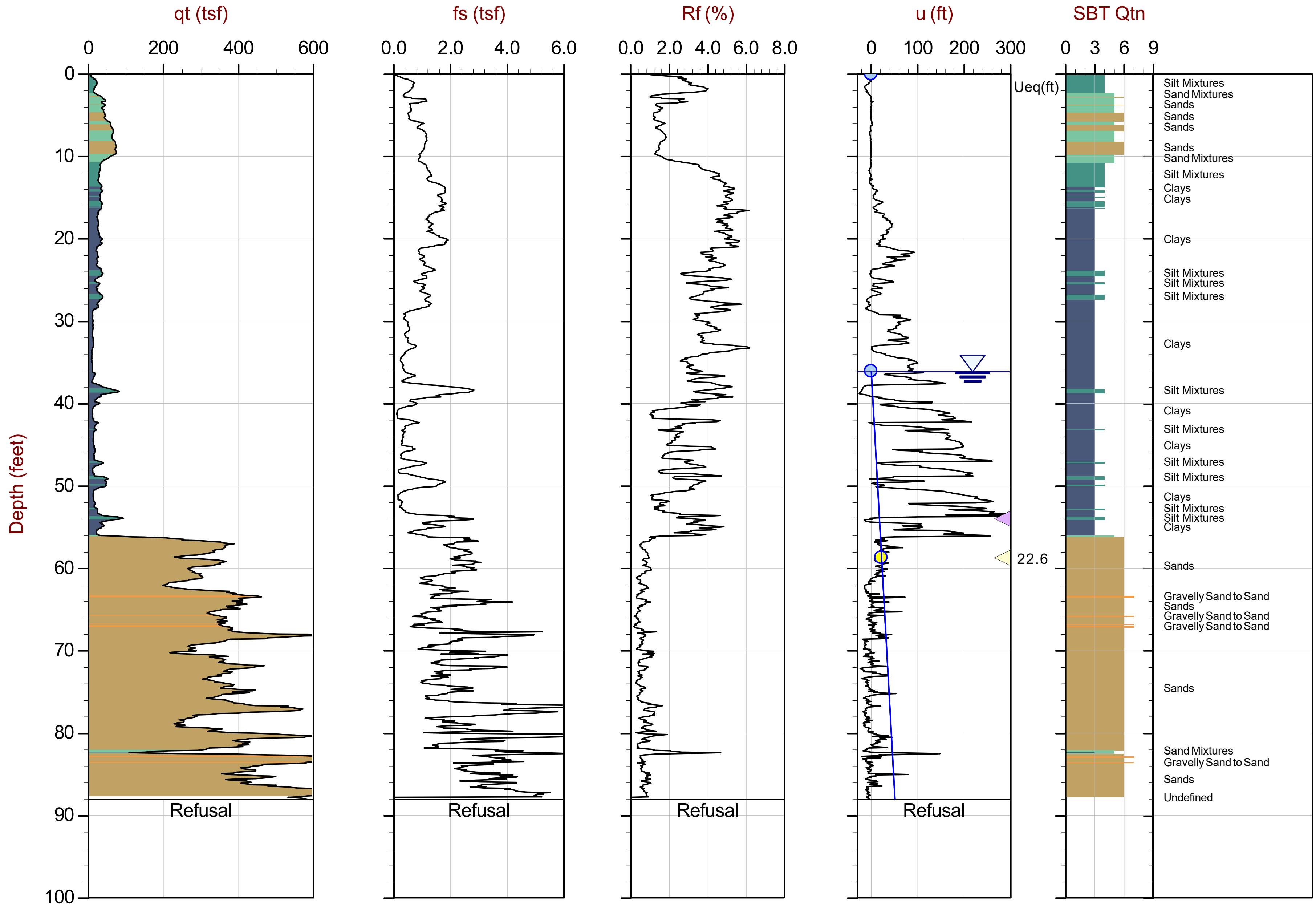
1. The assumed phreatic surface was based off the shallowest pore pressure dissipation tests performed within or nearest the sounding. Hydrostatic conditions were assumed for the calculated parameters.
2. The coordinates were collected using consumer grade GPS equipment. EPSG number: 32610 (WGS84 / UTM Zone 10S).
3. Elevations are referenced to the ground surface and were acquired from the Google Earth Elevation for the recorded coordinates.

ConeTec

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 07:58
Site: Duke Warehouse Silver Creek

Sounding: SCPT-05
Cone: 741:T1500F15U35



Max Depth: 26.850 m / 88.09 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP05.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124201m E: 607401m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

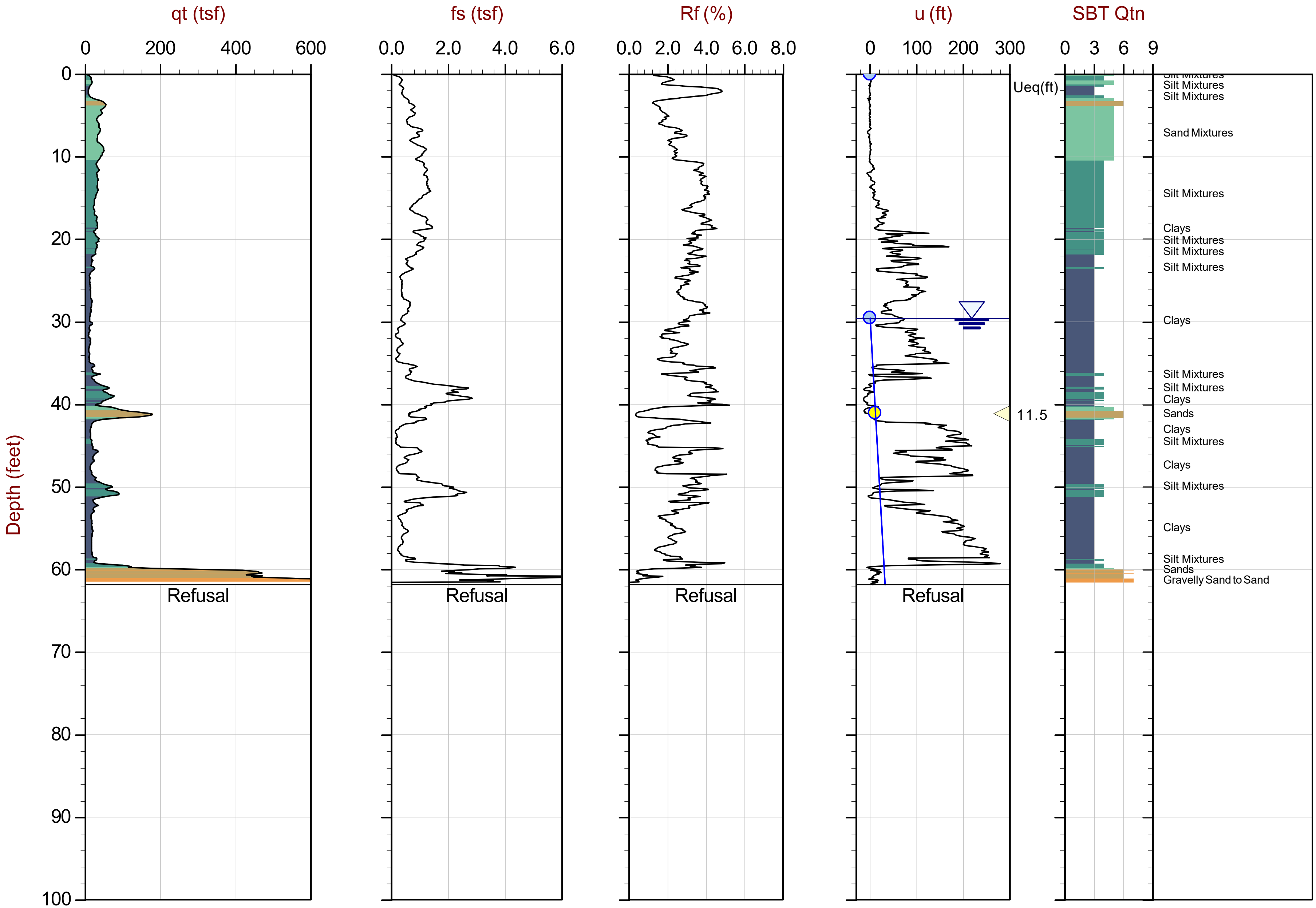
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 09:45
Site: Duke Warehouse Silver Creek

Sounding: SCPT-06
Cone: 741:T1500F15U35



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP06.COR
Unit Wt: SBTQtn (PKR2009)

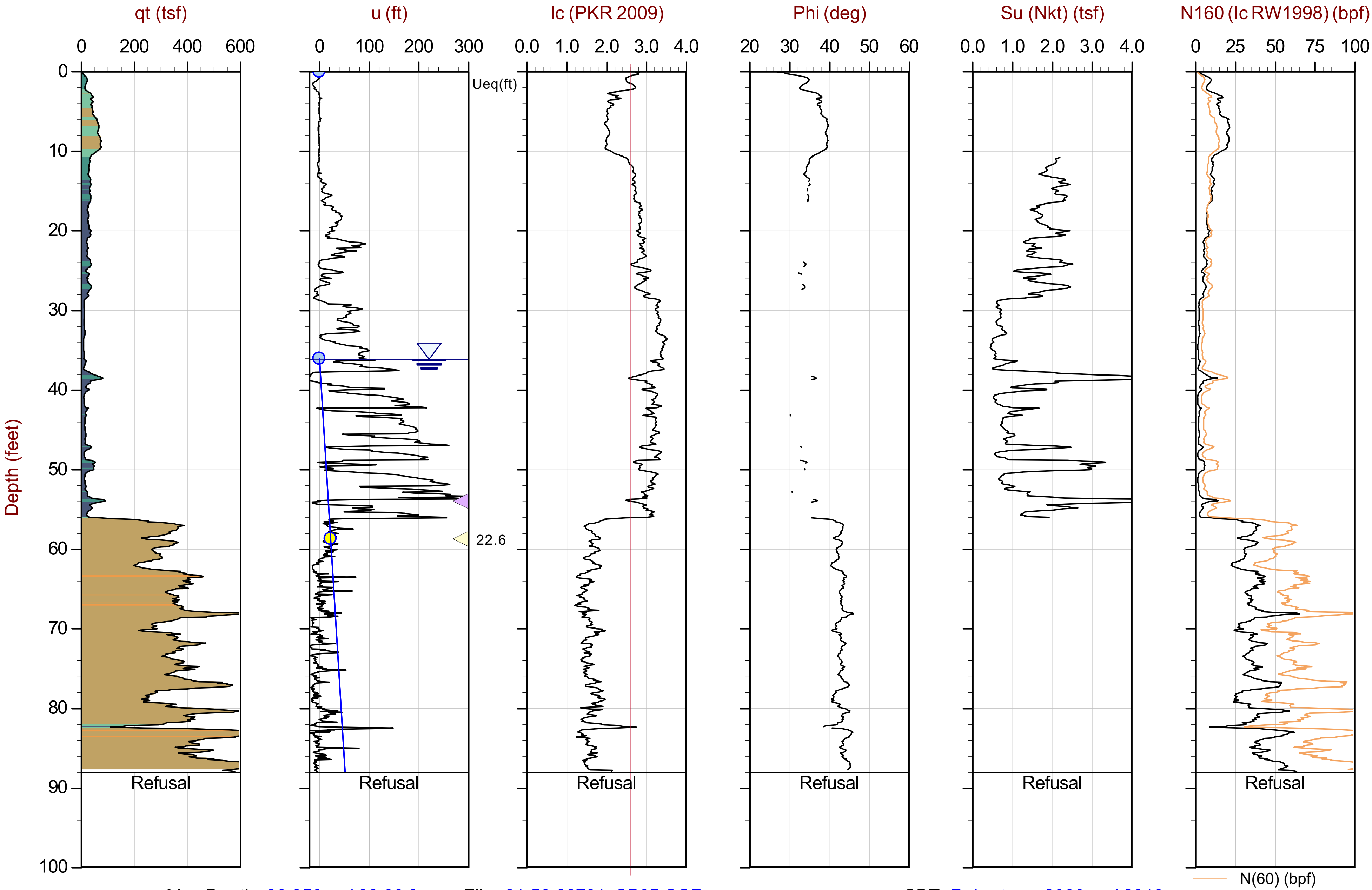
SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124281m E: 607496m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Advanced Cone Penetration Test Plots

Job No: 21-56-22781
Date: 2022-01-20 07:58
Site: Duke Warehouse Silver Creek
Sounding: SCPT-05
Cone: 741:T1500F15U35



Max Depth: 26.850 m / 88.09 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP05.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124201m E: 607401m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

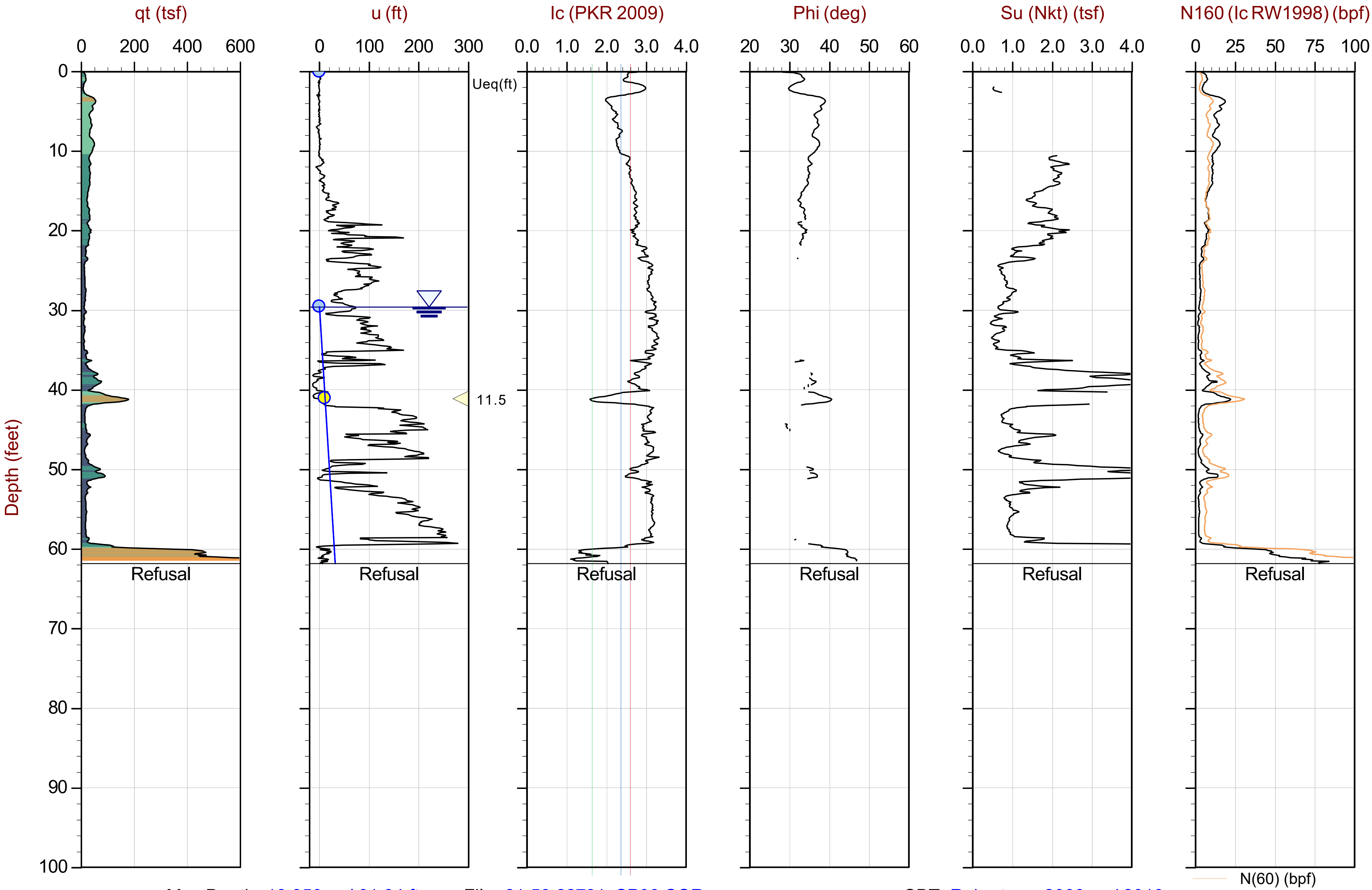
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 09:45
Site: Duke Warehouse Silver Creek

Sounding: SCPT-06
Cone: 741:T1500F15U35



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP06.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt: 15.0

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124281m E: 607496m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

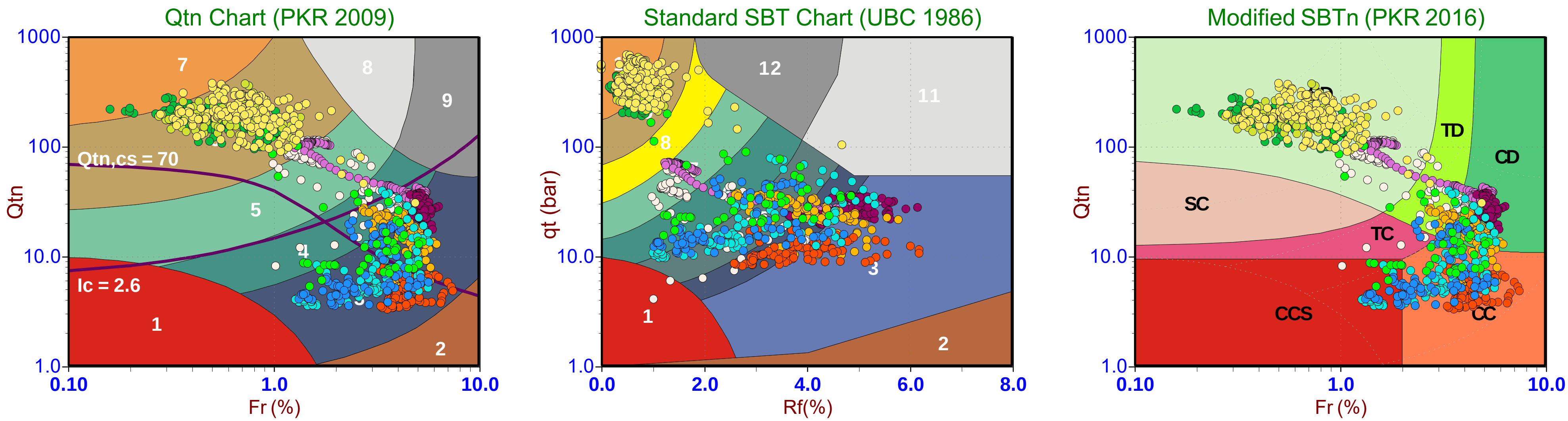
Soil Behavior Type (SBT) Scatter Plots

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 07:58
Site: Duke Warehouse Silver Creek

Sounding: SCPT-05
Cone: 741:T1500F15U35



Depth Ranges
- >0.0 to 7.5 ft
- >7.5 to 15.0 ft
- >15.0 to 22.5 ft
- >22.5 to 30.0 ft
- >30.0 to 37.5 ft
- >37.5 to 45.0 ft
- >45.0 to 52.5 ft
- >52.5 to 60.0 ft
- >60.0 to 67.5 ft
- >67.5 to 75.0 ft
- >75.0 ft

Legend
- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

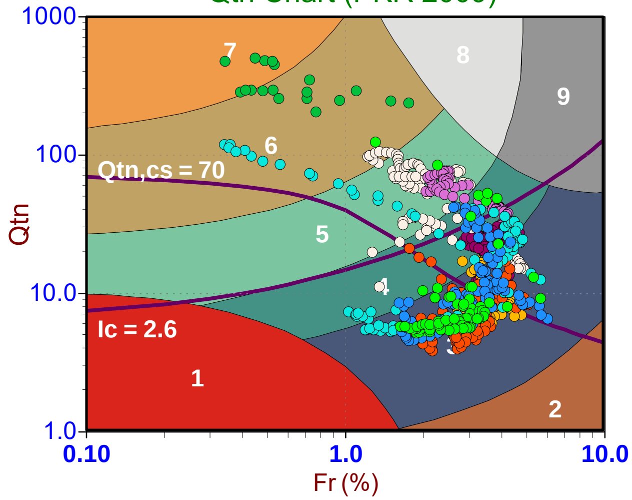
Legend
- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

Legend
- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

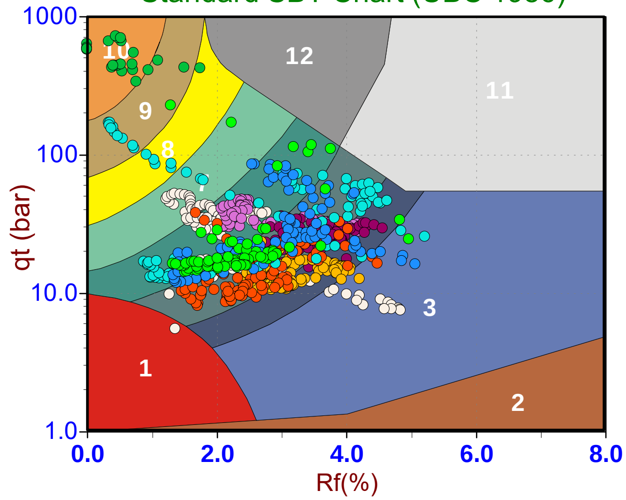
Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 09:45
Site: Duke Warehouse Silver Creek
Sounding: SCPT-06
Cone: 741:T1500F15U35

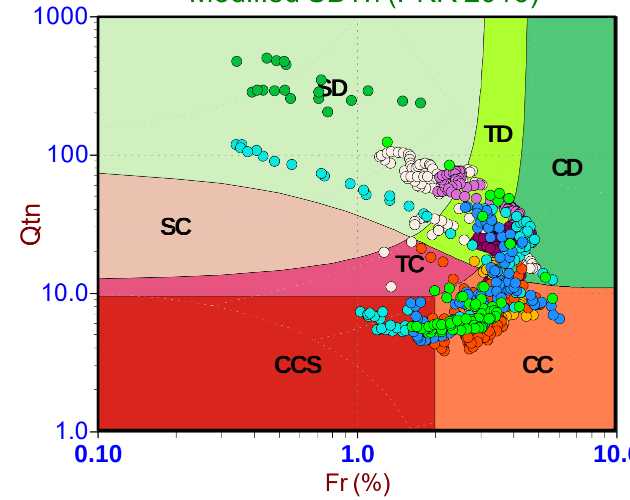
Qtn Chart (PKR 2009)



Standard SBT Chart (UBC 1986)



Modified SBTn (PKR 2016)



Depth Ranges

- >0.0 to 7.5 ft
- >7.5 to 15.0 ft
- >15.0 to 22.5 ft
- >22.5 to 30.0 ft
- >30.0 to 37.5 ft
- >37.5 to 45.0 ft
- >45.0 to 52.5 ft
- >52.5 to 60.0 ft
- >60.0 to 67.5 ft
- >67.5 to 75.0 ft
- >75.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Job No:	21-56-22781
Client:	Kleinfelder
Project:	Duke Warehouse Silver Creek
Start Date:	20-Jan-2022
End Date:	20-Jan-2022

CPTu PORE PRESSURE DISSIPATION SUMMARY

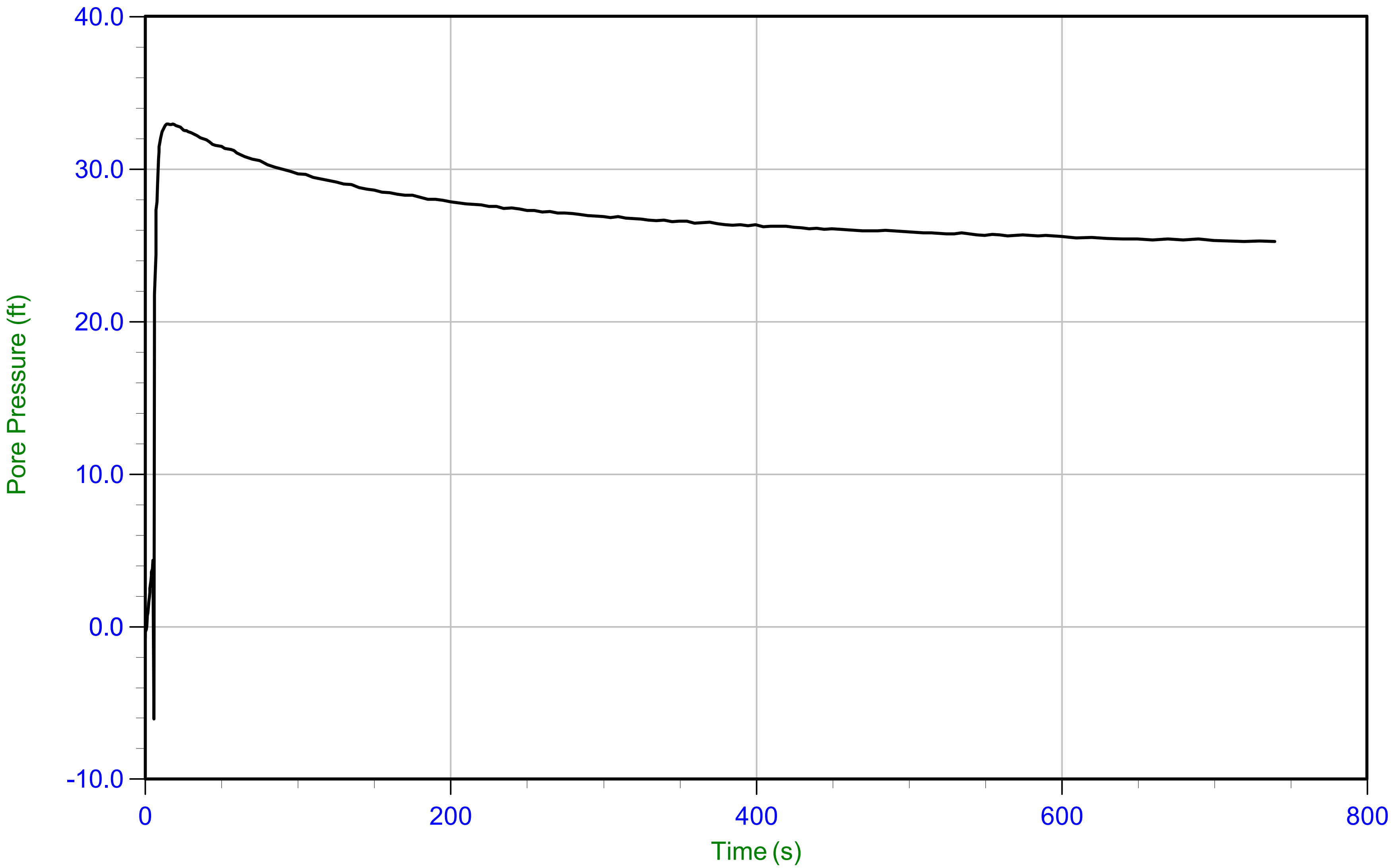
Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft.)	Calculated Phreatic Surface (ft.)
SCPT-05	21-56-22781_SP05	15	740	53.97	Not Achieved	
SCPT-05	21-56-22781_SP05	15	300	58.73	22.6	36.1
SCPT-06	21-56-22781_SP06	15	385	41.09	11.5	29.6

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 01/20/2022 07:58
Site: Duke Warehouse Silver Creek

Sounding: SCPT-05
Cone: 741:T1500F15U35 Area=15 cm²

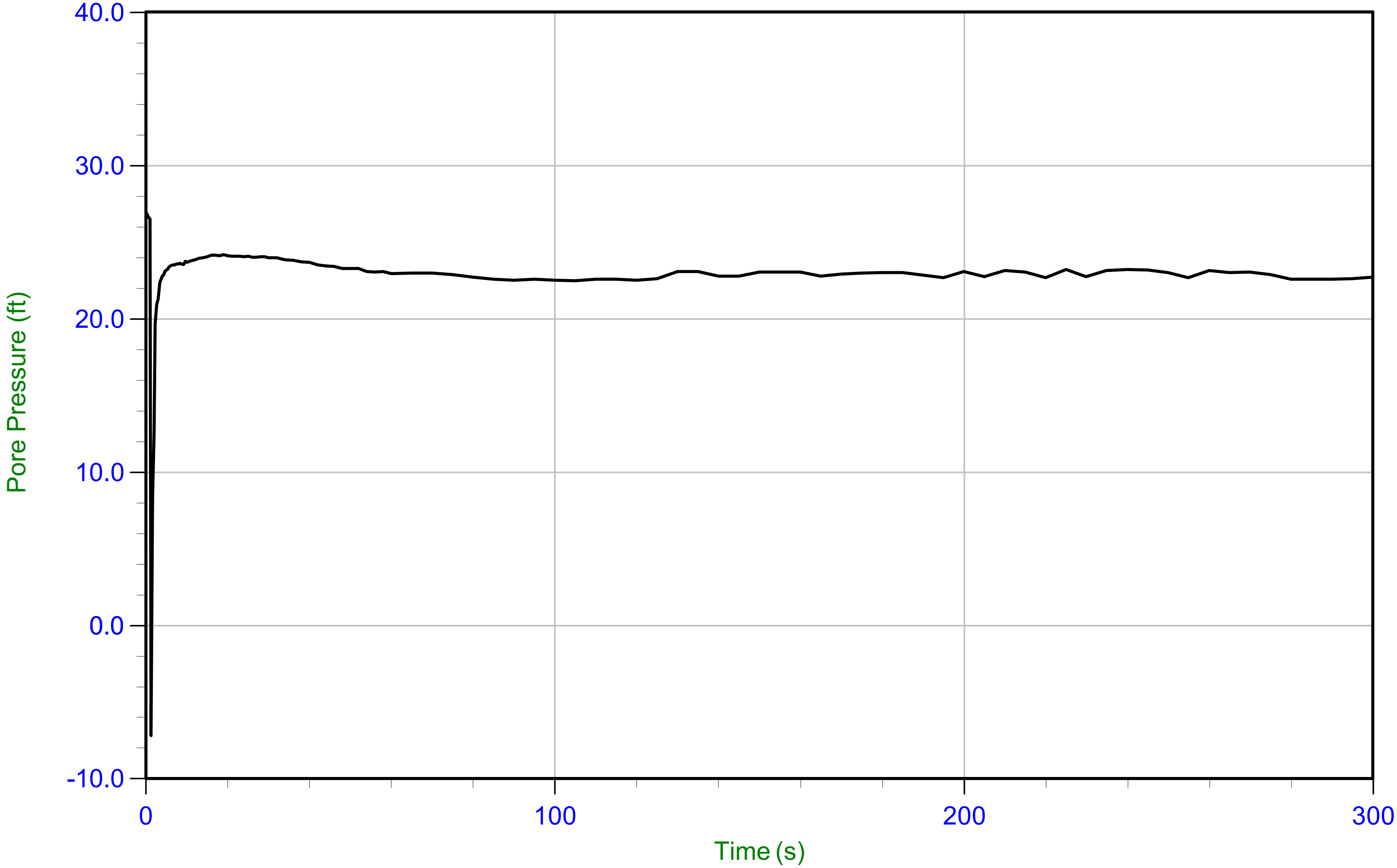


Trace Summary:

Filename: 21-56-22781_SP05.ppd2
Depth: 16.450 m / 53.969 ft
Duration: 739.9 s

u Min: -6.1 ft
u Max: 32.9 ft
u Final: 25.2 ft

Kleinfelder	Job No: 21-56-22781 Date: 01/20/2022 07:58 Site: Duke Warehouse Silver Creek	Sounding: SCPT-05 Cone: 741:T1500F15U35 Area=15 cm²



Trace Summary:

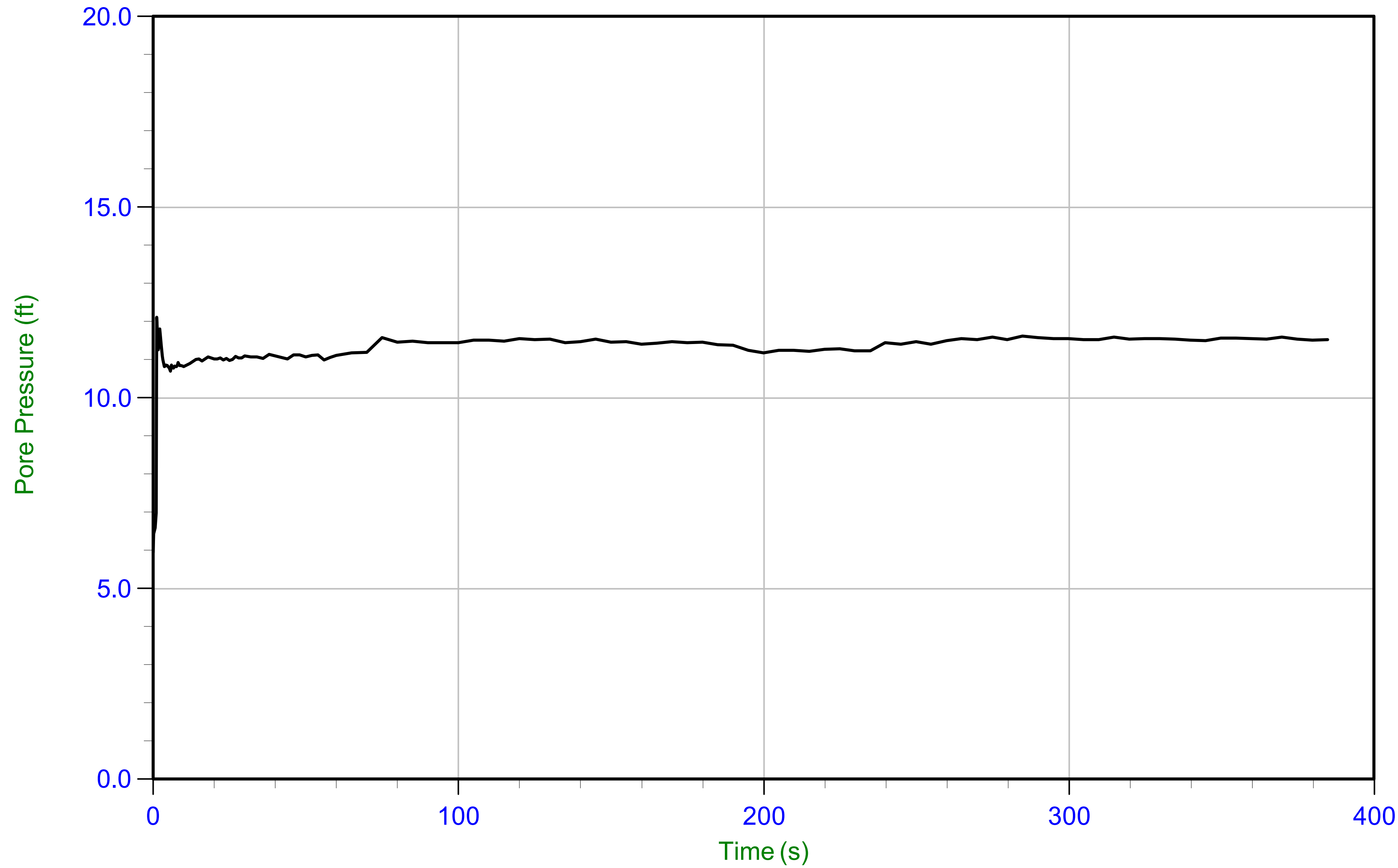
Filename: 21-56-22781_SP05.ppd2	u Min: -7.2 ft	WT: 11.005 m / 36.106 ft
Depth: 17.900 m / 58.726 ft	u Max: 26.9 ft	Ueq: 22.6 ft
Duration: 299.9 s	u Final: 22.7 ft	

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 01/20/2022 09:45
Site: Duke Warehouse Silver Creek

Sounding: SCPT-06
Cone: 741:T1500F15U35 Area=15 cm²



Trace Summary:

Filename: 21-56-22781_SP06.ppd2
Depth: 12.525 m / 41.092 ft
Duration: 384.9 s

u Min: 5.9 ft
u Max: 12.1 ft
u Final: 11.5 ft

WT: 9.017 m / 29.584 ft
Ueq: 11.5 ft

Seismic Cone Penetration Test Tabular Results

CONETEC

Job No: 21-56-22781
Client: Kleinfelder
Project: Duke Warehouse Silver Creek
Sounding ID: SCPT-05
Date: 01:20:22 07:58

Seismic Source: Beam
Seismic Offset (ft): 1.87
Source Depth (ft): 0.00
Geophone Offset (ft): 0.81

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
2.95	2.14	2.84			
6.30	5.49	5.80	2.96	5.91	500
9.51	8.70	8.90	3.10	3.90	796
12.73	11.92	12.06	3.16	4.10	772
16.08	15.26	15.38	3.31	4.15	800
19.29	18.48	18.57	3.20	3.80	840
22.57	21.76	21.84	3.27	3.71	882
26.02	25.21	25.27	3.43	3.53	972
29.20	28.39	28.45	3.18	3.93	809
32.42	31.60	31.66	3.21	4.39	731
39.04	38.23	38.28	6.62	8.27	800
42.26	41.45	41.49	3.21	4.32	744
45.54	44.73	44.77	3.28	4.25	772
48.82	48.01	48.04	3.28	4.34	755
52.10	51.29	51.32	3.28	4.07	805
58.73	57.92	57.95	6.62	6.18	1071
61.94	61.13	61.16	3.21	2.46	1309
65.22	64.41	64.44	3.28	2.80	1173
68.57	67.76	67.78	3.35	2.63	1271
71.85	71.04	71.06	3.28	2.59	1264
75.13	74.32	74.34	3.28	2.31	1419
78.41	77.60	77.62	3.28	2.48	1323
81.69	80.88	80.90	3.28	2.21	1485
84.97	84.16	84.18	3.28	1.69	1937
88.09	87.28	87.30	3.12	2.36	1323

Job No:	21-56-22781
Client:	Kleinfelder
Project:	Duke Warehouse Silver Creek
Sounding ID:	SCPT-06
Date:	01:20:22 09:45
Seismic Source:	Beam
Seismic Offset (ft):	1.87
Source Depth (ft):	0.00
Geophone Offset (ft):	0.81

SCPTu SHEAR WAVE VELOCITY TEST RESULTS - Vs

Tip Depth (ft)	Geophone Depth (ft)	Ray Path (ft)	Ray Path Difference (ft)	Travel Time Interval (ms)	Interval Velocity (ft/s)
2.89	2.08	2.79			
6.07	5.26	5.58	2.79	5.62	496
9.45	8.64	8.84	3.26	3.90	836
12.63	11.82	11.97	3.13	4.31	725
16.01	15.20	15.31	3.35	4.04	828
19.29	18.48	18.57	3.26	3.72	876
22.47	21.66	21.74	3.17	3.48	911
25.75	24.94	25.01	3.27	3.70	884
29.04	28.22	28.29	3.27	3.62	903
32.32	31.50	31.56	3.27	3.62	905
35.70	34.88	34.93	3.38	3.62	933
38.88	38.07	38.11	3.18	3.79	838
42.16	41.35	41.39	3.28	3.35	978
45.54	44.73	44.77	3.38	4.50	751
48.72	47.91	47.94	3.18	4.35	731
52.17	51.35	51.39	3.44	4.06	849
55.38	54.57	54.60	3.21	4.41	728
58.56	57.75	57.78	3.18	3.72	855
61.84	61.03	61.06	3.28	3.18	1031

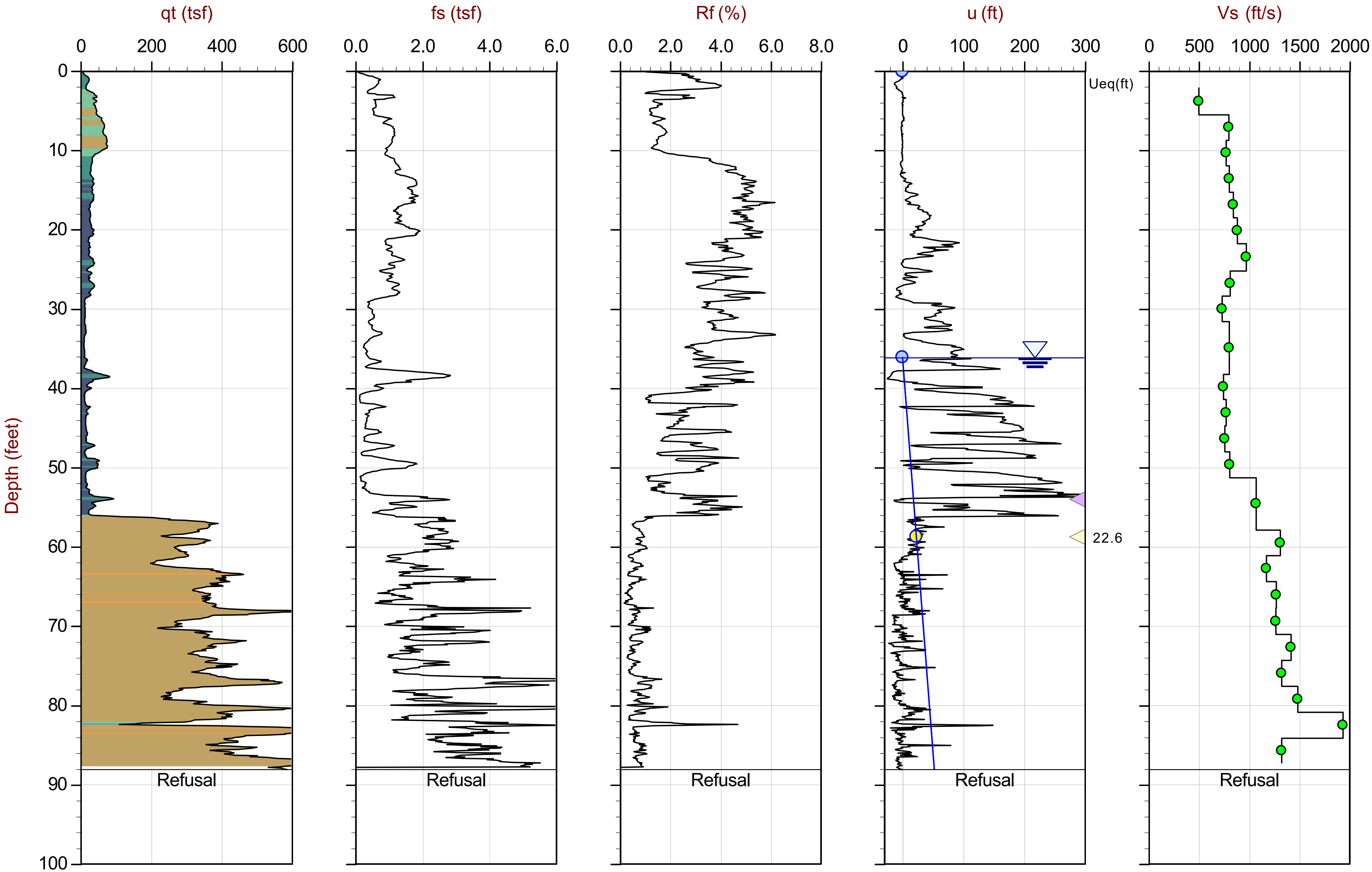
Seismic Cone Penetration Test Plots

ConeTec

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 07:58
Site: Duke Warehouse Silver Creek

Sounding: SCPT-05
Cone: 741:T1500F15U35



Max Depth: 26.850 m / 88.09 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP05.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124201m E: 607401m

Equilibrium Pore Pressure (Ueq) Assumed Ueq Dissipation, Ueq achieved Dissipation, Ueq not achieved Hydrostatic Line

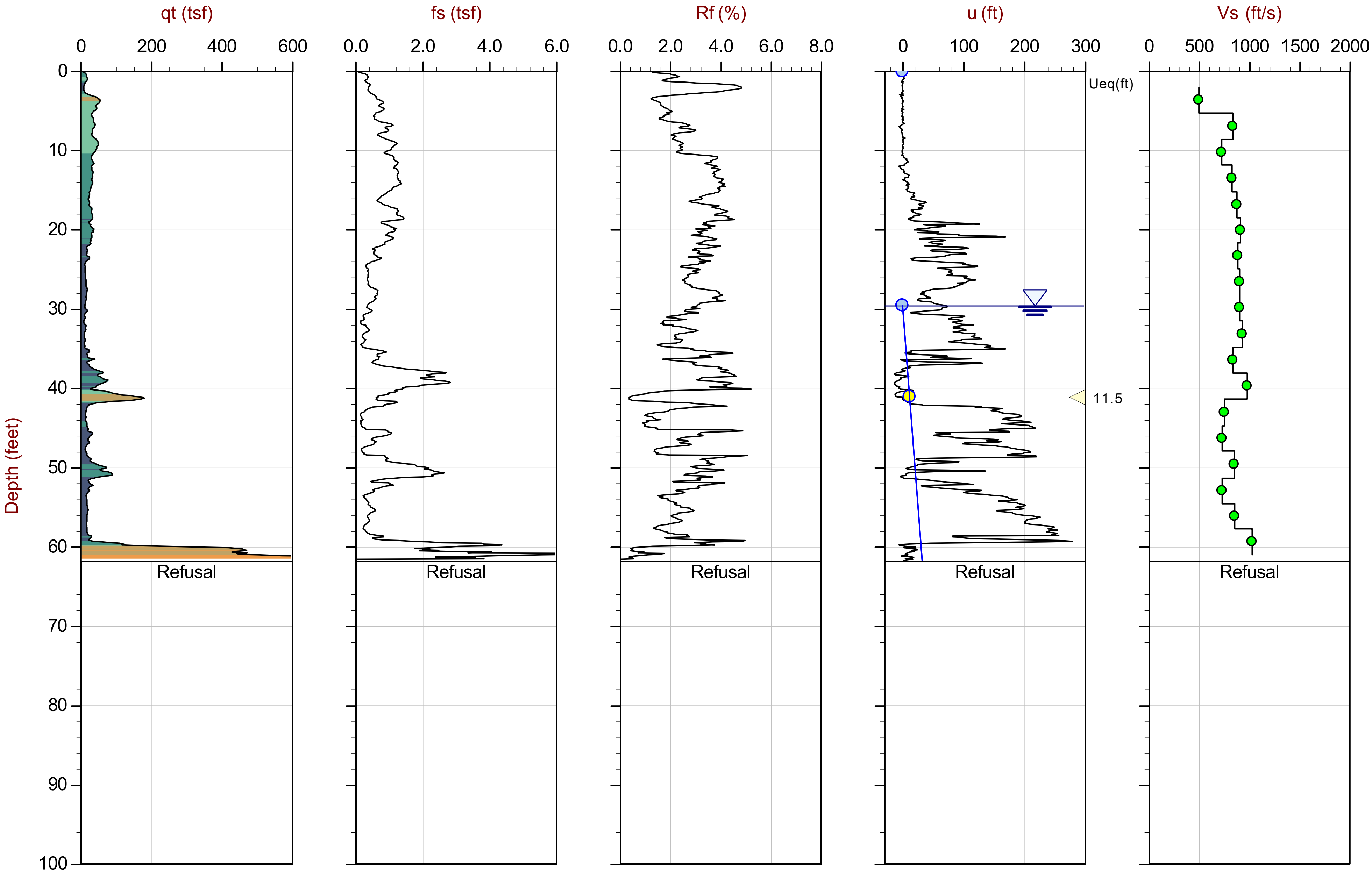
The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Kleinfelder

Job No: 21-56-22781
Date: 2022-01-20 09:45
Site: Duke Warehouse Silver Creek

Sounding: SCPT-06
Cone: 741:T1500F15U35



Max Depth: 18.850 m / 61.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-56-22781_SP06.COR
Unit Wt: SBTQtn (PKR2009)

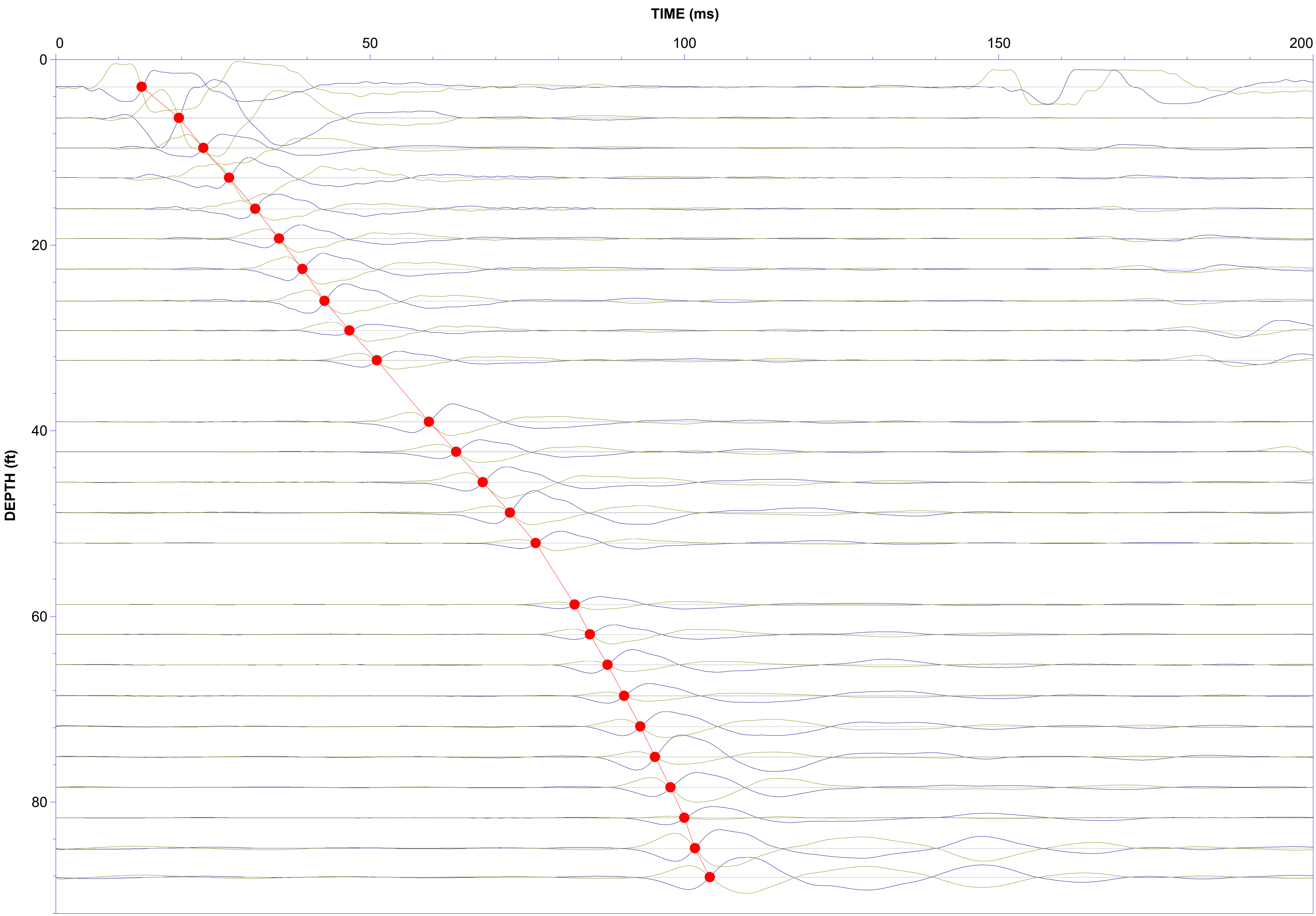
SBT: Robertson, 2009 and 2010
Coords: UTM 10S N: 4124281m E: 607496m

Equilibrium Pore Pressure (Ueq) | Assumed Ueq | Dissipation, Ueq achieved | Dissipation, Ueq not achieved | Hydrostatic Line

The reported coordinates were acquired from consumer grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

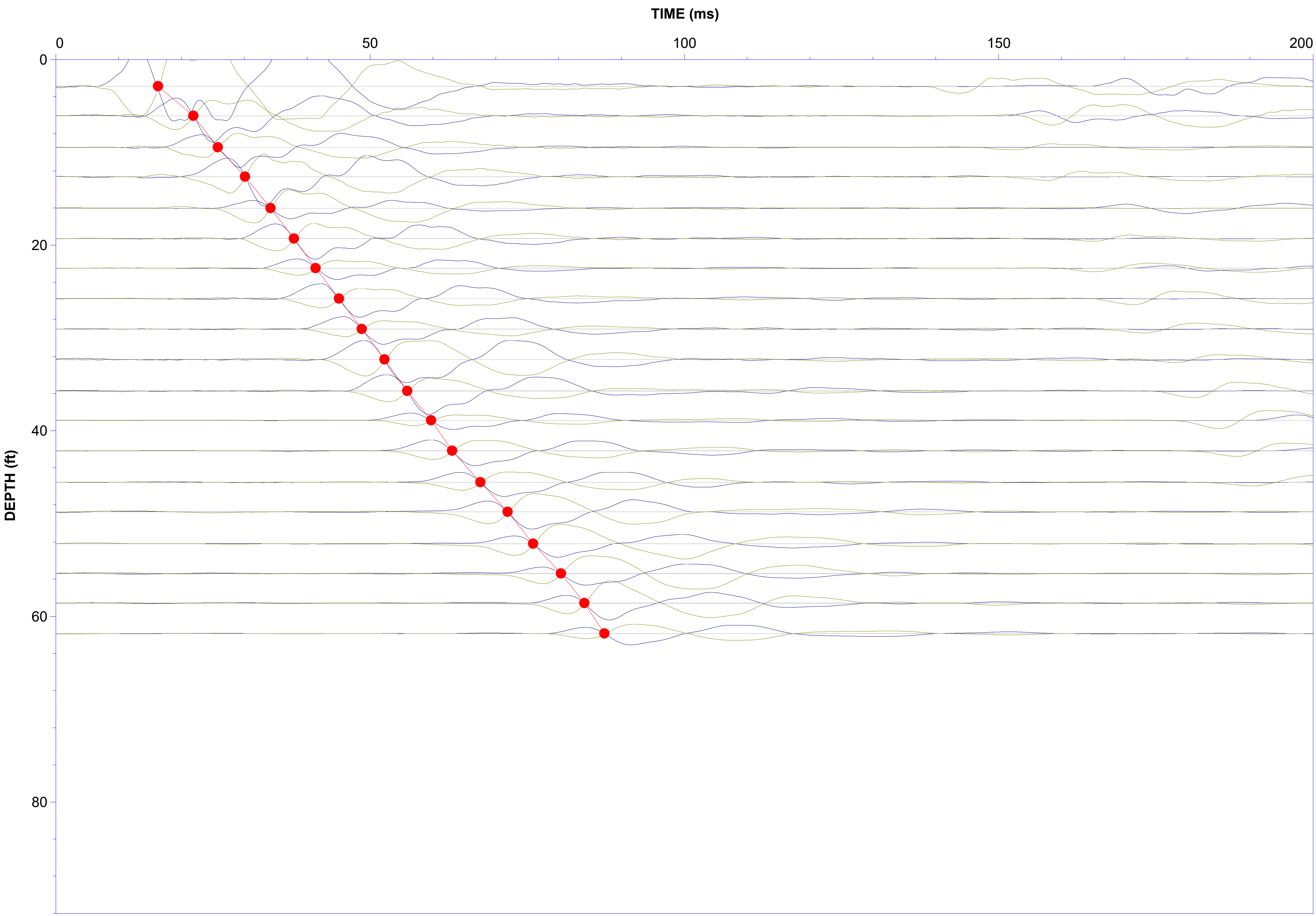
Seismic Cone Penetration Test Shear Wave (Vs) Traces

Job No: 21-56-22781	Client: Kleinfelder	Project Title: Duke Warehouse Silver Creek	Filter: BP 0-500 Hz	Hole: SCPT-05	Date: 01:20:22 07:58
Cone: 741:T1500F15U35					



Job No: 21-56-22781 | Client: Kleinfelder | Project Title: Duke Warehouse Silver Creek | Filter: BP 0-500 Hz | Hole: SCPT-06 | Date: 01:20:22 09:45

Cone: 741:T1500F15U35



Methodology Statements and Data File Formats

ConeTec

Cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd., a subsidiary of ConeTec.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and a geophone sensor for recording seismic signals. All signals are amplified down hole within the cone body and the analog signals are sent to the surface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in 5 cm^2, 10 cm^2 and 15 cm^2 tip base area configurations in order to maximize signal resolution for various soil conditions. The specific piezocone used for each test is described in the CPT summary table presented in the first appendix. The 15 cm^2 penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm^2 piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross-sectional area (typically forty-four millimeter diameter over a length of thirty-two millimeter with tapered leading and trailing edges) located at a distance of 585 millimeters above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a sixty-degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u_2" position (ASTM Type 2). The filter is six millimeters thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meets or exceeds those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

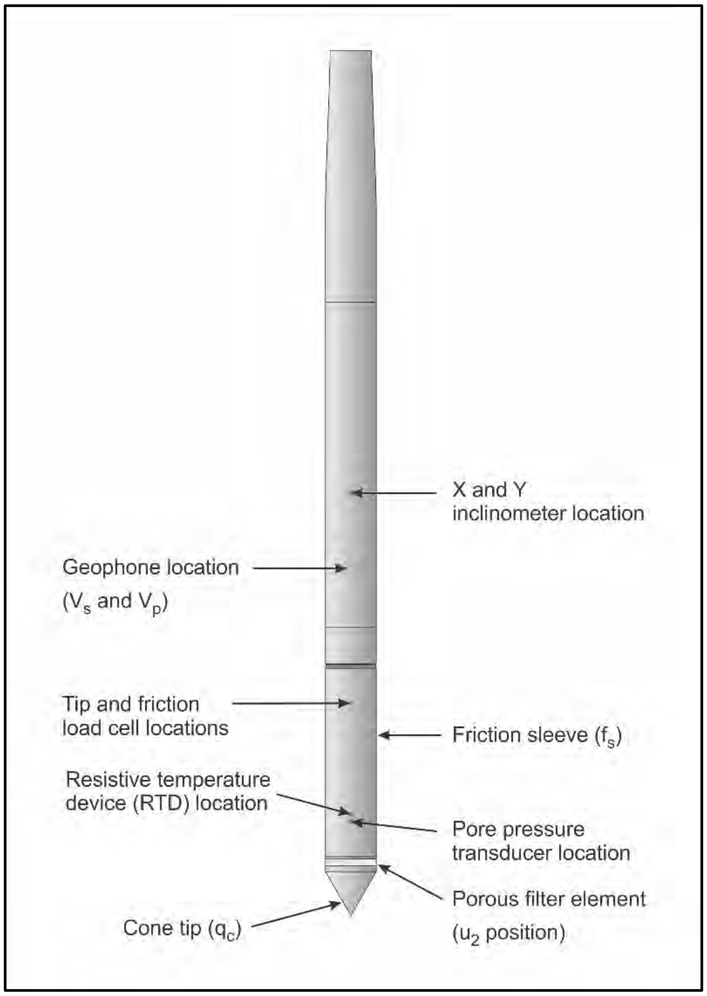


Figure CPTu. Piezocone Penetrometer (15 cm^2)

The ConeTec data acquisition systems consist of a Windows based computer and a signal conditioner and power supply interface box with a sixteen bit (or greater) analog to digital (A/D) converter. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording interval is 2.5 centimeters; custom recording intervals are possible. The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of two centimeters per second, within acceptable tolerances. Typically, one-meter length rods with an outer diameter of 1.5 inches (38.1 millimeters) are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil under vacuum pressure prior to use
- Recorded baselines are checked with an independent multi-meter
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson et al. (1986) and Robertson (1990, 2009). It should be noted that it is not always possible to accurately identify a soil behavior type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al. (1986):

$$q_t = q_c + (1\text{-}a) \bullet u_2$$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (Rf) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of files with calculated geotechnical parameters were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the methods used is also included in the data release folder.

For additional information on CPTu interpretations and calculated geotechnical parameters, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

Shear wave velocity (Vs) testing is performed in conjunction with the piezocone penetration test (SCPTu) in order to collect interval velocities. For some projects seismic compression wave velocity (Vp) testing is also performed.

ConeTec's piezocone penetrometers are manufactured with a horizontally active geophone (28 hertz) that is rigidly mounted in the body of the cone penetrometer, 0.2 meters behind the cone tip.

Shear waves are typically generated by using an impact hammer horizontally striking a beam that is held in place by a normal load. In some instances, an auger source or an imbedded impulsive source may be used for both shear waves and compression waves. The hammer and beam act as a contact trigger that initiates the recording of the seismic wave traces. For impulsive devices an accelerometer trigger may be used. The traces are recorded using an uphole integrated digital oscilloscope which is part of the SCPTu data acquisition system. An illustration of the shear wave testing configuration is presented in Figure SCPTu-1.

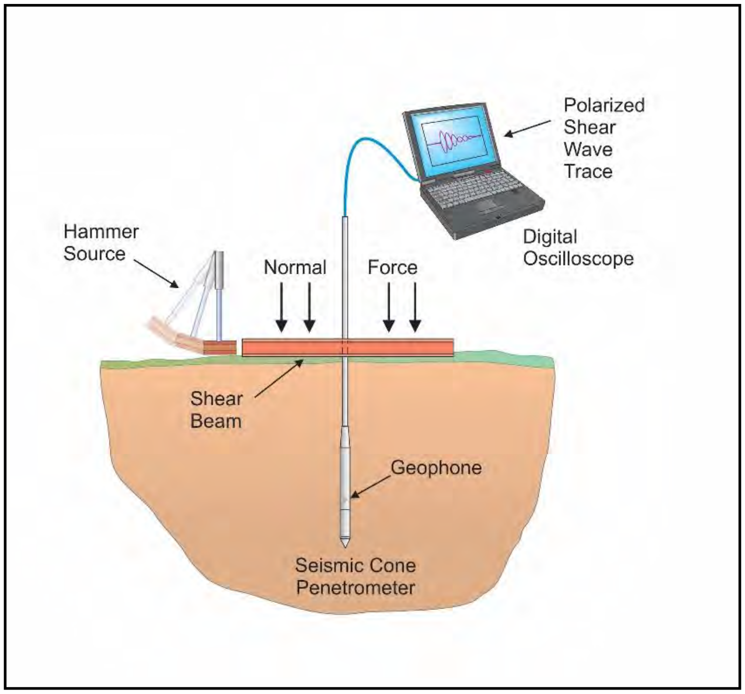


Figure SCPTu-1. Illustration of the SCPTu system

All testing is performed in accordance to ConeTec's SCPTu operating procedures which are in general accordance with the current ASTM D5778 and ASTM D7400 standards.

Prior to the start of a SCPTu sounding, the procedures described in the Cone Penetration Test section are followed. In addition, the active axis of the geophone is aligned parallel to the beam (or source) and the horizontal offset between the cone and the source is measured and recorded.

Prior to recording seismic waves at each test depth, cone penetration is stopped and the rods are decoupled from the rig to avoid transmission of rig energy down the rods. Typically, five wave traces for each orientation are recorded for quality control and uncertainty analysis purposes. After reviewing wave traces for consistency the cone is pushed to the next test depth (typically one meter intervals or as requested by the client). Figure SCPTu-2 presents an illustration of a SCPTu test.

For additional information on seismic cone penetration testing refer to Robertson et al. (1986).

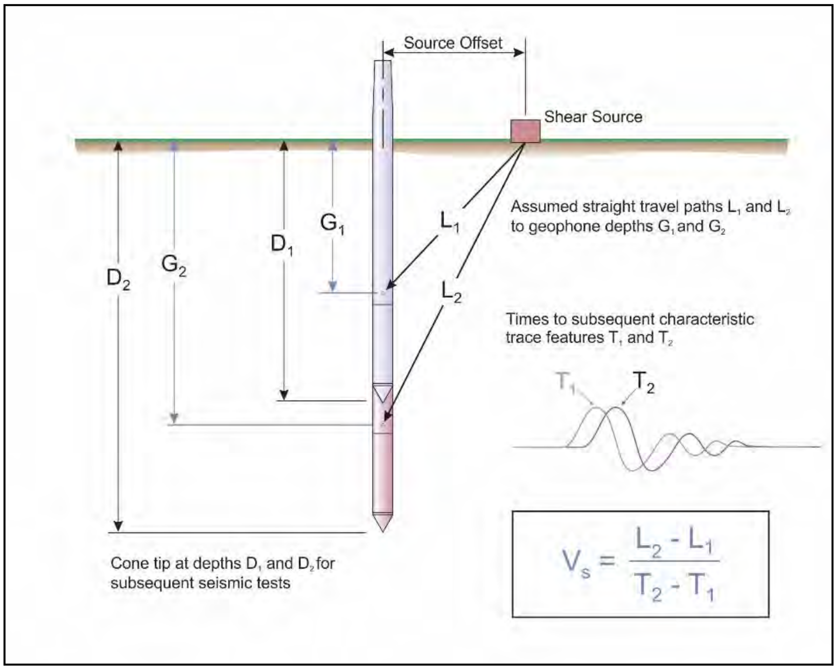


Figure SCPTu-2. Illustration of a seismic cone penetration test

Calculation of the interval velocities are performed by visually picking a common feature (e.g. the first characteristic peak, trough, or crossover) on all of the recorded wave sets and taking the difference in ray path divided by the time difference between subsequent features. Ray path is defined as the straight line distance from the seismic source to the geophone, accounting for beam offset, source depth and geophone offset from the cone tip.

For all SCPTu soundings that have achieved a depth of at least 100 feet (30 meters), the average shear wave velocity to a depth of 100 feet ($\bar{v}_s$) has been calculated and provided for all applicable soundings using the following equation presented in ASCE (2010).

$$\bar{v}_s = \frac{\sum_{i=1}^{n} d_i}{\sum_{i=1}^{n} \frac{d_i}{v_{si}}}$$

where: $\bar{v}_s$ = average shear wave velocity ft/s (m/s)
d_i = the thickness of any layer between 0 and 100 ft (30 m)
v_{si} = the shear wave velocity in ft/s (m/s)
$\sum_{i=1}^{n} d_i$ = the total thickness of all layers between 0 and 100 ft (30 m)

Average shear wave velocity, $\bar{v}_s$ is also referenced to V_{s100} or V_{s30}.

The layer travel times refers to the travel times propagating in the vertical direction, not the measured travel times from an offset source.

Tabular results and SCPTu plots are presented in the relevant appendix.

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

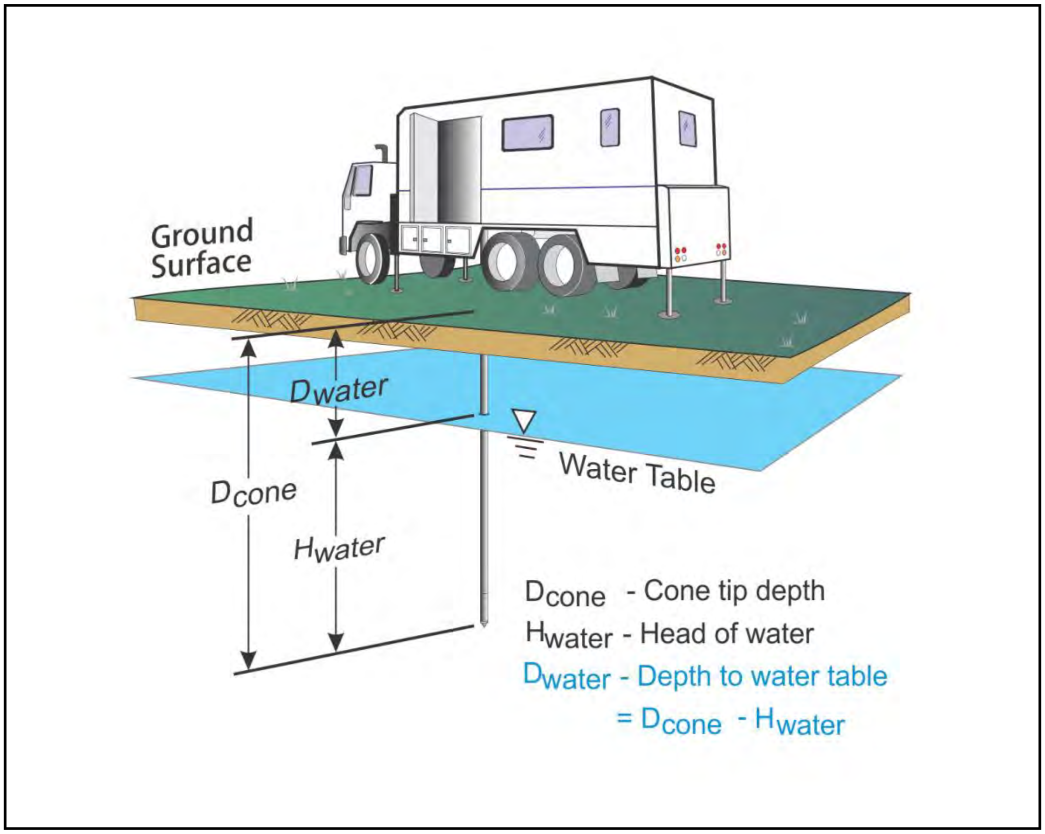


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

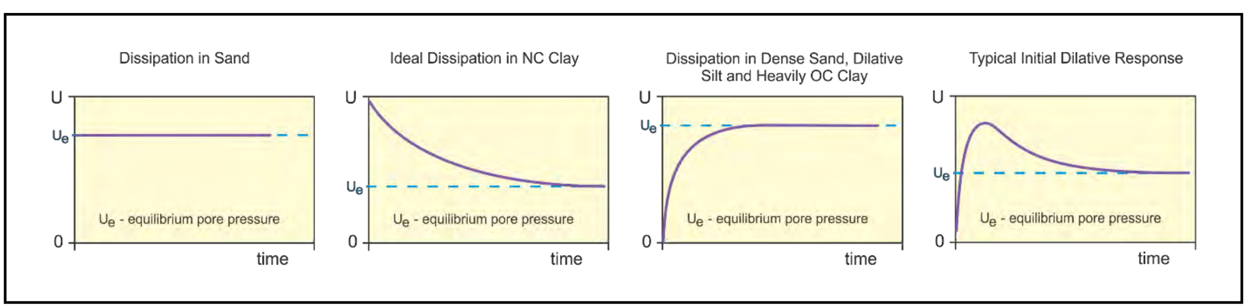


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve in Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100}. In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100}. A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

T* is the dimensionless time factor (Table Time Factor)
a is the radius of the cone
I_r is the rigidity index
t is the time at the degree of consolidation

Table Time Factor. T* versus degree of dissipation (Teh and Houlsby (1991))

Degree of Dissipation (%)	20	30	40	50	60	70	80
T* (u_2)	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50}, dissipation tests must be taken to a pressure less than u_{50}. The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100}. To estimate u_{50}, both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby (1991)), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50}. In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r, the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50}, other methods should be applied to confirm the results for c_h.

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

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Jones, G.A. and Van Zyl, D.J.A., 1981, “The piezometer probe: a useful investigation tool”, Proceedings, 10th International Conference on Soil Mechanics and Foundation Engineering, Vol. 3, Stockholm: 489-495.

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Mayne, P.W. and Peuchen, J., 2012, “Unit weight trends with cone resistance in soft to firm clays”, Geotechnical and Geophysical Site Characterization *4,* Vol. 1 (Proc. ISC-4, Pernambuco), CRC Press, London: 903-910.

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Robertson, P.K., 2009, "Interpretation of cone penetration tests – a unified approach", Canadian Geotechnical Journal, Volume 46: 1337-1355. DOI: 10.1139/T09-065.

Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", Canadian Geotechnical Journal, 36(2): 369-381. DOI: 10.1139/T98-105.

Teh, C.I., and Houlsby, G.T., 1991, "An analytical study of the cone penetration test in clay", Geotechnique, 41(1): 17-34. DOI: 10.1680/geot.1991.41.1.17.

CPT Data Files (COR Extension)

ConeTec CPT data files are stored in ASCII text files that are readable by almost any text editor. ConeTec file names start with the job number (which includes the two digit year number) an underscore as a separating character, followed by two letters based on the type of test and the sounding ID. The last character position is reserved for an identifier letter (such as b, c, d etc) used to uniquely distinguish multiple soundings at the same location. The CPT sounding file has the extension COR. As an example, for job number 21-02-00001 the first CPT sounding will have file name 21-02-00001_CP01.COR

The sounding (COR) file consists of the following components:

1. Two lines of header information
2. Data records
3. End of data marker
4. Units information

Header Lines

Line 1: Columns 1-6 may be blank or may indicate the version number of the recording software
Columns 7-21 contain the sounding Date and Time (Date is MM:DD:YY)
Columns 23-38 contain the sounding Operator
Columns 51-100 contain extended Job Location information

Line 2: Columns 1-16 contain the Job Location
Columns 17-32 contain the Cone ID
Columns 33-47 contain the sounding number
Columns 51-100 may contain extended sounding ID information

Data Records

The data records contain 4 or more columns of data in floating point format. A comma and spaces separate each data item:

Column 1: Sounding Depth (meters)
Column 2: Tip (q_c), recorded in units selected by the operator
Column 3: Sleeve (f_s), recorded in units selected by the operator
Column 4: Dynamic pore pressure (u), recorded in units selected by the operator
Column 5: Empty or may contain other requested data such as Gamma, Resistivity or UVIF data

End of Data Marker

After the last line of data there is a line containing an ASCII 26 (CTL-Z) character (small rectangular shaped character) followed by a newline (carriage return / line feed). This is used to mark the end of data.

Units Information

The last section of the file contains information about the units that were selected for the sounding. A separator bar makes up the first line. The second line contains the type of units used for depth, q_c, f_s and u. The third line contains the conversion values required for ConeTec's software to convert the recorded data to an internal set of base units (bar for q_c, bar for f_s and meters for u). Additional lines intended for internal ConeTec use may appear following the conversion values.

CPT Data Files (XLS Extension)

Excel format files of ConeTec CPT data are also generated from corresponding COR files. The XLS files have the same base file name as the COR file with a -BSC suffix. The information in the file is presented in table format and contains additional information about the sounding such as coordinate information, and tip net area ratio.

The BSCI suffix is given to XLS files which are enhanced versions of the BSC files and include the same data records in addition to inclination data collected for each sounding.

CPT Dissipation Files (XLS Extension)

Pore pressure dissipation files are provided in Excel format and contain each dissipation trace that exceeds a minimum duration (selected during post-processing) formatted column wise within the spreadsheet. The first column (Column A) contains the time in seconds and the second column (Column B) contains the time in minutes. Subsequent columns contain the dissipation trace data. The columns extend to the longest trace of the data set.

Detailed header information is provided at the top of the worksheet. The test depth in meters and feet, the number of points in the trace and the particular units are all presented at the top of each trace column.

CPT Dissipation files have the same naming convention as the CPT sounding files with a “–PPD” suffix.

Data Records

Each file will contain dissipation traces that exceed a minimum duration (selected during post-processing) in a particular column. The dissipation pore pressure values are typically recorded at varying time intervals throughout the trace; rapidly to start and increasing as the duration of the test lengthens. The test depth in meters and feet, the number of points in the trace and the trace number are identified at the top of each trace column.

Cone Type Designations

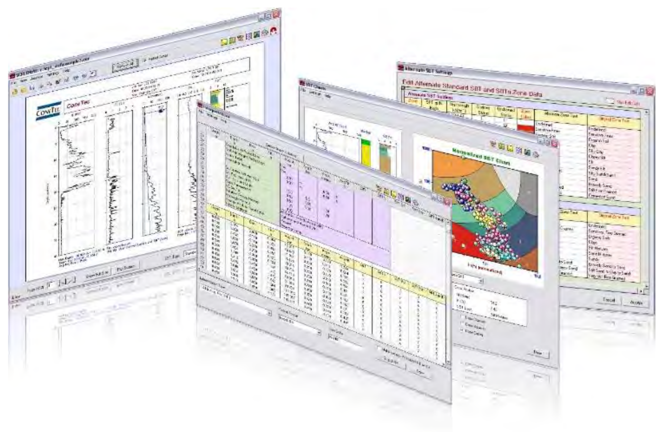
Cone ID	Cone Description	Tip Cross Sect. Area (cm^2)	Tip Capacity (bar)	Sleeve Area (cm^2)**	Sleeve Capacity (bar)	Pore Pressure Capacity (bar)
EC###	A15T1500F15U35	15	1500	225	15	35
EC###	A15T375F10U35	15	375	225	10	35
EC###	A10T1000F10U35	10	1000	150	10	35

refers to the Cone ID number
**Outer Cylindrical Area

Description of Methods for Calculated CPT Geotechnical Parameters

CALCULATED CPT GEOTECHNICAL PARAMETERS

A Detailed Description of the Methods Used in ConeTec's CPT Geotechnical Parameter Calculation and Plotting Software



Revision SZW-Rev 14

Revised November 26, 2019

Prepared by Jim Greig, M.A.Sc, P.Eng (BC)

Limitations

The geotechnical parameter output was prepared specifically for the site and project named in the accompanying report subject to objectives, site conditions and criteria provided to ConeTec by the client. The output may not be relied upon by any other party or for any other site without the express written permission of ConeTec Group (ConeTec) or any of its affiliates. For this project, ConeTec has provided site investigation services, prepared factual data reporting and produced geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

To understand the calculations that have been performed and to be able to reproduce the calculated parameters the user is directed to the basic descriptions for the methods in this document and the detailed descriptions and their associated limitations and appropriateness in the technical references cited for each parameter.

ConeTec's Calculated CPT Geotechnical Parameters as of November 26, 2019

ConeTec's CPT parameter calculation and plotting routine provides a tabular output of geotechnical parameters based on current published CPT correlations and is subject to change to reflect the current state of practice. Due to drainage conditions and the basic assumptions and limitations of the correlations, not all geotechnical parameters provided are considered applicable for all soil types. The results are presented only as a guide for geotechnical use and should be carefully examined for consideration in any geotechnical design. Reference to current literature is strongly recommended. ConeTec does not warranty the correctness or the applicability of any of the geotechnical parameters calculated by the program and does not assume liability for any use of the results in any design or review. For verification purposes we recommend that representative hand calculations be done for any parameter that is critical for design purposes. The end user of the parameter output should also be fully aware of the techniques and the limitations of any method used by the program. The purpose of this document is to inform the user as to which methods were used and to direct the end user to the appropriate technical papers and/or publications for further reference.

The geotechnical parameter output was prepared specifically for the site and project named in the accompanying report subject to objectives, site conditions and criteria provided to ConeTec by the client. The output may not be relied upon by any other party or for any other site without the express written permission of ConeTec Group (ConeTec) or any of its affiliates.

The CPT calculations are based on values of tip resistance, sleeve friction and pore pressures considered at each data point or averaged over a user specified layer thickness (e.g. 0.20 m). Note that q_t is the tip resistance corrected for pore pressure effects and q_c is the recorded tip resistance. The corrected tip resistance (corrected using u_2 pore pressure values) is used for all of the calculations. Since all ConeTec cones have equal end area friction sleeves pore pressure corrections to sleeve friction, f_s, are not required.

The tip correction is: $q_t = q_c + (1\text{-}a) \bullet u_2$ (consistent units are implied)

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the cone (typically 0.80 for ConeTec cones)

The total stress calculations are based on soil unit weight values that have been assigned to the Soil Behavior Type (SBT) zones, from a user defined unit weight profile, by using a single uniform value throughout the profile, through unit weight estimation techniques described in various technical papers or from a combination of these methods. The parameter output files indicate the method(s) used.

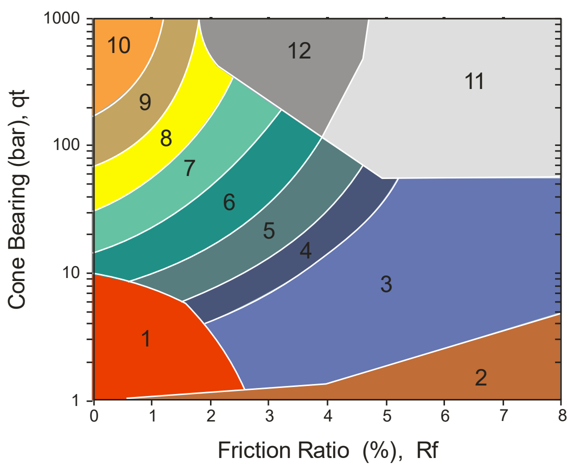
Effective vertical overburden stresses are calculated based on a hydrostatic distribution of equilibrium pore pressures below the water table or from a user defined equilibrium pore pressure profile (typically obtained from CPT dissipation tests) or a combination of the two. For over water projects the stress effects of the column of water above the mudline have been taken into account as has the appropriate unit weight of water. How this is done depends on where the instruments were zeroed (i.e. on deck or at the mudline). The parameter output files indicate the method(s) used.

A majority of parameter calculations are derived or driven by results based on material types as determined by the various soil behavior type charts depicted in Figures 1 through 5. The parameter output files indicate the method(s) used.

The Soil Behavior Type classification chart shown in Figure 1 is the classic non-normalized SBT Chart developed at the University of British Columbia and reported in Robertson, Campanella, Gillespie and Greig (1986). Figure 2 shows the original normalized (linear method) SBT chart developed by Robertson (1990). The Bq classification charts shown in Figures 3a and 3b incorporate pore pressures into the SBT classification and are based on the methods described in Robertson (1990). Many of these charts have been summarized in Lunne, Robertson and Powell (1997). The

Jefferies and Davies SBT chart shown in Figure 3c is based on the techniques discussed in Jefferies and Davies (1993) which introduced the concept of the Soil Behavior Type Index parameter, I_c. Please note that the I_c parameter developed by Robertson and Fear (1995) and Robertson and Wride (1998) is similar in concept but uses a slightly different calculation method than that used by Jefferies and Davies (1993) as the latter incorporates pore pressure in their technique through the use of the Bq parameter. The normalized Qtn SBT chart shown in Figure 4 is based on the work by Robertson (2009) utilizing a variable stress ratio exponent, n, for normalization based on a slightly modified redefinition and iterative approach for I_c. The boundary curves drawn on the chart are based on the work described in Robertson (2010).

Figure 5 shows a revised behavior based chart by Robertson (2016) depicting contractive-dilative zones. As the zones represent material behavior rather than soil gradation ConeTec has chosen a set of zone colors that are less likely to be confused with material type colors from previous SBT charts. These colors differ from those used by Dr. Robertson.

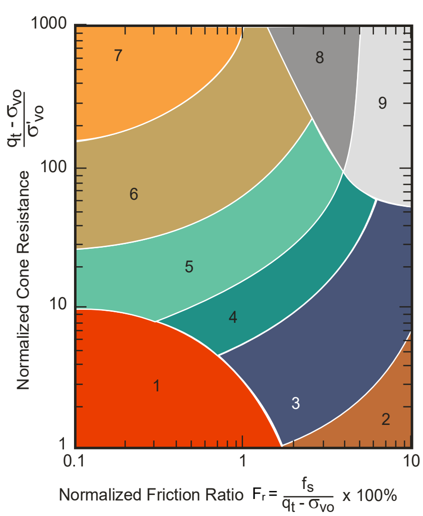


Zone	qt / N	Soil Behavior Type
1	2	sensitive fine grained
2	1	organic material
3	1	clay
4	1.5	silty clay to clay
5	2	clayey silt to silty clay
6	2.5	sandy silt to clayey silt
7	3	silty sand to sandy silt
8	4	sand to silty sand
9	5	sand
10	6	gravelly sand to sand
11	1	very stiff fine grained *
12	2	sand to clayey sand *

* overconsolidated or cemented

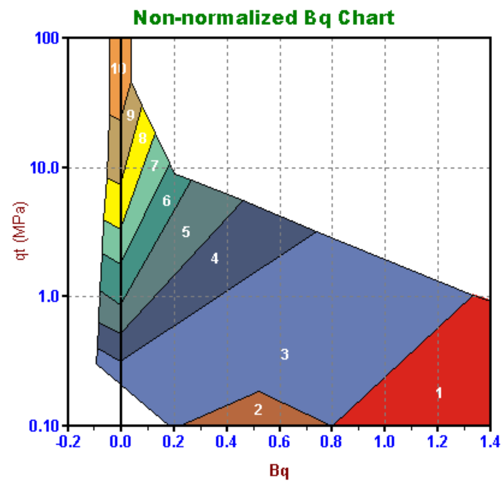
$$Rf = \left(\frac{fs}{qt}\right) \cdot 100\%$$

Figure 1. Non-Normalized Soil Behavior Type Classification Chart (SBT)

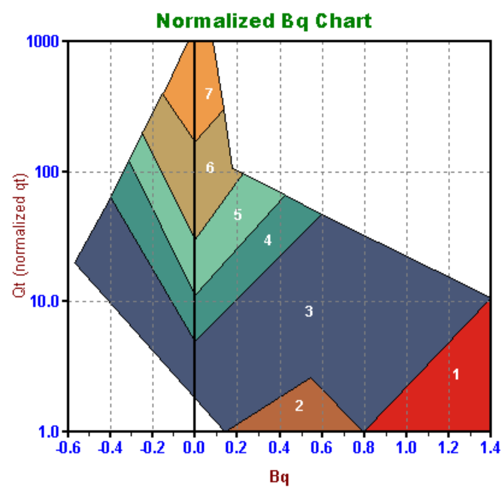


Zone	Normalized Soil Behavior Type
1	sensitive fine grained
2	organic material
3	clay to silty clay
4	clayey silt to silty clay
5	silty sand to sandy silt
6	clean sands to silty sands
7	gravelly sand to sand
8	very stiff sand to clayey sand
9	very stiff fine grained

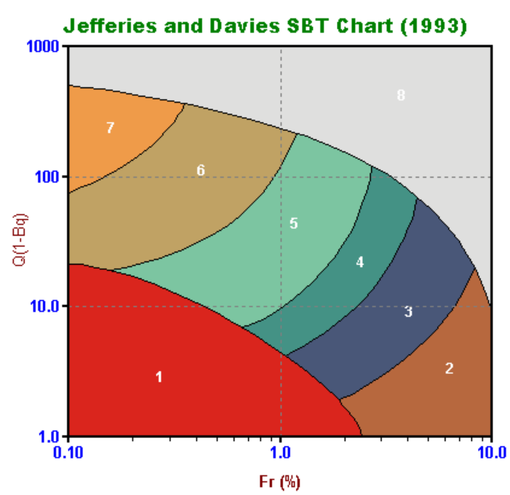
Figure 2. Normalized Soil Behavior Type Classification Chart (SBTn)



3a



3b



3c

Figure 3. Alternate Soil Behavior Type Charts

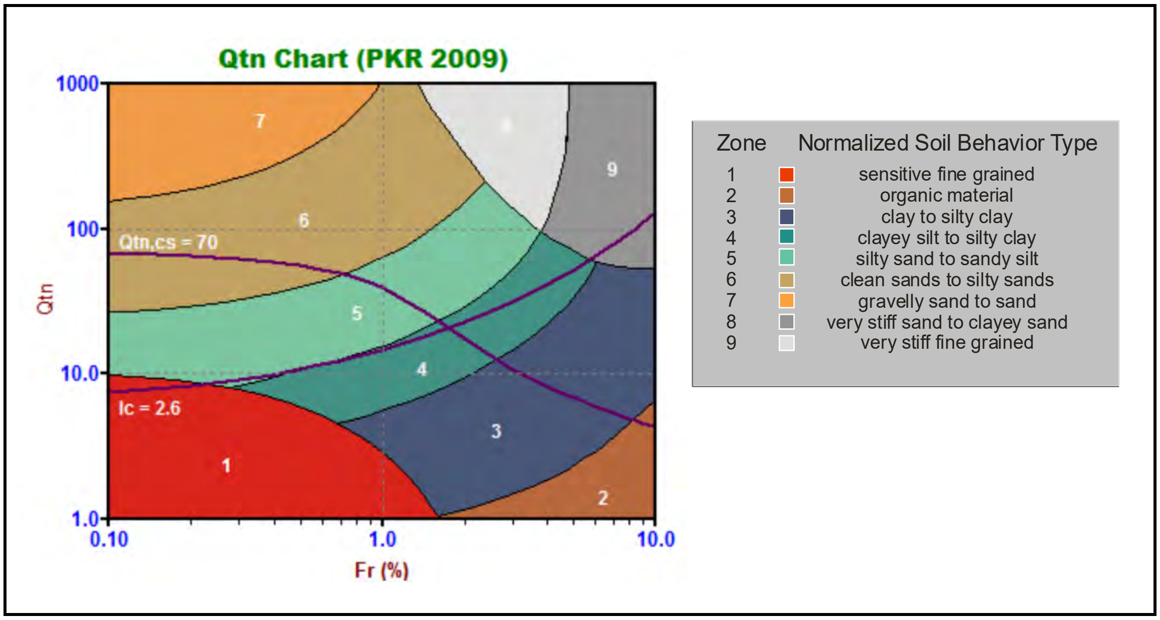


Figure 4. Normalized Soil Behavior Type Chart using Q_{tn} (SBT Qtn)

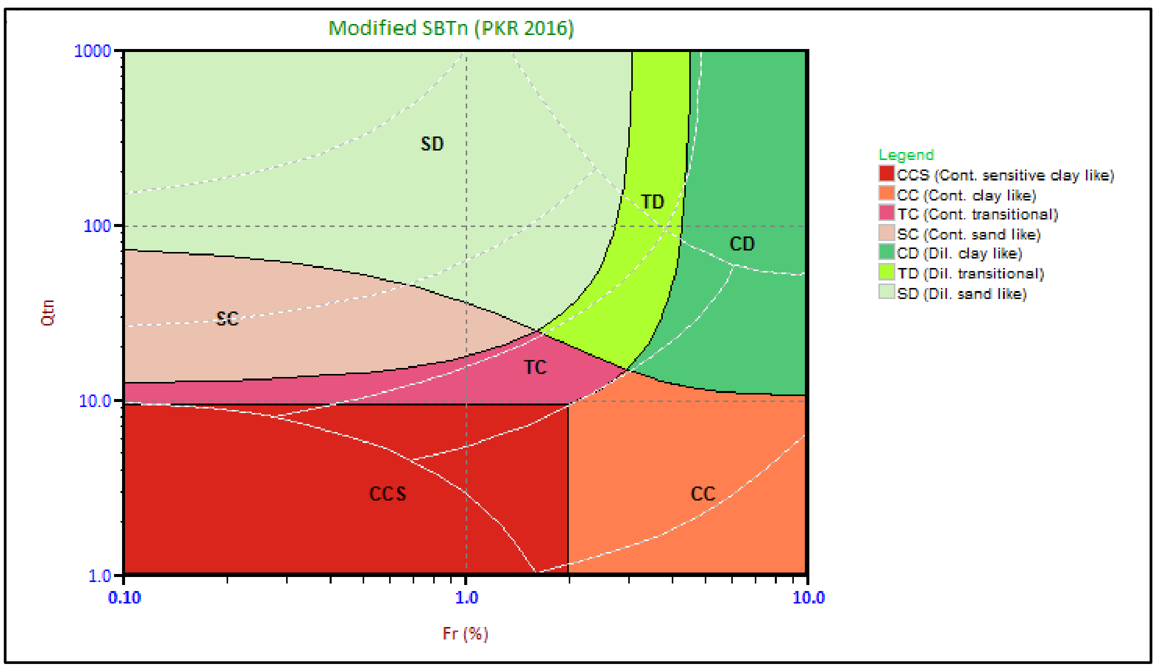


Figure 5. Modified SBTn Behavior Based Chart

Details regarding the geotechnical parameter calculations are provided in Tables 1a and 1b. The appropriate references cited are listed in Table 2. Non-liquefaction specific parameters are detailed in Table 1a and liquefaction specific parameters are detailed in Table 1b.

Where methods are based on charts or techniques that are too complex to describe in this summary the user should refer to the cited material. Specific limitations for each method are described in the cited material.

Where the results of a calculation/correlation are deemed *'invalid'* the value will be represented by the text strings "-9999", "-9999.0", the value 0.0 (Zero) or an empty cell. Invalid results will occur because of (and not limited to) one or a combination of:

1. Invalid or undefined CPT data (e.g. drilled out section or data gap).
2. Where the calculation method is inappropriate, for example, drained parameters in a material behaving as an undrained material (and vice versa).
3. Where input values are beyond the range of the referenced charts or specified limitations of the correlation method.
4. Where pre-requisite or intermediate parameter calculations are invalid.

The parameters selected for output from the program are often specific to a particular project. As such, not all of the calculated parameters listed in Table 1 may be included in the output files delivered with this report.

The output files are typically provided in Microsoft Excel XLS or XLSX format. The ConeTec software has several options for output depending on the number or types of calculated parameters desired or requested by the client. Each output file is named using the original COR file base name followed by a three or four letter indicator of the output set selected (e.g. BSC, TBL, NLI, NL2, IFI, IFI2) and possibly followed by an operator selected suffix identifying the characteristics of the particular calculation run.

Table 1a. CPT Parameter Calculation Methods – Non liquefaction Parameters

Calculated Parameter	Description	Equation	Ref
Depth	Mid Layer Depth *(where calculations are done at each point then Mid Layer Depth = Recorded Depth)*	*[Depth (Layer Top) + Depth (Layer Bottom)]/ 2.0*	CK*
Elevation	Elevation of Mid Layer based on sounding collar elevation supplied by client or through site survey	Elevation = Collar Elevation - Depth	CK*
Avg qc	Averaged recorded tip value (q_c)	$Avgqc = \frac{1}{n}\sum_{i=1}^{n} q_c$ *n=1 when calculations are done at each point*	CK*
Avg qt	Averaged corrected tip (q_t) where: $q_t = q_c + (1-a) \bullet u_2$	$Avgqt = \frac{1}{n}\sum_{i=1}^{n} q_t$ *n=1 when calculations are done at each point*	1
Avg fs	Averaged sleeve friction (f_s)	$Avgfs = \frac{1}{n}\sum_{i=1}^{n} fs$ *n=1 when calculations are done at each point*	CK*
Avg Rf	Averaged friction ratio (R_f) where friction ratio is defined as: $Rf = 100\% \bullet \frac{fs}{q_t}$	$AvgRf = 100\% \cdot \frac{Avgfs}{Avgqt}$ *n=1 when calculations are done at each point*	CK*
Avg u	Averaged dynamic pore pressure *(u)*	$Avgu = \frac{1}{n}\sum_{i=1}^{n} u_i$ *n=1 when calculations are done at each point*	CK*

Calculated Parameter	Description	Equation	Ref
Avg Res	Averaged Resistivity (this data is not always available since it is a specialized test requiring an additional module)	$AvgRes = \frac{1}{n}\sum_{i=1}^{n} Resistivity_i$ *n=1 when calculations are done at each point*	CK*
Avg UVIF	Averaged UVIF ultra-violet induced fluorescence (this data is not always available since it is a specialized test requiring an additional module)	$AvgUVIF = \frac{1}{n}\sum_{i=1}^{n} UVIF_i$ *n=1 when calculations are done at each point*	CK*
Avg Temp	Averaged Temperature (this data is not always available since it requires specialized calibrations)	$AvgTemp = \frac{1}{n}\sum_{i=1}^{n} Temperature_i$ *n=1 when calculations are done at each point*	CK*
Avg Gamma	Averaged Gamma Counts (this data is not always available since it is a specialized test requiring an additional module)	$AvgGamma = \frac{1}{n}\sum_{i=1}^{n} Gamma_i$ *n=1 when calculations are done at each point*	CK*
SBT	Soil Behavior Type as defined by Robertson et al 1986 (often referred to as Robertson and Campanella, 1986)	See Figure 1	1, 5
SBTn	Normalized Soil Behavior Type as defined by Robertson 1990 (linear normalization)	See Figure 2	2, 5
SBT-Bq	Non-normalized Soil Behavior type based on the Bq parameter	See Figure 3	1, 2, 5
SBT-Bqn	Normalized Soil Behavior based on the Bq parameter	See Figure 3	2, 5
SBT-JandD	Soil Behavior Type as defined by Jeffries and Davies	See Figure 3	7
SBT Qtn	Soil Behavior Type as defined by Robertson (2009) using a variable stress ratio exponent for normalization based on I_c	See Figure 4	15
Modified SBTn (contractive /dilative)	Modified SBTn chart as defined by Robertson (2016) indicating zones of contractive/dilative behavior.	See Figure 5	30
Unit Wt.	Unit Weight of soil determined from one of the following user selectable options: 1) uniform value 2) value assigned to each SBT zone 3) value assigned to each SBTn zone 4) value assigned to SBTn zone as determined from Robertson and Wride (1998) based on q_{c1n} 5) values assigned to SBT Qtn zones 6) Mayne fs (sleeve friction) method 7) Robertson 2010 method 8) user supplied unit weight profile The last option may co-exist with any of the other options	See references	3, 5, 15, 21, 24, 29

Calculated Parameter	Description	Equation	Ref
TStress σ_v	Total vertical overburden stress at Mid Layer Depth *A layer is defined as the averaging interval specified by the user where depths are reported at their respective mid-layer depth.* *For data calculated at each point layers are defined using the recorded depth as the mid-point of the layer. Thus, a layer starts half-way between the previous depth and the current depth unless this is the first point in which case the layer start is at zero depth. The layer bottom is half-way from the current depth to the next depth unless it is the last data point.* *Defining layers affects how stresses are calculated since the unit weight attributed to a data point is used throughout the entire layer. This means that to calculate the stresses the total stress at the top and bottom of a layer are required. The stress at mid layer is determined by adding the incremental stress from the layer top to the mid-layer depth. The stress at the layer bottom becomes the stress at the top of the subsequent layer. Stresses are NOT calculated from mid-point to mid-point.* *For over-water work the total stress due to the column of water above the mud line is taken into account where appropriate.*	$TStress = \sum_{i=1}^{n} \gamma_i h_i$ *where* γ_i is layer unit weight h_i is layer thickness	CK*
EStress σ_v'	Effective vertical overburden stress at mid-layer depth	$\sigma_v' = \sigma_v - u_{eq}$	CK*
Equil u u_{eq} or u_0	Equilibrium pore pressure determined from one of the following user selectable options: 1) hydrostatic below water table 2) user supplied profile 3) combination of those above When a user supplied profile is used/provided a linear interpolation is performed between equilibrium pore pressures defined at specific depths. If the profile values start below the water table then a linear transition from zero pressure at the water table to the first defined pointed is used. Equilibrium pore pressures may come from dissipation tests, adjacent piezometers or other sources. Occasionally, an extra equilibrium point ("assumed value") will be provided in the profile that does not come from a recorded value to smooth out any abrupt changes or to deal with material interfaces. These "assumed" values will be indicated on our plots and in tabular summaries.	For hydrostatic option: $u_{eq} = \gamma_w \cdot (D - D_{wt})$ where u_{eq} is equilibrium pore pressure γ_w is unit weight of water D is the current depth D_{wt} is the depth to the water table	CK*
K_0	Coefficient of earth pressure at rest, K_0	$K_0 = (1 - \sin\Phi')\ OCR^{\sin\Phi'}$	17
C_n	Overburden stress correction factor used for $(N_1)_{60}$ and older CPT parameters	$C_n = (P_a/\sigma_v')^{0.5}$ where *$0.0 < C_n < 2.0$ (user adjustable, typically 1.7)* *P_a is atmospheric pressure (100 kPa)*	12
C_q	Overburden stress normalizing factor	$C_q = 1.8 / (0.8 + (\sigma_v'/P_a))$ where *$0.0 < C_q < 2.0$ (user adjustable)* *P_a is atmospheric pressure (100 kPa)*	3, 12

Calculated Parameter	Description	Equation	Ref
N_{60}	SPT N value at 60% energy calculated from q_t/N ratios assigned to each SBT zone. This method has abrupt N value changes at zone boundaries.	*See Figure 1*	5
(N1)60	SPT N_{60} value corrected for overburden pressure	$(N_1)_{60} = C_n \bullet N_{60}$	4
N60Ic	SPT N_{60} values based on the I_c parameter [as defined by Roberston and Wride 1998 (5), or by Robertson 2009 (15)].	$(q_t/P_a)/ N_{60} = 8.5\ (1 – I_c/4.6)$ $(q_t/P_a)/ N_{60} = 10^{(1.1268 – 0.2817Ic)}$ Pa being atmospheric pressure	5 15, 31
(N1)60Ic	SPT N_{60} value corrected for overburden pressure (using N_{60} I_c). User has 3 options.	1) $(N_1)_{60}Ic = C_n \bullet (N_{60}\,I_c)$ 2) $q_{c1n}/ (N_1)_{60}I_c = 8.5\ (1 – I_c/4.6)$ 3) $(Q_{tn})/ (N_1)_{60}I_c = 10^{(1.1268 – 0.2817Ic)}$	4 5 15, 31
Su or Su (Nkt)	Undrained shear strength based on q_t S_u factor N_{kt} is user selectable	$Su = \dfrac{qt - \sigma_v}{N_{kt}}$	1, 5
Su or Su (Ndu)	Undrained shear strength based on pore pressure S_u factor $N_{\Delta u}$ is user selectable	$Su = \dfrac{u_2 - u_{eq}}{N_{\Delta u}}$	1, 5
Dr	Relative Density determined from one of the following user selectable options: a) Ticino Sand b) Hokksund Sand c) Schmertmann (1978) d) Jamiolkowski (1985) - All Sands e) Jamiolkowski et al (2003) (various compressibilities, K_o)	See reference (methods a through d) Jamiolkowski et al (2003) reference	5 14
PHI ϕ	Friction Angle determined from one of the following user selectable options (methods a through d are for sands and method e is for silts and clays): a) Campanella and Robertson b) Durgunoglu and Mitchel c) Janbu d) Kulhawy and Mayne e) NTH method (clays and silts)	See appropriate reference	5 5 5 11 23
Delta U/qt	Differential pore pressure ratio (older parameter used before B_q was established)	$= \dfrac{\Delta u}{qt}$ *where:* $\Delta u = u - u_{eq}$ *and* *u = dynamic pore pressure* u_{eq} *= equilibrium pore pressure*	CK*
Bq	Pore pressure parameter	$Bq = \dfrac{\Delta u}{qt - \sigma_v}$ where : $\Delta u = u - u_{eq}$ *and* *u = dynamic pore pressure* u_{eq} *= equilibrium pore pressure*	1, 2, 5
Net qt or qtNet	Net tip resistance (used in many subsequent correlations)	$qt - \sigma_v$	CK*
qe	Effective tip resistance (using the dynamic pore pressure u_2 and not equilibrium pore pressure)	$qt - u_2$	CK*

Calculated Parameter	Description	Equation	Ref
qeNorm	Normalized effective tip resistance	$\frac{qt - u_2}{\sigma_v'}$	CK*
Q_t or Norm: Qt	Normalized q_t for Soil Behavior Type classification as defined by Robertson (1990) using a linear stress normalization. Note this is different from Q_{tn}.	$Qt = \frac{qt - \sigma_v}{\sigma_v'}$	2, 5
F_r or Norm: Fr	Normalized Friction Ratio for Soil Behavior Type classification as defined by Robertson (1990)	$Fr = 100\% \cdot \frac{fs}{qt - \sigma_v}$	2, 5
Q(1-Bq)	Q(1-Bq) grouping as suggested by Jefferies and Davies for their classification chart and the establishment of their I_c parameter	$Q \cdot (1 - Bq)$ *where Bq is defined as above and Q is the same as the normalized tip resistance, Q_t, defined above*	6, 7
qc1	Normalized tip resistance, q_{c1}, using a fixed stress ratio exponent, n (this method has stress units)	$q_{c1} = q_t \cdot (Pa/\sigma_v')^{0.5}$ where: Pa = atmospheric pressure	21
qc1 (0.5)	Normalized tip resistance, q_{c1}, using a fixed stress ratio exponent, n (this method is unit-less)	$q_{c1}\ (0.5) = (q_t/P_a) \cdot (Pa/\sigma_v')^{0.5}$ where: Pa = atmospheric pressure	5
qc1 (Cn)	Normalized tip resistance, q_{c1}, based on C_n (this method has stress units)	$q_{c1}(Cn) = C_n * q_t$	5, 12
qc1 (Cq)	Normalized tip resistance, q_{c1}, based on C_q (this method has stress units)	$q_{c1}\ (Cq) = C_q * q_t$ (some papers use q_c)	5, 12
qc1n	normalized tip resistance, q_{c1n}, using a variable stress ratio exponent, n (where n=0.0, 0.70, 1.0) (this method is unit-less)	$q_{c1n} = (q_t / P_a)(P_a/\sigma_v')^n$ where: P_a = atm. Pressure and n varies as described below	3, 5
I_c or Ic (RW1998)	Soil Behavior Type Index as defined by Robertson and Fear (1995) and Robertson and Wride (1998) for estimating grain size characteristics and providing smooth gradational changes across the SBTn chart	$I_c = [(3.47 - \log_{10}Q)^2 + (\log_{10} Fr + 1.22)^2]^{0.5}$ *Where:* $Q = \left(\frac{qt - \sigma_v}{P_a}\right)\left(\frac{P_a}{\sigma_v'}\right)^n$ *Or* $Q = q_{c1n} = \left(\frac{qt}{P_a}\right)\left(\frac{P_a}{\sigma_v'}\right)^n$ *depending on the iteration in determining I_c* *And Fr is in percent* *P_a = atmospheric pressure* *n varies between 0.5, 0.70 and 1.0 and is selected in an iterative manner based on the resulting I_c*	3, 5, 21
Ic (PKR 2009)	Soil Behavior Type Index, I_c (PKR 2009) based on a variable stress ratio exponent n, which itself is based on I_c (PKR 2009). An iterative calculation is required to determine Ic (PKR 2009) and its corresponding n (PKR 2009).	$I_c\ (PKR\ 2009) = [(3.47 - \log_{10}Q_{tn})^2 + (1.22 + \log_{10}F_r)^2]^{0.5}$	15

Calculated Parameter	Description	Equation	Ref
n (PKR 2009)	Stress ratio exponent n, based on I_c (PKR 2009). An iterative calculation is required to determine n (PKR 2009) and its corresponding Ic (PKR 2009).	n (PKR 2009) $= 0.381 (I_c) + 0.05 (\sigma_v'/P_a) - 0.15$	15
Qtn (PKR 2009)	Normalized tip resistance using a variable stress ratio exponent based on I_c (PKR 2009) and n (PKR 2009). An iterative calculation is required to determine Qtn (PKR 2009).	$Q_{tn} = [(qt - \sigma_v)/P_a](P_a/\sigma_v')^n$ *where* P_a *= atmospheric pressure (100 kPa)* *n = stress ratio exponent described above*	15
FC	Apparent fines content (%)	$FC=1.75(Ic^{3.25}) - 3.7$ $FC=100$ for $I_c > 3.5$ $FC=0$ for $I_c < 1.26$ $FC = 5\%$ if $1.64 < I_c < 2.6$ AND $F_r<0.5$	3
I_c Zone	This parameter is the Soil Behavior Type zone based on the I_c parameter (valid for zones 2 through 7 on SBTn or SBT Qtn charts)	$I_c < 1.31$ Zone = 7 $1.31 < I_c < 2.05$ Zone = 6 $2.05 < I_c < 2.60$ Zone = 5 $2.60 < I_c < 2.95$ Zone = 4 $2.95 < I_c < 3.60$ Zone = 3 $I_c > 3.60$ Zone = 2	3
State Param or State Parameter or ψ	The state parameter index, ψ, is defined as the difference between the current void ratio, e, and the critical void ratio, e_c. Positive ψ - contractive soil Negative ψ - dilative soil This is based on the work by Been and Jefferies (1985) and Plewes, Davies and Jefferies (1992) - vertical effective stress is used rather than a mean normal stress	See reference	6, 8
Yield Stress σ_p'	Yield stress is calculated using the following methods a) General method b) 1st order approximation using q_tNet (clays) c) 1st order approximation using Δu_2 (clays) d) 1st order approximation using q_e (clays)	All stresses in kPa a) $\sigma_p' = 0.33\cdot(q_t - \sigma_v)^{m'} (\sigma_{atm}/100)^{1-m'}$ where $m' = 1 - \dfrac{0.28}{1+(I_c/2.65)^{25}}$ b) $\sigma_p' = 0.33\cdot(q_t - \sigma_v)$ c) $\sigma_p' = 0.54\cdot(\Delta u_2)$ $\Delta u_2 = u_2 - u_0$ d) $\sigma_p' = 0.60 \cdot (q_t - u_2)$	 19 20 20 20
OCR OCR(JS1978) OCR(Mayne2014) OCR (qtNet) OCR (deltaU) OCR (qe) OCR (Vs) OCR (PKR2015)	Over Consolidation Ratio based on a) Schmertmann (1978) method involving a plot plot of S_u/σ_v' /($S_u/\sigma_v')_{NC}$ and OCR b) based on Yield stresses described above c) approximate version based on qtNet d) approximate version based on Δu e) approximate version based on effective tip, q_e f) approximate version based on shear wave velocity, V_s g) based on Qt	 a) requires a user defined value for NC S_u/P_c' ratio b through f) *based on yield stresses* g) $OCR = 0.25\cdot(Qt)^{1.25}$	 9 19 20 20 20 18 32

Calculated Parameter	Description	Equation	Ref
Es/qt	Intermediate parameter for calculating Young's Modulus, E, in sands. It is the Y axis of the reference chart.	Based on Figure 5.59 in the reference	5
Es Young's Modulus E	Young's Modulus based on the work done in Italy. There are three types of sands considered in this technique. The user selects the appropriate type for the site from: a) OC Sands b) Aged NC Sands c) Recent NC Sands Each sand type has a family of curves that depend on mean normal stress. The program calculates mean normal stress and linearly interpolates between the two extremes provided in the E_s/q_t chart. Es is evaluated for an axial strain of 0.1%.	Mean normal stress is evaluated from: $\sigma'_m = \frac{1}{3}(\sigma'_v + \sigma'_h + \sigma'_h)^3$ where σ_v'= vertical effective stress σ_h'= horizontal effective stress *and* $\sigma_h = K_o \bullet \sigma_v'$ with K_o assumed to be 0.5	5
Delta U/TStress	Differential pore pressure ratio with respect to total stress	$= \frac{\Delta u}{\sigma_v}$ *where:* $\Delta u = u - u_{eq}$	CK*
Delta U/Estress, P Value, Excess Pore Pressure Ratio	Differential pore pressure ratio with respect to effective stress. Key parameter (P, Normalized Pore Pressure Parameter, Excess Pore Pressure Ratio) in the Winckler et. al. static liquefaction method.	$= \frac{\Delta u}{\sigma'_v}$ *where:* $\Delta u = u - u_{eq}$	25, 25a, CK*
Su/EStress	Undrained shear strength ratio with respect to vertical effective overburden stress using the S_u (N_{kt}) method	$= Su (N_{kt}) / \sigma_v'$	CK*
Gmax	G_{max} determined from SCPT shear wave velocities (not estimated values)	$G_{max} = \rho V_s^2$ where ρ is the mass density of the soil determined from the estimated unit weights at each test depth	27
qtNet/Gmax	Net tip resistance ratio with respect to the small strain modulus G_{max} determined from SCPT shear wave velocities (not estimated values)	$= (qt - \sigma_v) / G_{max}$ where $G_{max} = \rho V_s^2$ and ρ is the mass density of the soil determined from the estimated unit weights at each test depth	15, 28, 30

*CK – common knowledge

Table 1b. CPT Parameter Calculation Methods – Liquefaction Parameters

Calculated Parameter	Description	Equation	Ref
K_{SPT}	Equivalent clean sand factor for $(N_1)60$	$K_{SPT} = 1 + ((0.75/30) \bullet (FC - 5))$	10
K_{CPT} or K_C (RW1998)	Equivalent clean sand correction for q_{c1N}	$K_{cpt} = 1.0$ for $I_c \leq 1.64$ $K_{cpt} = f(I_c)$ for $I_c > 1.64$ (see reference) $K_c = -0.403\, I_c^4 + 5.581\, I_c^3 - 21.63 I_c^2 + 33.75\, I_c - 17.88$	3, 10
Kc (PKR 2010)	Clean sand equivalent factor to be applied to Q_{tn}	$K_c = 1.0$ for $I_c \leq 1.64$ $K_c = -0.403\, I_c^4 + 5.581\, I_c^3 - 21.63 I_c^2 + 33.75\, I_c - 17.88$ for $I_c > 1.64$	16
$(N_1)_{60cs}Ic$	Clean sand equivalent SPT $(N_1)_{60}I_c$. User has 3 options.	1) $(N_1)_{60cs}Ic = \alpha + \beta((N_1)_{60}I_c)$ 2) $(N_1)_{60cs}Ic = K_{SPT} * ((N_1)_{60}I_c)$ 3) $(q_{c1ncs})/ (N_1)_{60cs}I_c = 8.5\,(1 - I_c/4.6)$ FC ≤ 5%: $\alpha = 0$, $\beta = 1.0$ FC ≥ 35% $\alpha = 5.0$, $\beta = 1.2$ 5% < FC < 35% $\alpha = \exp[1.76 - (190/FC^2)]$ $\beta = [0.99 + (FC^{1.5}/1000)]$	10 10 5
q_{c1ncs}	Clean sand equivalent q_{c1n}	$q_{c1ncs} = q_{c1n} \bullet K_{cpt}$	3
Qtn,cs (PKR 2010)	Clean sand equivalent for Q_{tn} described above - Q_{tn} being the normalized tip resistance based on a variable stress exponent as defined by Robertson (2009)	$Q_{tn,cs} = Q_{tn} \cdot K_c$ (PKR 2016)	16
Su(Liq)/ESv	Liquefied shear strength ratio as defined by Olson and Stark	$\frac{Su(Liq)}{\sigma_v'} = 0.03 + 0.0143(q_{c1})$ Note: σ_v' and s_v' are synonymous	13
Su(Liq)/ESv (PKR 2010)	Liquefied shear strength ratio as defined by Robertson (2010)	$\frac{Su(Liq)}{\sigma_v'}$ Based on a function involving $Q_{tn,cs}$	16
Su (Liq) (PKR 2010)	Liquefied shear strength derived from the liquefied shear strength ratio and effective overburden stress		16
Cont/Dilat Tip	Contractive / Dilative qc1 Boundary based on $(N_1)_{60}$	$(\sigma_v')_{boundary} = 9.58 \times 10^{-4}\, [(N_1)_{60}]^{4.79}$ $qc1$ is calculated from specified qt(MPa)/N ratio	13
CRR	Cyclic Resistance Ratio (for Magnitude 7.5)	$q_{c1ncs} < 50$: $CRR_{7.5} = 0.833\, [q_{c1ncs}/1000] + 0.05$ $50 \leq q_{c1ncs} < 160$: $CRR_{7.5} = 93\, [q_{c1ncs}/1000]^3 + 0.08$	10
Kg	Small strain Stiffness Ratio Factor, Kg	$[Gmax/qt]/[qc1n^{-m}]$ m = empirical exponent, typically 0.75	26

Calculated Parameter	Description	Equation	Ref
SP Distance	State Parameter Distance, Winckler static liquefaction method	Perpendicular distance on Qtn chart from plotted point to state parameter Ψ = -0.05 curve	25
URS NP Fr	Normalized friction ratio point on Ψ = -0.05 curve used in SP Distance calculation		25
URS NP Qtn	Normalized tip resistance (Qtn) point on Ψ = -0.05 curve used in SP Distance calculation		25

Table 2. References

No.	Reference
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No.	Reference
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Appendix D

Laboratory Test Results

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-1	0.0 - 5.0							35	21	14	
B-1	10.5	LEAN CLAY (CL)	19.1	98.3			95	35	19	16	
B-1	20.5		18.1	108.8							
B-1	28.3	LEAN CLAY (CL)					88	38	19	19	
B-1	28.5	LEAN CLAY (CL)	25.0	100.3							TXUU: c = 1.53 ksf
B-1	35.5 - 36.5					99	79				
B-1	40.5		25.1	103.3							
B-1	45.5		26.2	99.3		100	83				
B-1	50.5		28.6	98.4							
B-1	55.5		20.7	109.3							
B-1	60.0 - 61.5				85	53	9.4				
B-2	5.5	LEAN CLAY (CL)	16.8	95.1			87	33	19	14	
B-2	26.5		25.9	97.6							
B-2	28.5						88				
B-2	29.5	LEAN CLAY (CL)	28.1	95.3							TXUU: c = 1.55 ksf
B-2	35.5		27.7	98.5							
B-2	50.5 - 51.5	LEAN CLAY WITH SAND (CL)				100	71				
B-3	0.0 - 5.0	LEAN CLAY (CL)				100	89	34	20	14	
B-3	10.5	SILTY, CLAYEY SAND (SC-SM)	12.4	112.2			46	20	16	4	
B-3	20.5		19.7	112.1							
B-3	25.5		28.3	99.1							
B-3	28.5	LEAN CLAY (CL)	27.9	95.3			89				
B-4	8.0	LEAN CLAY WITH SAND (CL)	13.5	96.4			79	26	18	8	
B-4	31.0		25.6	99.4							
B-4	32.5	LEAN CLAY (CL)	21.8	104.2				31	17	14	
B-4	36.0		23.5	90.8							
B-4	50.0		29.8	94.6							
B-4	52.5		28.6	96.2							

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

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San Jose, California

APPENDIX

D-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
B-4	61.0				94	55	12				
B-5	8.0	LEAN CLAY WITH SAND (CL)	13.9	95.3			76	26	17	9	
B-5	25.5		31.1	94.2							
B-5	26.0	LEAN CLAY WITH SAND (CL)					84	31	20	11	

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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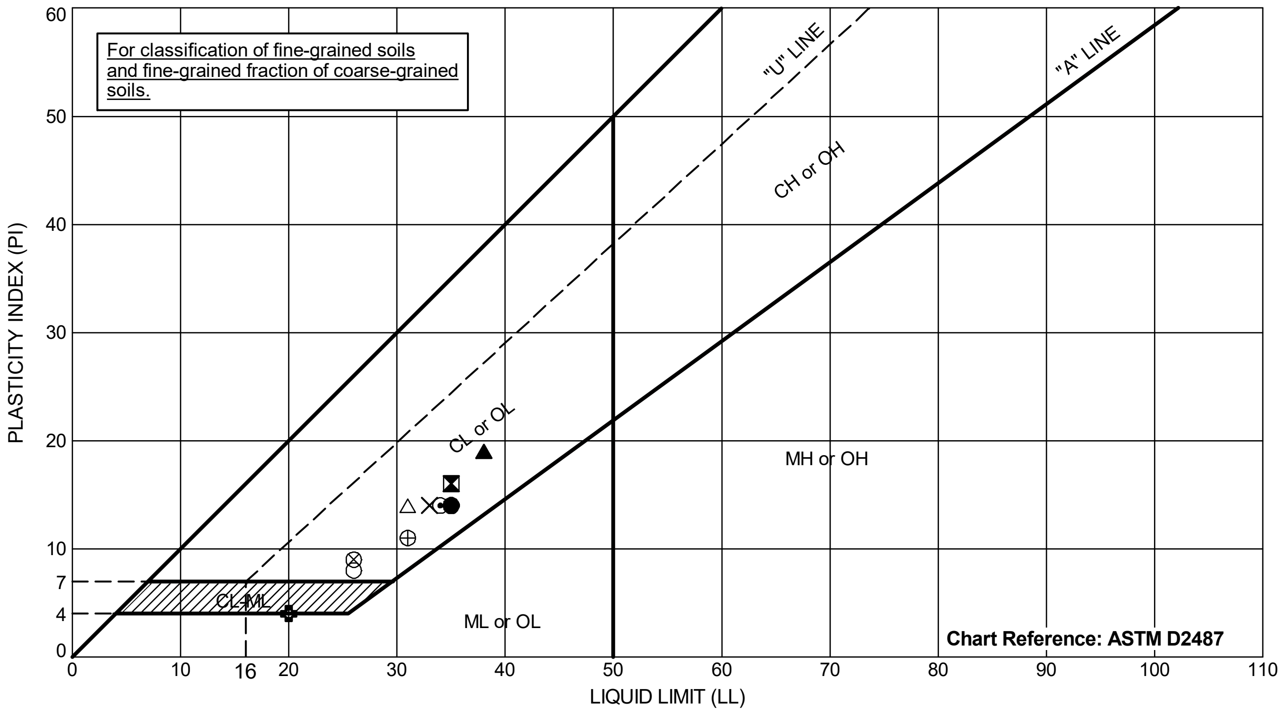
LABORATORY TEST RESULT SUMMARY

Silver Creek Data Center
NWC of Silver Creek Valley Rd. & Fontanoso Way
San Jose, California

APPENDIX
D-2



Exploration ID	Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
● B-1	0 - 5		NM	35	21	14
⧗ B-1	10.5	LEAN CLAY (CL)	95	35	19	16
▲ B-1	28.3	LEAN CLAY (CL)	88	38	19	19
✕ B-2	5.5	LEAN CLAY (CL)	87	33	19	14
⊙ B-3	0 - 5	LEAN CLAY (CL)	89	34	20	14
✿ B-3	10.5	SILTY, CLAYEY SAND (SC-SM)	46	20	16	4
○ B-4	8	LEAN CLAY with SAND (CL)	79	26	18	8
△ B-4	32.5	LEAN CLAY (CL)	NM	31	17	14
⊗ B-5	8	LEAN CLAY with SAND (CL)	76	26	17	9
⊕ B-5	26	LEAN CLAY with SAND (CL)	84	31	20	11

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

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ATTERBERG LIMITS

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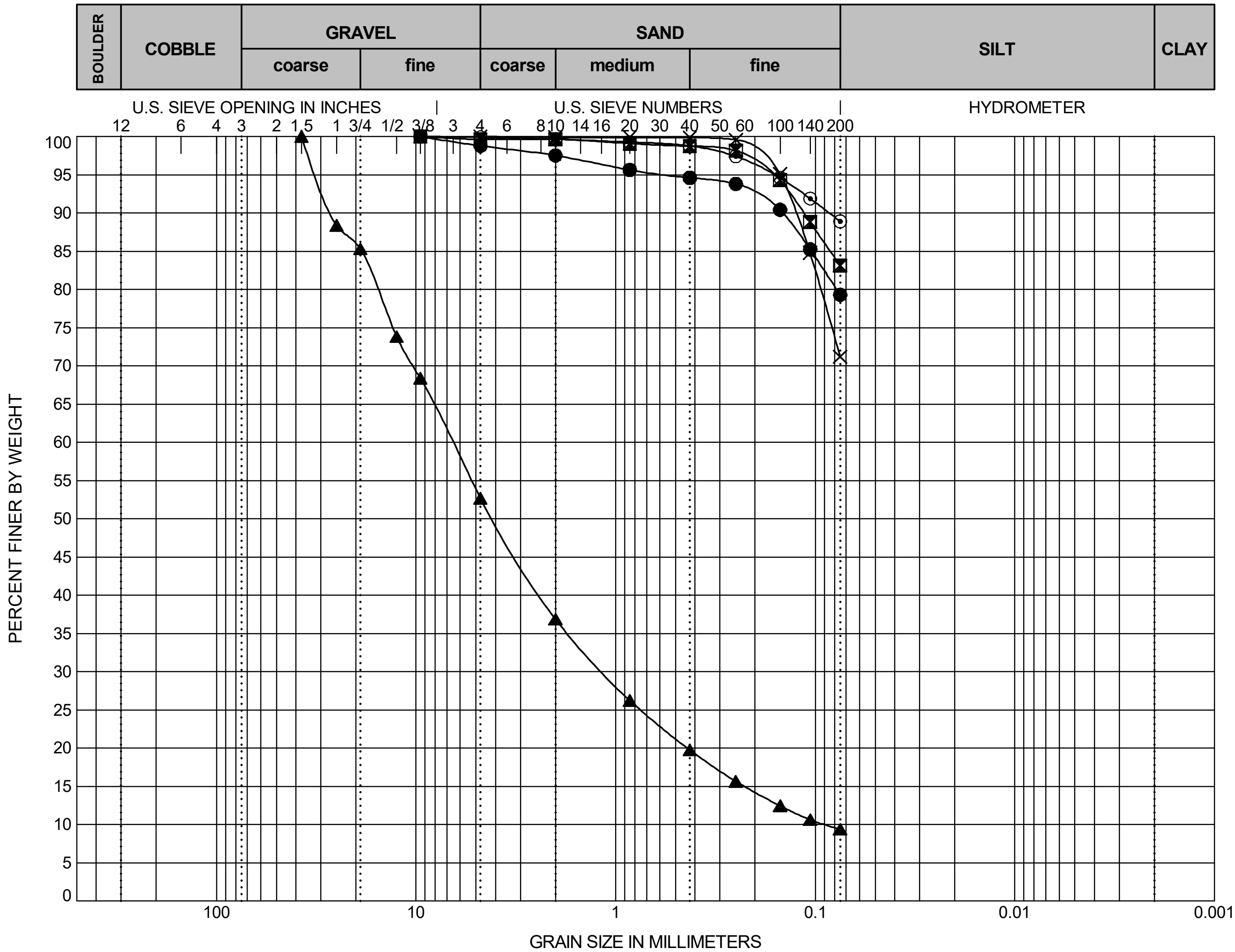
APPENDIX

D-3



Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	B-1	35.5 - 36.5		NM	NM	NM
⧗	B-1	45.5		NM	NM	NM
▲	B-1	60 - 61.5		NM	NM	NM
✕	B-2	50.5 - 51.5	LEAN CLAY WITH SAND (CL)	NM	NM	NM
⊙	B-3	0 - 5	LEAN CLAY (CL)	34	20	14

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt*	%Clay*
●	B-1	35.5 - 36.5	9.5	NM	NM	NM	NM	NM		99	79	NM	NM
⧗	B-1	45.5	9.5	NM	NM	NM	NM	NM		100	83	NM	NM
▲	B-1	60 - 61.5	37.5	6.567	1.153	0.089	2.27	73.56	85	53	9.4	NM	NM
✕	B-2	50.5 - 51.5	4.75	NM	NM	NM	NM	NM		100	71	NM	NM
⊙	B-3	0 - 5	9.5	NM	NM	NM	NM	NM		100	89	NM	NM

*These numbers represent silt-sized and clay-sized content but may not indicate the percentage of the material with the engineering properties of silt or clay.
Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D6913(Sieve Analysis) and ASTM D7928 (Hydrometer Analysis).
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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SIEVE ANALYSIS

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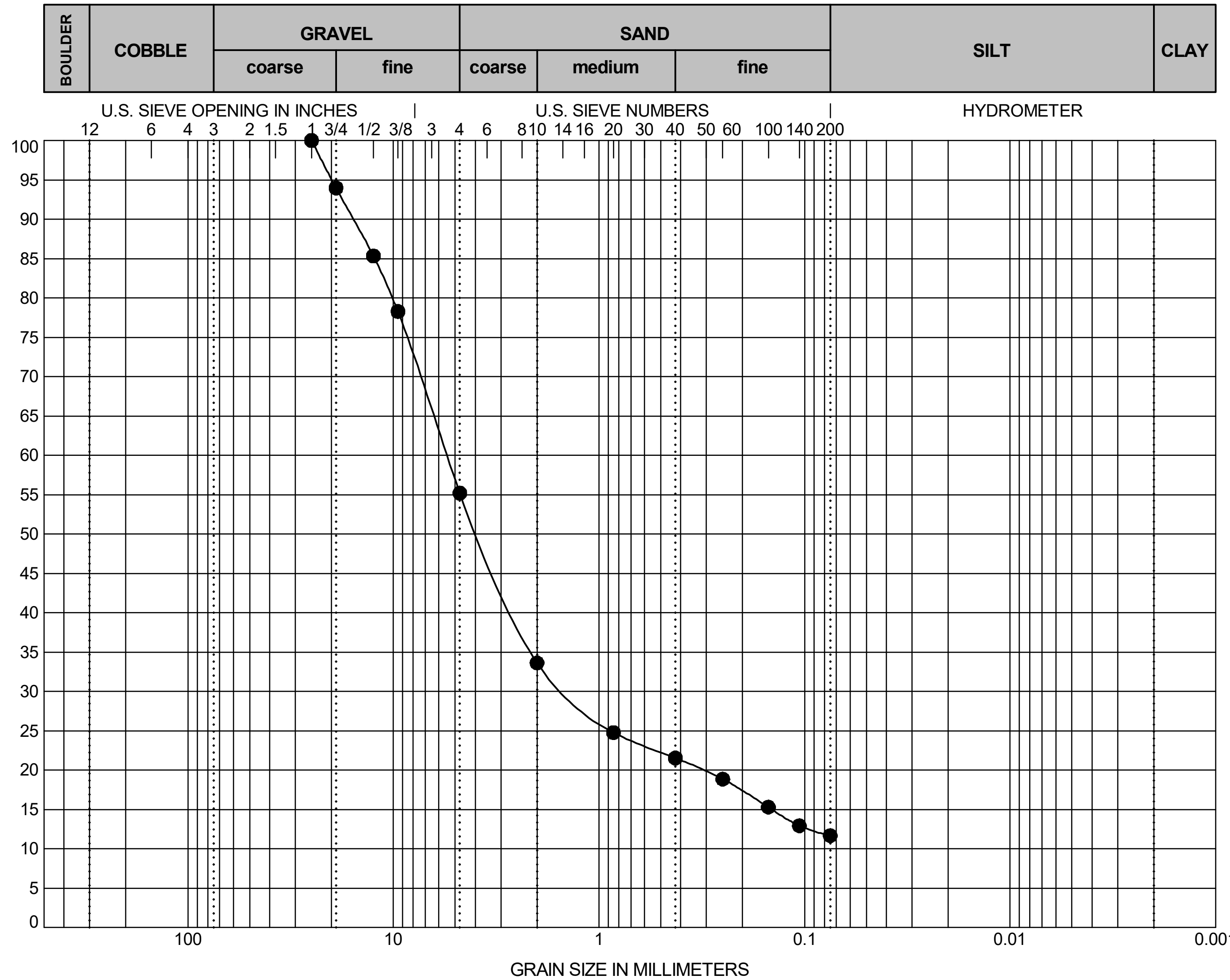
APPENDIX
D-4



	Exploration ID	Depth (ft.)	Sample Description	LL	PL	PI
●	B-4	61		NM	NM	NM

	Exploration ID	Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt*	%Clay*
●	B-4	61	25	5.49	1.411	NM	7.64	115.62	94	55	12	NM	NM

*These numbers represent silt-sized and clay-sized content but may not indicate the percentage of the material with the engineering properties of silt or clay.
Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D6913(Sieve Analysis) and ASTM D7928 (Hydrometer Analysis).
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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SIEVE ANALYSIS

Silver Creek Data Center
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San Jose, California

APPENDIX
D-5

Laboratory Test Report

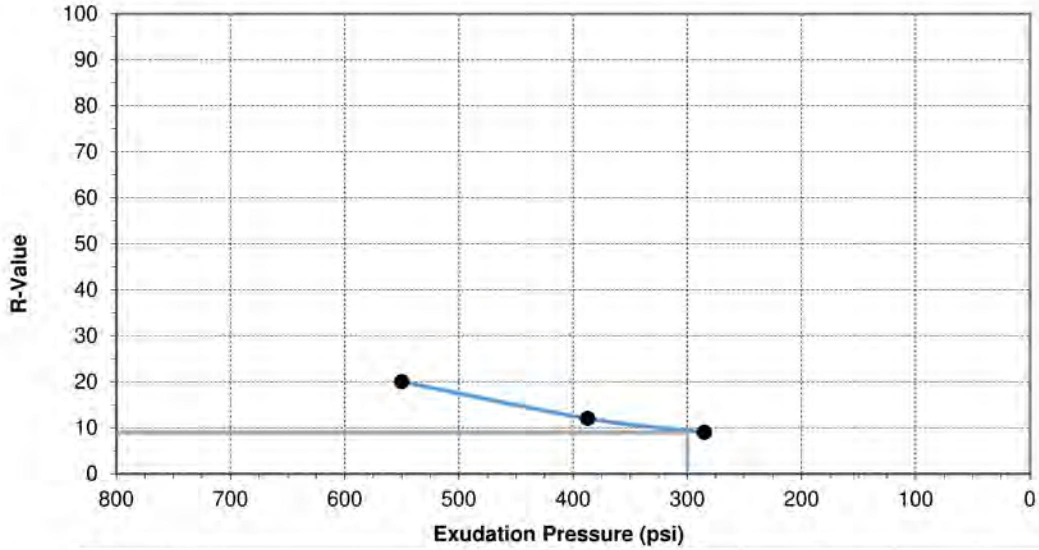
Client:	**Prologis, Inc.**	Report No.:	**25-HAY-01603 Rev. 0**	Issued:	**12/11/2025**
Project:	**26002624.001A**			Field ID:	**HL16912**
	CSM-Prologis - Silver Creek Data Center	Sampled by:		Date:	**11/18/2025**
	01-000L - Laboratory Testing	Submitted by:	**A. Noroozi**	Date:	**12/2/2025**

Tested on **12/8/2025** by **M. Paulson**

Test Method: **ASTM D2844**

Material Description: **Brown Lean Clay (CL)**

Specific Location: **B-3, Bulk 1 @ 0-5'**



Briquette No.	**A**	**B**	**C**
Dry Unit Weight at Test (pcf)	117.5	115.4	115.1
Expansion Pressure (psf)	221	134	65
Exudation Pressure (psi)	550	387	285
Moisture at Time of Test (%)	16.2	17.1	18.1
Resistance Value	20	12	9
		R - VALUE AT 300 PSI EXUDATION PRESSURE:	**9**

Reviewed on 12/11/2025 by Cindy Pimentel,
Senior Technician

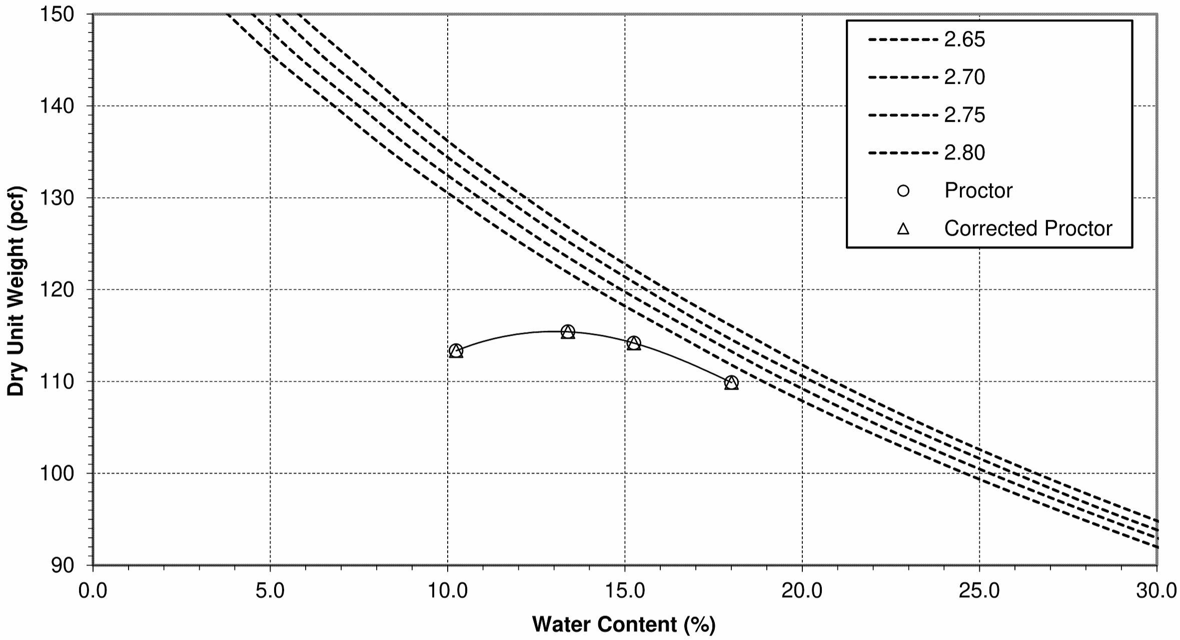
Laboratory Test Report

Client:	**Prologis, Inc.**	Report No.:	**25-HAY-01603 Rev. 0**	Issued:	**12/11/2025**
Project:	**26002624.001A**			Field ID:	**HL16912**
	CSM-Prologis - Silver Creek Data Center	Sampled by:		Date:	**11/18/2025**
	01-000L - Laboratory Testing	Submitted by:	**A. Noroozi**	Date:	**12/2/2025**

Tested on **12/3/2025** by **F. Martinez**

Material Description: **Brown Clayey Sand (SC)**

Location: **B-1 Bulk 1 @ 0-5'**



Test Method: ASTM D1557 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**115.5**	**na**
Optimum Water Content (%)	**13.0**	**na**
Oversize Fraction, retained on #4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Mechanical

Specimen Preparation: Moist

Reviewed on 12/11/2025 by Cindy Pimentel,
Senior Technician

Appendix

D-6

Kleinfelder Hayward Lab | 2601 Barrington Court | Hayward, CA | (925) 484-1700

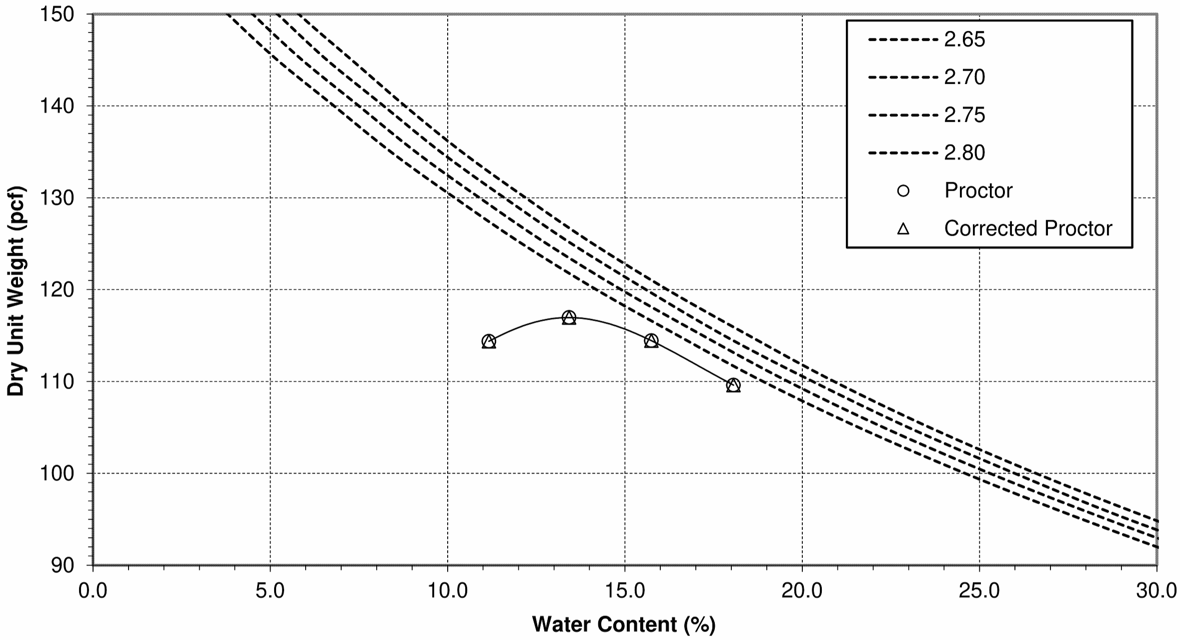
Laboratory Test Report

Client:	**Prologis, Inc.**	Report No.:	**25-HAY-01603 Rev. 0**	Issued:	**12/11/2025**
Project:	**26002624.001A**			Field ID:	**HL16912**
	CSM-Prologis - Silver Creek Data Center	Sampled by:		Date:	**11/18/2025**
	01-000L - Laboratory Testing	Submitted by:	**A. Noroozi**	Date:	**12/2/2025**

Tested on **12/5/2025** by **F. Martinez**

Material Description: **Brown Silty Sand (SM)**

Location: **B-4, Bulk 1 @ 0-5'**



Test Method: ASTM D1557 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**117.0**	**na**
Optimum Water Content (%)	**13.4**	**na**
Oversize Fraction, retained on #4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

Rammer Type: Mechanical

Specimen Preparation: Moist

Reviewed on 12/11/2025 by Cindy Pimentel,
Senior Technician

Appendix

D-6

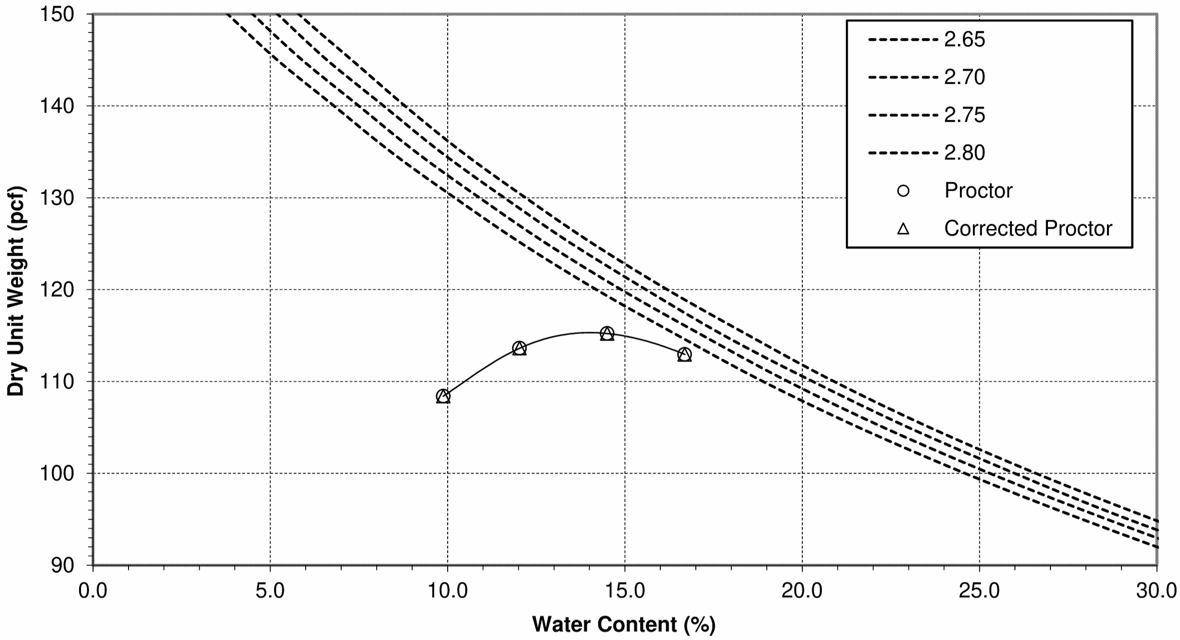
Laboratory Test Report

Client:	**Prologis, Inc.**	Report No.:	**25-HAY-01603 Rev. 0**	Issued:	**12/11/2025**
Project:	**26002624.001A**			Field ID:	**HL16912**
	CSM-Prologis - Silver Creek Data Center	Sampled by:		Date:	**11/18/2025**
	01-000L - Laboratory Testing	Submitted by:	**A. Noroozi**	Date:	**12/2/2025**

Tested on **12/5/2025** by **F. Martinez**

Material Description:

Location: **B-5, Bulk 1 @ 0-5'**



Test Method: ASTM D1557 A	Uncorrected	Corrected
Maximum Dry Unit Weight (pcf)	**115.3**	**na**
Optimum Water Content (%)	**14.0**	**na**
Oversize Fraction, retained on #4 (%)		**<5**
Bulk Specific Gravity of Oversize Fraction		**na**

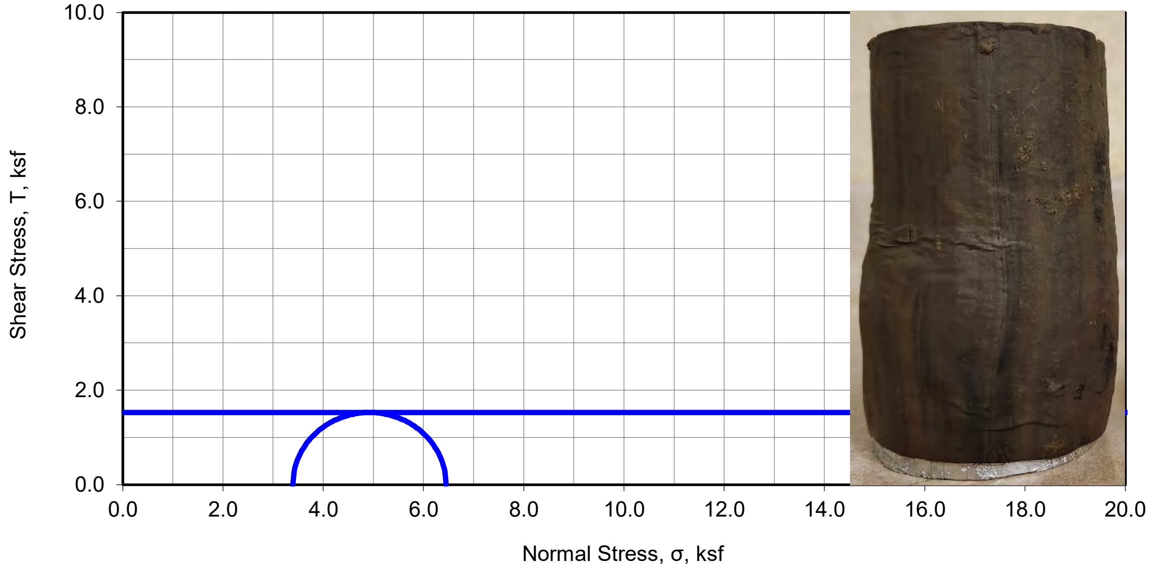
Rammer Type: Mechanical

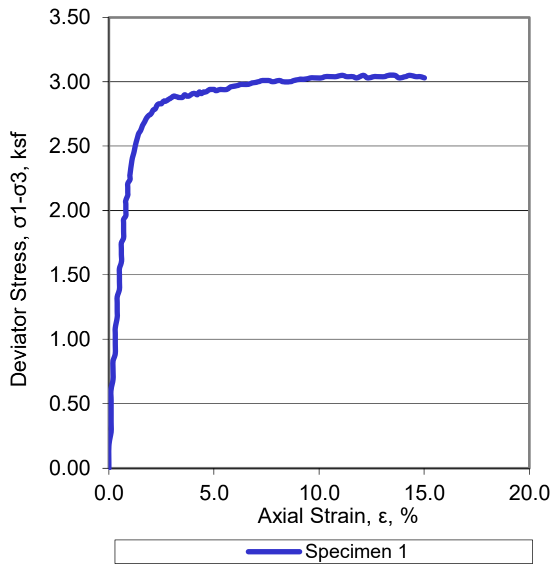
Specimen Preparation: Moist

Reviewed on 12/11/2025 by Cindy Pimentel,
Senior Technician

Total	
c = 1.53	ksf

Specimen Shear Picture





	Specimen No.		1
Initial	Diameter, in	D_O	2.87
	Height, in	H_O	5.92
	Water Content, %	ω_O	25.0
	Dry Density, lbs/ft^3	γ_{d_O}	100.3
	Saturation, %	S_O	102
	Void Ratio	e_O	0.649
Minor Principal Stress, ksf		σ_3	3.40
Maximum Deviator Stress, ksf		$(\sigma1-\sigma3)_{max}$	3.05
Time to $(\sigma_1\text{-}\sigma_3)_{max}$, min		t_f	13.58
Deviator Stress @ 15% Axial Strain, ksf		$(\sigma_1-\sigma_3)_{15\%}$	3.03
Ultimate Deviator Stress, ksf		$(\sigma_1-\sigma_3)_{ult}$	na
Rate of strain, %/min		$'\varepsilon$	1.00
Axial Strain at Failure, %		ε_f	13.58

Description of Specimen: Dark Yellowish Brown Lean Clay (CL)

Amount of Material Finer than the No. 200, %: 88

LL: 38 | PL: 19 | PI: 19 | G_S: 2.65 Assumed | Specimen Type: Undisturbed | Test Method: ASTM D2850

Membrane correction applied

Boring:	B-1
Sample:	7
Depth, ft:	28.3
Test Date:	12/4/25

Remarks: nm= not measured, na = not applicable

KLEINFELDER
Bright People. Right Solutions.
2601 Barrington Ct, Hayward, CA 94545

Project No.:	26002624.001A
Date:	12/12/25
Entry By:	C. Pimentel
Checked By:	C. Pimentel
File Name:	HL16912

TRIAXIAL COMPRESSION TEST (UU)

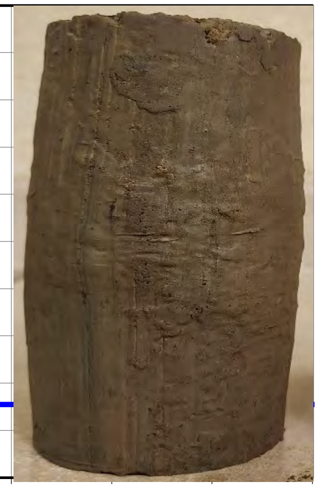
Silver Creek Data Center
Silver Creek Valley Road
San Jose, California

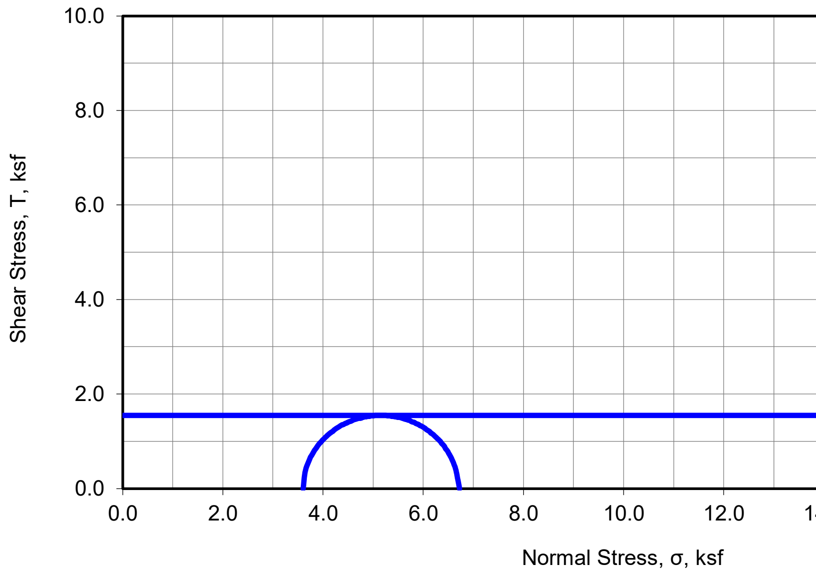
Appendix

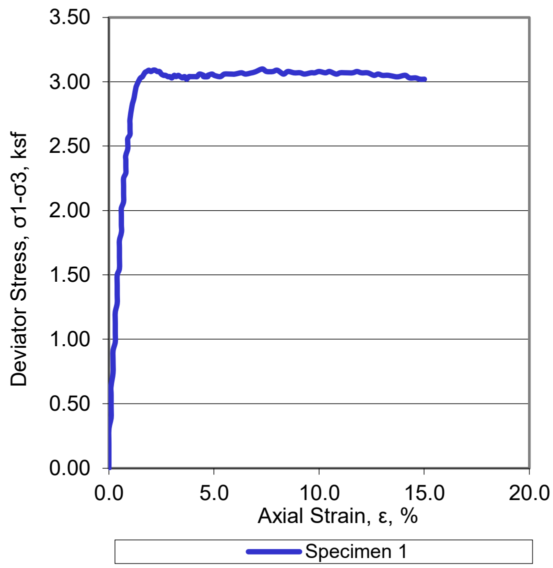
D-7

Total	
c = 1.55	ksf

Specimen Shear Picture







Specimen No.			1
Initial	Diameter, in	D_O	2.87
	Height, in	H_O	6.01
	Water Content, %	ω_O	28.1
	Dry Density, lbs/ft^3	γ_{d_O}	95.3
	Saturation, %	S_O	101
	Void Ratio	e_O	0.735
Minor Principal Stress, ksf		σ_3	3.60
Maximum Deviator Stress, ksf		$(\sigma 1-\sigma 3)_{max}$	3.10
Time to $(\sigma_1-\sigma_3)_{max}$, min		t_f	7.30
Deviator Stress @ 15% Axial Strain, ksf		$(\sigma_1-\sigma_3)_{15\%}$	3.02
Ultimate Deviator Stress, ksf		$(\sigma_1-\sigma_3)_{ult}$	na
Rate of strain, %/min		'ε	1.00
Axial Strain at Failure, %		ε_f	7.30

Description of Specimen: Dark Yellowish Brown Lean Clay (CL)

Amount of Material Finer than the No. 200, %: 88

LL: nm | PL: nm | PI: nm | G_S: 2.65 Assumed | Specimen Type: Undisturbed | Test Method: ASTM D2850

Membrane correction applied

Boring:	B-2
Sample:	7
Depth, ft:	29.5
Test Date:	12/4/25

Remarks: nm= not measured, na = not applicable

KLEINFELDER
Bright People. Right Solutions.
2601 Barrington Ct, Hayward, CA 94545

Project No.:	26002624.001A
Date:	12/12/25
Entry By:	C. Pimentel
Checked By:	C. Pimentel
File Name:	HL16912

TRIAXIAL COMPRESSION TEST (UU)

Silver Creek Data Center
Silver Creek Valley Road
San Jose, California

Appendix

D-8

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Kleinfelder
Client's Project No.: 26002624.001A
Client's Project Name: Prologis Silver Creek DC
Date Sampled: 20-Nov-25
Date Received: 9-Dec-25
Matrix: Soil
Authorization: Chain of Custody

Date of Report: 11-Dec-2025

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Resistivity (As Received) (ohms-cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2512013-001	B-4 @ 0-5'	+240	7.81	8,700	2,600	N.D.	N.D.	N.D.

	Redox	pH	Resistivity (As Received)	Resistivity (100% Saturation)	Sulfide	Chloride	Sulfate
Method:	ASTM D1498	ASTM D4972	ASTM G187	ASTM G187	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	-	-	50	15	15
Date Analyzed:	10-Dec-2025	10-Dec-2025	10-Dec-2025	10-Dec-2025	9-Dec-2025	10-Dec-2025	10-Dec-2025

Julia Clauson
Chemist

* Results Reported on "As Received" Basis

N.D. - None Detected (< 50 mg/kg for sulfide; < 15 mg/kg for chloride and sulfate)

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

KLEINFELDER
Bright People. Right Solutions.

Appendix E

Seismic Induced Settlement Analysis

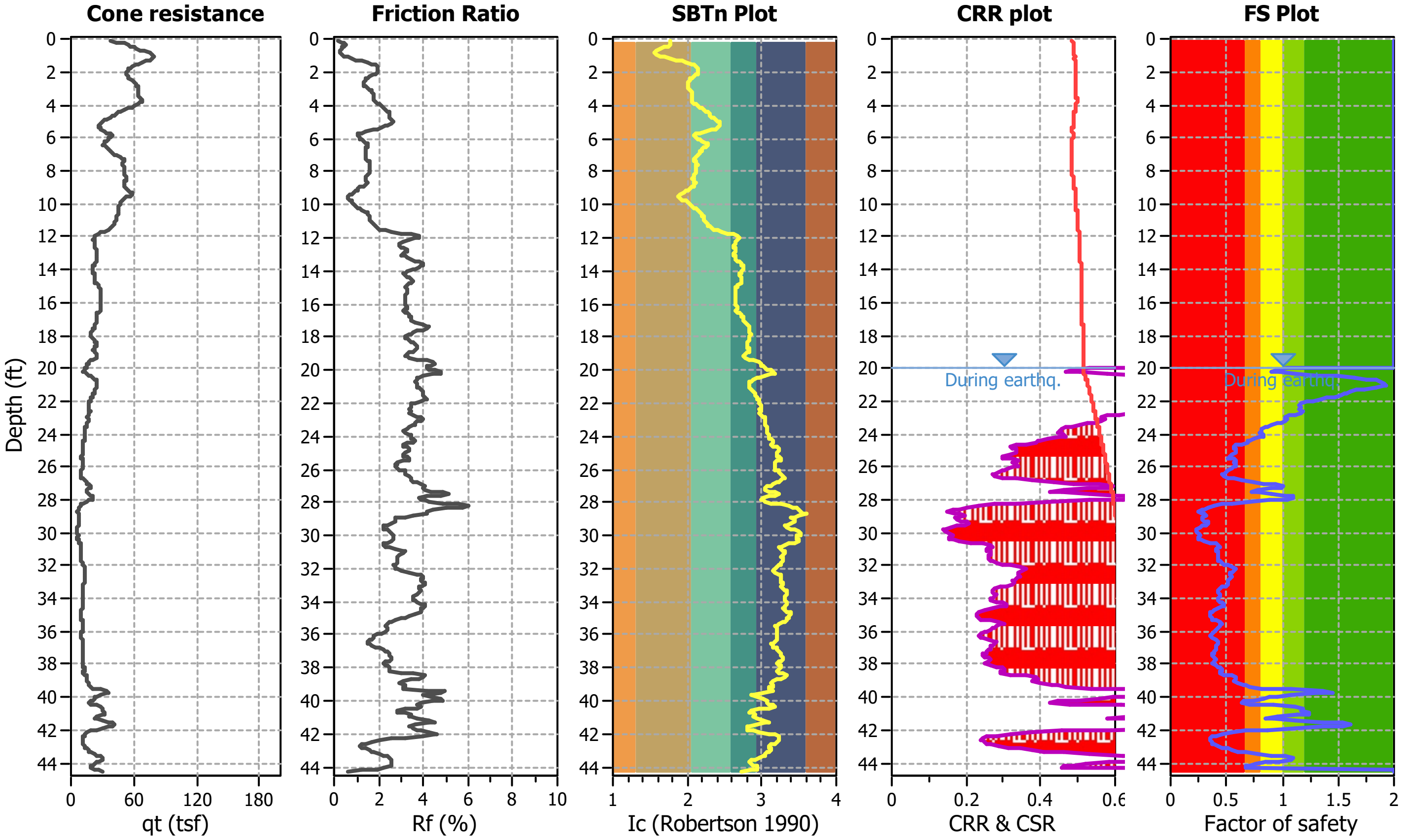
LIQUEFACTION ANALYSIS REPORT

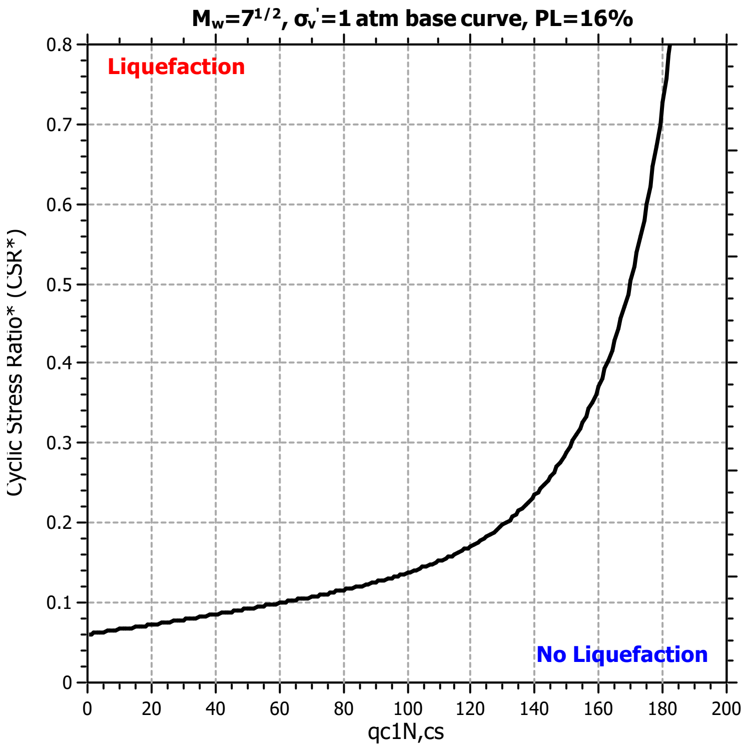
Project title : Silver Creek Data Center **Location : San Jose, CA**

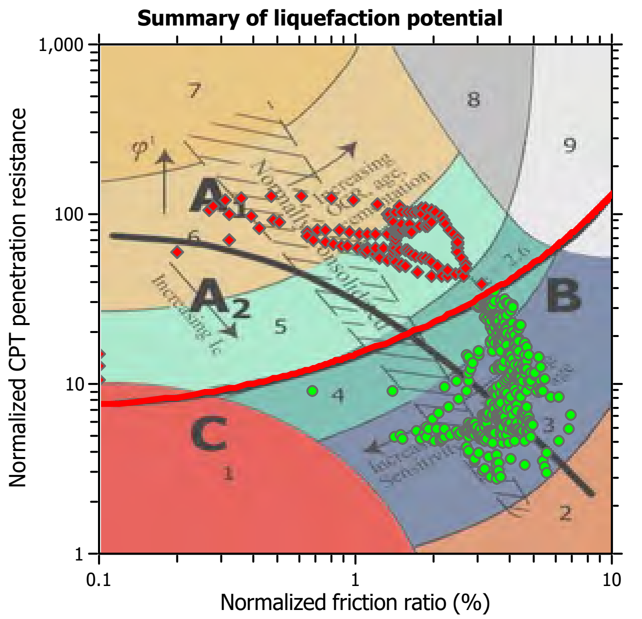
CPT file : SCPT-01

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	25.40 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

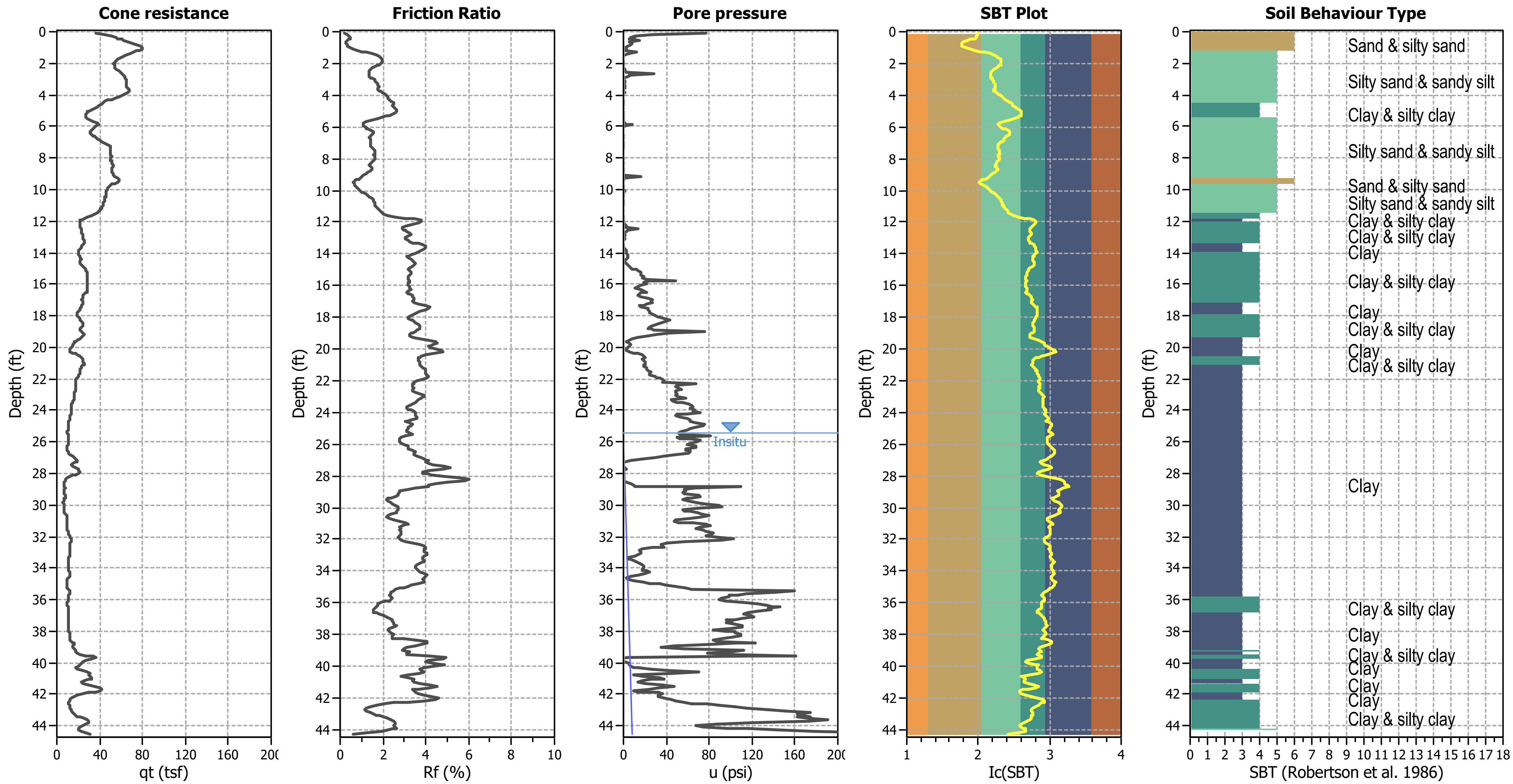






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



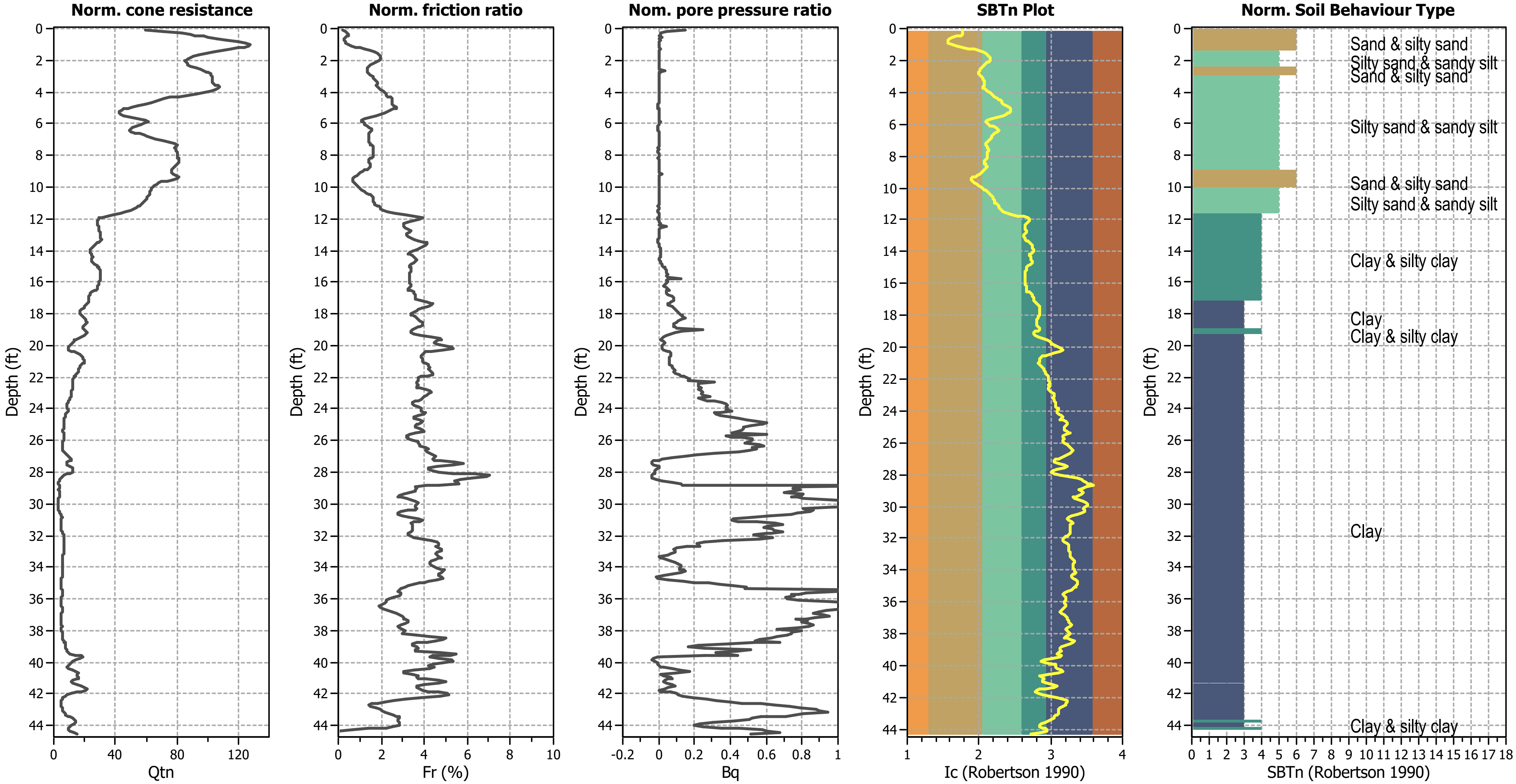
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

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

CPT basic interpretation plots (normalized)



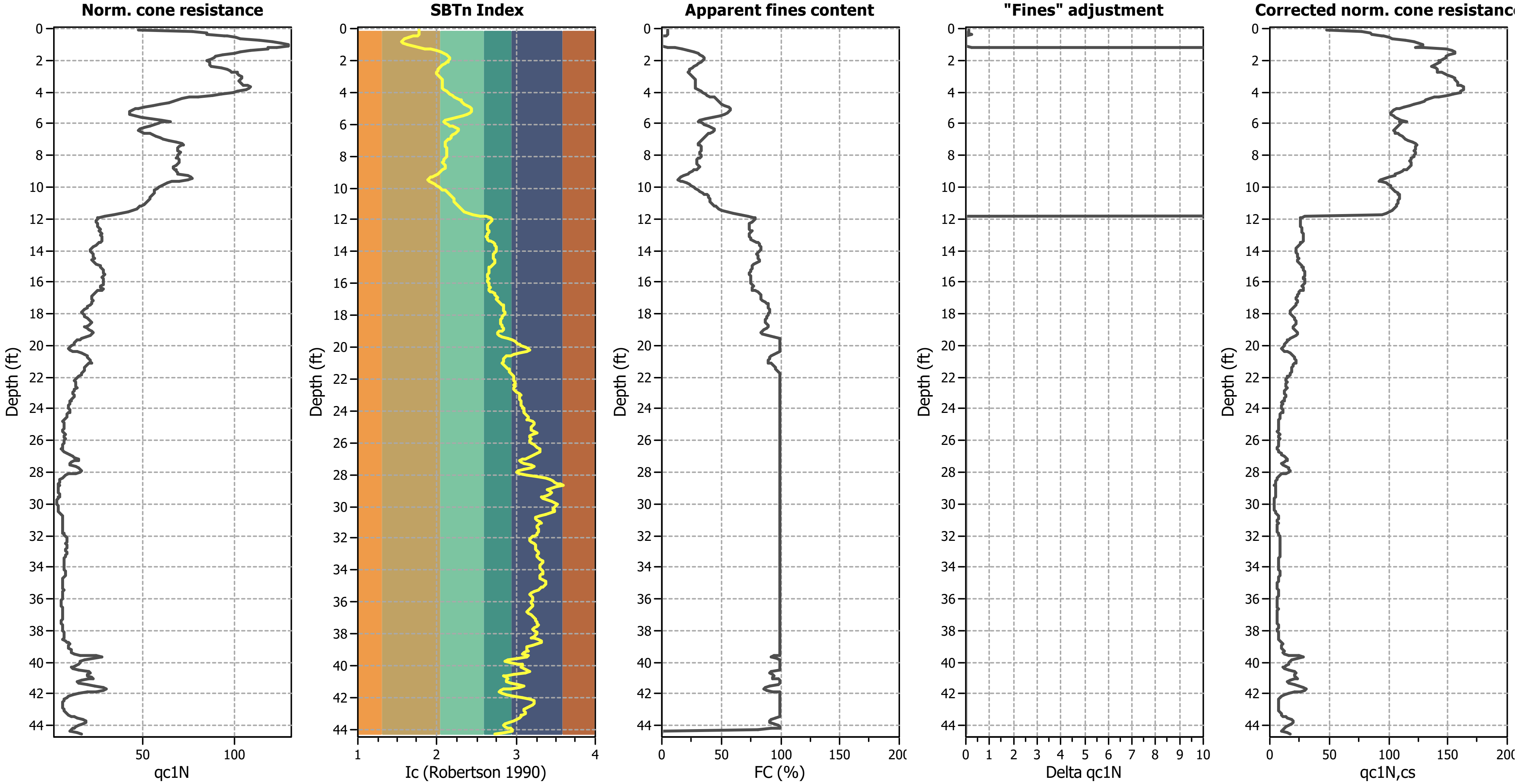
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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

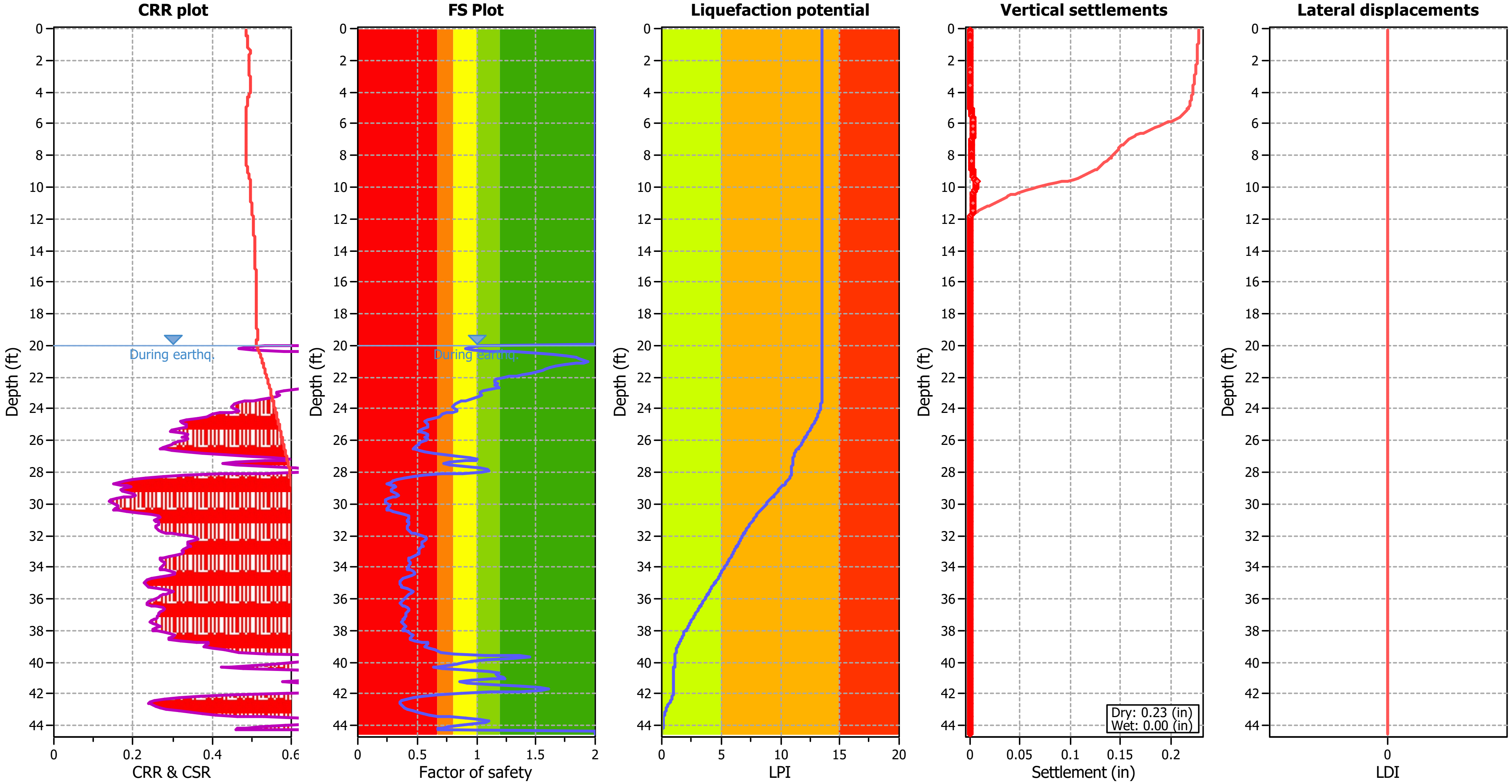
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



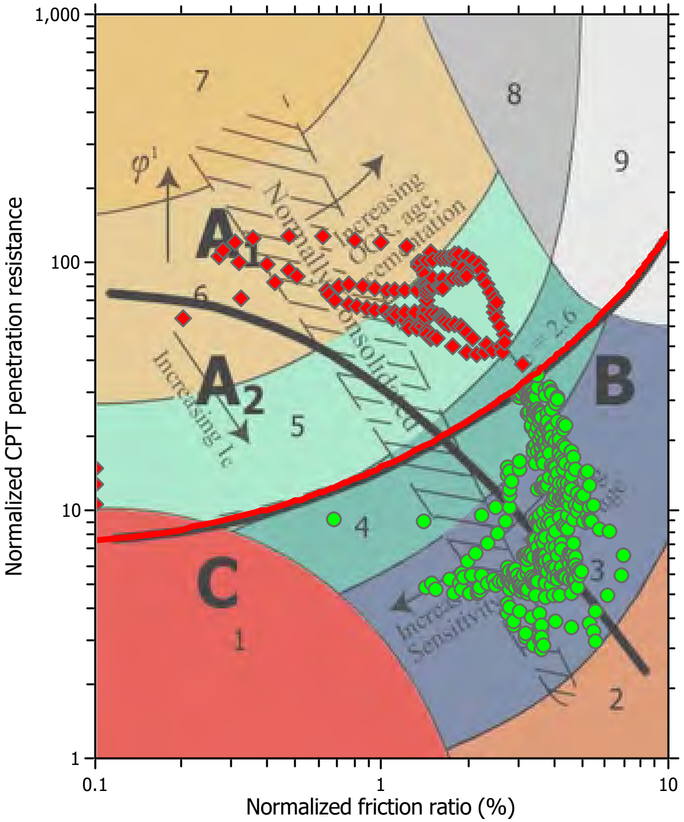
Input parameters and analysis data

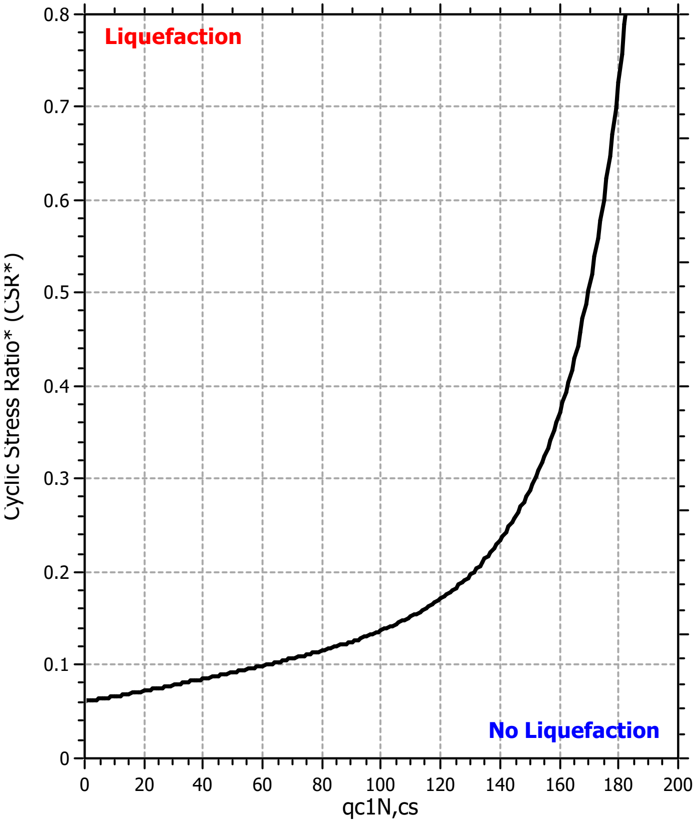
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

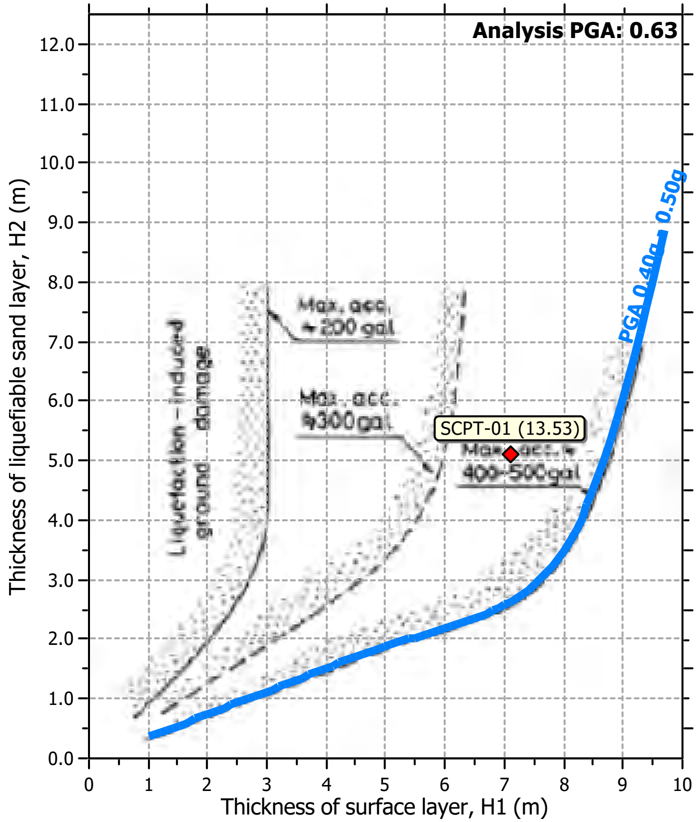
F.S. color scheme
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme
- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



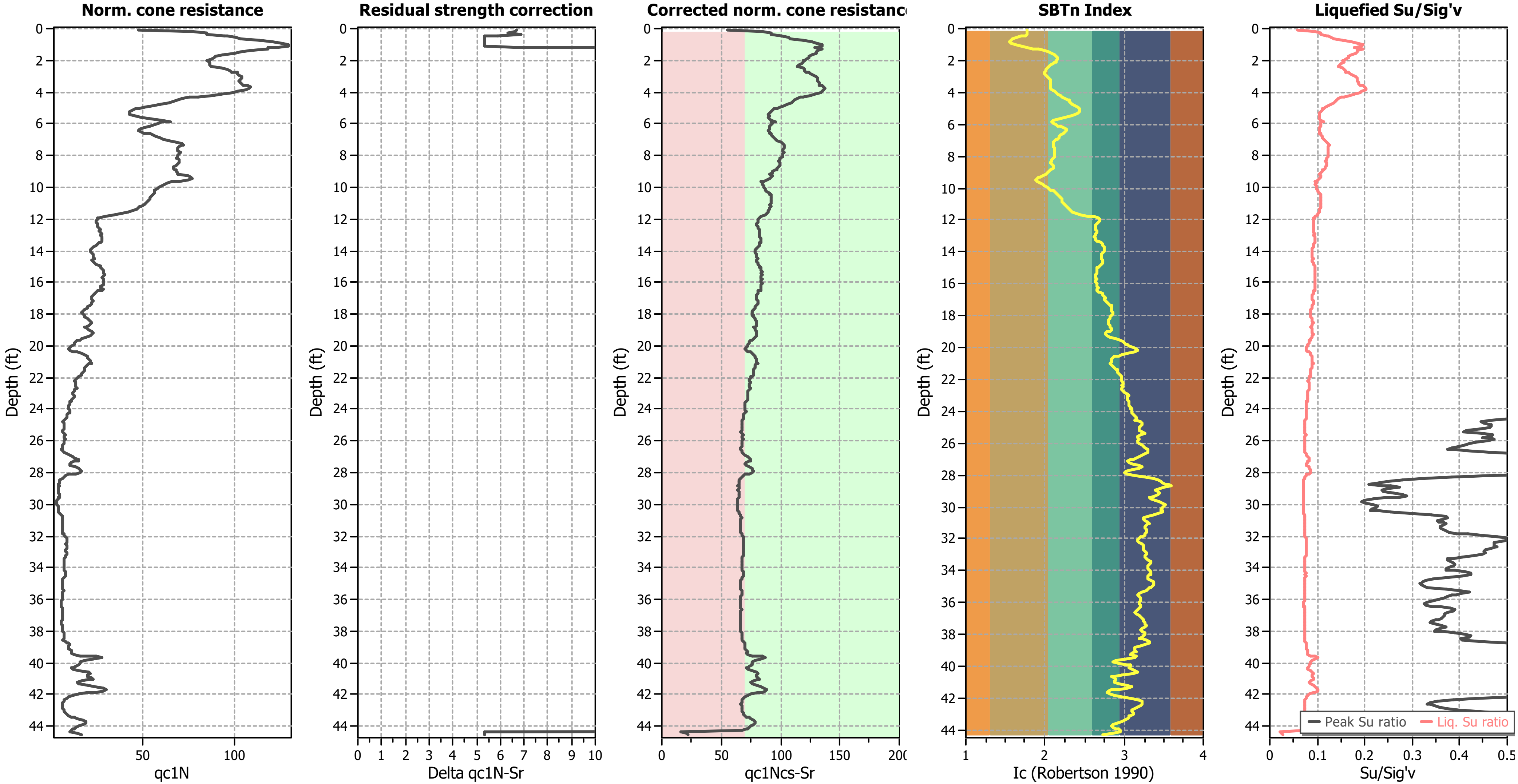




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.40 ft	Fill height:	N/A	Limit depth:	N/A

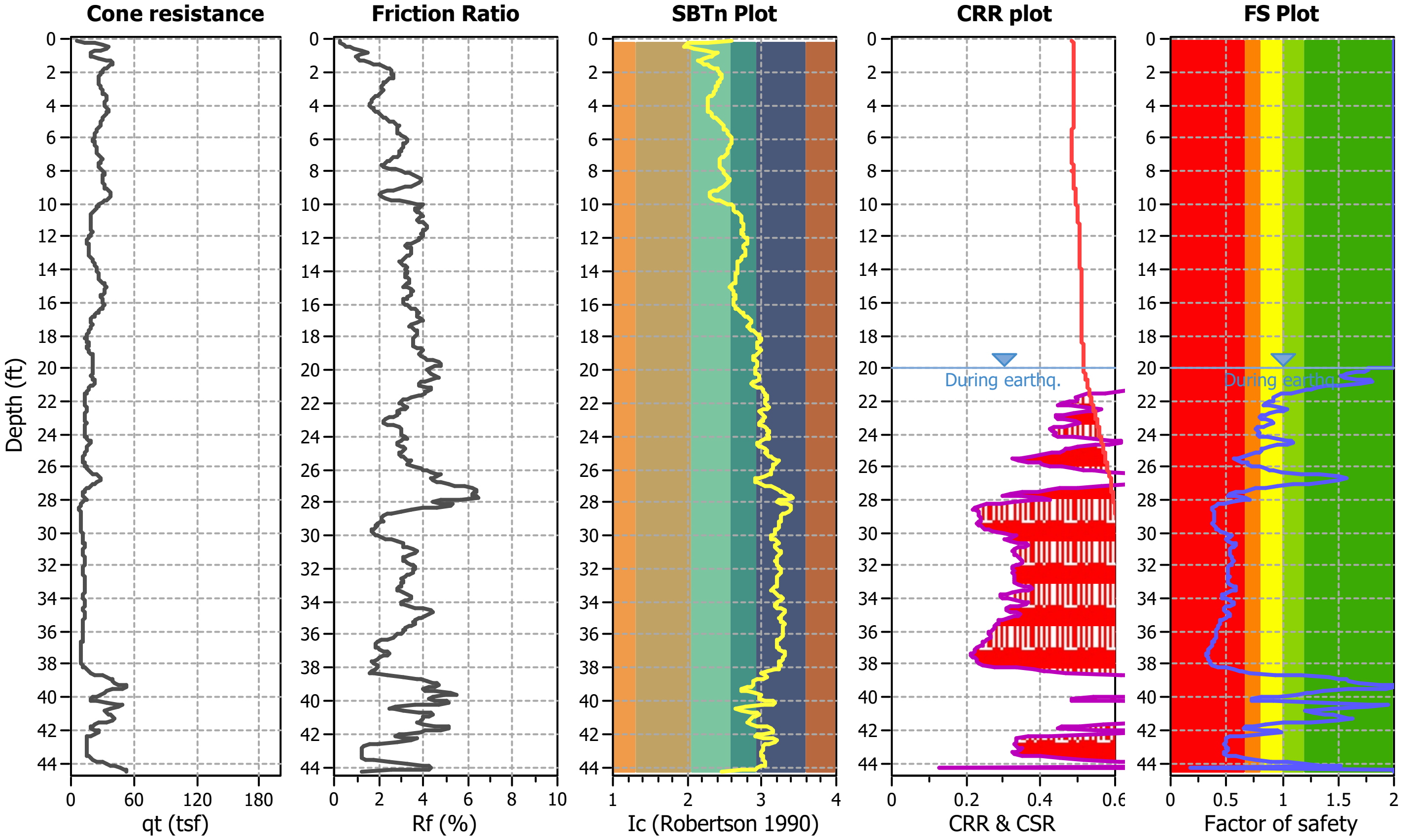
LIQUEFACTION ANALYSIS REPORT

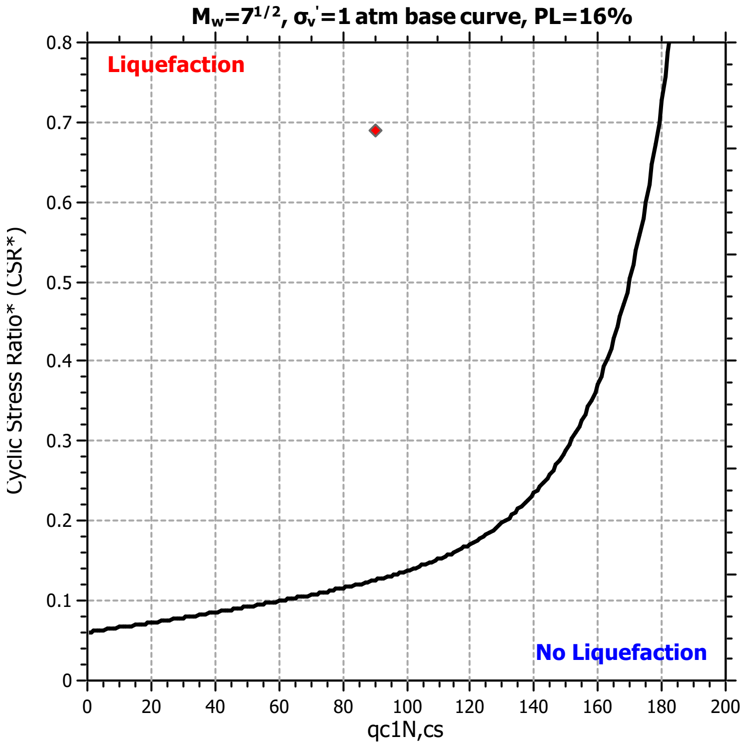
Project title : Silver Creek Data Center **Location : San Jose, CA**

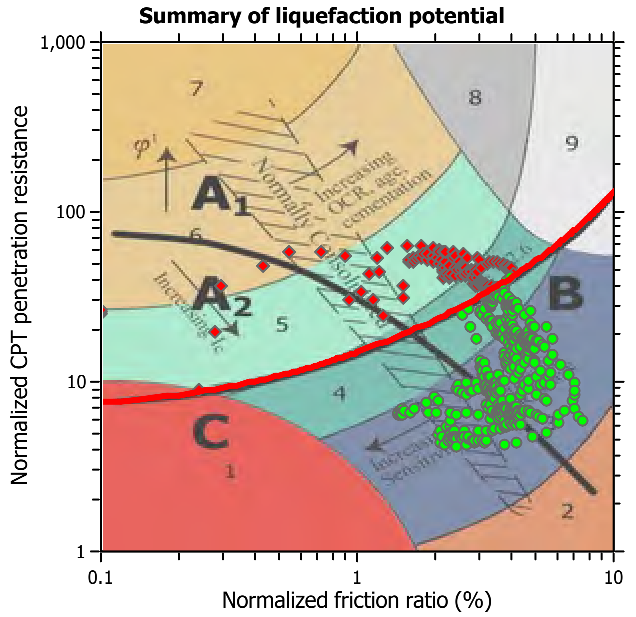
CPT file : CPT-02

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	25.80 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

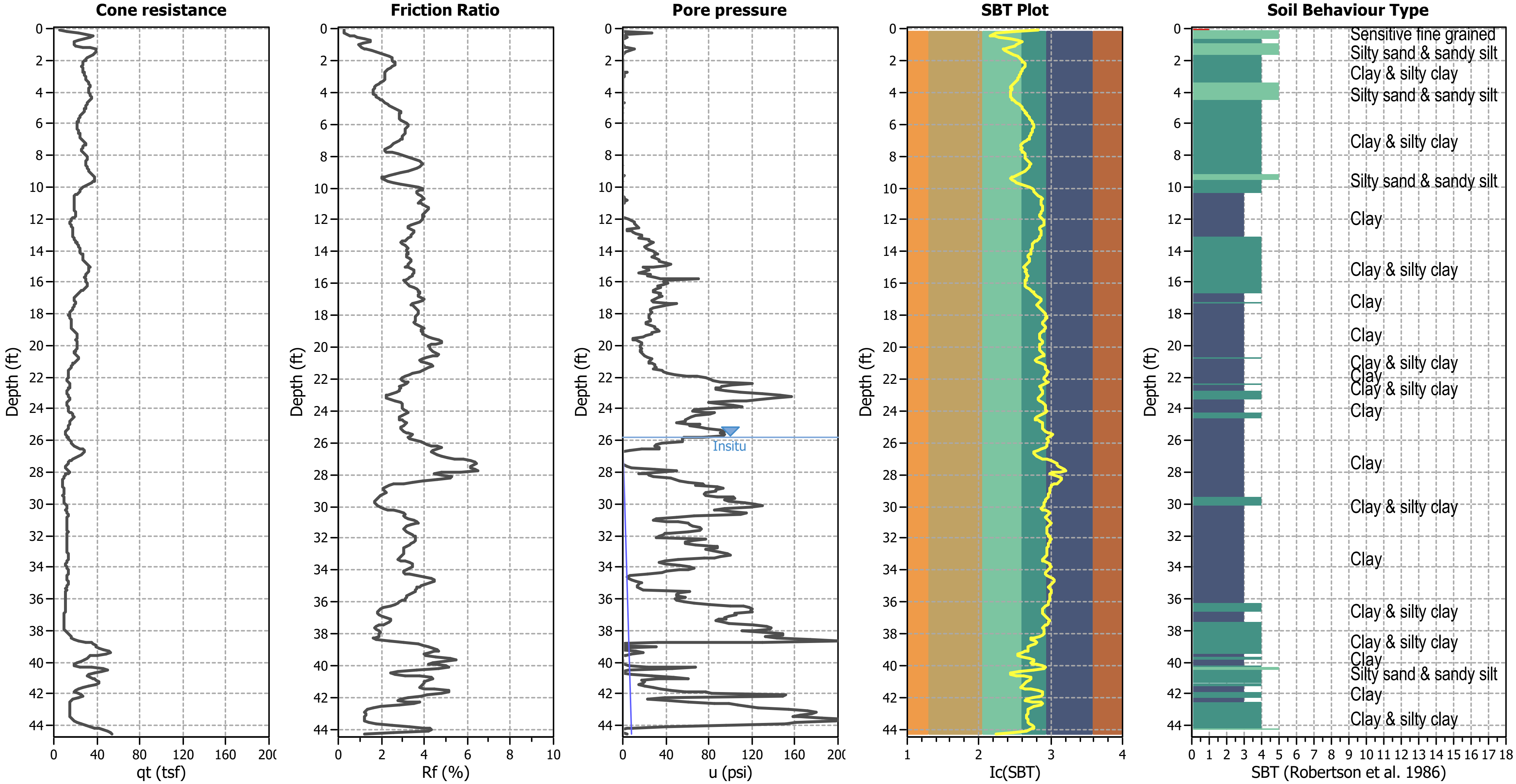






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



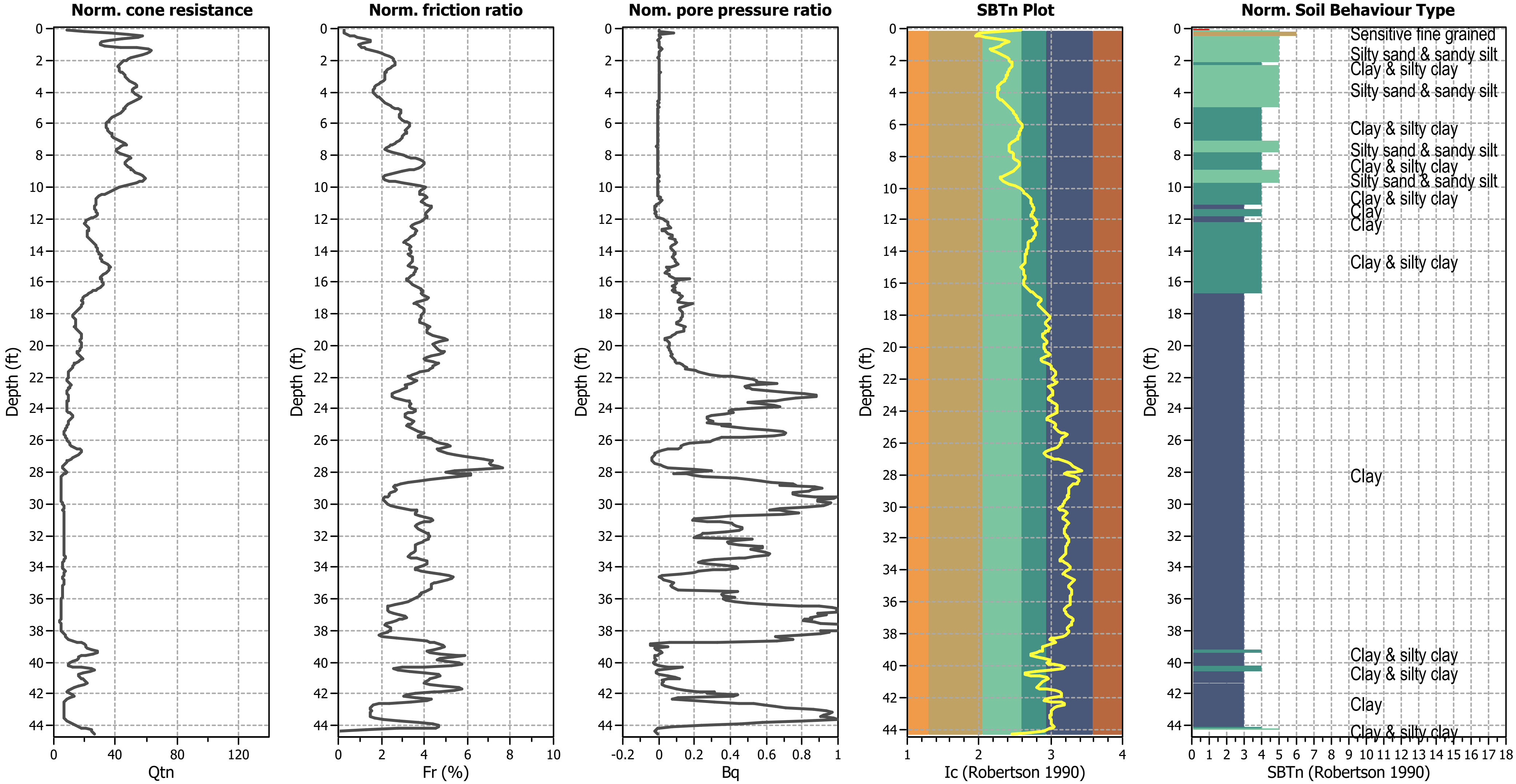
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

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)



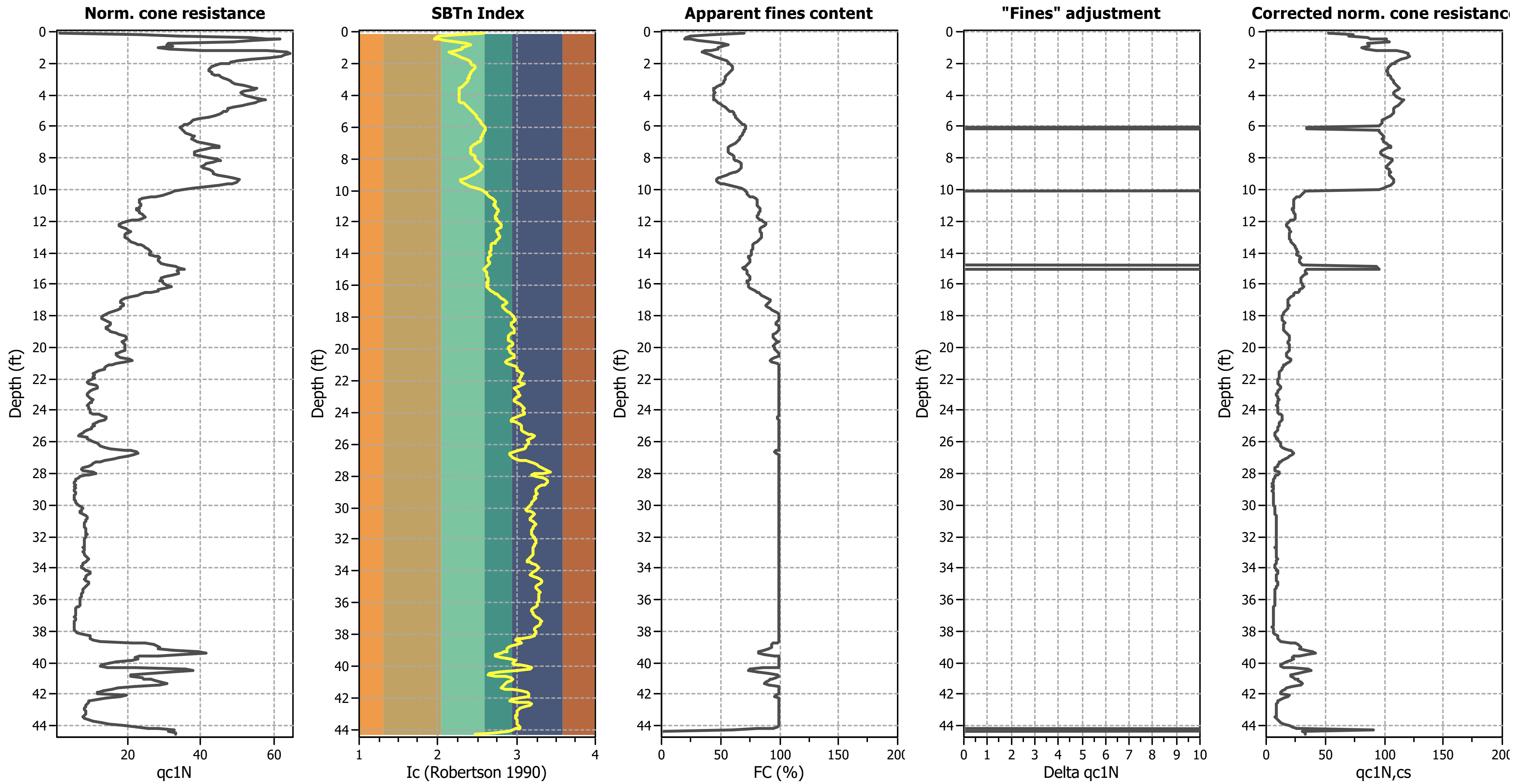
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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

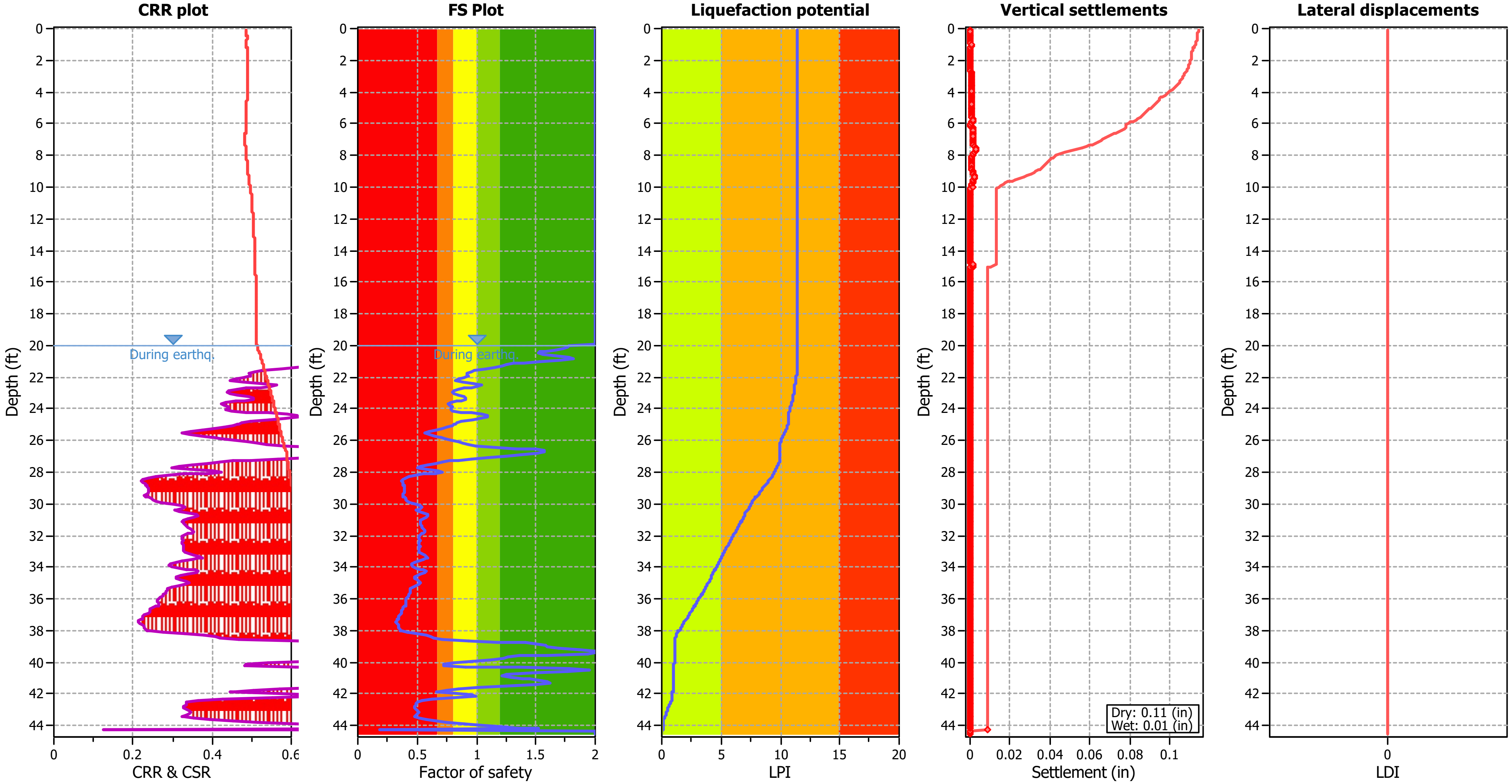
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

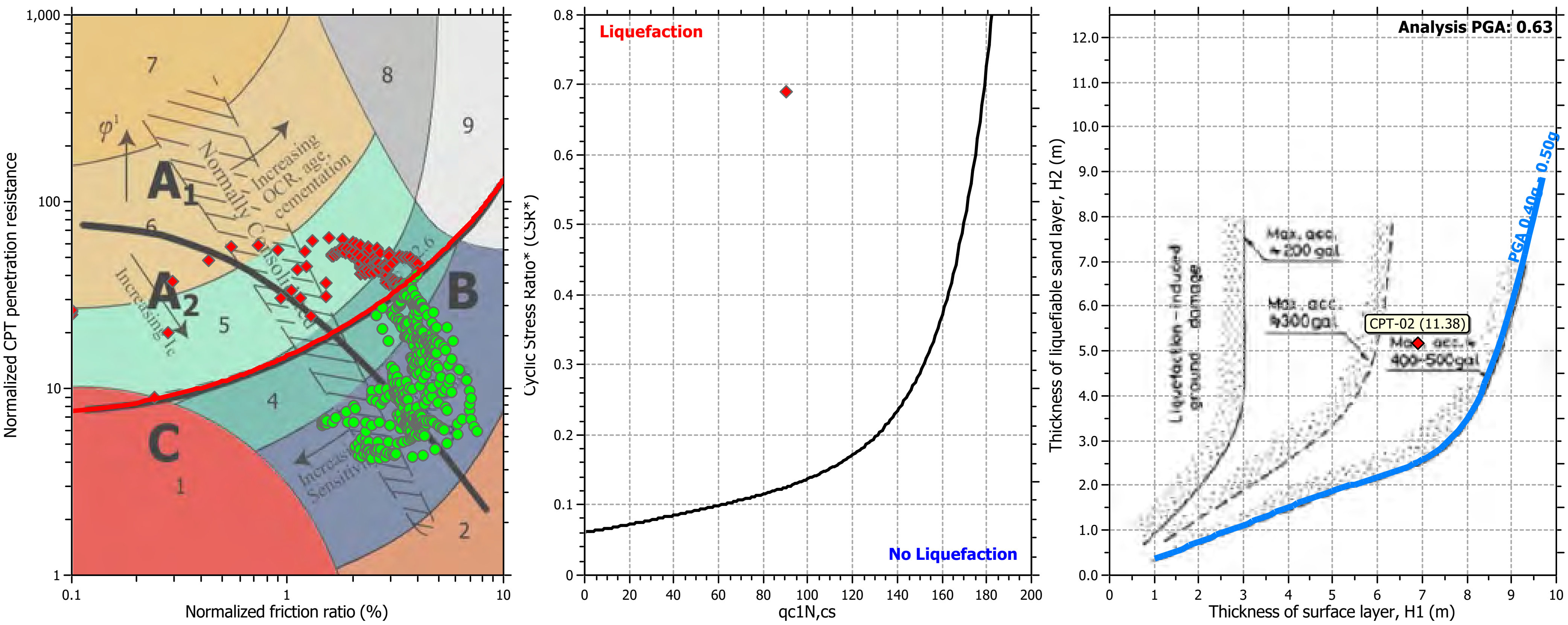
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

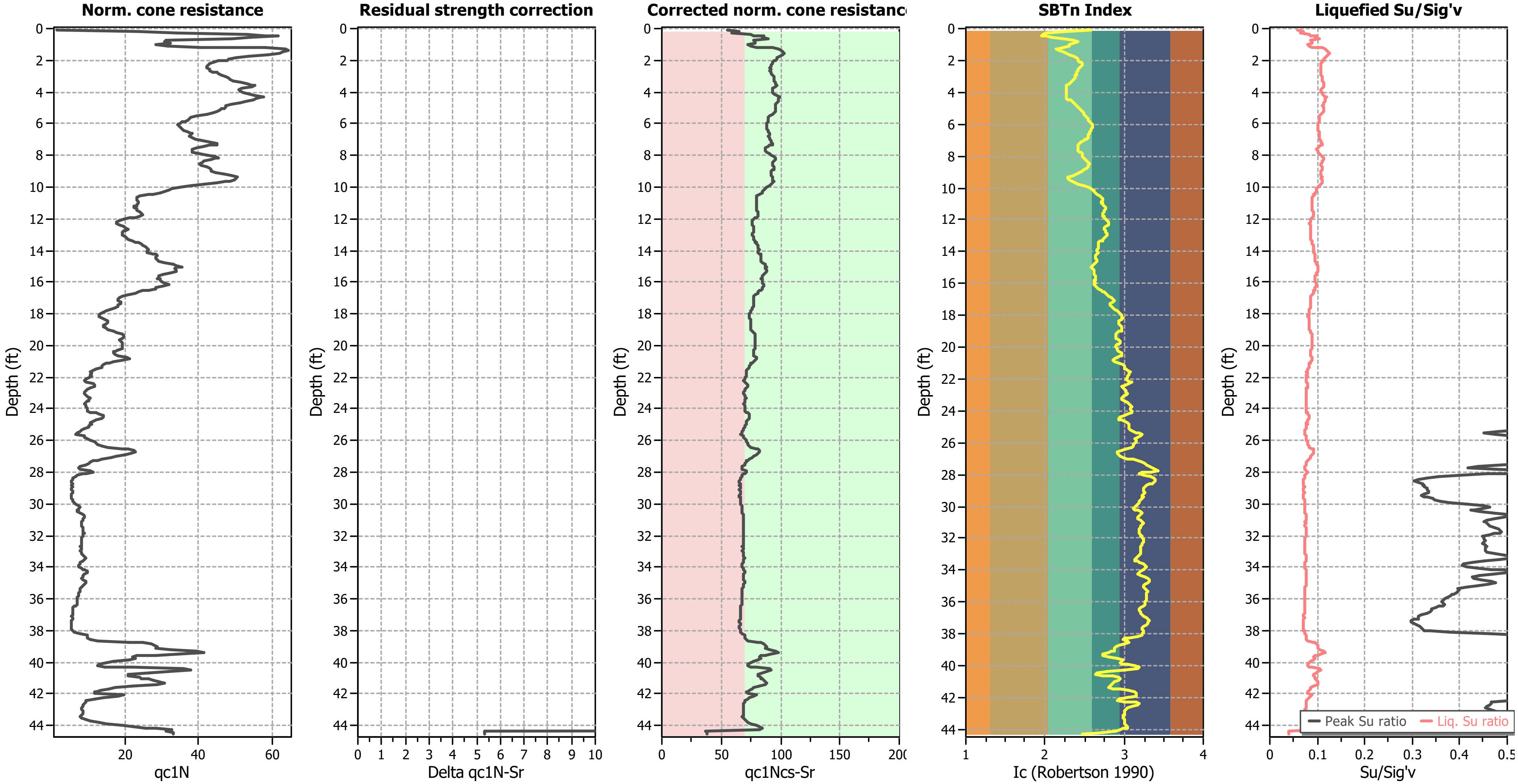
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	25.80 ft	Fill height:	N/A	Limit depth:	N/A

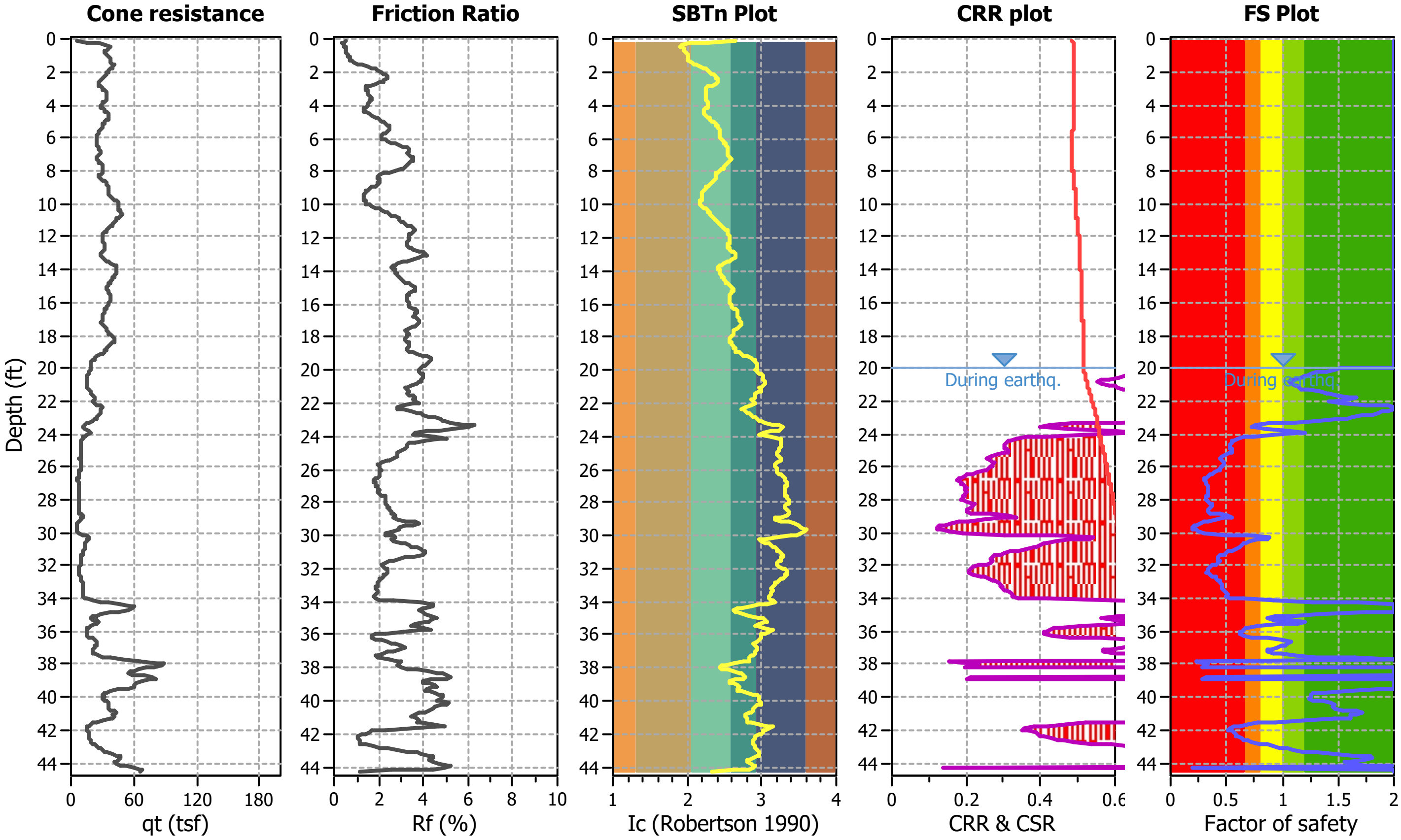
LIQUEFACTION ANALYSIS REPORT

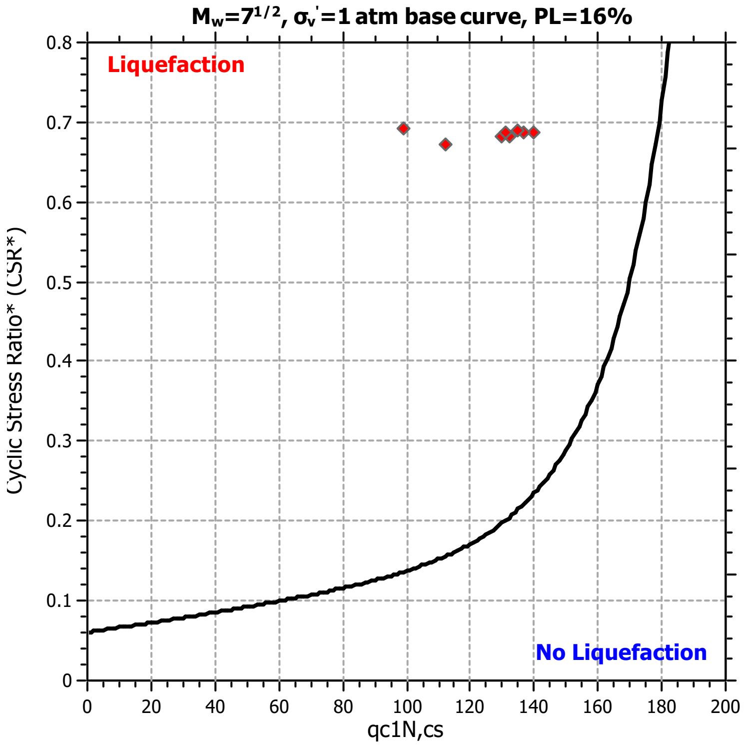
Project title : Silver Creek Data Center **Location : San Jose, CA**

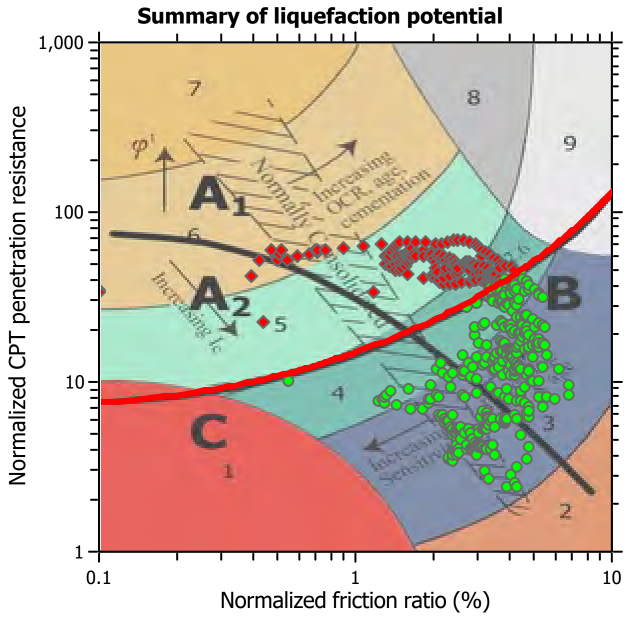
CPT file : CPT-03

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	23.30 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

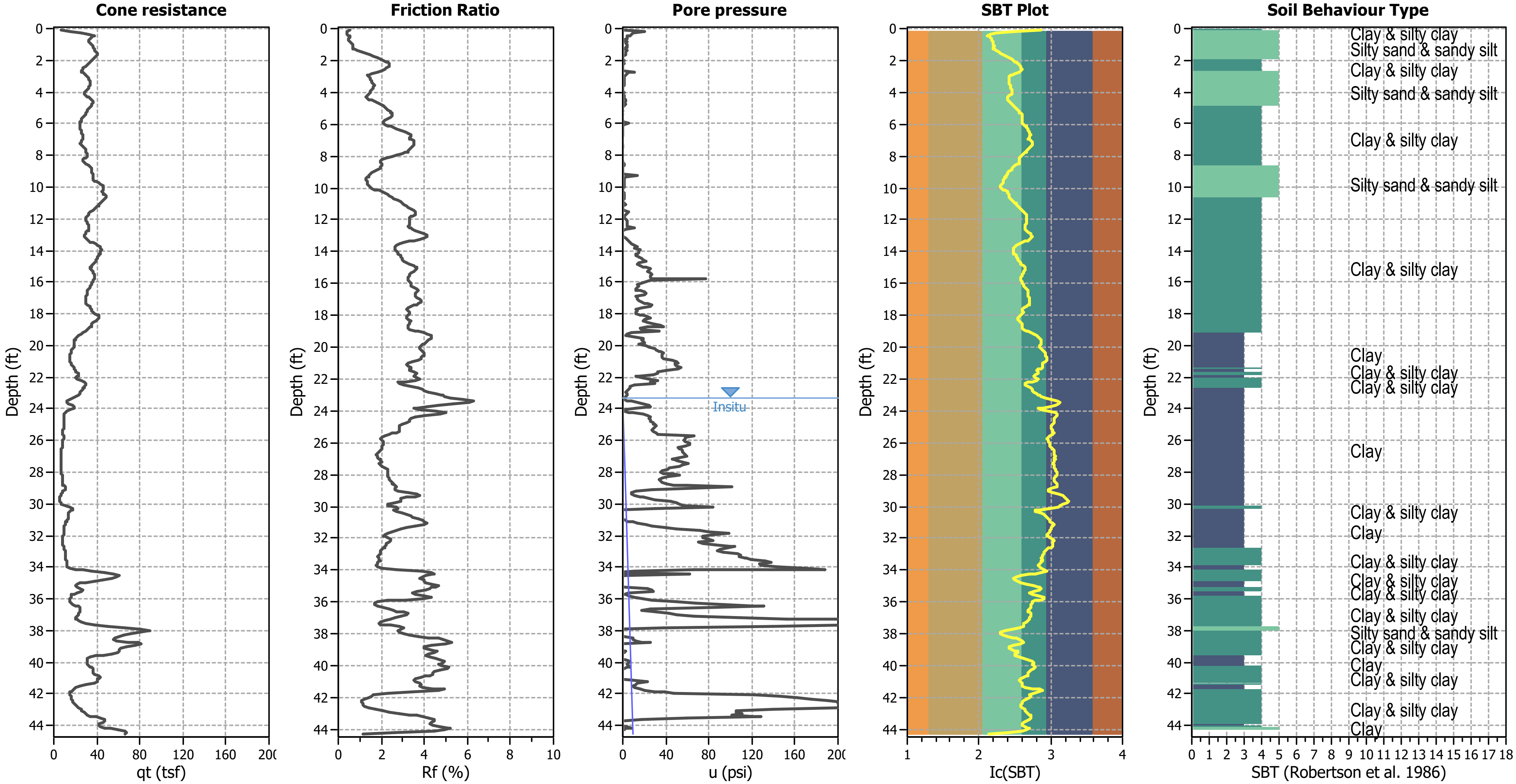






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



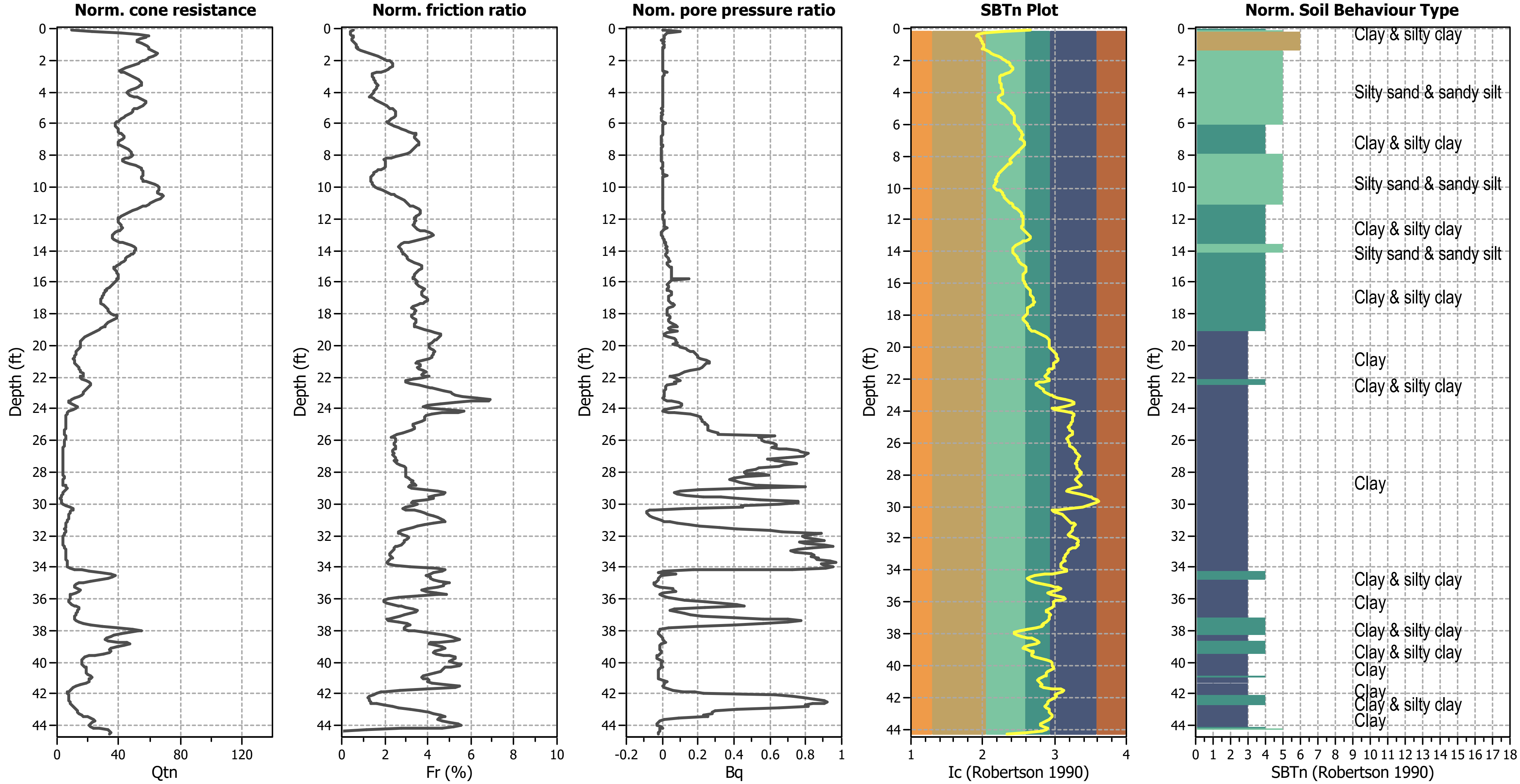
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

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)



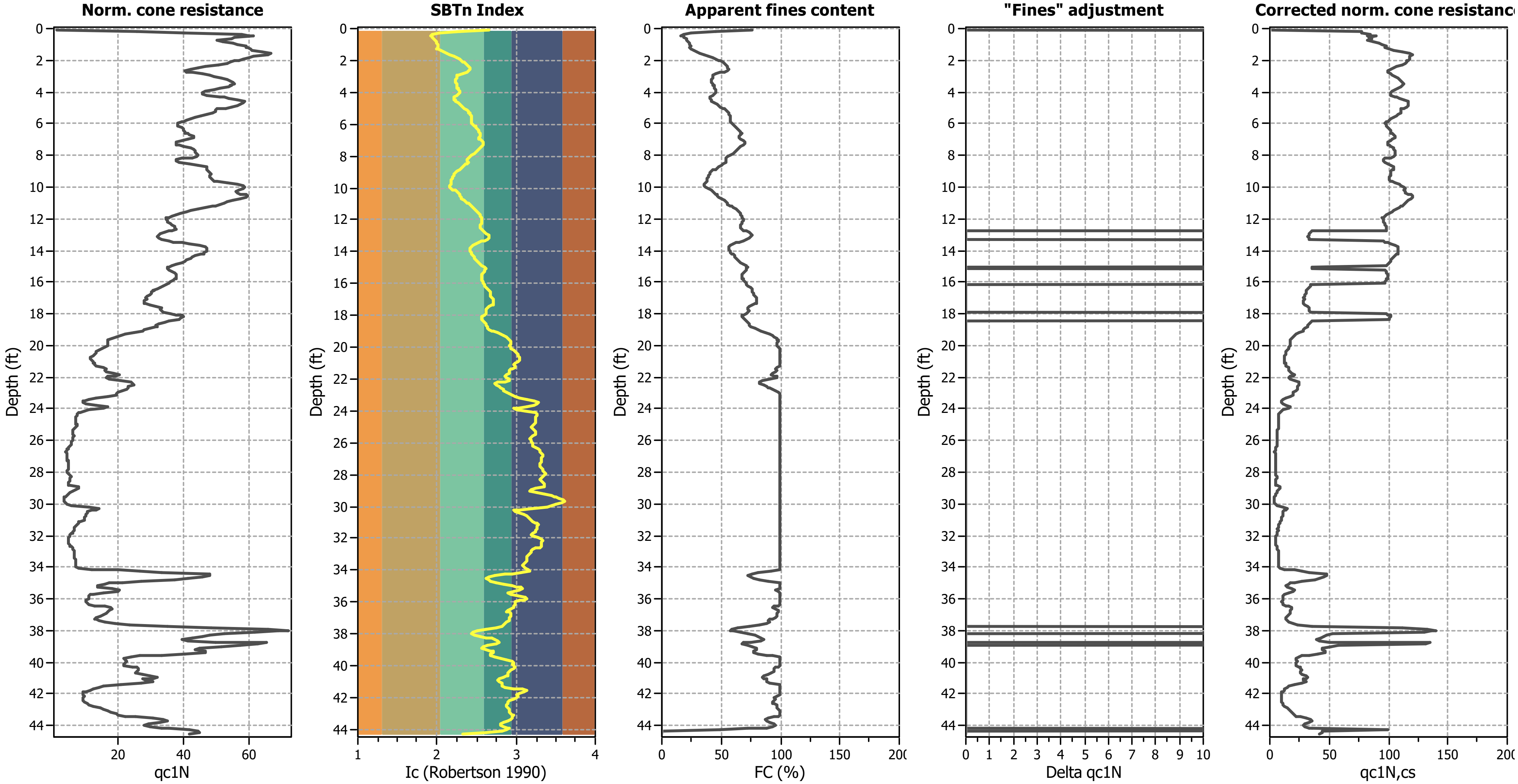
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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

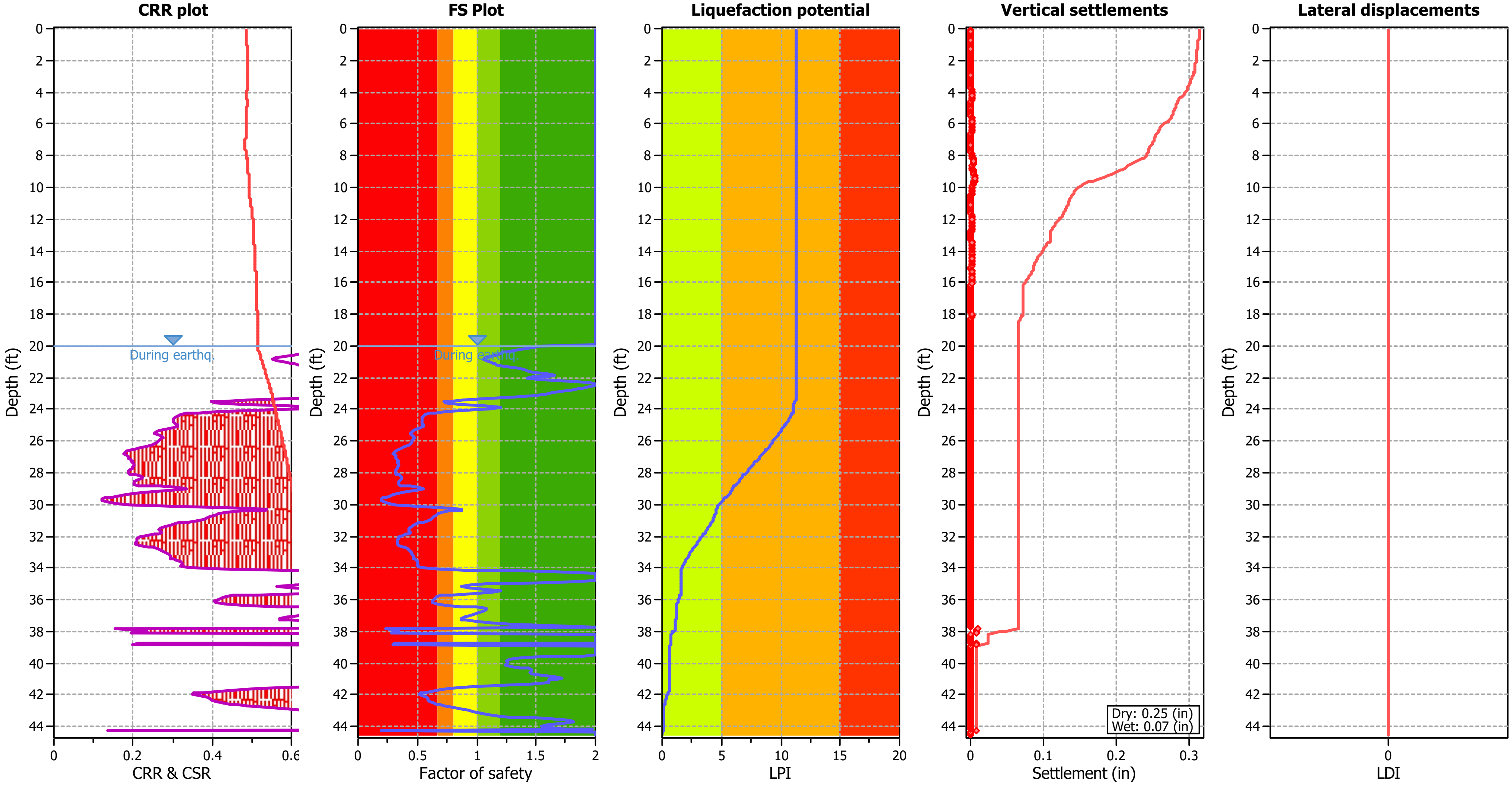
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

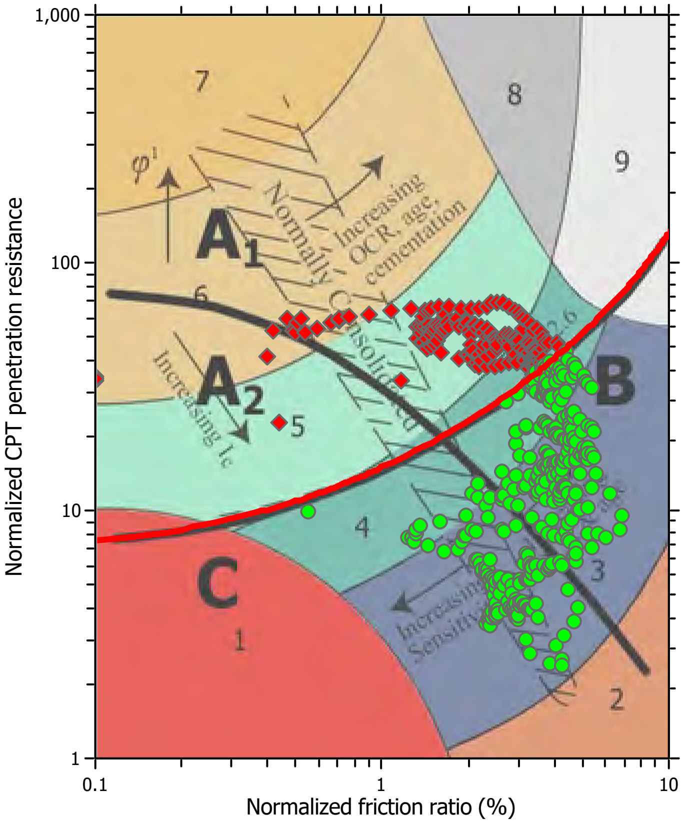
F.S. color scheme

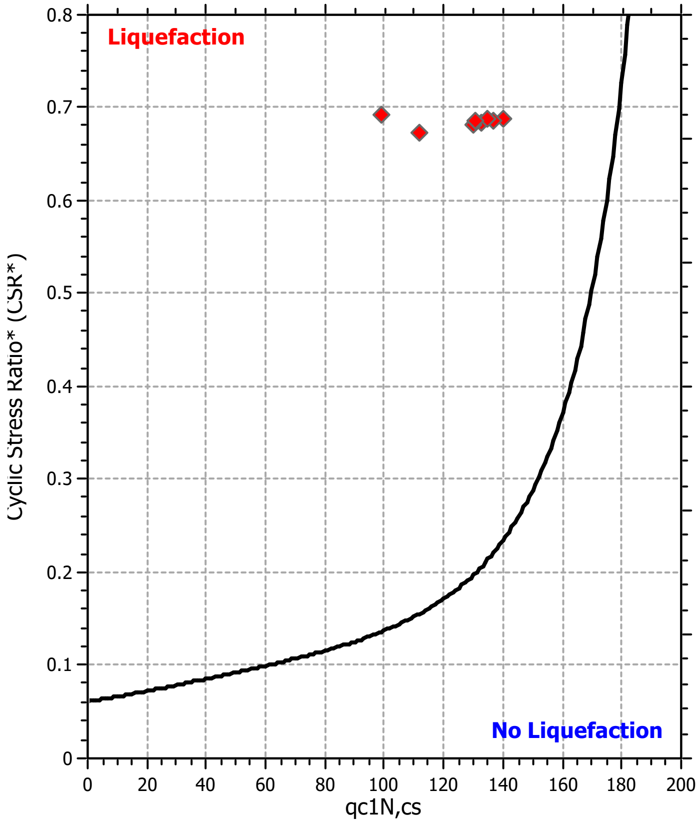
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

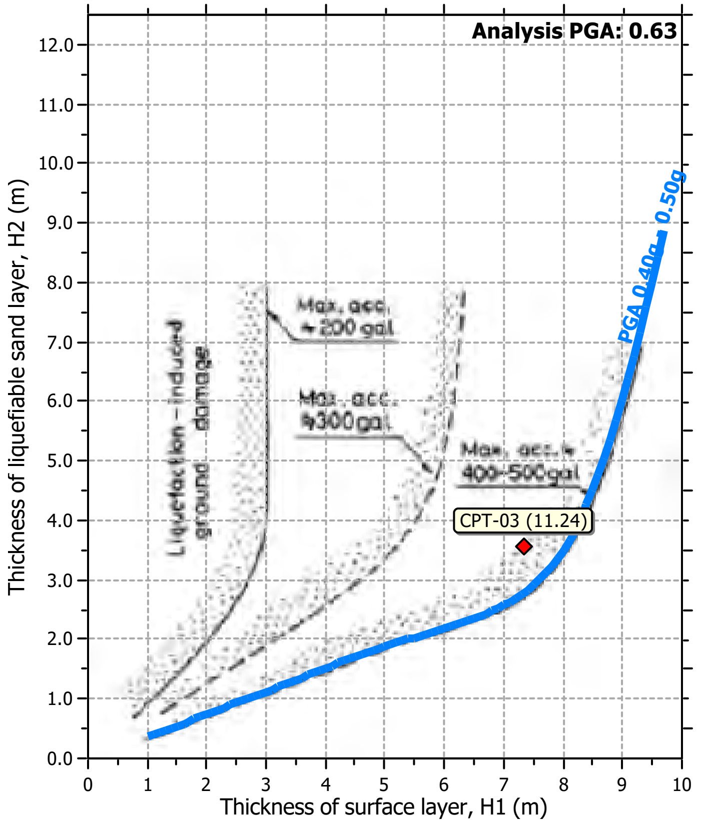
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



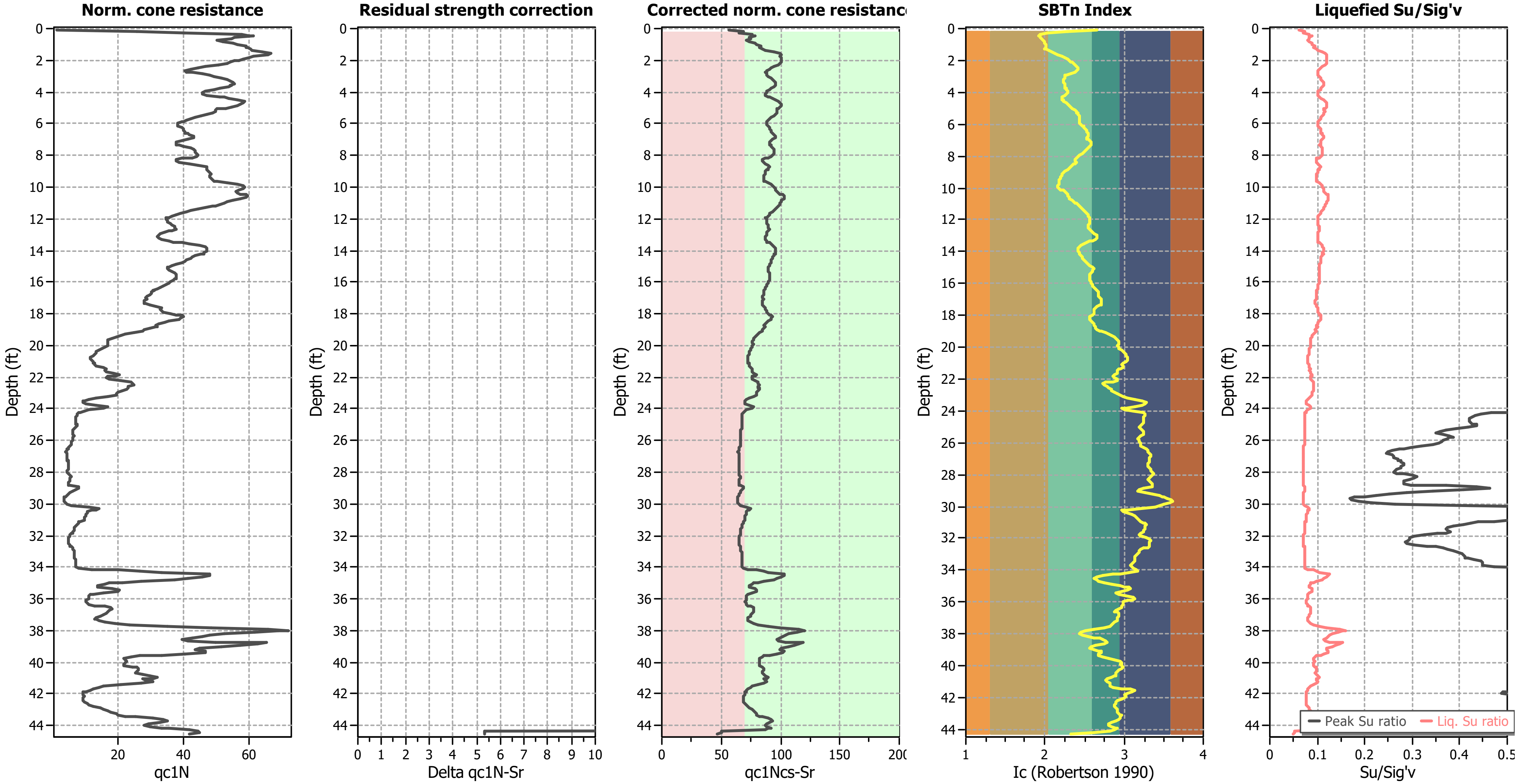




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.30 ft	Fill height:	N/A	Limit depth:	N/A

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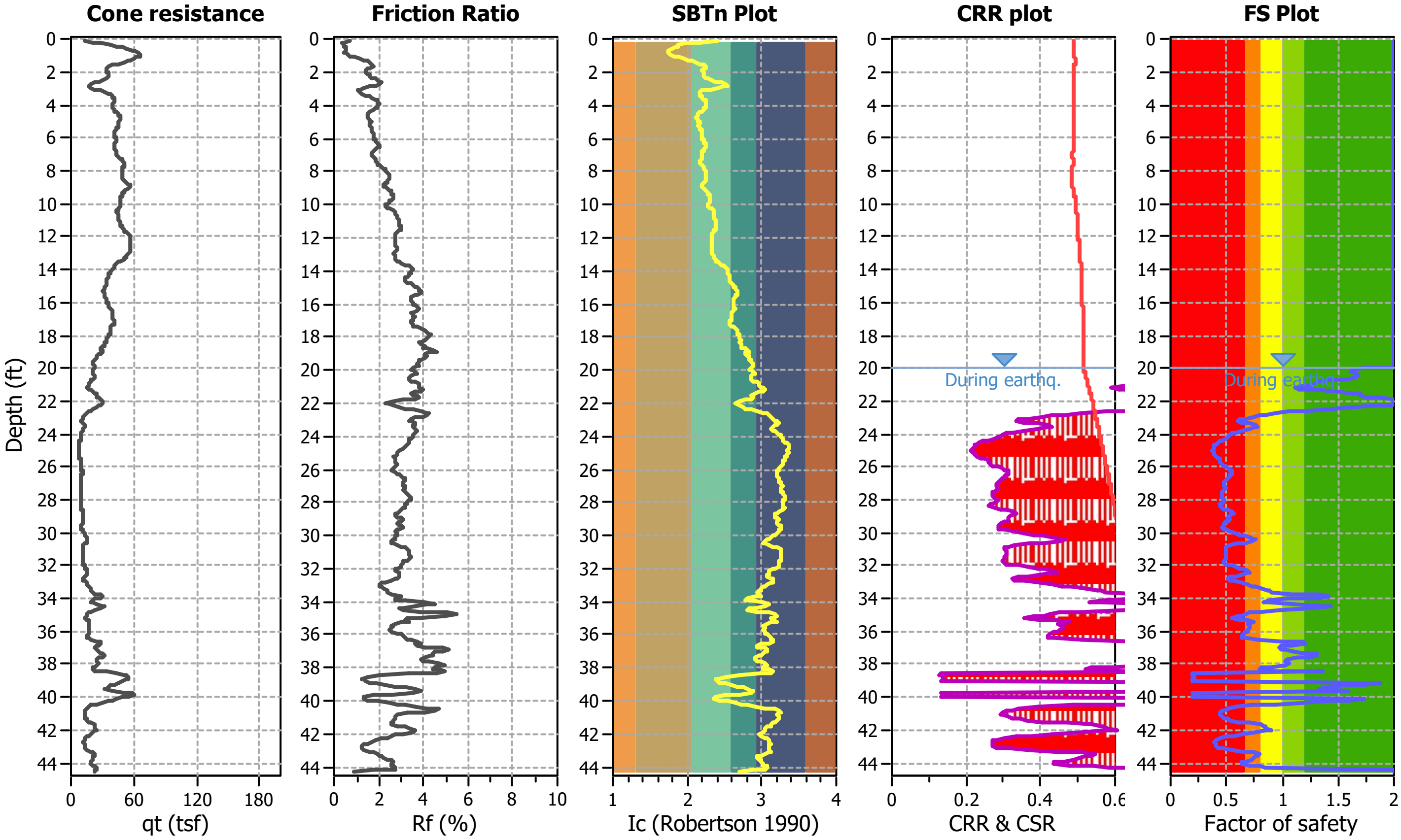
LIQUEFACTION ANALYSIS REPORT

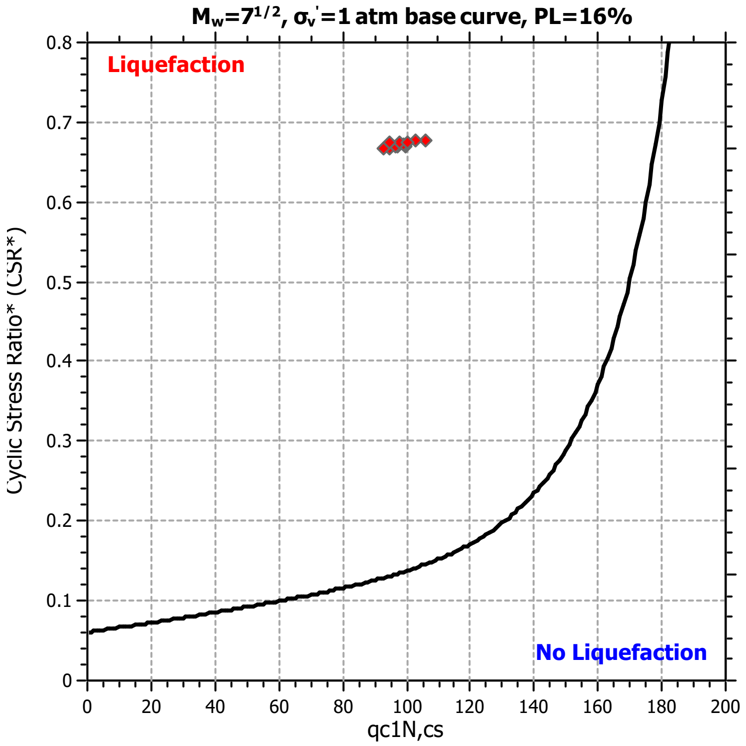
Project title : Silver Creek Data Center **Location : San Jose, CA**

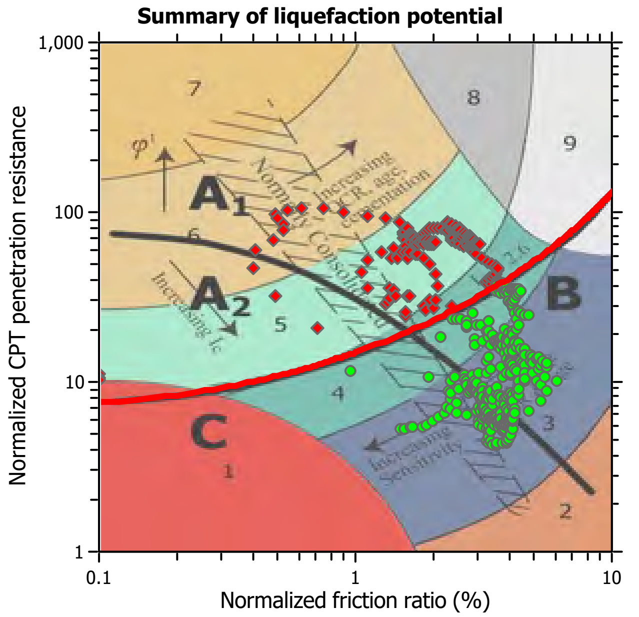
CPT file : SCPT-04

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	23.80 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

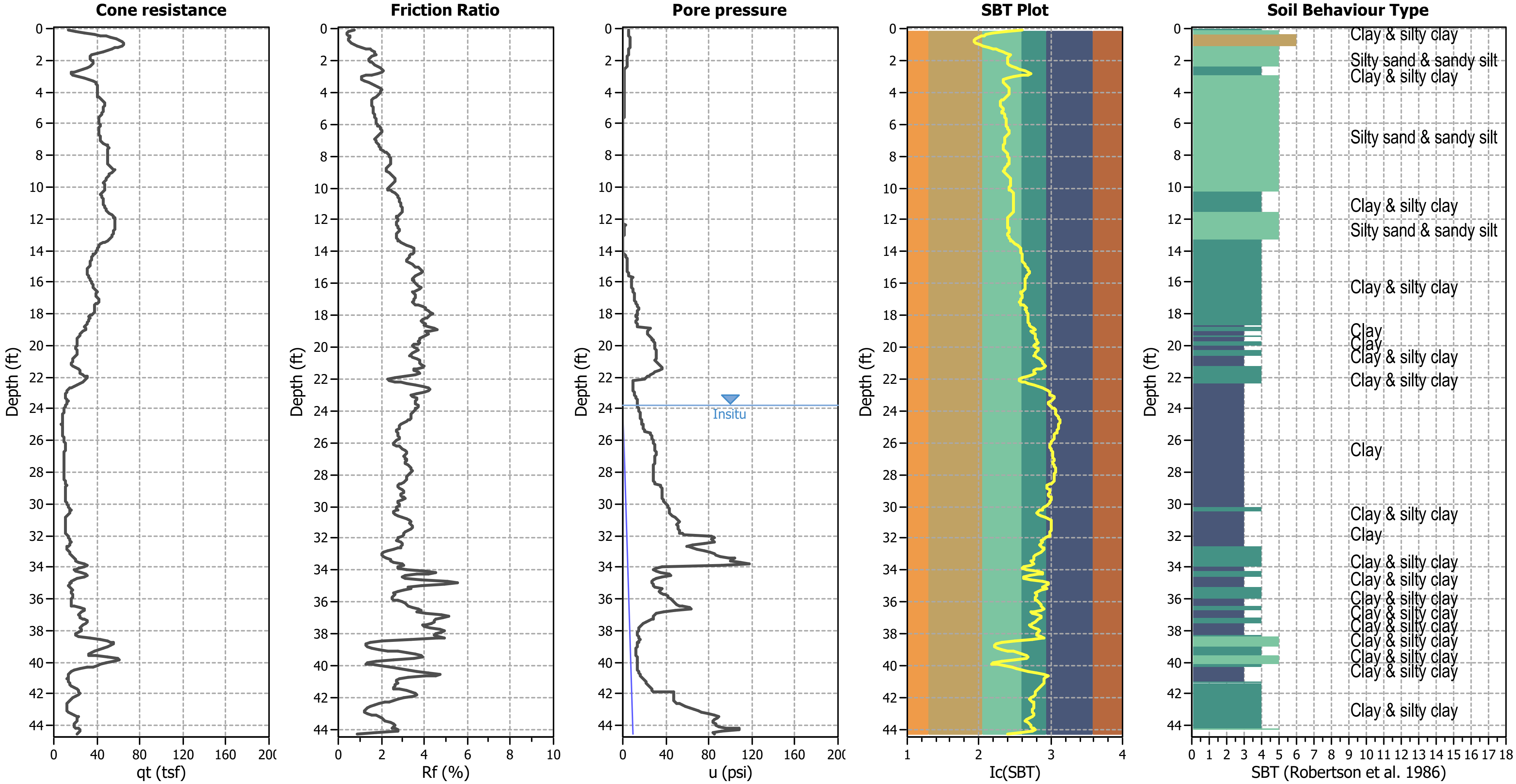






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



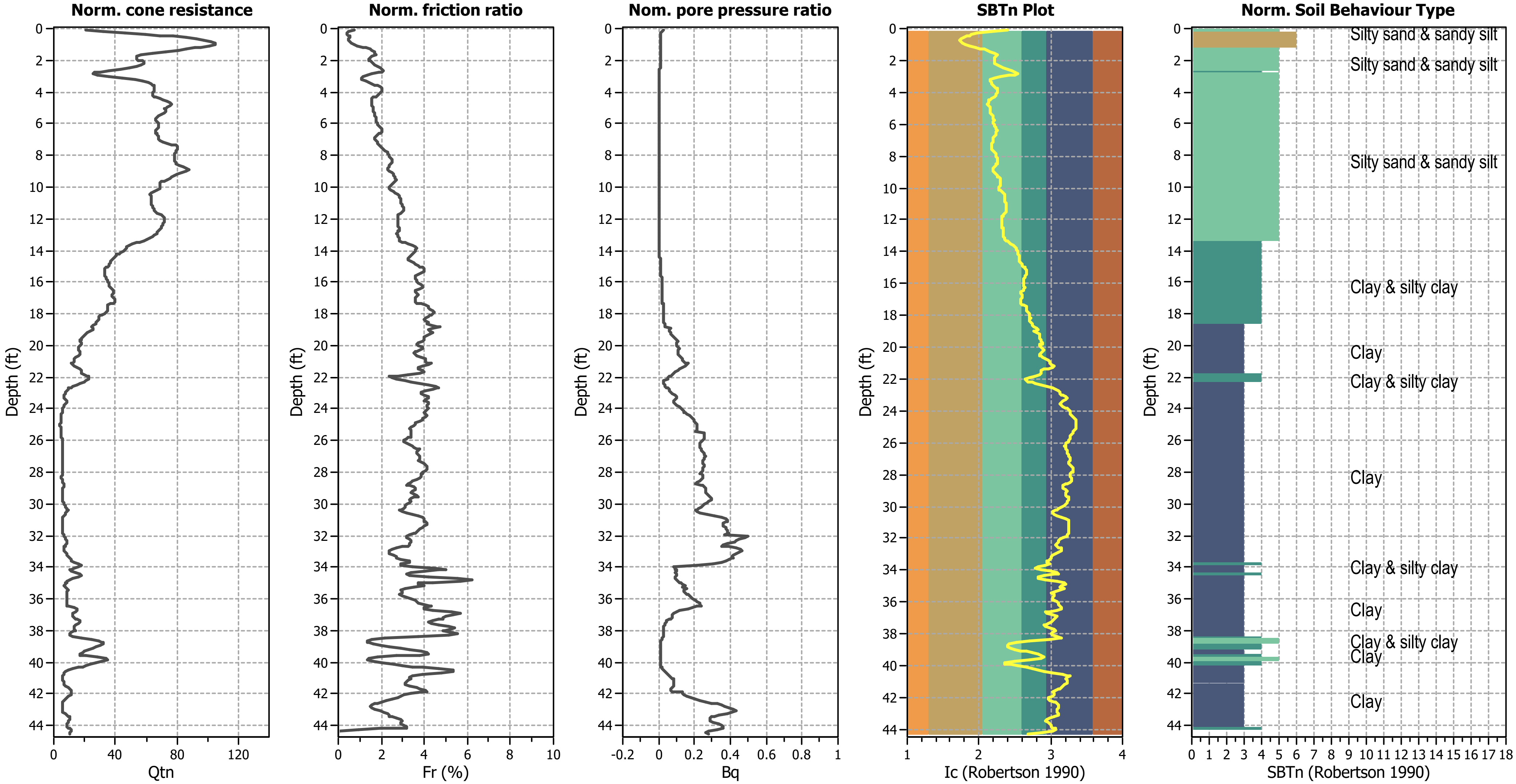
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

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)



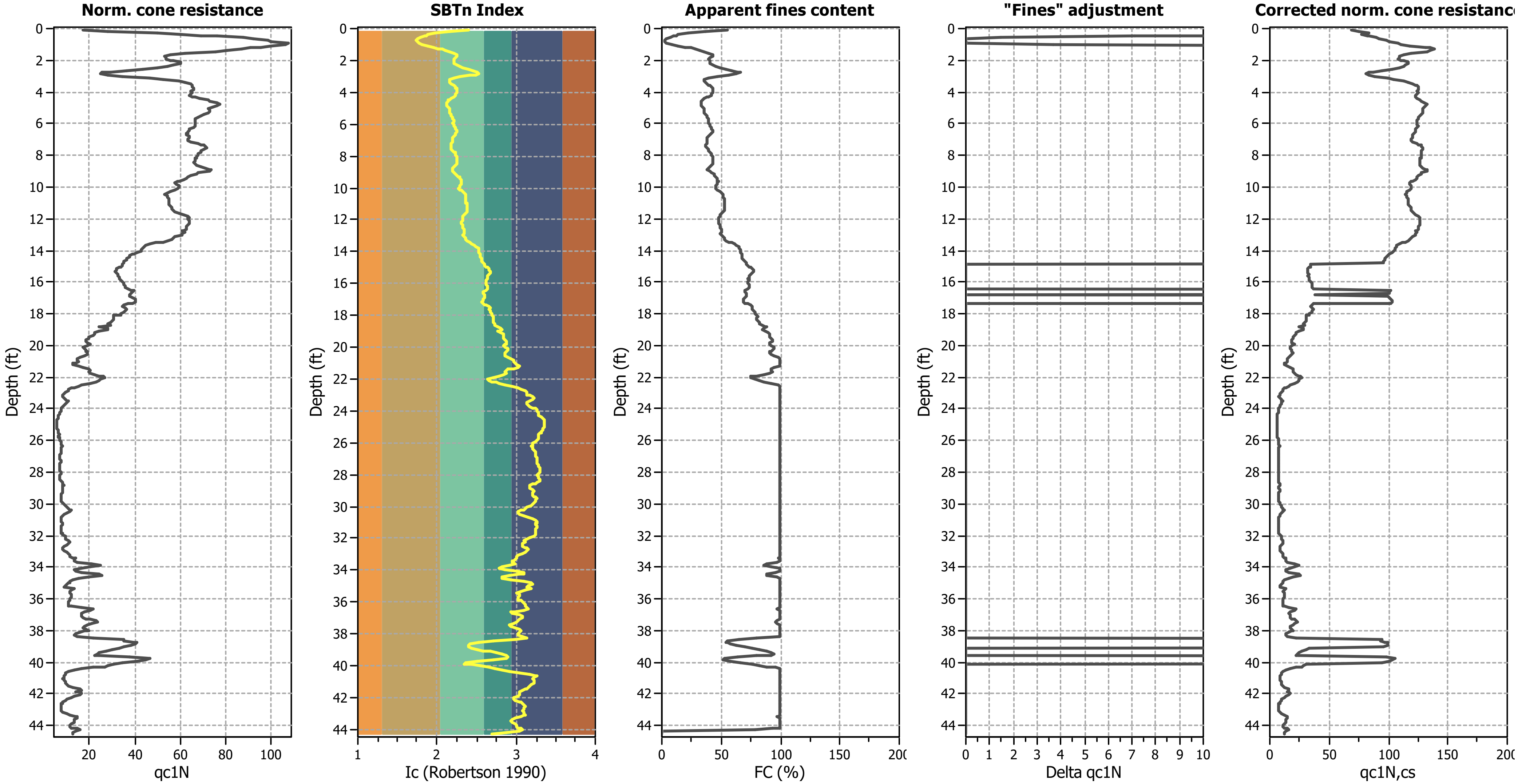
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

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

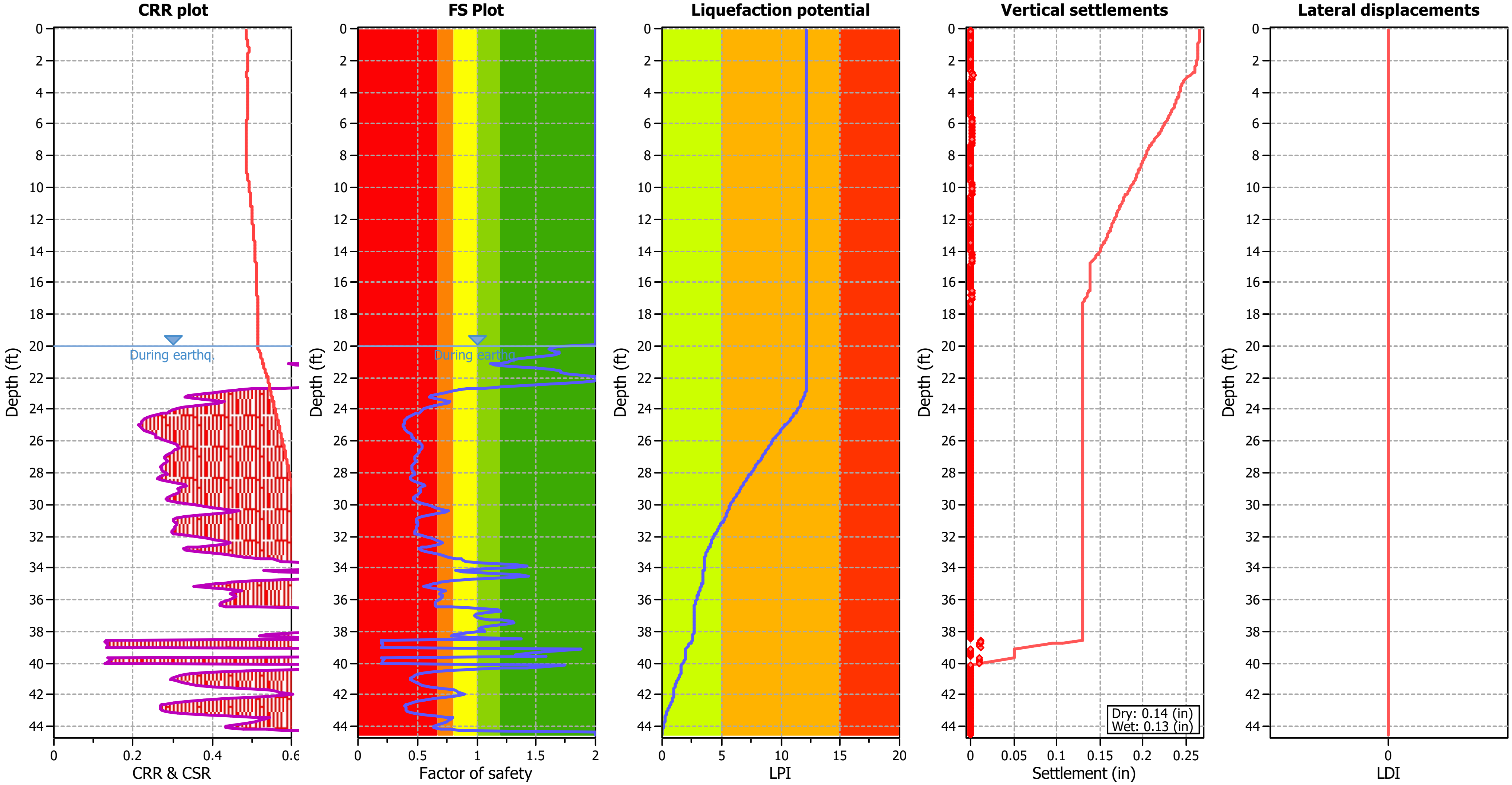
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_{σ} applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

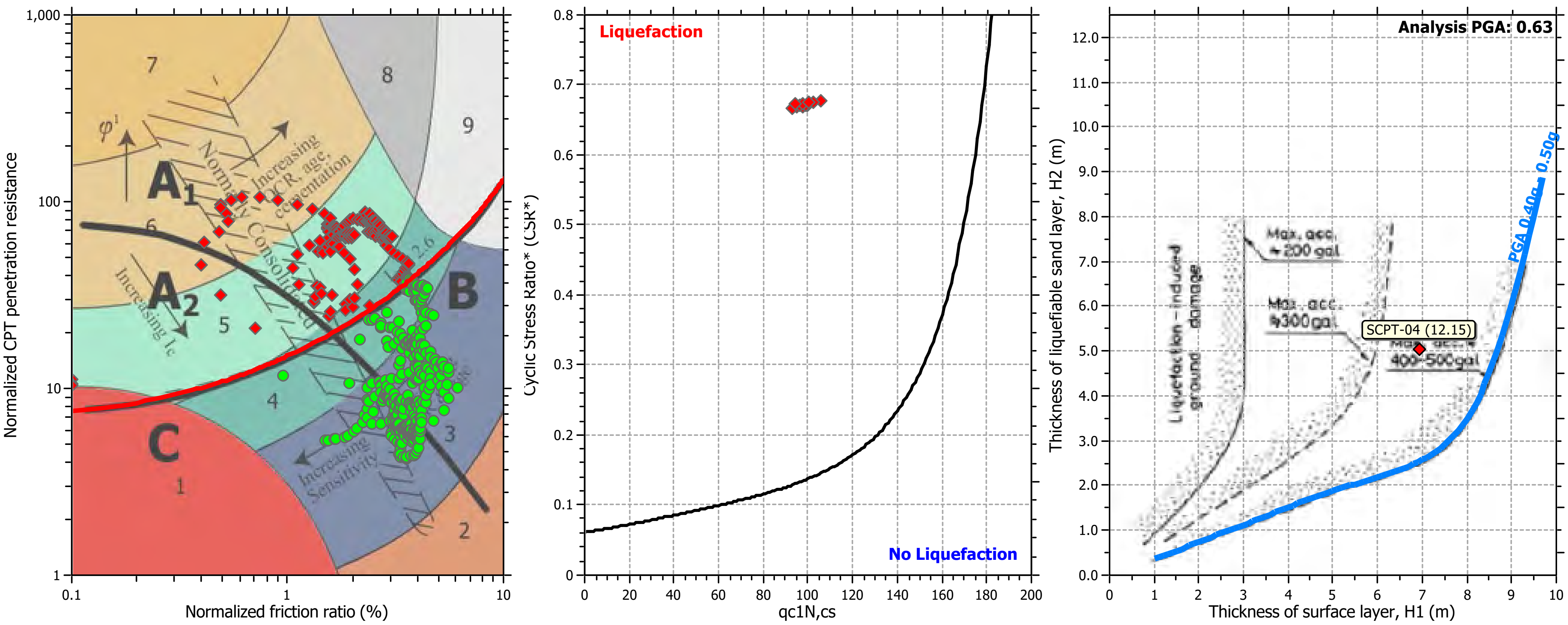
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

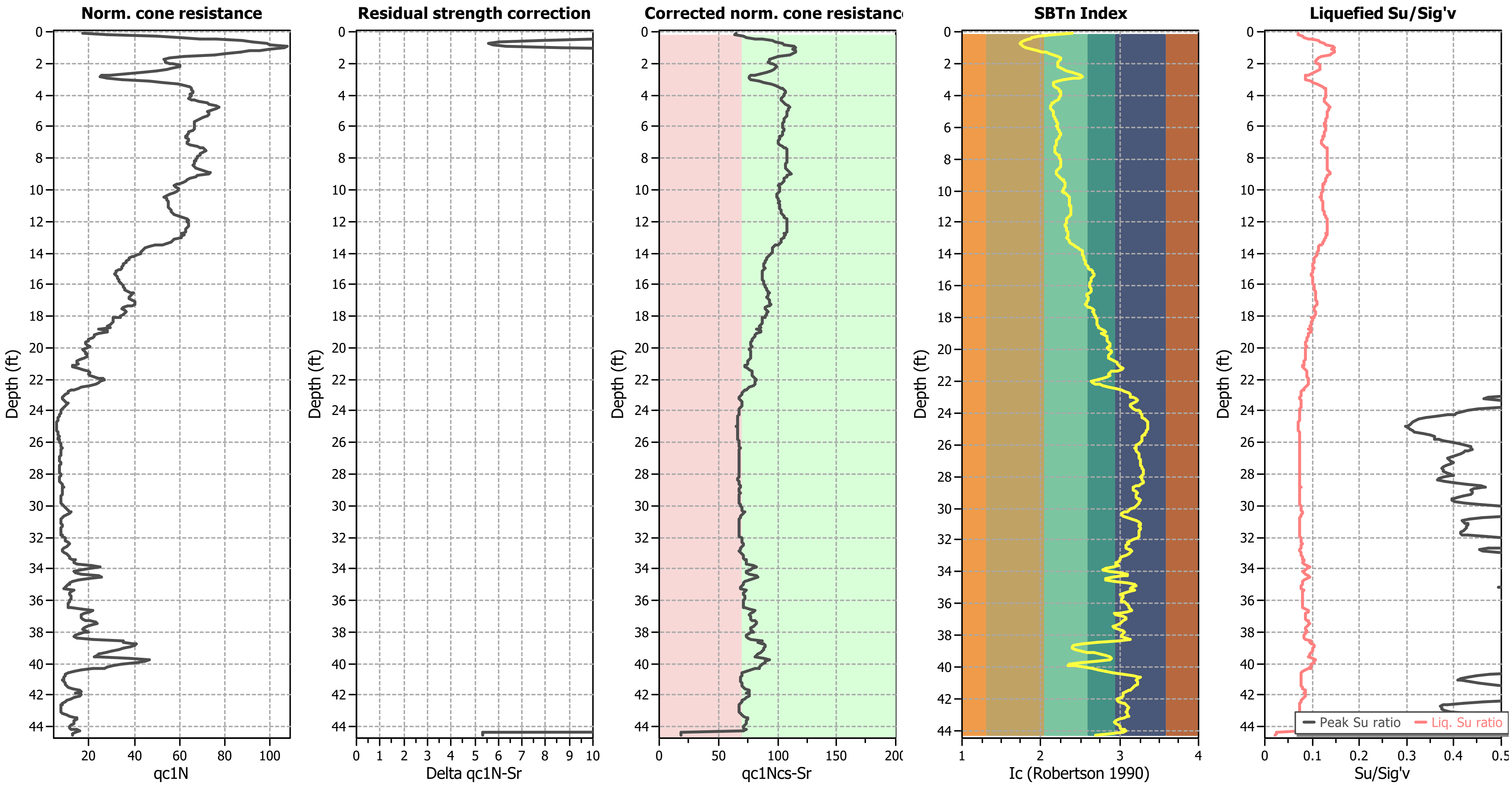
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	23.80 ft	Fill height:	N/A	Limit depth:	N/A

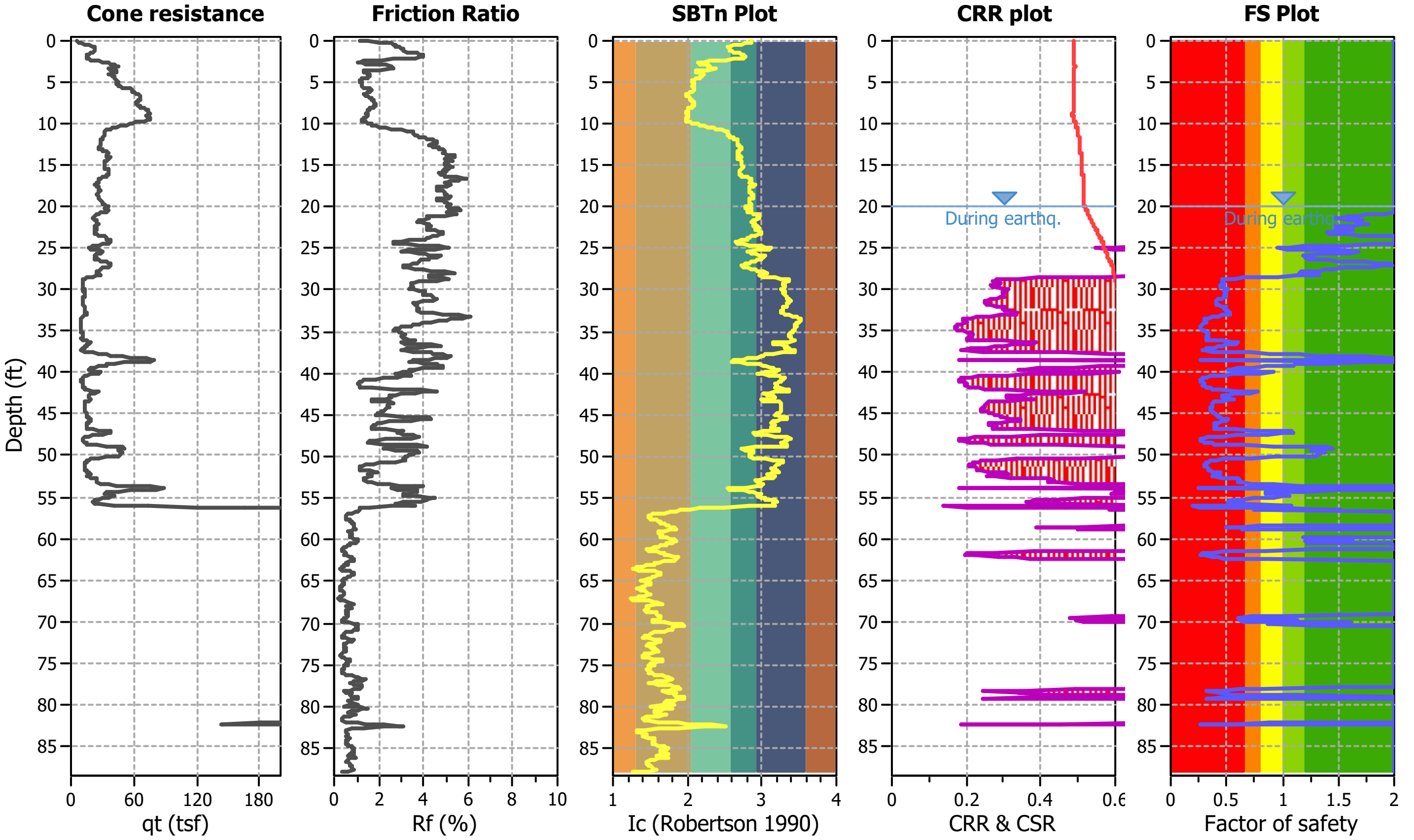
LIQUEFACTION ANALYSIS REPORT

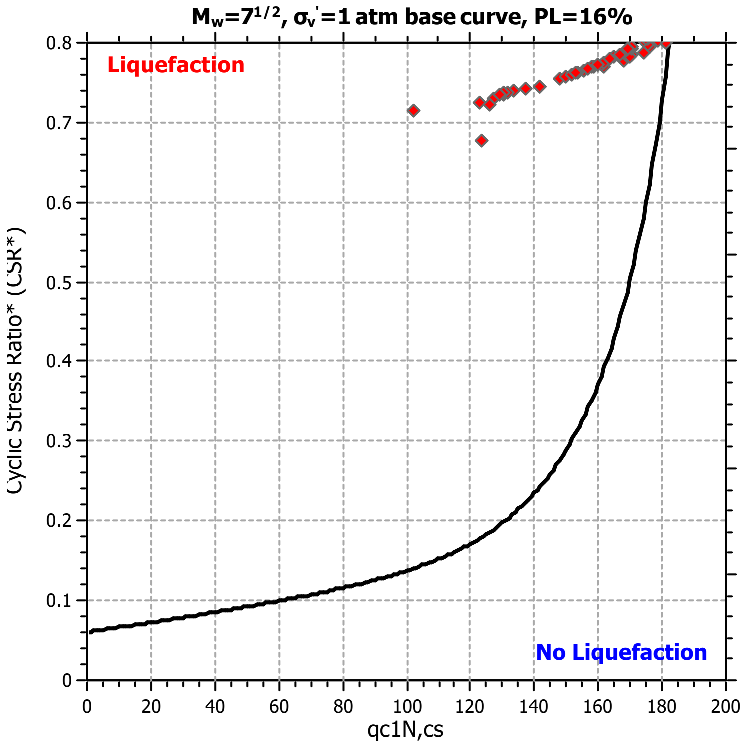
Project title : Silver Creek Data Center **Location : San Jose, CA**

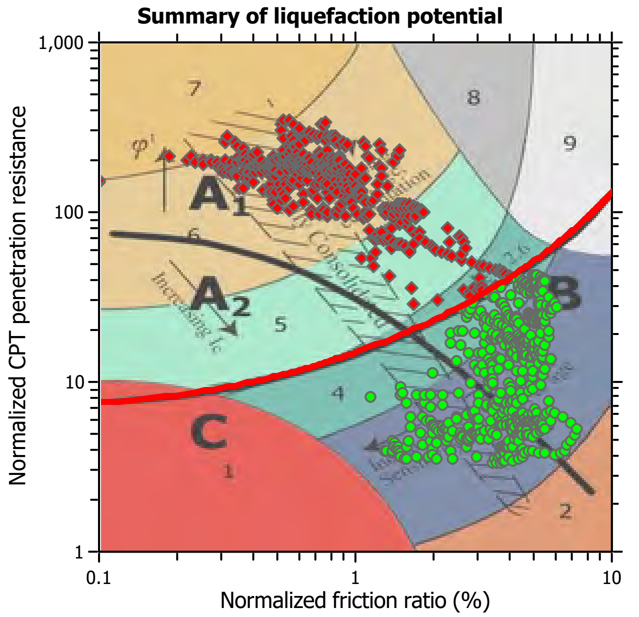
CPT file : SCPT05

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	36.10 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.60	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

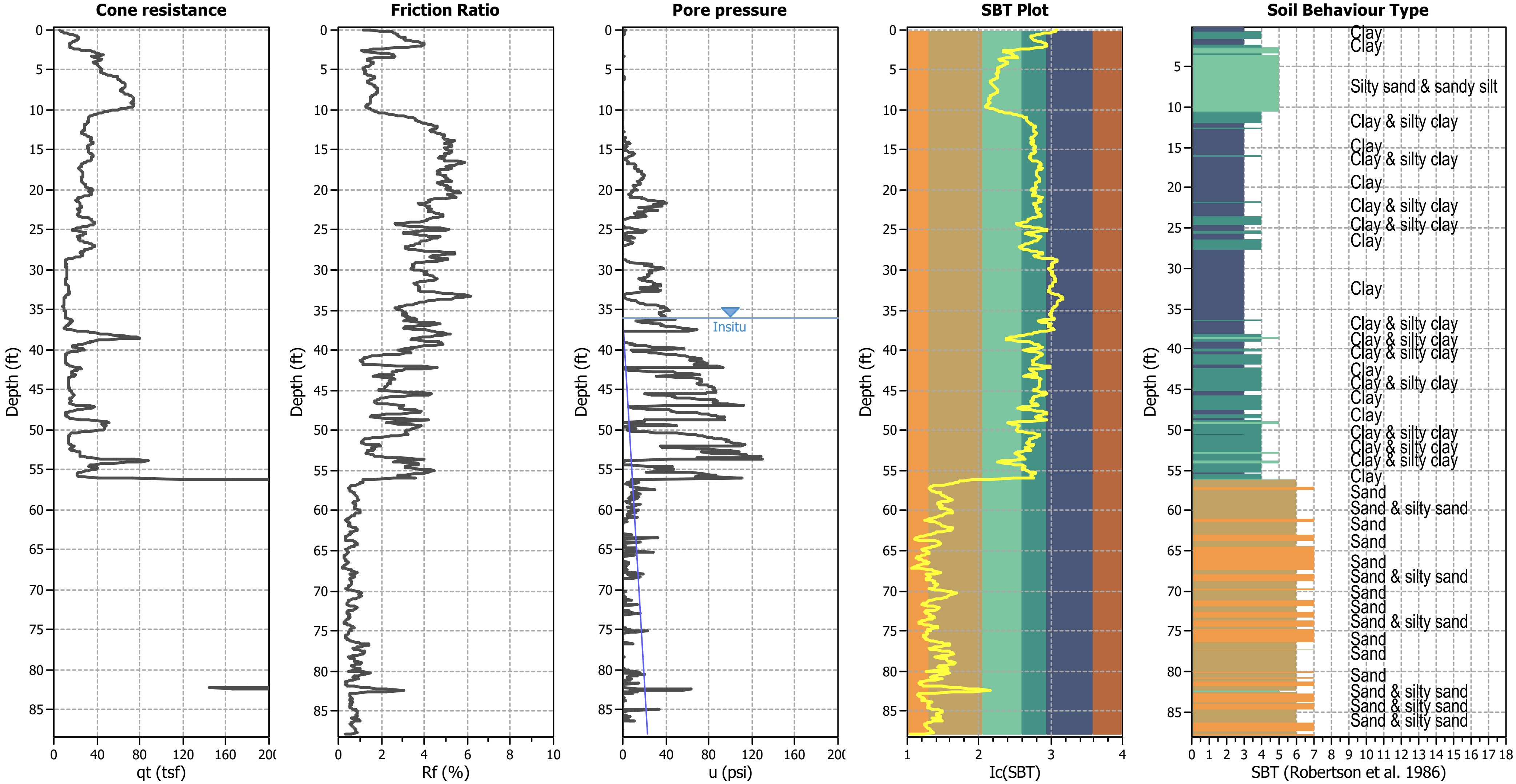






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



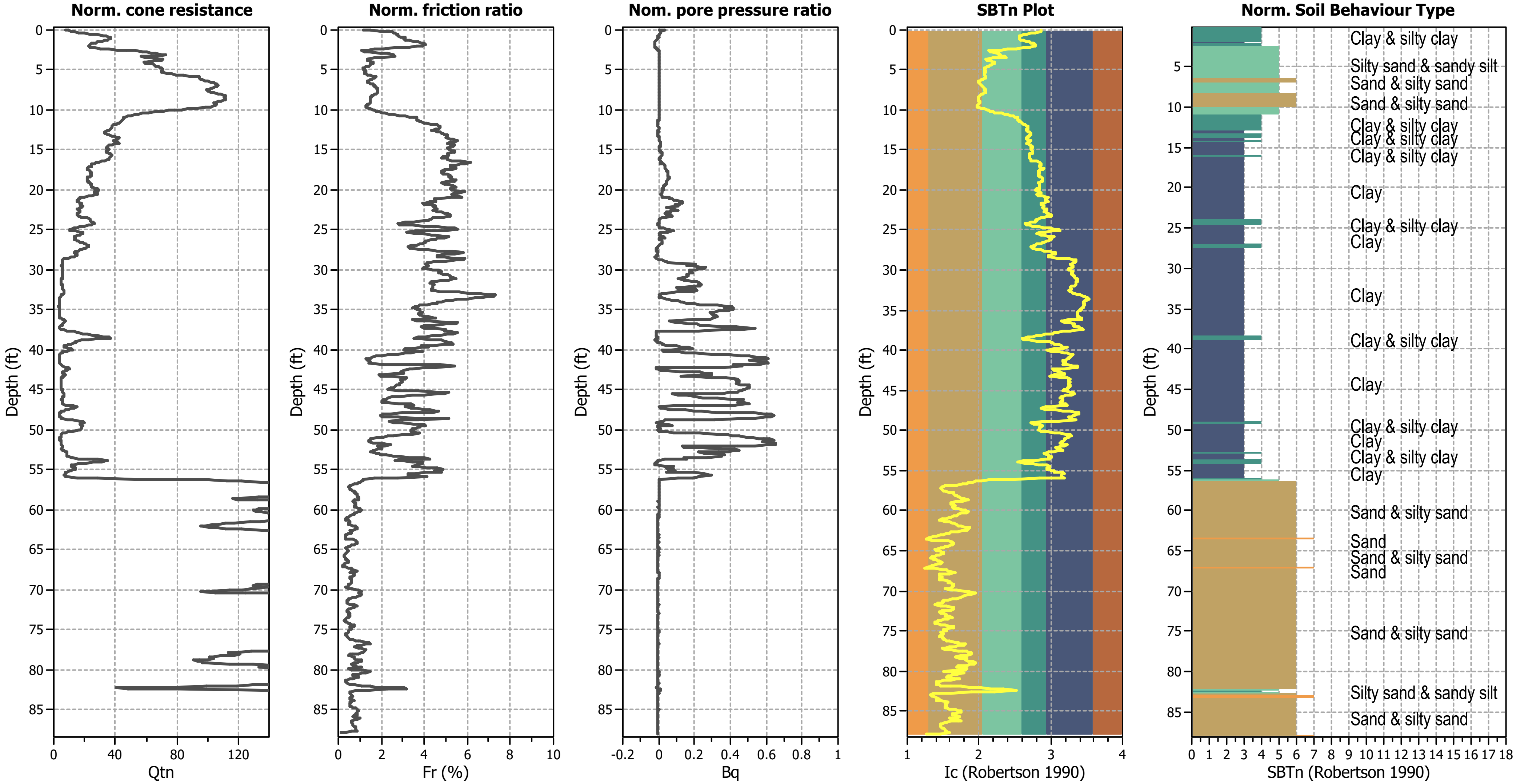
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

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

CPT basic interpretation plots (normalized)



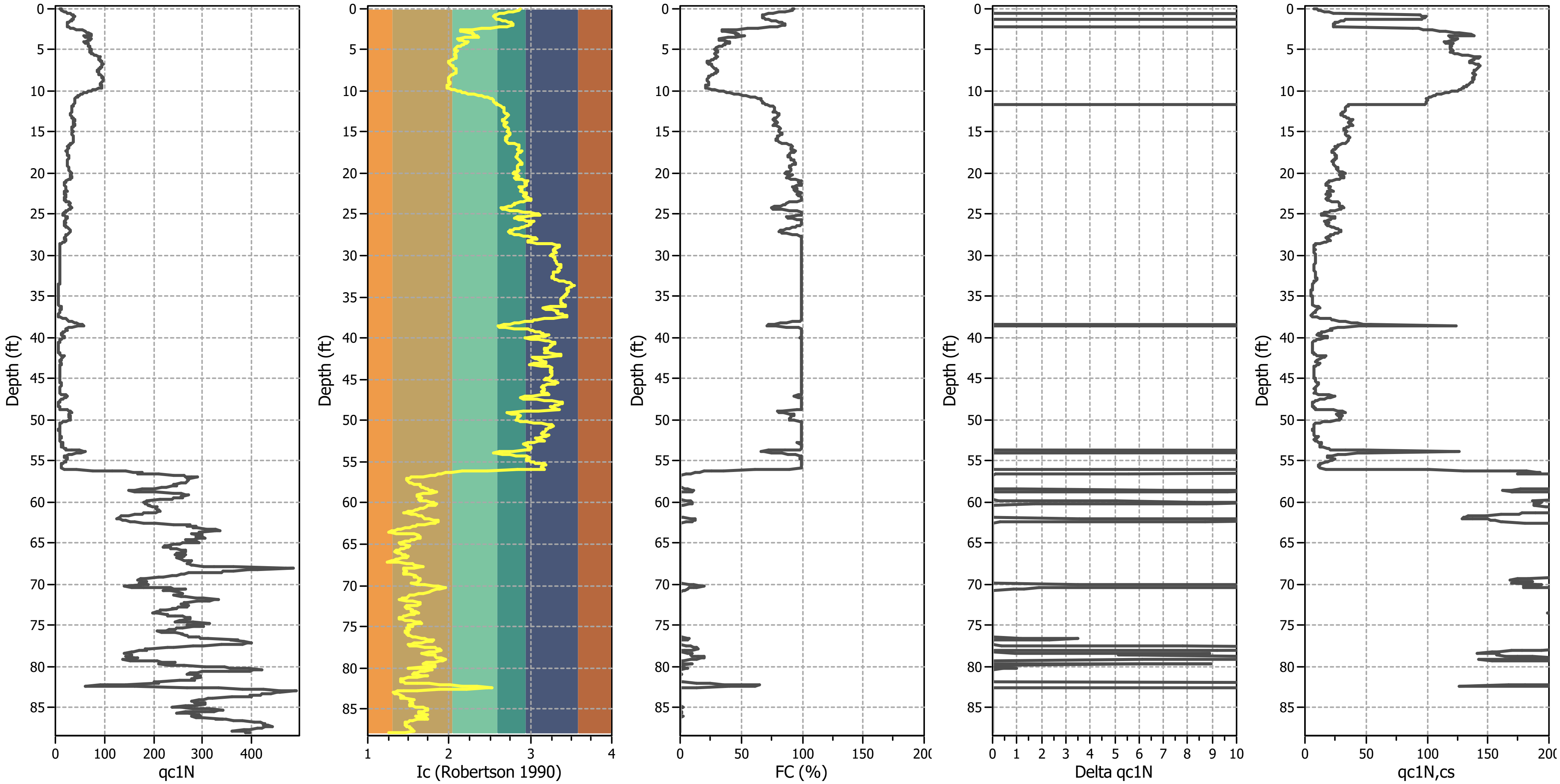
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

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

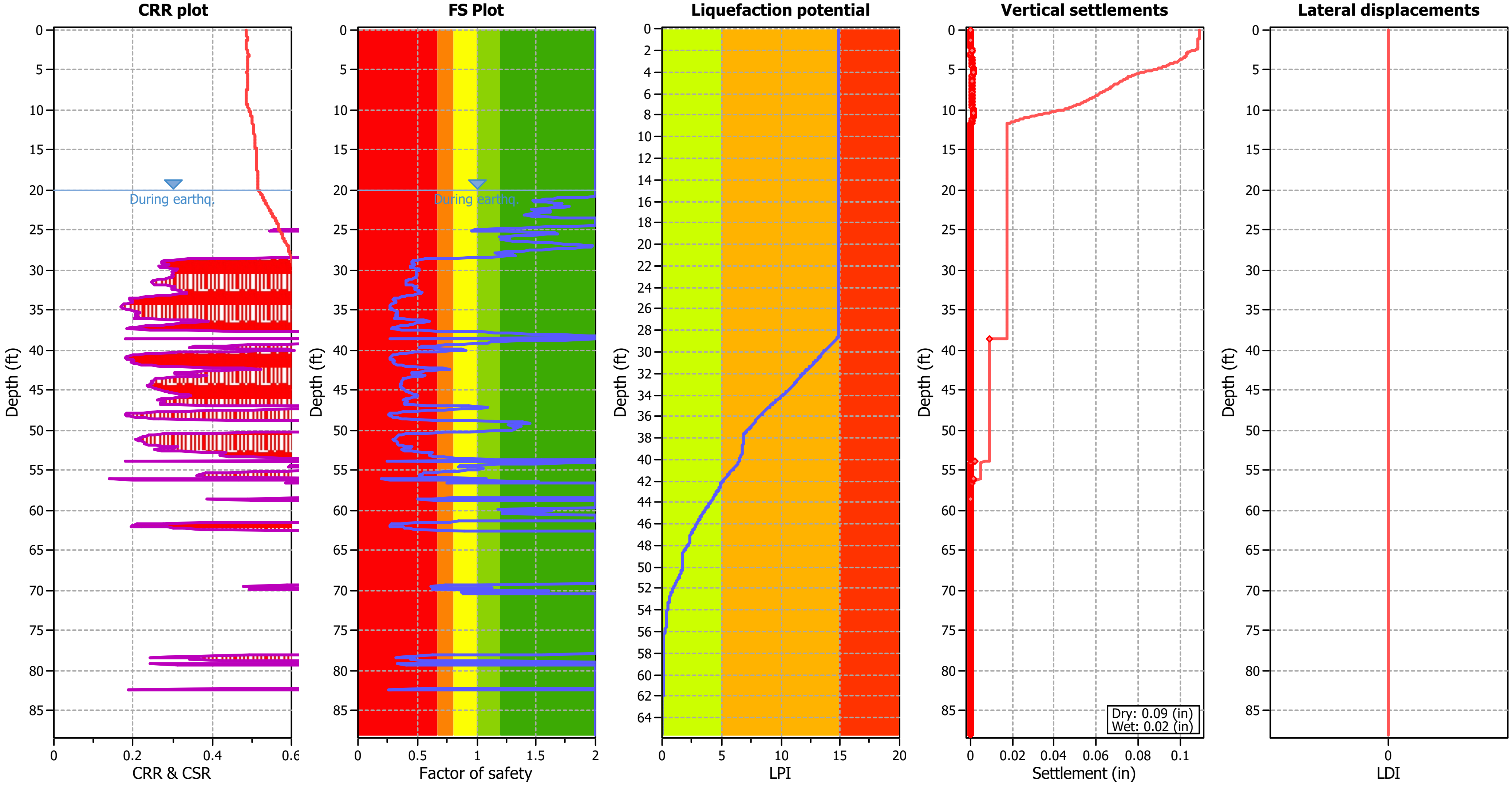
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

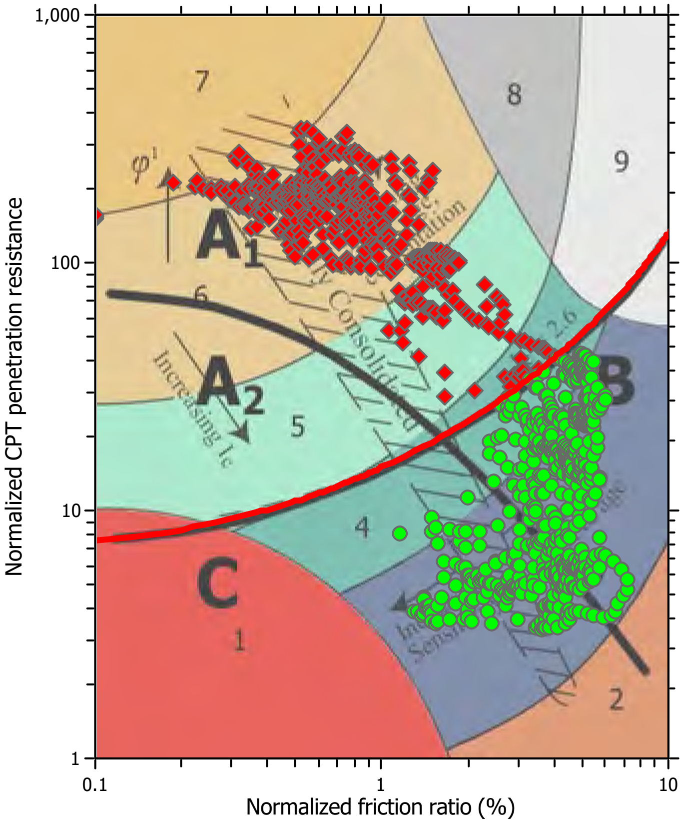
F.S. color scheme

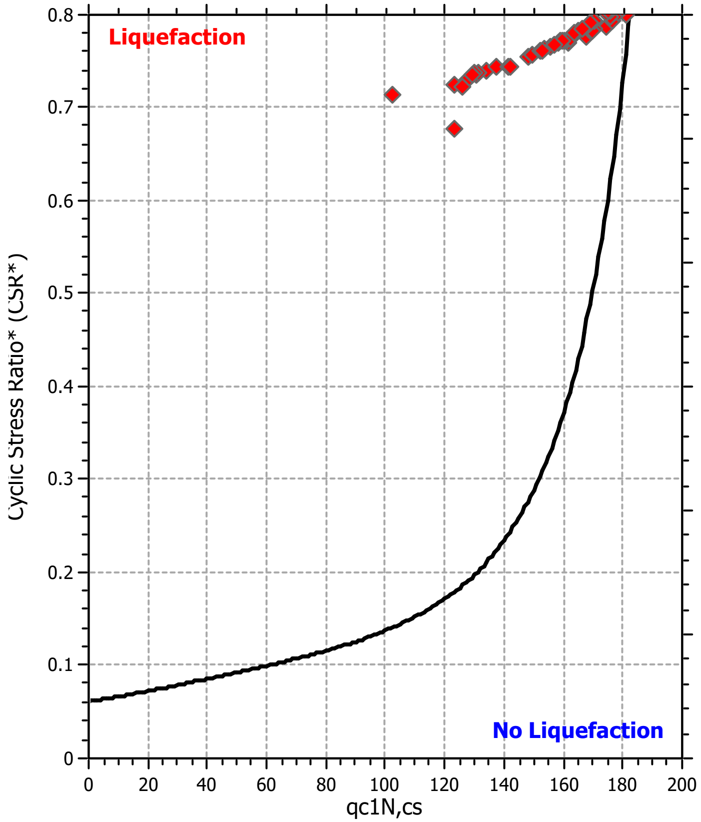
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

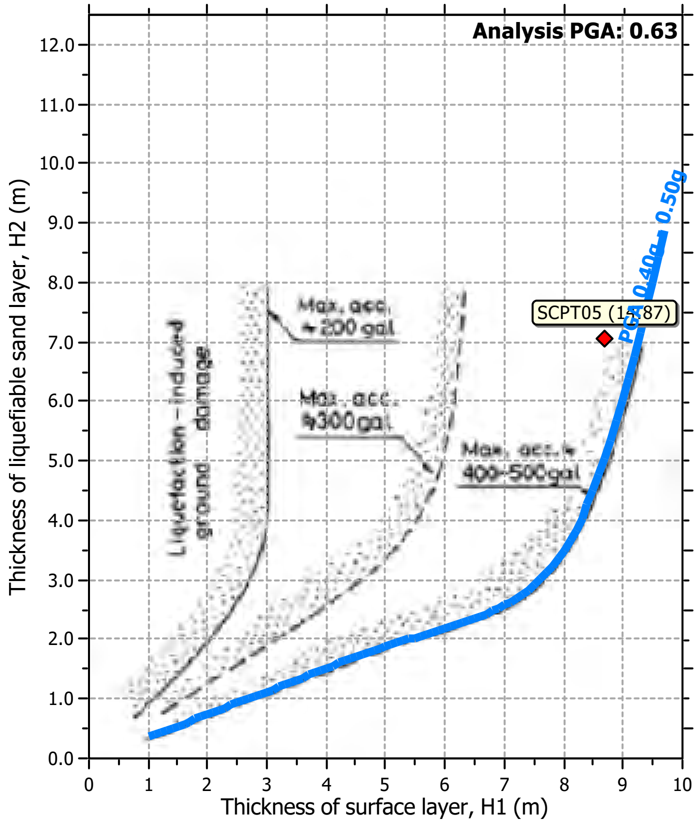
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



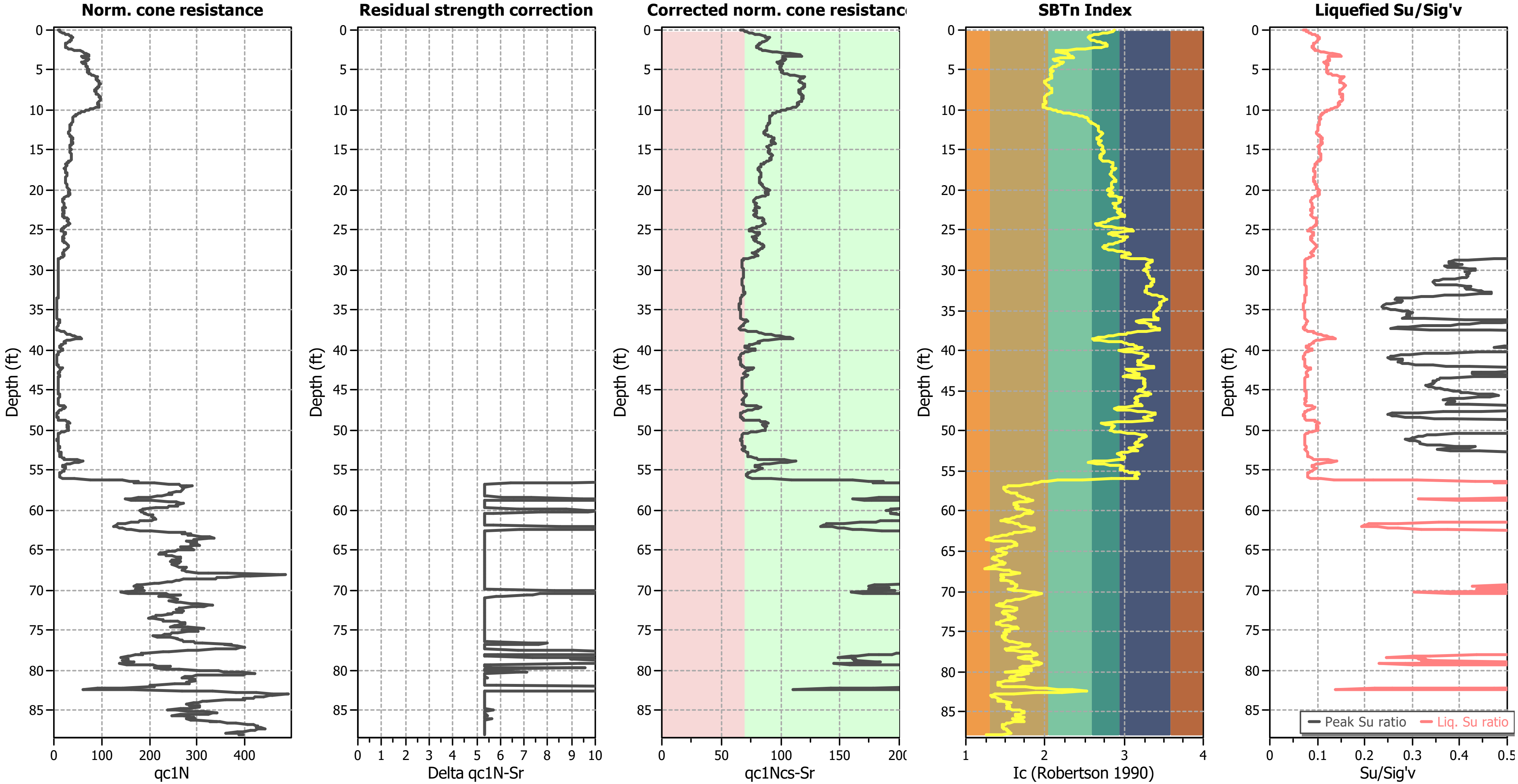




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.60	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	36.10 ft	Fill height:	N/A	Limit depth:	N/A

Kleinfelder
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San Jose, CA 95110
http://www.Kleinfelder.com

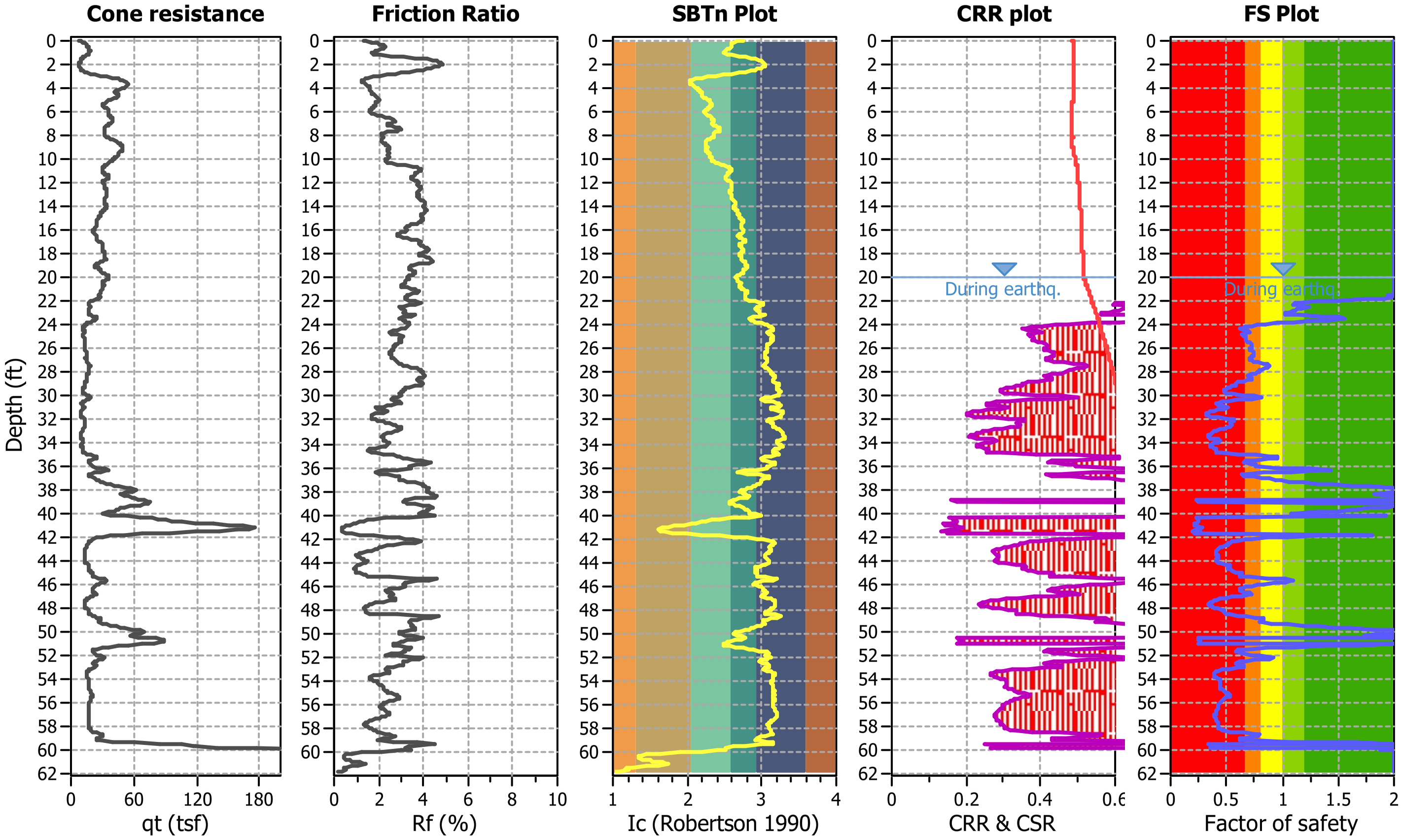
LIQUEFACTION ANALYSIS REPORT

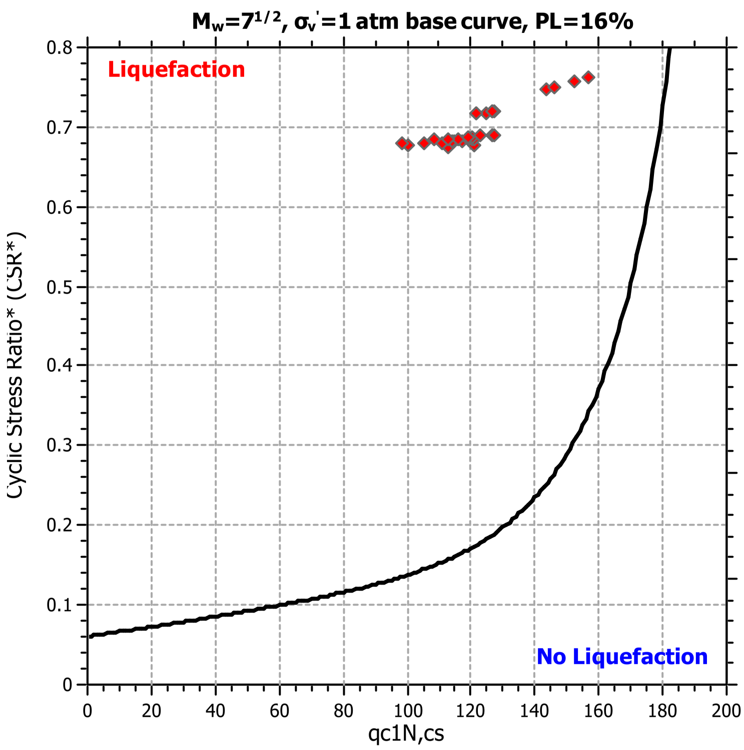
Project title : Silver Creek Data Center **Location : San Jose, CA**

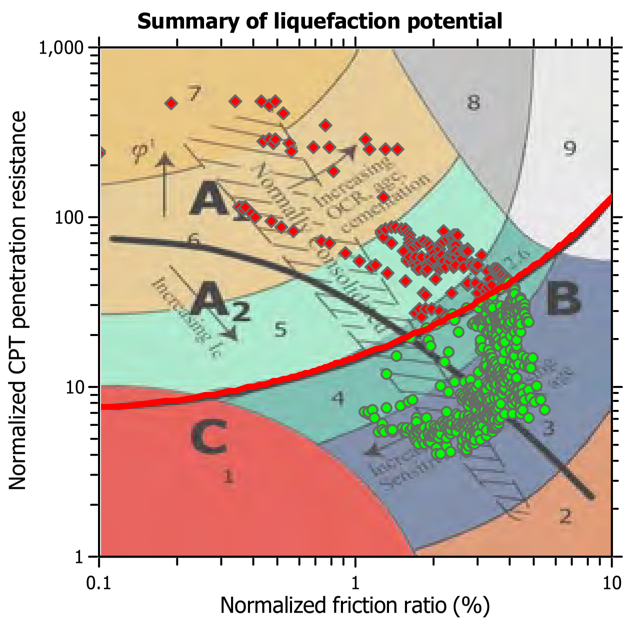
CPT file : SCPT06

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	29.60 ft	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.58	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

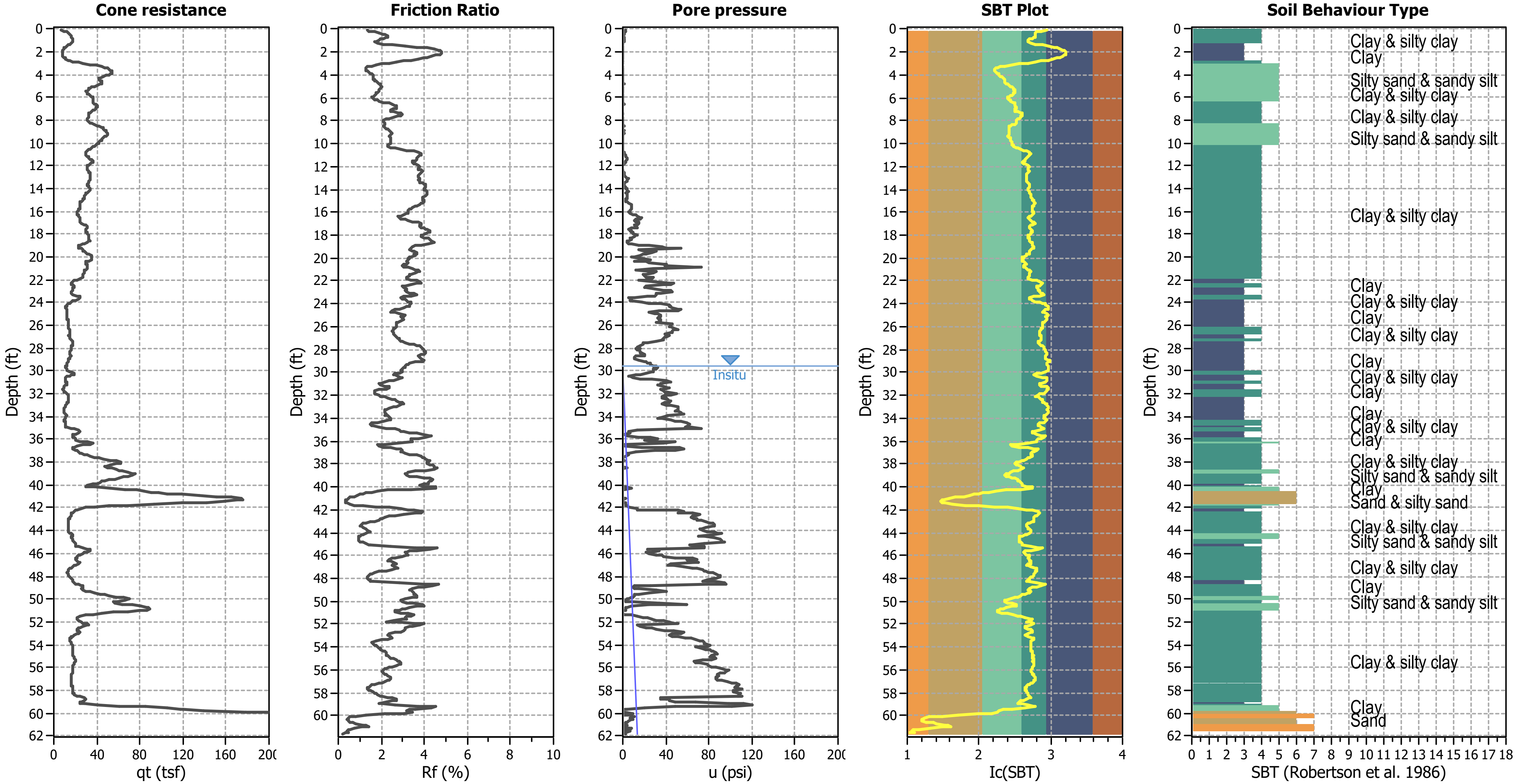






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



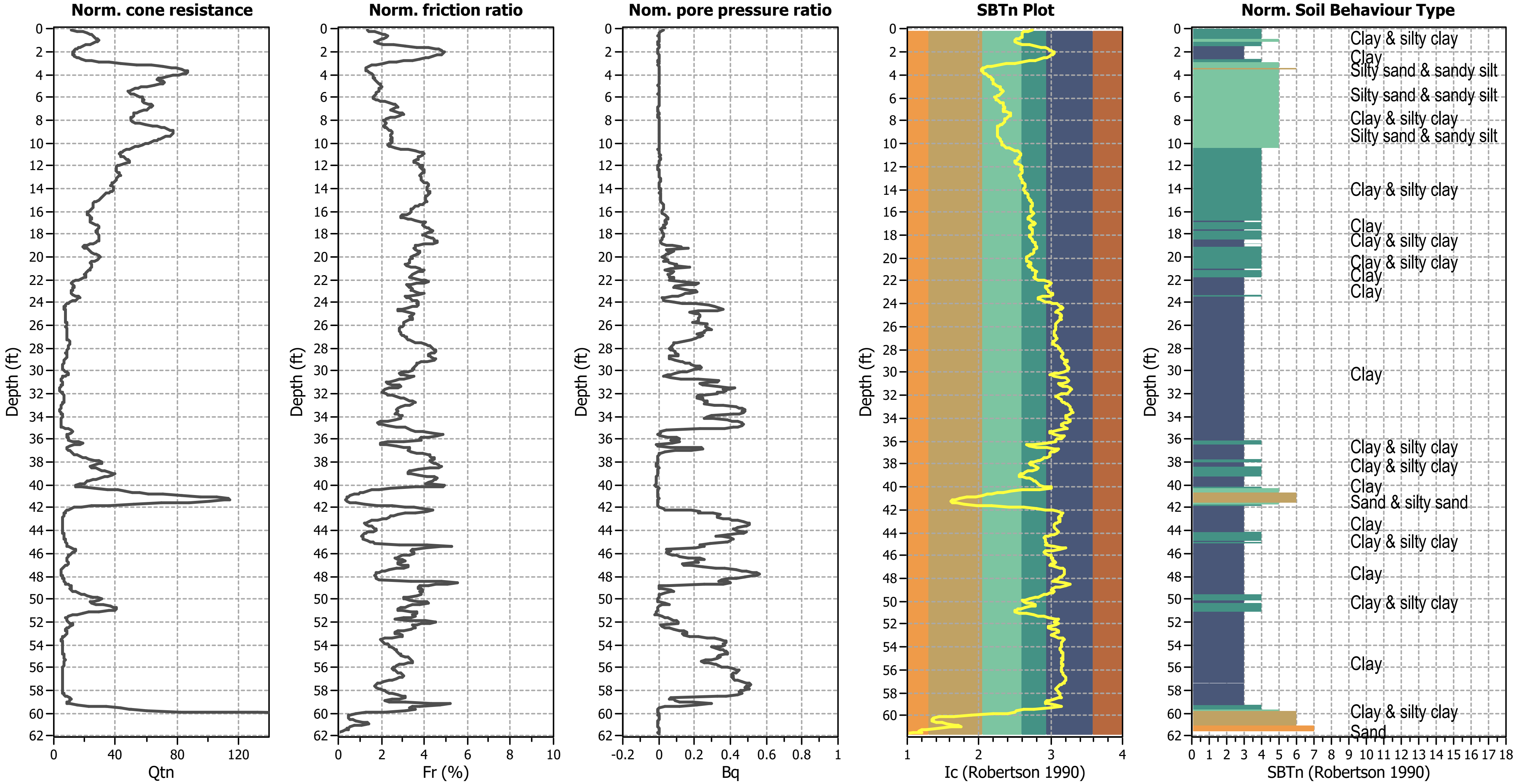
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

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

CPT basic interpretation plots (normalized)



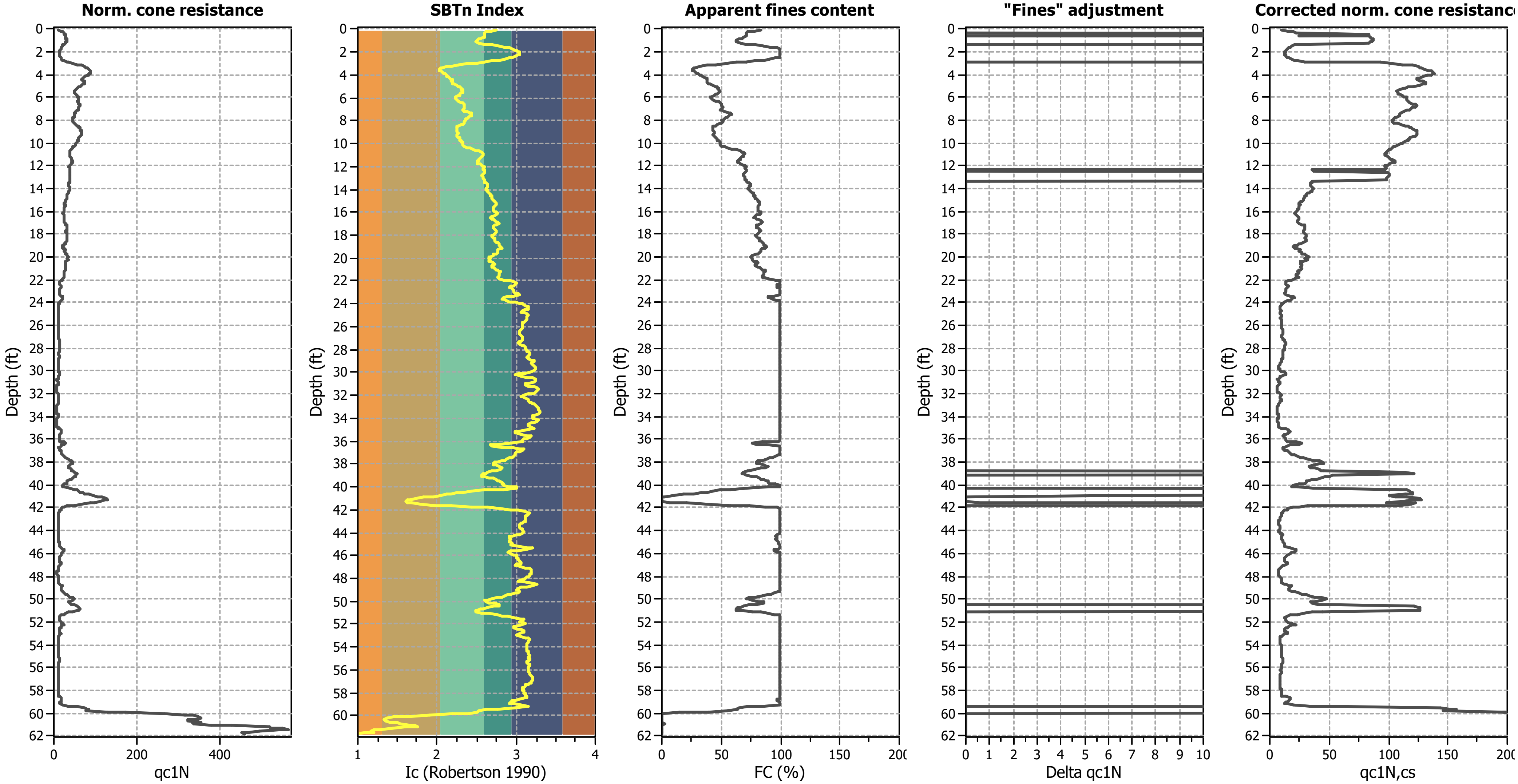
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

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

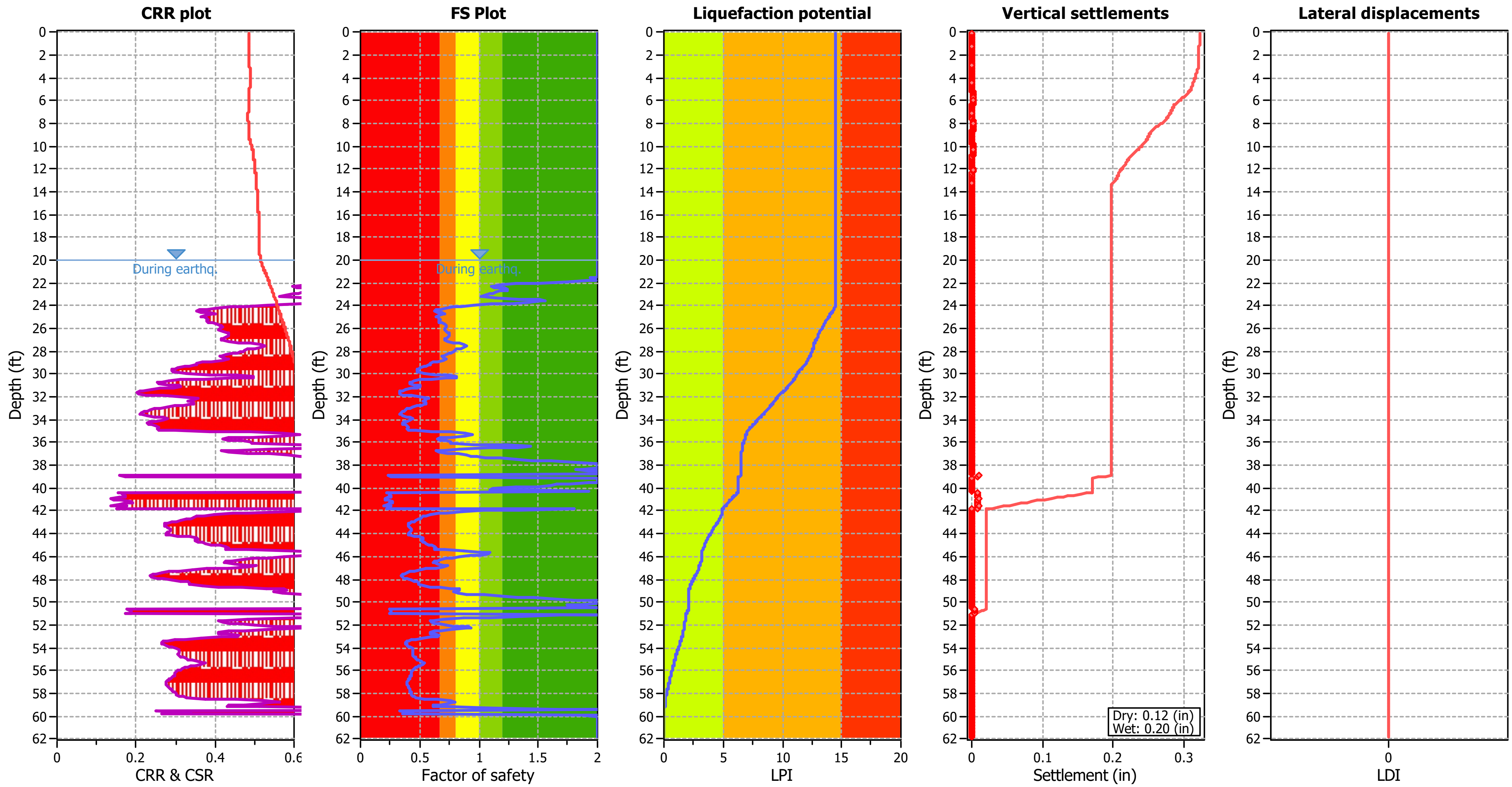
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

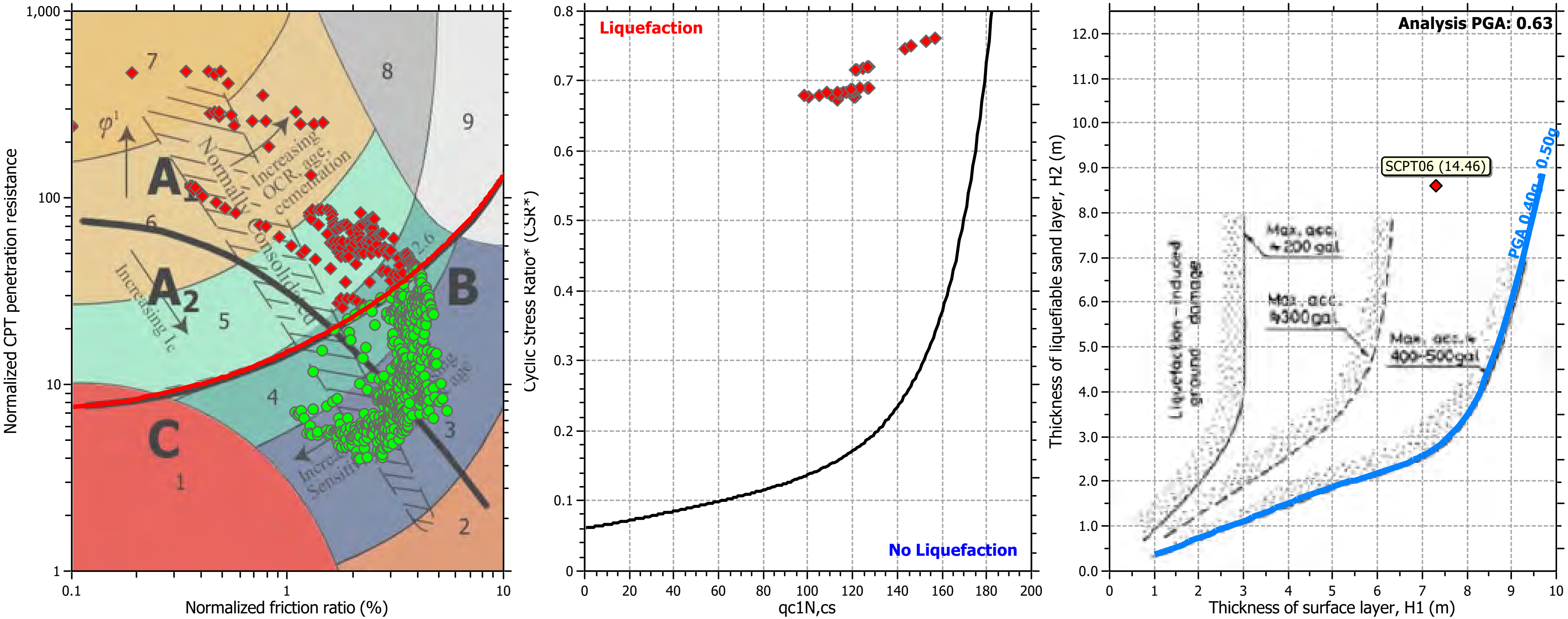
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

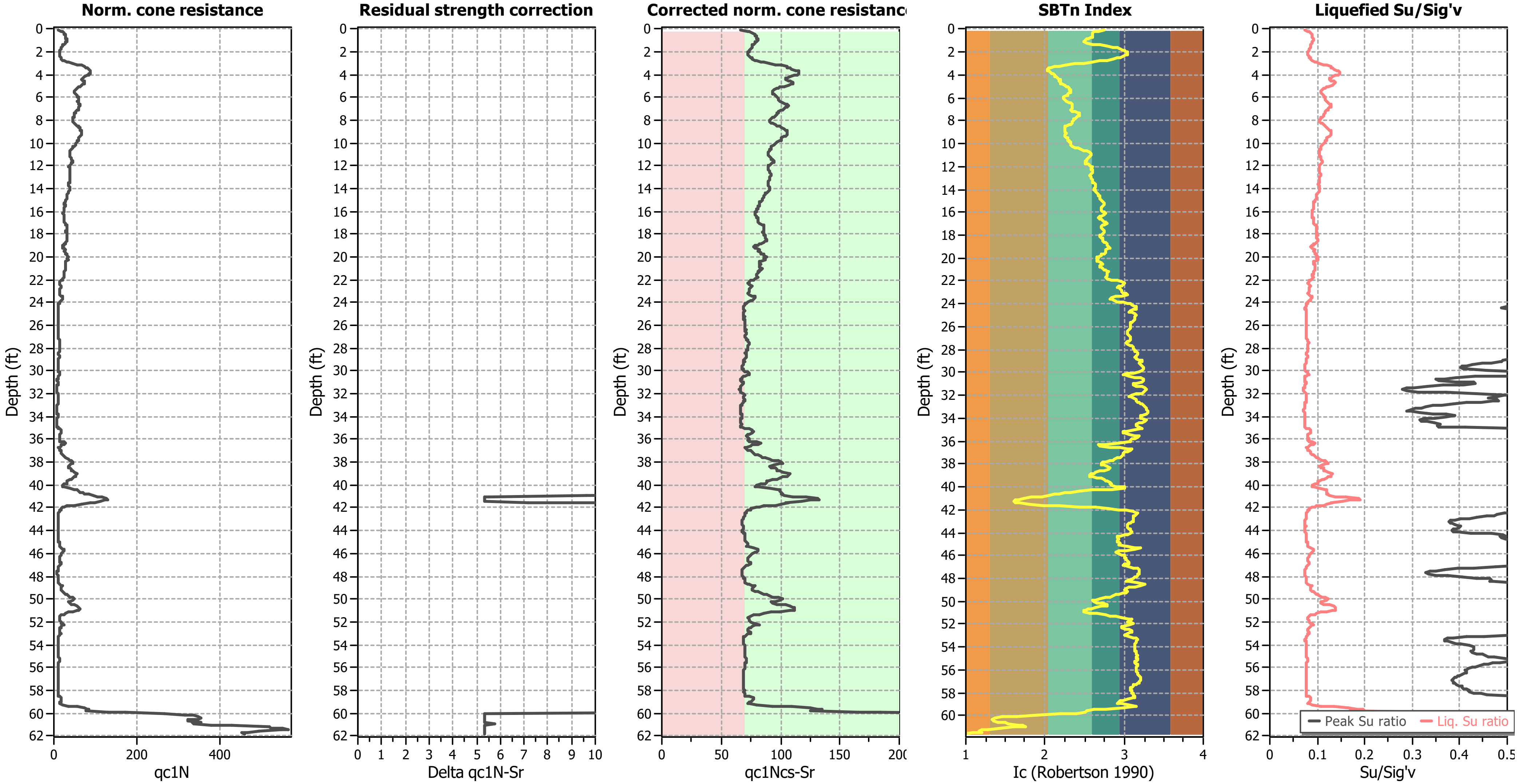
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	29.60 ft	Fill height:	N/A	Limit depth:	N/A

KLEINFELDER
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Appendix F

IDW Analytical Test Results

Kleinfelder (San Jose)
2011 N Capitol Ave
San Jose, California 95132
Tel: 4085867611
Fax: 4085867688

RE: Silver Creek

Work Order No.: 2512159

Dear Aryan Noroozi:

Torrent Laboratory, Inc. received 1 sample(s) on December 17, 2025 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Kathie Evans

Kathie Evans
Project Manager

December 24, 2025
Date

Date: 12/24/2025

Client: Kleinfelder (San Jose)

Project: Silver Creek

Work Order: 2512159

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

Analytical Comments for method 6020, 2512159-001 MS, QC Preparation Batch ID 1176871, Note:The % recovery for Cadmium is outside of laboratory control limits; % MS recovery and RPD are within limits. The associated LCS/LCSD is within both % Recovery and RPD limits. No corrective action required.

Sample Result Summary

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date Received: 12/17/25
Date Reported: 12/24/25

CS-1 2512159-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6020B	1	0.84	1.0	24.3	mg/Kg
Chromium	SW6020B	1	0.097	1.0	3.94	mg/Kg
Lead	SW6020B	1	0.054	1.0	1.59	mg/Kg
Nickel	SW6020B	1	1.2	5.0	7.77	mg/Kg
Zinc	SW6020B	1	0.70	2.5	4.47	mg/Kg
TPH as Diesel	SW8015B	1	0.66	2.0	14.9	mg/Kg
pH	SW9045D	1	0.10	2.00	8.33	SU

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SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	12/18/25	7:45:00PM
Prep Batch ID:	1176875	**Prep Analyst:**	TNGO	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	12/19/25	12:03	BJAY	499362

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

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SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	6020S-P	**Prep Batch Date/Time:**	12/18/25	6:30:00PM
Prep Batch ID:	1176871	**Prep Analyst:**	TNGO	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6020B	1	0.12	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Arsenic	SW6020B	1	0.21	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Barium	SW6020B	1	0.84	1.0	**24.3**		mg/Kg	12/22/25	14:17	ERR	499428
Beryllium	SW6020B	1	0.16	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Cadmium	SW6020B	1	0.084	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Chromium	SW6020B	1	0.097	1.0	**3.94**		mg/Kg	12/22/25	14:17	ERR	499428
Cobalt	SW6020B	1	0.21	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Copper	SW6020B	1	0.17	2.5	ND		mg/Kg	12/22/25	14:17	ERR	499428
Lead	SW6020B	1	0.054	1.0	**1.59**		mg/Kg	12/22/25	14:17	ERR	499428
Molybdenum	SW6020B	1	0.13	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Nickel	SW6020B	1	1.2	5.0	**7.77**		mg/Kg	12/22/25	14:17	ERR	499428
Selenium	SW6020B	1	0.035	1.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Silver	SW6020B	1	0.098	0.50	ND		mg/Kg	12/22/25	14:17	ERR	499428
Thallium	SW6020B	1	0.34	5.0	ND		mg/Kg	12/22/25	14:17	ERR	499428
Vanadium	SW6020B	1	0.28	25	ND		mg/Kg	12/22/25	14:17	ERR	499428
Zinc	SW6020B	1	0.70	2.5	**4.47**		mg/Kg	12/22/25	14:17	ERR	499428

SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	12/19/25	10:08:00AM
Prep Batch ID:	1176880	**Prep Analyst:**	KEYO	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	12/19/25	16:43	AK	499381
Total PCB	SW8082A	1	24.0	100	ND		ug/Kg	12/19/25	16:43	AK	499381
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**83.0**		%	12/19/25	16:43	AK	499381
DCBP (S)	SW8082A		48 - 135		**80.0**		%	12/19/25	16:43	AK	499381

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SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	9045C	**Prep Batch Date/Time:**	12/24/25	10:40:00AM
Prep Batch ID:	1177006	**Prep Analyst:**	ROME	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
pH	SW9045D	1	0.10	2.00	**8.33**		SU	12/24/25	10:40	RE	499466

SAMPLE RESULTS

Report prepared for:	Aryan Noroozi Kleinfelder (San Jose)	**Date/Time Received:**	12/17/25, 2:21 pm
		Date Reported:	12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	3546_TPH	**Prep Batch Date/Time:**	12/19/25	11:25:00AM
Prep Batch ID:	1176885	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	1	0.66	2.0	**14.9**	x	mg/Kg	12/21/25	12:40	HKP	499399
TPH as Motor Oil	SW8015B	1	0.76	10	ND		mg/Kg	12/21/25	12:40	HKP	499399
			Acceptance Limits								
Pentacosane (S)	SW8015B		45 - 130		**67.8**		%	12/21/25	12:40	HKP	499399

NOTE: x-not typical of Diesel ref. std: peaks within Diesel range quantified as diesel

SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	5035GRO	**Prep Batch Date/Time:**	12/22/25	12:09:00PM
Prep Batch ID:	1176977	**Prep Analyst:**	HVYAS	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Gasoline	SW8260B(TPH)	1	43	100	ND		ug/Kg	12/22/25	17:28	HV	499438
(S) 4-Bromofluorobenzene	SW8260B(TPH)		43.9 - 127		**61.3**		%	12/22/25	17:28	HV	499438

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SAMPLE RESULTS

Report prepared for: Aryan Noroozi
Kleinfelder (San Jose)

Date/Time Received: 12/17/25, 2:21 pm
Date Reported: 12/24/25

Client Sample ID:	CS-1	**Lab Sample ID:**	2512159-001A
Project Name/Location:	Silver Creek	**Sample Matrix:**	Slurry
Project Number:	26002624.001A		
Date/Time Sampled:	12/17/25 / 13:40		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	12/22/25	12:09:00PM
Prep Batch ID:	1176975	**Prep Analyst:**	HVYAS	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Benzene	SW8260B	1	0.0022	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
Toluene	SW8260B	1	0.0018	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
Ethylbenzene	SW8260B	1	0.0017	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
m,p-Xylene	SW8260B	1	0.0032	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
o-Xylene	SW8260B	1	0.0017	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
Total Xylenes	SW8260B	1	0.0017	0.010	ND		mg/Kg	12/22/25	17:28	HV	499438
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**83.3**		%	12/22/25	17:28	HV	499438
(S) Toluene-d8	SW8260B		55.2 - 133		**106**		%	12/22/25	17:28	HV	499438
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**103**		%	12/22/25	17:28	HV	499438

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MB Summary Report

Work Order:	2512159	Prep Method:	6020S-P	Prep Date:	12/18/25	Prep Batch:	1176871
Matrix:	Soil	Analytical Method:	SW6020B	Analyzed Date:	12/22/2025	Analytical Batch:	499428
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.12	1.0	ND	
Arsenic	0.21	1.0	ND	
Barium	0.84	1.0	ND	
Beryllium	0.16	1.0	ND	
Cadmium	0.084	1.0	ND	
Chromium	0.097	1.0	ND	
Cobalt	0.21	1.0	ND	
Copper	0.17	2.5	ND	
Lead	0.054	1.0	ND	
Molybdenum	0.13	1.0	0.22	
Nickel	1.2	5.0	ND	
Selenium	0.035	1.0	ND	
Silver	0.098	0.50	ND	
Thallium	0.34	5.0	ND	
Vanadium	0.28	25	ND	
Zinc	0.70	2.5	ND	

Work Order:	2512159	Prep Method:	7471BP	Prep Date:	12/18/25	Prep Batch:	1176875
Matrix:	Soil	Analytical Method:	SW7471B	Analyzed Date:	12/19/2025	Analytical Batch:	499362
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Work Order:	2512159	Prep Method:	3546_PCB	Prep Date:	12/19/25	Prep Batch:	1176880
Matrix:	Soil	Analytical Method:	SW8082A	Analyzed Date:	12/19/2025	Analytical Batch:	499381
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Aroclor1016	35.0	100	ND	
Aroclor1221	5.00	100	ND	
Aroclor1232	17.0	100	ND	
Aroclor1242	3.00	100	ND	
Aroclor1248	2.00	100	ND	
Aroclor1254	14.0	100	ND	
Aroclor1260	24.0	100	ND	
TCMX (S)			87.0	
DCBP (S)			93.0	

MB Summary Report

Work Order:	2512159	**Prep Method:**	3546_TPH	**Prep Date:**	12/19/25	**Prep Batch:**	1176885
Matrix:	Soil	**Analytical Method:**	SW8015B	**Analyzed Date:**	12/21/2025	**Analytical Batch:**	499399
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel	0.66	2.0	ND	
TPH as Motor Oil	0.76	10	1.85	
Pentacosane (S)			102	

MB Summary Report

Work Order:	2512159	Prep Method:	5035	Prep Date:	12/22/25	Prep Batch:	1176975
Matrix:	Soil	Analytical Method:	SW8260B	Analyzed Date:	12/22/2025	Analytical Batch:	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	1.2	10	ND	
Chloromethane	1.8	10	ND	
Vinyl Chloride	2.0	10	ND	
Bromomethane	2.7	10	ND	
Chloroethane	3.0	10	ND	
Trichlorofluoromethane	2.1	10	ND	
1,1-Dichloroethene	2.0	10	ND	
Freon 113	1.9	10	ND	
Methylene Chloride	7.1	10	ND	
trans-1,2-Dichloroethene	2.1	10	ND	
MTBE	2.3	10	ND	
TBA	12	50	ND	
Diisopropyl ether	2.3	10	ND	
1,1-Dichloroethane	2.2	10	ND	
Ethyl tert-Butyl ether	2.3	10	ND	
cis-1,2-Dichloroethene	2.2	10	ND	
2,2-Dichloropropane	1.9	10	ND	
Bromochloromethane	2.3	10	ND	
Chloroform	2.4	10	ND	
Carbon Tetrachloride	2.1	10	ND	
1,1,1-Trichloroethane	2.1	10	ND	
1,1-Dichloropropene	2.0	10	ND	
Benzene	2.2	10	ND	
TAME	2.3	10	ND	
1,2-Dichloroethane	2.3	10	ND	
Trichloroethene	1.8	10	ND	
Dibromomethane	1.8	10	ND	
1,2-Dichloropropane	1.9	10	ND	
Bromodichloromethane	2.0	10	ND	
cis-1,3-Dichloropropene	1.6	10	ND	
Toluene	1.8	10	ND	
Tetrachloroethene	1.7	10	ND	
trans-1,3-Dichloropropene	1.6	10	ND	
1,1,2-Trichloroethane	1.8	10	ND	
Dibromochloromethane	1.9	10	ND	
1,3-Dichloropropane	1.8	10	ND	
1,2-Dibromoethane	1.8	10	ND	
Chlorobenzene	1.8	10	ND	
Ethylbenzene	1.7	10	ND	
1,1,1,2-Tetrachloroethane	1.9	10	ND	
m,p-Xylene	3.2	10	ND	
o-Xylene	1.7	10	ND	
Styrene	1.6	10	ND	
Bromoform	1.7	10	ND	
Isopropyl Benzene	1.6	10	ND	

MB Summary Report

Work Order:	2512159	Prep Method:	5035	Prep Date:	12/22/25	Prep Batch:	1176975
Matrix:	Soil	Analytical Method:	SW8260B	Analyzed Date:	12/22/2025	Analytical Batch:	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	ND	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
MIBK	2.0	20	ND	
Hexachloroethane	5.0	10	ND	
1,4-Dioxane	100	200	ND	
2-Hexanone	5.0	20	ND	
Acetone	8.2	20	ND	
(S) Dibromofluoromethane			105	
(S) Toluene-d8			109	
(S) 4-Bromofluorobenzene			110	

MB Summary Report

Work Order:	2512159	Prep Method:	5035	Prep Date:	12/22/25	Prep Batch:	1176975
Matrix:	Soil	Analytical Method:	SW8260B	Analyzed Date:	12/22/2025	Analytical Batch:	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	120	1000	ND	
Chloromethane	180	1000	ND	
Vinyl Chloride	200	1000	ND	
Bromomethane	270	1000	ND	
Chloroethane	300	1000	ND	
Trichlorofluoromethane	210	1000	ND	
1,1-Dichloroethene	200	1000	ND	
Freon 113	190	1000	ND	
Methylene Chloride	710	1000	ND	
trans-1,2-Dichloroethene	210	1000	ND	
MTBE	230	1000	ND	
TBA	1200	5000	ND	
Diisopropyl ether	230	1000	ND	
1,1-Dichloroethane	220	1000	ND	
Ethyl tert-Butyl ether	230	1000	ND	
cis-1,2-Dichloroethene	220	1000	ND	
2,2-Dichloropropane	190	1000	ND	
Bromochloromethane	230	1000	ND	
Chloroform	240	1000	ND	
Carbon Tetrachloride	210	1000	ND	
1,1,1-Trichloroethane	210	1000	ND	
1,1-Dichloropropene	200	1000	ND	
Benzene	220	1000	ND	
TAME	230	1000	ND	
1,2-Dichloroethane	230	1000	ND	
Trichloroethene	180	1000	ND	
Dibromomethane	180	1000	ND	
1,2-Dichloropropane	190	1000	ND	
Bromodichloromethane	200	1000	ND	
cis-1,3-Dichloropropene	160	1000	ND	
Toluene	180	1000	ND	
Tetrachloroethene	170	1000	ND	
trans-1,3-Dichloropropene	160	1000	ND	
1,1,2-Trichloroethane	180	1000	ND	
Dibromochloromethane	190	1000	ND	
1,3-Dichloropropane	180	1000	ND	
1,2-Dibromoethane	180	1000	ND	
Chlorobenzene	180	1000	ND	
Ethylbenzene	170	1000	ND	
1,1,1,2-Tetrachloroethane	190	1000	ND	
m,p-Xylene	320	1000	ND	
o-Xylene	170	1000	ND	
Styrene	160	1000	ND	
Bromoform	170	1000	ND	
Isopropyl Benzene	160	1000	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2512159	**Prep Method:**	5035	**Prep Date:**	12/22/25	**Prep Batch:**	1176975
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	160	1000	ND	
Bromobenzene	180	1000	ND	
1,1,2,2-Tetrachloroethane	190	1000	ND	
2-Chlorotoluene	180	1000	ND	
1,3,5-Trimethylbenzene	160	1000	ND	
1,2,3-Trichloropropane	190	1000	ND	
4-Chlorotoluene	160	1000	ND	
tert-Butylbenzene	160	1000	ND	
1,2,4-Trimethylbenzene	140	1000	ND	
sec-Butyl Benzene	160	1000	ND	
p-Isopropyltoluene	150	1000	ND	
1,3-Dichlorobenzene	170	1000	ND	
1,4-Dichlorobenzene	170	1000	ND	
n-Butylbenzene	150	1000	ND	
1,2-Dichlorobenzene	180	1000	ND	
1,2-Dibromo-3-Chloropropane	180	1000	ND	
Hexachlorobutadiene	140	1000	ND	
1,2,4-Trichlorobenzene	150	1000	ND	
Naphthalene	170	1000	ND	
1,2,3-Trichlorobenzene	170	1000	ND	
2-Butanone	230	1000	ND	
MIBK	200	2000	ND	
Hexachloroethane	500	1000	ND	
1,4-Dioxane	10000	20000	ND	
2-Hexanone	500	2000	ND	
Acetone	820	2000	ND	
(S) Dibromofluoromethane			110	
(S) Toluene-d8			108	
(S) 4-Bromofluorobenzene			112	

Work Order:	2512159	**Prep Method:**	5035GRO	**Prep Date:**	12/22/25	**Prep Batch:**	1176977
Matrix:	Soil	**Analytical Method:**	SW8260B(TPH)	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Gasoline	43	100	ND	
(S) 4-Bromofluorobenzene			114	

MB Summary Report

Work Order:	2512159	**Prep Method:**	5035GRO	**Prep Date:**	12/22/25	**Prep Batch:**	1176977
Matrix:	Soil	**Analytical Method:**	SW8260B(TPH)	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Gasoline	4300	10000	ND	
(S) 4-Bromofluorobenzene			118	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2512159	**Prep Method:**	6020S-P	**Prep Date:**	12/18/25	**Prep Batch:**	1176871
Matrix:	Soil	**Analytical Method:**	SW6020B	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499428
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.12	1.0	ND	25	85.2	84.4	0.943	80 - 120	30	
Arsenic	0.21	1.0	ND	25	87.4	86.8	0.460	80 - 120	30	
Barium	0.84	1.0	ND	25	89.5	88.4	1.35	80 - 120	30	
Beryllium	0.16	1.0	ND	25	91.5	90.9	0.877	80 - 120	30	
Cadmium	0.084	1.0	ND	25	88.1	87.3	0.913	80 - 120	30	
Chromium	0.097	1.0	ND	25	89.0	88.0	1.35	80 - 120	30	
Cobalt	0.21	1.0	ND	25	93.3	92.0	1.30	80 - 120	30	
Copper	0.17	2.5	ND	25	90.5	89.1	1.34	80 - 120	30	
Lead	0.054	1.0	ND	25	90.4	90.4	0.000	80 - 120	30	
Molybdenum	0.13	1.0	0.22	25	88.0	86.9	1.37	80 - 120	30	
Nickel	1.2	5.0	ND	25	90.3	89.3	1.34	80 - 120	30	
Selenium	0.035	2.5	ND	25	85.2	82.2	3.83	80 - 120	30	
Silver	0.098	1.0	ND	25	91.5	90.1	1.76	80 - 120	30	
Thallium	0.34	5.0	ND	25	89.8	89.2	0.447	80 - 120	30	
Vanadium	0.28	25	ND	25	87.5	86.2	1.38	80 - 120	30	
Zinc	0.70	2.5	ND	25	85.6	85.0	0.939	80 - 120	30	

Work Order:	2512159	**Prep Method:**	7471BP	**Prep Date:**	12/18/25	**Prep Batch:**	1176875
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	12/19/2025	**Analytical Batch:**	499362
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	94.3	94.2	0.000	80 - 120	20	

Work Order:	2512159	**Prep Method:**	3546_PCB	**Prep Date:**	12/19/25	**Prep Batch:**	1176880
Matrix:	Soil	**Analytical Method:**	SW8082A	**Analyzed Date:**	12/19/2025	**Analytical Batch:**	499381
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	53	100	ND	600	93.8	95.2	1.41	25 - 145	30	
Aroclor1260	36	100	ND	600	93.5	94.7	1.24	30 - 145	30	
TCMX (S)				0.10	86.0	88.0		48 - 125		
DCBP (S)				0.10	95.0	91.0		48 - 135		

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2512159	**Prep Method:**	3546_TPH	**Prep Date:**	12/19/25	**Prep Batch:**	1176885
Matrix:	Soil	**Analytical Method:**	SW8015B	**Analyzed Date:**	12/21/2025	**Analytical Batch:**	499399
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.66	2.0	ND	25.0	63.1	66.2	4.33	52 - 115	30	
Pentacosane (S)				200	81.5	83.7		45 - 130		

Work Order:	2512159	**Prep Method:**	5035	**Prep Date:**	12/22/25	**Prep Batch:**	1176975
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	88.9	95.6	7.38	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	110	115	4.81	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	104	109	4.49	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	107	110	3.13	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	103	108	4.74	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	105	110		59.8 - 148		
(S) Toluene-d8				50.0	110	115		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	117	125		55.8 - 141		

Work Order:	2512159	**Prep Method:**	5035	**Prep Date:**	12/22/25	**Prep Batch:**	1176975
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
MTBE	2.34	10.0	ND	50.0	116	123	5.69	70 - 130	30	
Benzene	2.2	10	ND	50.0	110	115	4.81	66.5 - 135	30	
Ethylbenzene	1.65	10.0	ND	50.0	111	115	3.19	70 - 130	30	
Toluene	1.82	10	ND	50.0	107	110	3.13	56.8 - 134	30	
m,p-Xylene	3.16	10.0	ND	100	114	117	2.60	70 - 130	30	
o-Xylene	1.73	10.0	ND	50.0	121	123	2.13	70 - 130	30	
(S) Dibromofluoromethane				50.0	105	110		59.8 - 148		
(S) Toluene-d8				50.0	110	115		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	117	125		55.8 - 141		

Work Order:	2512159	**Prep Method:**	5035GRO	**Prep Date:**	12/22/25	**Prep Batch:**	1176977
Matrix:	Soil	**Analytical Method:**	SW8260B(TPH)	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499438
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Gasoline	43	100	ND	1000	95.3	104	8.73	48.2 - 132	30	
(S) 4-Bromofluorobenzene				50	111	111		43.9 - 127		

MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2512159	**Prep Method:**	6020S-P	**Prep Date:**	12/18/25	**Prep Batch:**	1176871
Matrix:	**Soil**	**Analytical Method:**	SW6020B	**Analyzed Date:**	12/22/2025	**Analytical Batch:**	499428
Spiked Sample:	2512159-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.12	1.0	ND	25	63.3	63.4	0.000	30.7 - 130	33	
Arsenic	0.21	1.0	ND	25	88.3	87.7	0.443	71.0 - 121	33	
Barium	0.84	1.0	24.3	25	100	91.7	4.35	70.2 - 130	33	
Beryllium	0.16	1.0	ND	25	91.8	93.5	2.15	73.3 - 125	33	
Cadmium	0.084	1.0	ND	25	88.5	89.3	0.901	88.7 - 110	33	S
Chromium	0.097	1.0	3.94	25	97.0	90.3	6.22	76.0 - 116	33	
Cobalt	0.21	1.0	ND	25	92.0	92.4	0.418	57.4 - 122	33	
Copper	0.17	2.5	ND	25	92.4	91.6	0.803	74.8 - 119	33	
Lead	0.054	1.0	1.59	25	90.6	91.8	1.23	57.9 - 118	33	
Molybdenum	0.13	1.0	ND	25	87.0	86.5	0.913	62.9 - 123	33	
Nickel	1.2	5.0	7.77	25	98.4	95.5	2.50	61.5 - 122	33	
Selenium	0.035	2.5	ND	25	85.5	84.9	0.466	62.0 - 111	33	
Silver	0.098	1.0	ND	25	91.4	91.6	0.000	81.1 - 109	33	
Thallium	0.34	5.0	ND	25	88.7	89.2	0.897	39.2 - 125	33	
Vanadium	0.28	25	ND	25	87.8	87.9	0.000	65.8 - 122	33	
Zinc	0.70	2.5	4.47	25	91.9	94.2	1.80	59.9 - 122	33	

Duplicate QC Summary Report

Work Order:	2512159	**Prep Method:**	9045C	**Prep Date:**	12/24/2025	**Prep Batch:**	1177006
Matrix:		**Analytical Method:**	SW9045D	**Analyzed Date:**	12/24/25	**Analytical Batch:**	499466
Units:						**Lab Sample ID:**	2512159-001A-DUP-1177006

Parameters	MDL	PQL	Sample Result	Duplicate Result	% RPD	
pH	0.10	2.00	8.33	8.41	0.96	

Torrent LABORATORY, INC.

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.	
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.	
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)	
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.	
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)	
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.	
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero	
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.	
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates	
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis	
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.	
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)	

LABORATORY QUALIFIERS:

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Torrent LABORATORY, INC.

Sample Receipt Checklist

Client Name: Kleinfelder (San Jose)

Project Name: Silver Creek

Work Order No.: 2512159

Date and Time Received: 12/17/2025 2:21:00PM

Received By: cm

Physically Logged By: Lorna Imbat

Checklist Completed By: Lorna Imbat

Carrier Name: Client Drop Off

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	
Container/Temp Blank temperature in compliance?	Yes	Temperature: 3.0 °C
Water-VOA vials have zero headspace?	No VOA vials submitted	
Water-pH acceptable upon receipt?	N/A	

pH Checked by: n/a

pH Adjusted by: n/a

Comments:

Login Summary Report

Client ID:	TL5134	Kleinfelder (San Jose)	**QC Level:**	II
Project Name:	Silver Creek		**TAT Requested:**	5+ day:5
Project # :	26002624.001A		**Date Received:**	12/17/2025
Report Due Date:	12/24/2025		**Time Received:**	2:21 pm

Comments:

Work Order # : ***2512159***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2512159-001A	CS-1	12/17/25 13:40	Soil	06/15/26			pH_S_9045D VOC_S_MBTEX PCBs_S_8082A VOC_S_GRO Met_S_6020CAM17 Hg_S_7471B TPHDO_S_8015(Mod) STLC Metals Extract	

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• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO 2512159

Company Name: Kleinfelder Inc. ☐ Env. ☐ Non Env.	Project #: 26002624.001A PO#:
Address: 25 Metro Drive. suite 110	Project Name: Silver Creek
City: San Jose State: CA Zip Code: 95110	Comments:
Telephone: Cell:	SAMPLER: Aryan Noroozi
REPORT TO: JWetenkamp@kleinfelder. BILL TO: AccountsPayableUS@kleinfelder.com	EMAIL: ANoroozi@kleinfelder.com

TURNAROUND TIME: ☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days ☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days ☐ 1 Work Day ☐ 4 Work Days ☑ 10 Work Days

SAMPLE TYPE: ☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☑ Soil ☐ Product / Bulk

REPORT FORMAT: ☑ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	pH	TPH Diesel/Motor Oil/Gasoline/BTEX (EPA Method 8015M or	PCBs (EPA Method 8082A or equivalent)	CAM 17 metals (EPA Method 6020A, 7471B	STLC (EPA Method 6010B or equivalent)					REMARKS
001A		CS-1	12/17/25 0140	Soil	1	jar	✓	✓	✓	✓	✓					

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	[signature]	Lucas Fendl	12/17/25	0221	CJM	Claudia Moreno	12/17/25	14:21
2								

Cooler Temperature 3.1 °C #4 Samples Received on ice? Yes ☒ No ☐ Method of Shipment D/3

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page of

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Appendix G

Thermal Resistivity Test Results

Geotherm

7828 Columbia Drive
Katy, TX 77494
Office: 281-985-9344
info@geothermusa.com
http://www.geothermusa.com

January 9, 2026

Kleinfelder
2001 Arch Airport Road, Suite 100
Stockton, CA 95206
Attn: James A. Wetenkamp, PG, CEG

Thermal Resistivity Report
Silver Creek – San Jose, CA (Project No. 26002624.001A)

The following is the report of thermal dryout characterization tests conducted on four (4) tube samples and three (3) bulk samples of native soil from the referenced project sent to our laboratory.

Thermal Resistivity Tests: The tube samples were tested 'as received.' The bulk samples were tested at the 'optimum' moisture content and at 90% of the modified Proctor dry density ***provided by Kleinfelder***. The tests were conducted in accordance with the **IEEE standard 442-2017**. The results are tabulated below and the thermal dry out curves are presented in **Figures 1 to 5.**

Sample ID, Description, Thermal Resistivity, Moisture Content and Density

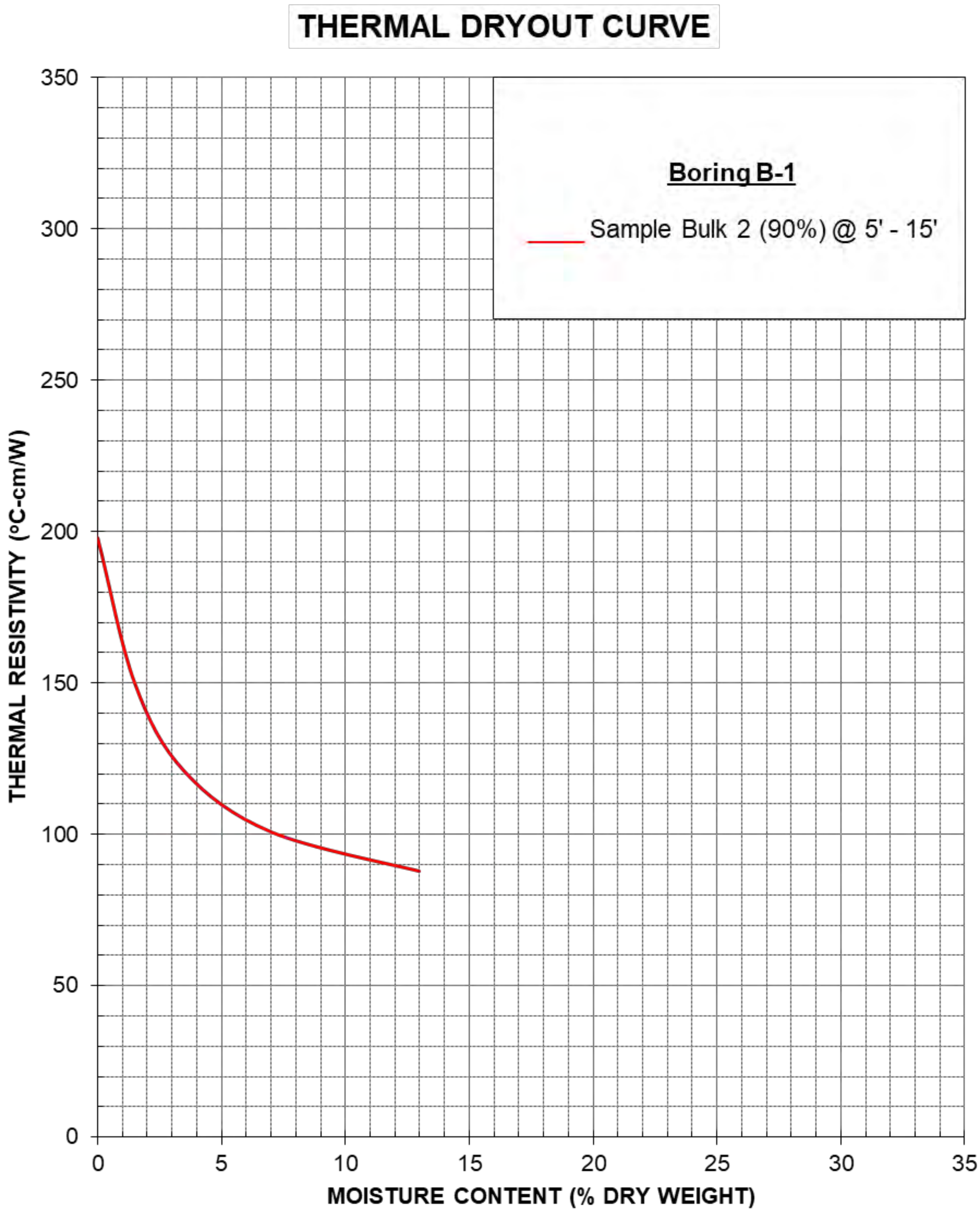
Sample ID	Depth (ft)	Effort (%)	Description (Kleinfelder)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
				Wet	Dry		
Boring B-1 Sample Bulk 2	5 - 15	90	Lean Clay	88	198	13	104
Boring B-2 Sample Bulk 1	0 - 5	90	Silt and Lean Clay	79	183	13	104
Boring B-2 Sample 3C	11	Tube	Lean Clay	101	293	9	88
Boring B-3 Sample 1B	5.5	Tube	Lean Clay	67	158	11	94
Boring B-4 Sample 4B	15.5	Tube	Lean Clay	73	173	16	96
Boring B-5 Sample Bulk	0 - 5	90	Lean Clay	76	178	14	104
Boring B-5 Sample 3C	11	Tube	Lean Clay	93	250	8	93

Comments: The thermal characteristic depicted in the dryout curves apply for the soils at their respective test dry density.

Please contact us if you have any questions or if we can be of further assistance.

Geotherm USA, LLC

Nimesh Patel



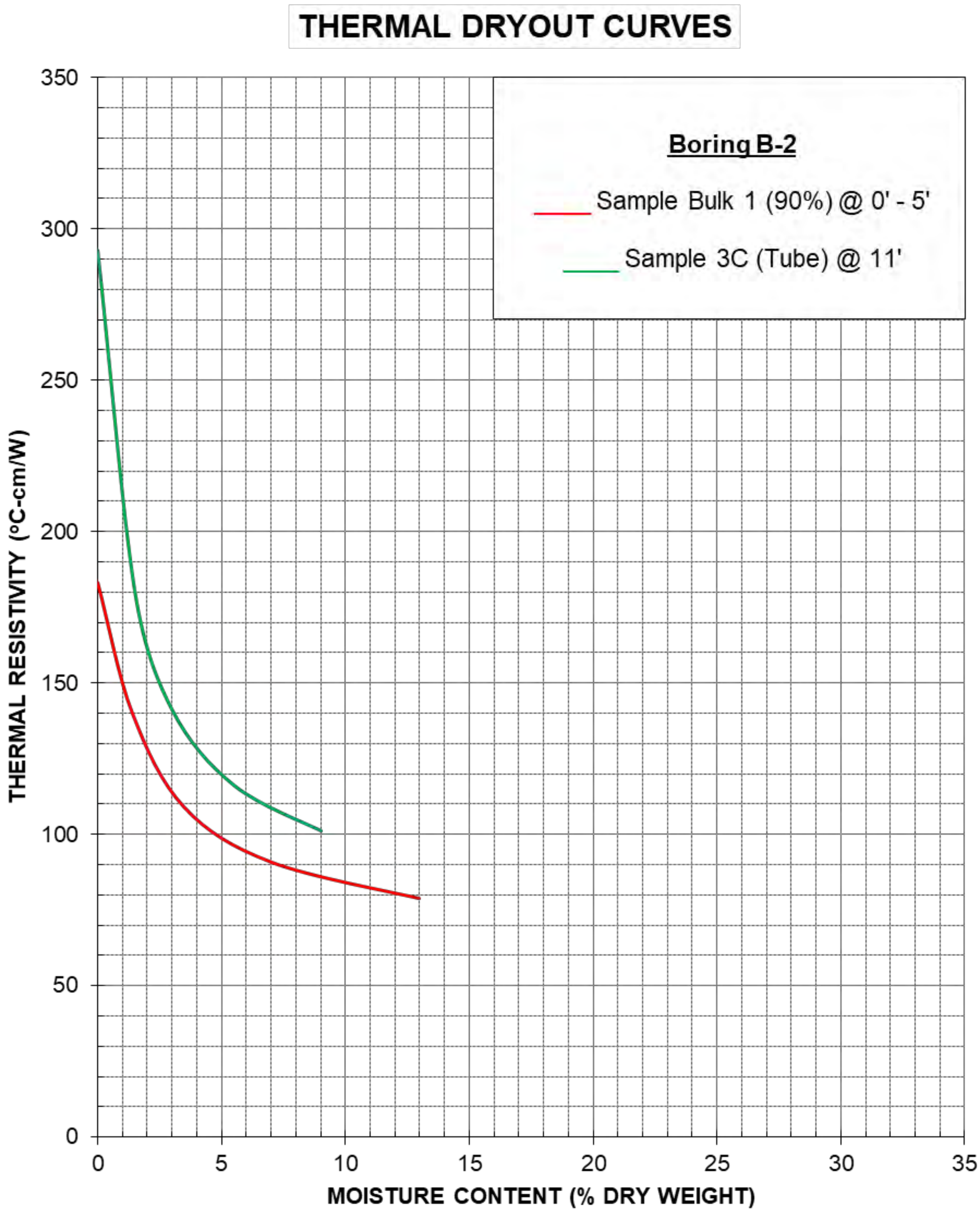
Kleinfelder (Project No. 26002624.001A)

Silver Creek – San Jose, CA

Thermal Resistivity Report

January 2026 **Figure 1**

Geotherm



Kleinfelder (Project No. 26002624.001A)

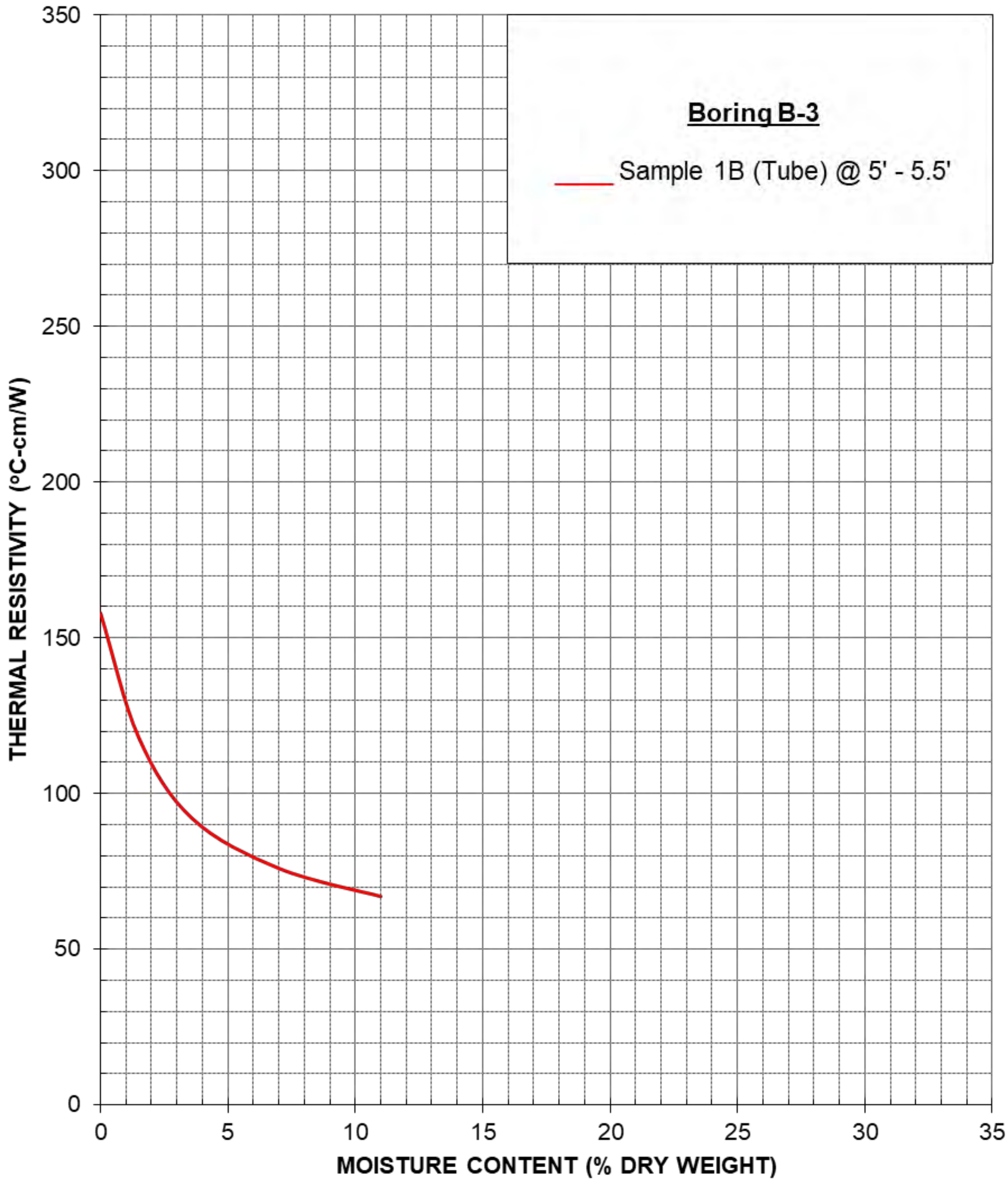
Silver Creek – San Jose, CA

Thermal Resistivity Report

January 2026 **Figure 2**

Geotherm

THERMAL DRYOUT CURVE



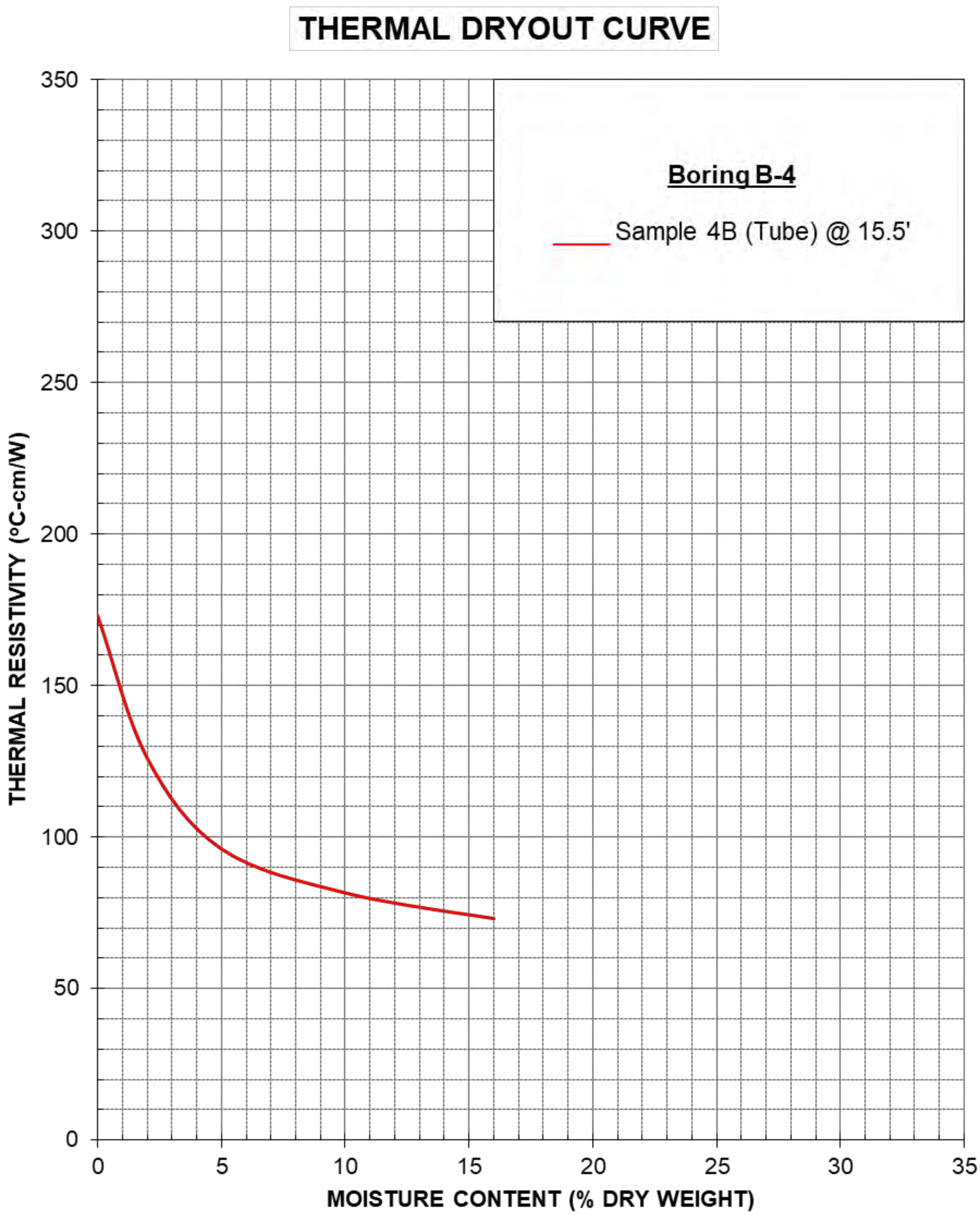
Kleinfelder (Project No. 26002624.001A)

Silver Creek – San Jose, CA

Thermal Resistivity Report

January 2026 **Figure 3**

Geotherm

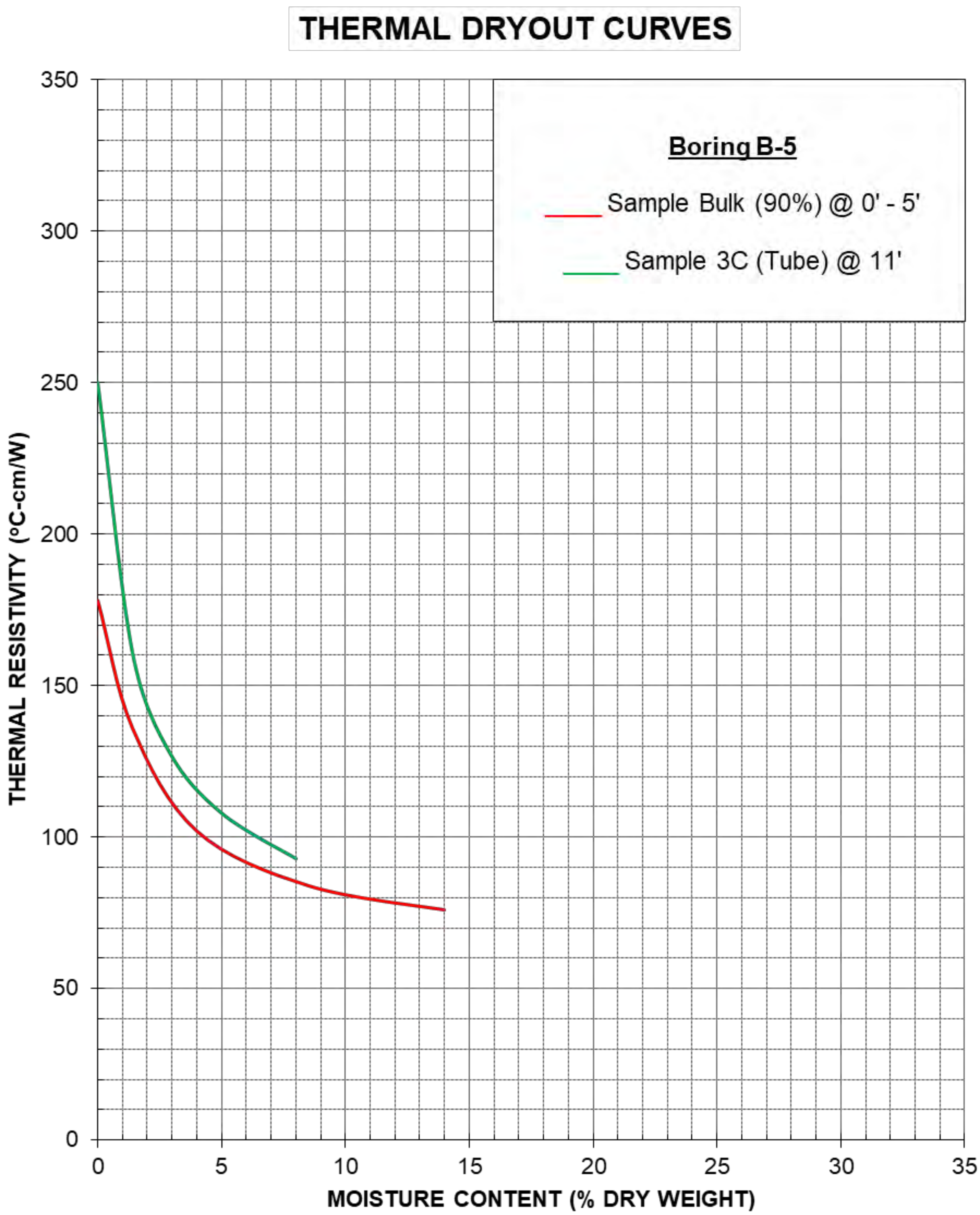


Kleinfelder (Project No. 26002624.001A)

Silver Creek – San Jose, CA

Thermal Resistivity Report

January 2026 **Figure 4**



Kleinfelder (Project No. 26002624.001A)

Silver Creek – San Jose, CA

Thermal Resistivity Report

January 2026 **Figure 5**

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Appendix H

Site Specific Seismic Hazard Analysis Report

APPENDIX H
SITE RESPONSE ANALYSIS

INTRODUCTION

This appendix presents the results of Kleinfelder's site-specific site response analysis (SRA) for the proposed Silver Creek Data Center in San Jose, California. Based on review of available geotechnical investigation data from borings and Cone Penetrometer Tests (CPTs) performed by Kleinfelder in 2021, 2022, 2025 and the liquefaction analyses as discussed in Section 6.4 of the main report, there is a liquefaction potential at the site for some layers deeper than 35 to 40 feet below ground surface. However, this liquefaction and its consequences wouldn't impact the foundation near surface. Therefore, the site is not classified as Site Class F, it does not require site response analysis. However, based on prior discussions with the design team, a site response analysis was requested to better capture the nonlinear response of the soft to medium stiff clayey soils at the site under seismic loading.

The site response analysis was performed in general accordance with Section 21.1 of ASCE 7-22, as referenced in the 2025 California Building Code (CBC). The purpose of SRA is to develop the site-specific design acceleration response spectrum and associated seismic design parameters for the seismic design of the proposed structure. Based on previous information provided by SNHA-A Woolpert Company via email correspondence on January 14, 2026, we understand that the anticipated fundamental period for the proposed building is approximately 0.74 seconds and that response spectra are needed for a damping ratio of five percent.

Project Location

The project site is located in San Jose, California. The approximate site coordinates are:

Latitude: 37.2586° N
Longitude: 121.7883° W

Analysis Approach

The site response analysis was performed in general accordance with the requirements of the 2025 CBC and Section 21.1 of ASCE 7-22. The scope of the analysis includes the following:

- Review of geotechnical investigation data and development of an idealized soil profile to be used in the site response analyses;
- Estimate of an appropriate V_{S30} value at the bottom of the soil profile;
- Development of a Risk-Targeted Maximum Considered Earthquake (MCE_R) target response spectrum at the base of the soil column by performing a site-specific ground motion hazard analysis (GMHA) per Section 21.2 of ASCE 7-22 using the estimated V_{S30} value at that depth;
- Deaggregation analyses of the hazard to estimate the controlling seismic sources, magnitudes, and distances associated with the period range of interest for the target spectrum;

- Selection and spectral modification of five acceleration time histories based on the target spectral shape, earthquake magnitude, distance, site condition, frequency content, and other factors from historical earthquake records;
- Performance of Equivalent Linear (EL) and Nonlinear (NL) total stress site response analyses for the soil profile using the spectrally-matched time histories;
- Development of the site-specific design acceleration response spectrum and seismic design parameters per Sections 21.3 and 21.4 of ASCE 7-22, respectively.

SUBSURFACE CHARACTERIZATION

Subsurface characterization was developed based on the information available from the site-specific field investigations performed by Kleinfelder in 2021, 2022 and 2025. These investigations included shear wave velocity data from two Seismic Cone Penetration Tests (SCPTs), designated as SCPT-05 and SCPT-06, as provided in Appendix C of the main report.

Subsurface Geology and Stratigraphy

The project site is generally underlain by alluvial deposits consisting mostly of lean clays and silts overlying layers of dense sands. Further details regarding the characteristics and conditions of the site geology are provided in the main report. The generalized best estimate profile of material properties developed for use in the site response analysis is presented in Table H1.

TABLE H1: MATERIAL PROPERTIES FOR SITE RESPONSE ANALYSIS

Layer Design Values														
Soil Layer		Depth (ft)	Elevation (ft)	$(N_1)_{60}$	φ' (deg)	Su (psf)	σ`p (psf)	σ`v (psf)	OCR Use	K_o	PI	FC (%)	γ (pcf)	Vs (ft/sec)
CLAY-1	Top	0	203	10	32	700	5000	0	1.0	0.47	13	85	117	800
	Bottom	11	192	10	32	800	6000	1209	1.0	0.47	13	85	117	800
OC CLAY (a)	Top	11	192	10	34	800	6000	1209	5.0	1.00	11	75	122.5	850
	Bottom	17	186	10	34	1500	7000	1943	5.0	1.00	11	75	122.5	850
OC CLAY (b)	Top	17	186	10	32	1500	7000	1943	3.6	0.93	11	75	122.5	850
	Bottom	21	182	7	32	2000	8000	2471	3.6	0.93	11	75	122.5	850
OC CLAY (c) (Above GW)	Top	21	182	7	30	1000	8000	2471	3.2	0.90	11	75	122.5	850
	Bottom	25	178	4	30	1000	8000	2998	3.2	0.90	11	75	122.5	850
NC CLAY (Below GW)	Top	25	178	4	25	1200	5000	2998	1.7	0.72	11	75	117.5	900
	Bottom	36	167	4	25	1500	6000	3574	1.7	0.72	11	75	117.5	900
Lean CLAY (a)	Top	36	167	7	29	1500	6000	3574	1.7	0.66	11	70	117.5	900
	Bottom	45	158	5	29	1800	7000	4096	1.7	0.66	11	70	117.5	900
Lean CLAY (b)	Top	45	158	5	29	1800	7000	4096	1.7	0.67	11	70	117.5	825
	Bottom	55	148	5	29	2000	9000	4618	1.7	0.67	11	70	117.5	825
Dense SAND (a)	Top	55	148	36	42	-	-	4618	1.0	0.33	-	3	127.5	1250
	Bottom	70	133	36	42	-	-	5619	1.0	0.33	-	3	127.5	1250
Dense SAND (b)	Top	70	133	36	43	-	-	5619	1.0	0.32	-	3	130	1485
	Bottom	87	116	50	43	-	-	6781	1.0	0.32	-	3	130	1485
Half Space	Top	87	116	-	-	-	-	-	-	-	-	-	130	1750

Notes: $(N_1)_{60}$ is corrected blow counts for hammer energy and overburden pressure, Su is undrained shear strength for clays, σ`p is preconsolidation pressure, σ`v is effective stress , OCR is over-consolidation ratio, K_0 is the at-rest earth pressure coefficient, PI is plasticity index. FC is fines content, γ is total unit weight of the soil and Vs is shear wave velocity for specific layers.

Based on the in-situ groundwater levels, the design groundwater is selected at a depth of 20 feet below ground surface (bgs), or approximate elevation +183 ft, for the site response analyses. Shear strengths used in the SRA are calculated at the mid-depth of each discretized soil layer using the vertical effective stress and friction angle for sands and the undrained shear strength using for clays. These parameters were developed based on the available field and laboratory data and material property correlations. The design shear wave velocity profiles are estimated primarily using the available shear wave velocity data measured from the two seismic cone penetration tests (SCPTs), SCPT-05 and SCPT-06, completed by Kleinfelder in 2022. The layer thickness selected for the nonlinear analyses such that the maximum frequency that can propagate through each soil layer is greater than 30 Hz.

Site Class

Based on the shear wave velocity data, the site is classified as a Site Class D site per Section 20.2 of ASCE 7-22. However, for the purpose of site response analysis, the base of the soil column is defined as Site Class C as discussed below.

The shear wave velocities from the seismic CPTs are plotted in Figure H-1, along with the design shear wave velocity profiles. It should be noted that the V_{S30} value used to evaluate the site class is different from that used to develop the base target spectrum.

For site response analysis, base of the soil column was selected at a depth of about 88 feet based on the data provided in SCPT-05. The CPT sounding encountered refusal at that depth and shear wave velocity was in excess of 1,500 feet/sec. At the depth of 88 feet, the V_{S30} value was assumed to be about 1,750 ft/s (533 m/s) at the base of the soil column which is within the limits used to define Site Class C. This value was used to develop the input base target spectrum for use in the SRA.

DEVELOPMENT OF BASE GROUND MOTIONS

Development of base ground motions time histories for use in the SRA includes developing a target response spectrum at the base of the soil column and then selecting and spectrally matching time histories to the target spectrum. A site-specific ground motion hazard analysis (GMHA) was performed per Section 21.2 of ASCE 7-22 to develop the base target MCE_R spectrum which was used for selecting and spectrally matching the input base ground motions. The GMHA generally includes a representative seismic source model (geometry, style of faulting, magnitude, etc.), appropriate recurrence relationships, and appropriate ground motion models (aka. attenuation relationships).

The regional seismotectonic setting, regional faulting, and historic seismicity inform the selection of an appropriate seismic source model and provide context for the likely potential for future earthquakes to impact the site. Further discussion of the regional seismicity and faulting in the area of the project site is provided in the subsequent sections.

Seismotectonic Setting

The site is located within the Hollister Valley, at the southern end of the greater Santa Clara Valley, in the Coast Ranges geomorphic province in the Western United States (WUS) along the predominantly right lateral transform margin between the Pacific and North American Plates. The Coast Ranges are northwest-trending mountain ranges and valleys, subparallel to the San Andreas Fault Zone. The Hollister Valley is bounded by the Gabilan Range to the southwest and the Diablo Range to the northeast. Regionally, stress build up is associated with the northeast relative movement of the Pacific Plate and extensional relaxation of the Basin and Range. These stresses are accommodated primarily by displacements on faults within the San Andreas Fault Zone, and to a lesser extent by displacements on faults within the Walker Lane Belt near California/Nevada border (Unruh and Humphrey, 2017; Field et al., 2013).

Regional Faulting and Historic Seismicity

Based on the information provided in Bryant and Hart (2007), the site is not located within a State designated Alquist-Priolo (AP) Earthquake Fault Zone and no known active faults are mapped traversing the site. However, the site is located close to several active faults where historic seismic activities have been observed in the past. However, the site is located close to several active faults where historic seismic activities have been observed in the past.

The nearest fault to the site is the Hayward Fault Zone located approximately 5.4 km to the east of the site. Other nearby major fault sources include the North San Andreas Fault Zone, the Sargent fault, the Monte Vista-Shannon fault, and the Calaveras fault. Any seismic activity on these faults could cause significant ground shaking at the site. These and other potential seismogenic sources within approximately 100 kilometers of the site are identified on Figure H-2. Figure H-3 shows the nearby faults within 300 kilometers of the site considered for the probabilistic seismic hazard analysis (PSHA) and Figure H-4 shows the closest faults to the site location and their respective distances from the site that were used for the deterministic seismic hazard analysis (DSHA) for the GMHA.

Patterns of historic seismicity are used to identify potentially active sources, develop on- and off-fault recurrence rates, and understand the historic impacts from seismicity at a site. A catalog of events is typically used such as those developed for the Uniform Earthquake Rupture Forecast version 3 (UCERF3) (Field et al., 2013). For this study, we compiled and reviewed data from the USGS ANSS Comprehensive Earthquake Catalog which contains data from multiple sources from 1800 to 2021 within 300 km of the site. We also reviewed the catalog of historic events developed and used by the UCERF3 project. Comparison of these two catalogs indicates generally good agreement. In addition, we obtained information about California earthquakes having $M \geq 5$ from CGS Map Sheet 49 (Toppozada et al., 2000).

Significant regional seismicity includes the 1868 (M_w 6.8) Hayward earthquake, the 1906 San Francisco (M_w 7.9) earthquake, the 1838 San Andreas Fault (M_w 7.4) earthquake, and the 1989 Loma Prieta (M_w 6.9) earthquake. Historic seismicity within 100 km of the site is depicted on Figure H-2.

A publication prepared by the U.S. Geological Survey (USGS) regarding earthquake probabilities in the Bay Area (Working Group on California Earthquake Probabilities, 2014) concludes that there is a 72 percent chance that one of the major faults within the Bay Area will experience a major (M 6.7+) earthquake during the period of 2014 to 2043. This publication also shows that there are a 51 percent chance of M 7+ earthquake and a 20 percent chance of M 7.5+ happening before 2043. As has been seen in the past earthquakes such as the 1994 (M 6.7) Northridge earthquake, this level of shaking could cause significant damage to the built environment.

Seismic Source Model

Based on our review of the seismotectonic setting and nearby active sources we have selected the Petersen et al. (2018) source model, which has been used in the USGS 2018 National Seismic Hazard Mapping (NSHM) program, as the base model for our evaluations. The Petersen et al. (2018) source model generally uses the sources developed by UCERF3 within California (which utilizes two alternative fault models designated as FM 3.1 and FM 3.2) to model on-fault seismicity. Off-fault seismicity (i.e., background seismicity) is modeled using gridded seismic sources from UCERF3. The UCERF3 source model has been used in developing the 2018 USGS National Seismic Hazard Maps and is appropriate for use in modeling seismicity at the site based on the 2025 CBC and ASCE 7-22.

Shallow crustal fault sources from the regional model within 300 km of the site have been included in the model, with subduction earthquake sources included out to 1000 km as recommended by the USGS (Petersen et al., 2018). Based on review of the nearby and significant sources it was felt that the existing UCERF3 model generally adequately captures the seismicity in the region. The source model used for this work is shown on Figure H-3, with significant fault sources within 30 km of the site listed below in Table H2.

TABLE H2: SIGNIFICANT INDEPENDENT SEISMOGENIC FAULT SOURCES WITHIN 30 KM

Fault Name[1,4,5]	Approx. Closest Distance to Site (km)	Fault Length[1] (km)	Avg Dip[1] (deg.)	$M_{max}^{(3)}$	Slip Rate[1] (mm/yr)
Hayward (So) extension 2011 CFM	5.4	23.1	48	6.2	-
Monte Vista - Shannon 2011 CFM	6.4	60.03	61	7.1	0.6
Calaveras (Central) 2011 CFM	10.0	52.21	77	6.8	15
Hayward (So) 2011 CFM	15.4	54.37	76	7	9
Sargent 2011 CFM	17.6	56.91	90	6.7	3
Butano 2011 CFM	19.7	46.21	70	6.9	0.01
San Andreas (Santa Cruz Mountains) 2011 CFM	19.8	62.52	79	7.2	17
Calaveras (No) 2011 CFM	20.8	47.84	80	6.9	6
San Andreas (Peninsula) 2011 CFM	21.3	99.68	90	7.4	17
Mission (connected) 2011 CFM	22.1	28.06	90	7.4	0.1
Greenville (So) 2011 CFM	28.1	28.98	87	6.6	3

Notes:
1. Values shown are representative values presented in UCERF3 "fault section data" table and Table B1.
2. Distances shown are to the modeled fault surface or projected surface trace in UCERF3.
3. Magnitudes are based on the relationships of Ellsworth B, Hanks and Bakun, and Shaw (Field et al., 2013) using values presented in UCERF3 documentation. Actual PSHA run with range of values representing uncertainty in hazard, relaxation of segmentation, and multi-fault ruptures. Multi-fault and multi-segment ruptures result in larger (but typically less probable) events. For example:
    a. Whittier-Elsinore – CM+J+T+s+GI+W Magnitude 7.8 (BSSC, 2014)
    b. San Jacinto – SBV+SJV+s+A+CC+B+SM Magnitude 7.8 (BSSC, 2014)
    c. S. San Andreas – PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO Magnitude 8.2 (BSSC, 2014)
4. Less significant and/or distant faults are not shown for clarity. See Figure H-3 for full fault model to 300 km.

5. CFM refers to the Community Fault Model.

'Grand Inversion' and Recurrence Rates

The earthquake recurrence rates used within the source model used for this project were derived from work completed for UCERF3 as implemented by Petersen et al. (2018) using the branch averaged solutions of the 'grand inversion'. The 'grand inversion' scheme used by the UCERF3 project team 'solved' the on-fault and off-fault recurrence rates at a system level using a set of defined constraints including the spatial probability density of off-fault seismicity, slip rate balancing, paleoseismic event rate matching, fault smoothness constraint, regional magnitude frequency distribution constraints, and fault section specific magnitude frequency distribution constraints. In simple terms the 'grand inversion' solves for three things: large on-fault (supra-seismogenic) event rates; small, near-fault (subseismogenic) event rates; and truly off-fault (unassociated) event rates. The supra-seismogenic 'on-fault' events are ultimately modeled using linear fault sources; while the latter two categories (subseismogenic and off-fault) are considered 'background seismicity' and are modeled using spatially smoothed 'grid' of evenly spaced cells (gridded seismicity). The combined on-fault and off-fault solution set (fault system solution) used the logic tree solution framework shown in a generalized form on Figure H-5; and our model implemented the branch averaged solutions.

In the source model used for this work, the on-fault seismicity considers two potential alternative fault models, equally weighted, identified as fault model 3.1 (FM 3.1) and fault model 3.2 (FM 3.2). These fault models each contain a slightly different collection of fault traces that are broken into 'segments' for modeling purposes, with individual 'segments' strung together to create hundreds of thousands of potential fault-based ruptures or multi-rupture events. In our model, fault segments are modeled using a 'characteristic' magnitude frequency distribution (originally described by Schwartz and Coppersmith, 1984) with the recurrence rates constrained during the 'grand inversion' by the UCERF2 'characteristic' inversion branch. Fault slip rates (deformations) are constrained by a combination of a 'pure' geologic deformation model and three other models that consider geologic and geodetic data including the average fault block model, NeoKinema model, and Zeng-Shen model. The magnitude-area relationships used along with the associated slip-length models as well as other solution constraints applied are shown with weights on Figure H-5 and discussed in detail in Field et al. (2018).

Off-fault seismicity (e.g. background seismicity) recurrence rates are solved for simultaneously by the 'grand inversion'. This off-fault background seismicity is intended to include all smaller earthquakes (M_w<~6.5) on major faults and earthquakes of all sizes that are not associated with known faults. The off-fault background seismicity considers spatial smoothing of a 'grid' of evenly spaced cells using the spatial probability density function (PDF) grids of off-fault seismicity from UCERF2 and UCERF3 (equally weighted), considering the regional constraints on the model including the total regional magnitude-frequency distribution (e.g. Gutenberg-Richter distribution), maximum off-fault magnitude (7.3, 7.6, or 7.9 weighted as 0.1, 0.8 and 0.1 respectively), number of regional events per year greater than a magnitude 5 (considered between 6.5 and 9.6) and other constraints as shown on the logic tree (see Figure H-5). The branch averaged gridded seismicity solution for each fault model, as implemented by Petersen et al. (2018), is used in the source model for this work.

Ground Motion Models

Site-specific ground motions can be influenced by the styles of faulting, magnitudes of the earthquakes, and local soil conditions. Other effects such as near source or basin effects can also influence the ground motions. The ground motion models (GMMs) used to estimate ground motion from an earthquake source need to directly or indirectly consider these effects. Many GMMs have been developed to estimate the variation of spectral acceleration with earthquake magnitude and distance from the site to the source of an earthquake.

We have used four of the five Next Generation Attenuation (NGA) West 2 relationships consisting of Abrahamson et al. (2014), Boore et al. (2014), Chiou and Youngs (2014), and Campbell and Bozorgnia (2014) with equal weights applied for all crustal faults (e.g. reverse, strike-slip, normal) included in the fault model. The Idriss (2014) GMM has not been used as the seismic source distances used in our analyses are outside the limits of Idriss (2014) GMM and the V_{S30} used for the base target spectrum is outside the range of this relationship. This is consistent with the 2018 USGS National Seismic Hazard Maps. The $Z_{1.0}$ and $Z_{2.5}$ values of about 270 m and 0.84 km were used based on the values obtained from nearby recording stations and using the V_{S30} value of 533 m/s per Abrahamson et al. (2014) and Campbell and Bozorgnia (2014) relationships.

Spectral acceleration values were obtained by averaging the individual hazard results. These GMMs provide 'mean' (i.e., RotD50) values of ground motions associated with magnitude, distance, site soil conditions, and mechanism of faulting.

Ground Motion Hazard Analysis

According to ASCE 7-22, the Risk-Targeted Maximum Considered Earthquake (MCE_R) is the most severe earthquake load considered at the orientation that results in the maximum response to horizontal ground motions with adjustment for targeted risk as defined by that standard. The site-specific MCE_R target response spectrum at the base of the soil column was developed in accordance with Section 21.2 of ASCE 7-22 using a site-specific ground motion hazard analysis (GMHA) procedure and is the lesser of: (1) the probabilistic MCE_R ground motion taken as the five percent damped uniform hazard spectrum for a 2 percent probability of exceedance in 50 years (i.e., return period of about 2,475 years) adjusted for risk factors and for the maximum direction; and (2) the deterministic MCE_R ground motion taken as the 84th-percentile (median + one standard deviation) deterministic values adjusted for the maximum direction from the controlling fault(s) in accordance with Section 21.2.2 of ASCE 7-16. The resulting site-specific response spectrum may not be less than the 80 percent of the general code-based spectrum developed in accordance with Chapter 11 of ASCE 7-22.

Both probabilistic and deterministic seismic hazard analyses should be used to estimate the spectral accelerations used to develop the site-specific MCE_R target response spectrum unless the deterministic spectrum need not be calculated per Section 21.2.2 of ASCE 7-22.

Probabilistic Seismic Hazard Analysis

The probabilistic seismic hazard analysis (PSHA) uses a logic tree approach to appropriately account for epistemic and aleatoric uncertainty in the model. The logic tree includes information about uncertainties in the source models, ground motion models, and other items impacting development of ground motions. Important source characteristics include such items as magnitude and recurrence interval of potential seismic events, distance from the site to the causative source, and other parameters. The effects of site soil conditions and other considerations such as basin effects can be accounted for using ground motion models (GMMs).

The theory behind the empirical probabilistic approach to seismic risk analysis has been developed over many years (Cornell, 1968, 1971; Merz and Cornell, 1973; SSHAC, 1997), and is based on the "total probability theorem." Generally, this work uses an assumption that earthquake events are independent of time and space from one another (i.e., time-independent models). According to this approach, the probability of exceedance $P_E(z)$ at a given level of ground motion, z, at the site within a specified time period, t, is related to the annual frequency of exceedance v(z) by:

$$P_E(z) = 1 - \exp(-v(z) * t)$$

Different probabilities of exceedance may be selected, depending on the level of performance required. The return period is essentially equivalent to the reciprocal of v(z).

The PSHA is conducted using three generalized steps: 1) development of an appropriate seismic source model including source characterization, development of recurrence relationships, and appropriately capturing uncertainty, 2) selection of appropriate ground motion models (and site amplification models if appropriate), and 3) conducting the calculation and processing the results. The annual frequency of exceedance of a certain ground motion level can be found by summing the rates for all sources, N, with the rate for each source determined by summing over all magnitudes and source to site distances, and so forth. The annual frequency of occurrence of earthquakes of magnitude, m_i, on seismic source, n, is ?(m_i). The probability of an earthquake of magnitude m_i on source n occurring at a certain distance, r_j, from the site is $P(R = r_j \mid m_i)$ while the probability that the ground motion level, z, will be exceeded is given as $P(Z>z \mid m_i, r_j)$. Thus, mathematically the basic formulation for the annual frequency of exceedance, v(z), is given by:

$$v(z) = \sum_N \left[\sum_M \lambda(m_i) * \sum_R P\left(R = r_j \middle| m_i\right) * P\left(Z > z \middle| m_i, r_j\right) \right]$$

Modern computers make the above calculation, while computationally expensive, easily implementable. We have used the computer program HAZ (Powers, 2017) for our probabilistic analysis which implements the above general equation and evaluations of the probability of exceedance. Uncertainties are accounted for within the source model using the logic tree approach and source model discussed previously.

Deterministic Seismic Hazard Analysis

The deterministic seismic hazard analysis (DSHA) approach is based on the characteristics of the controlling earthquake and the causative fault associated with the earthquake. These characteristics include such items as magnitude and distance from the site to the causative fault. The effects of site soil conditions and mechanism of faulting are also accounted for in the GMMs. Per ASCE 7-22, the 84^{th}-percentile deterministic spectral acceleration values should be used for DSHA, with the exception that the deterministic spectrum need not be calculated when the spectral accelerations from the probabilistic spectrum are less than the deterministic lower limit (DLL) for the respective site class at all periods. As the probabilistic results are higher than the DLL at most periods in our analysis as shown in Figure H-6, the DSHA is required.

We used the NGA West 2 spreadsheet (PEER, 2015) to calculate deterministic ground motion values for the scenario earthquakes and used the results of deaggregation of the probabilistic analysisin determining the parameters of the scenario earthquakes for the DSHA. In accordance with Section 21.2.2 of ASCE 7-22, we ran deterministic seismic hazard analyses for the scenario earthquakes for all faults contributing 10 percent or more of the largest contributor to the seismic hazard. Deaggregation analysis was performed for PGA to a period of 10 seconds. Results of deaggregation analyses show that the maximum mean earthquake magnitudes are 7.56, 7.23, 8.05, and 7.22 for the Calaveras, the Hayward, the San Andreas, and the Monte Vista-Shannon faults, respectively and these are the scenario earthquakes which contribute at least 10 percent of the largest contributor. Utilizing the maximum mean earthquake magntiude for each of these scenario earthquakes, an enveloping deterministic response spectrum was developed. The computed 84^{th}-percentile deterministic response spectrum adjusted for maximum direction is shown on Figure H-7.

Site-Specific Target MCE_R Response Spectrum

To develop the site-specific MCE_R target response spectrum at the base of the soil columns, the general code-based design response spectrum per Chapter 11 of ASCE 7-22 was first obtained using the ASCE Hazard Tool (https://ascehazardtool.org/). This tool accesses the USGS seismic database using the site coordinates, site class, and risk category as input parameters. The resulting general design response spectrum is presented in Table H3. This table contains the values for Site Class C based on the V_{S30} value used for development of the target spectrum at the base of the soil column and should not be used for surficial ground motions.

TABLE H3: MULTI-PERIOD MCE_R GENERAL PROCEDURE RESPONSE SPECTRA FOR VARIOUS SITE CLASSES BASED ON ASCE 7-22

Period (s)	5% Damped, MCE_R Horizontal Response Spectra
	Site Class C
0.01	0.81
0.02	0.83
0.03	0.9
0.05	1.14
0.075	1.47
0.1	1.68
0.15	1.95
0.2	2.12
0.25	2.11
0.3	1.97
0.4	1.73
0.5	1.54
0.75	1.16
1	0.92
1.5	0.6
2	0.45
3	0.31
4	0.24
5	0.21

The site-specific MCE_R target response spectrum is developed by comparing probabilistic, deterministic, and 80 percent of the general procedure code spectra. The NGA West 2 GMMs present the spectral accelerations in terms of 'mean' (RotD50) values of the rotated two horizontal components of ground motion; therefore, in order to estimate spectral accelerations in the direction of the maximum horizontal response (e.g. RotD100) at each period from geometric mean values, we have used the scaling factors per Section 21.2 of ASCE 7-22 and applied them to both the probabilistic and deterministic response spectra. Per Section 21.2 of ASCE 7-22, the maximum direction scale factors are taken as 1.2 for periods less than or equal to 0.2 seconds, 1.25 for a period of 1.0 seconds, and 1.3 for periods greater than or equal to 10 seconds. Scale factors between these periods are interpolated linearly as shown below in Table H4. In addition to applying maximum direction scale factors, the probabilistic spectrum was also adjusted for targeted risk using risk coefficients computed using the USGS Hazard Toolbox (USGS Earthquake Hazard

Toolbox) to adjust the maximum direction probabilistic response spectrum to a 1 percent probability of collapse in 50-year period in accordance with Section 21.2.1 of ASCE 7-22. The computed values are also shown in Table H4.

TABLE H4: RISK COEFFICIENTS AND MAXIMUM DIRECTION ROTATION FACTORS FOR DEVELOPMENT OF MCE$_R$ TARGET RESPONSE SPECTRUM

Period (s)	Max Rotation Factor (ASCE 7-22)	Risk Coefficient (Target PSHA Spectrum)
0.01	1.20	0.979
0.02	1.20	0.992
0.03	1.20	0.991
0.05	1.20	0.973
0.075	1.20	0.981
0.1	1.20	0.971
0.15	1.20	0.982
0.2	1.20	0.978
0.25	1.20	0.973
0.3	1.21	0.965
0.4	1.21	0.959
0.5	1.22	0.958
0.75	1.23	0.946
1	1.25	0.935
1.5	1.25	0.931
2	1.26	0.922
3	1.26	0.921
4	1.27	0.918
5	1.27	0.912

Probabilistic and deterministic spectral acceleration values were compared as shown in Table H5 and Figure H-8 where the lower values of these two spectra controls the site-specific MCE$_R$ target response spectrum. Figure H-8 and Table H5 show that the deterministic spectrum is lower than the probabilistic spectrum at periods less than 1.2 seconds after which the probabilistic spectrum controls. Therefore, the site-specific MCE$_R$ target response spectrum is an enveloping spectrum of the probabilistic and deterministic values and, per the requirements of Section 21.2 of ASCE 7-22, shall not be lower than 80 percent of the code-based general spectrum. Figure H-9 and Table H5 shows the comparison of the site-specific MCE$_R$ target base spectrum with the 80 percent of the Site Class C code-based general MCE$_R$ spectrum indicating that the site-specific target spectrum is higher than the 80 percent of the cod-based general spectrum for all periods.

Spectral acceleration values for the final MCE_R target response spectrum at the base of the soil column are listed in Table H6 and shown on Figure H-10. These values were used for selection and spectral matching of the input time histories for site response analysis.

TABLE H5: COMPARISON OF PROBABLISTIC, DETERMINISTIC, AND 80% OF CODE SPECTRA FOR TARGET RESPONSE SPECTRA AT BASE OF SOIL COLUMN

Period (s)	Risk-Adjusted Maximum Direction Probabilistic Spectrum	84^{th} Percentile Maximum Direction Deterministic Spectrum	80% of Site Class C (ASCE 7-22 MCE_R Code Spectrum)
0.01	1.206	0.969	0.648
0.02	1.225	0.987	0.664
0.03	1.328	1.060	0.72
0.05	1.678	1.288	0.912
0.075	2.170	1.604	1.176
0.1	2.516	1.844	1.344
0.15	2.881	2.176	1.56
0.2	2.984	2.328	1.696
0.25	2.892	2.349	1.688
0.3	2.700	2.270	1.576
0.4	2.343	2.066	1.384
0.5	2.058	1.855	1.232
0.75	1.518	1.427	0.928
1	1.170	1.147	0.736
1.5	0.747	0.773	0.48
2	0.538	0.566	0.36
3	0.344	0.380	0.248
4	0.250	0.276	0.192
5	0.195	0.211	0.168

TABLE H6: SITE-SPECIFIC HORIZONTAL MCE_R TARGET RESPONSE SPECTRA AT BASE OF SOIL COLUMN

Period (s)	Target MCE_R Spectrum (5%-Damped)
0.01	0.969
0.02	0.987
0.03	1.060
0.05	1.288
0.075	1.604
0.1	1.844
0.15	2.176
0.2	2.328
0.25	2.349
0.3	2.270
0.4	2.066
0.5	1.855
0.75	1.427
1	1.147
1.5	0.747
2	0.538
3	0.344
4	0.250
5	0.195

Controlling Earthquake Magnitude and Distance

The target spectrum is controlled primarily by the Hayward fault with a magnitude of 7.6 at a distance of about 5.4 km. However, there are other major faults such as Monte Vista-Shannon, N. San Andreas, and Sargent faults within 15 km of the site which could impact the seismic hazard at the site. Due to this, we considered an earthquake magnitude range of 6.5 to 7.7 and distance range of 1 to 15 km for selection of time histories for the site response analysis. In addition, we considered both strike-slip and reverse fault mechanisms when selecting time histories.

Deaggregation Analysis

Since the site-specific target response spectrum is controlled by both the deterministic and probabilistic seismic hazard analyses, deaggregation analysis was performed to establish the dominant magnitude and distance pairs for different spectral periods using the computer program HAZ (Powers, 2017). Based on the fundamental period of the structure of 0.74 seconds, we have performed the deaggregation analysis for PGA and spectral periods of 0.1 second, 0.2 second, 0.5 second, 1.0 second, and 2.0 seconds. Table H7 presents the dominant magnitude and distance pairs, and epsilon values in terms of both mean and mode values. The magnitude-distance deaggregation plots are presented in Figure H-11.

TABLE H7: DEAGGREGATION ANALYSIS RESULTS MCE$_R$

Period (second)	Mean (over all sources)		Mode (largest m-r bin)		Mode (largest m-r-ε_0 bin)	
	Magnitude M_w	Distance, km	Magnitude M_w	Distance, km	Magnitude M_w	Distance, km
PGA	6.80	9.56	6.89	9.04	6.88	7.59
0.2	6.82	9.71	6.89	9.18	6.88	8.38
0.5	7.05	10.41	6.89	9.17	6.88	8.08
1.0	7.18	11.00	6.89	9.20	7.29	10.24
2.0	7.39	12.24	7.52	11.12	7.29	10.35
5.0	7.72	18.55	7.52	11.46	8.27	19.41
10.0	8.03	66.97	8.27	19.41	8.27	19.41

Time History Selection and Spectral Matching

Using the target MCE$_R$ response spectrum provided in Figure H-10 and Table H6, a suite of five time histories were selected from the PEER Strong Ground Motion Database (https://ngawest2.berkeley.edu/ PEER, 2014) and spectrally matched to the target spectrum for use in the site response analysis in accordance with Section 21.1.1 of ASCE 7-22. The time histories were selected based on several criteria including near-fault pulse motions, scaling factor, site-to-source distance, magnitude, V_{S30}, Arias intensity, duration, style of faulting, shape of response spectrum, and more. Note that these time histories were selected and modified for use in site response analysis only and may not be appropriate for other applications.

Due to the site's close proximity to the Hayward Fault Zone, both pulse and non-pulse motions were considered during selection of time histories. Based on the methodology presented in Hayden et al. (2014), the distance from the site to the Hayward fault zone, and an estimated epsilon value of about 1.5 to 2 based on deaggregation results, we estimated that the proportion of pulse motions to be selected for the site response analysis is four pulse motions out of five.

Other selection parameters included magnitude and V_{S30}, in which time histories with the magnitude and V_{S30} values relatively close to the dominant magnitudes from the deaggregation analyses and the V_{S30} value of 533 m/s (1,750 ft/sec) used for the target spectrum were selected. Considerations for Arias intensity and duration of the ground motions used the methodologies of Travasarou et al. (2003) and Bommer et al. (2009), respectively.

Based on these criteria, a suite of five time histories was selected from the PEER database that had a spectral shape after scaling (scaling factors less than 3) generally around the base target response spectrum. These selected ground motion time histories and their associated characteristics are provided in Table H8.

TABLE H8: SELECTED TIME HISTORIES FROM PEER DATABASE

Record No.	Event Name/Station	Year	M_w	Distance R_{rup} (km)	V_{S30} (m/s)	Faulting Mechanism	$D_{5\text{-}95}$ (sec)	I_A (m/s)	LUF (Hz)	Pulse Period (sec)
RSN 802	Loma Prieta/Saratoga – Aloha Ave	1989	6.93	8.5	381	RO	9.5	1.5	0.125	4.571
RSN 828	Cape Mendocino/ Petrolia	1992	7.01	8.2	422	R	17.7	3.8	0.07	2.996
RSN 1111	Kobe-Japan/Nishi-Akashi	1995	6.9	7.08	609	SS	11.2	3.4	0.125	-
RSN 1511	Chi-Chi - Taiwan/TCU076	1999	7.62	2.74	615	RO	29.5	3.7	0.125	4.732
RSN 4847	Chuetsu-Oki-Japan/Joetsu-Kakizakiku	2007	6.8	11.94	383	R	20.3	2.3	0.0875	1.4

Notes: Definitions: M_w – Moment Magnitude; R – Reverse fault; RO – Reverse Oblique fault; SS – Strike-slip fault; $D_{5\text{-}95}$ – Significant Duration; I_A – Arias Intensity; LUF – Lowest Usable Frequency

The selected ground motions from the PEER database were then modified by performing spectral matching using the RSPMatch program developed by Atik and Abrahamson (2010) as implemented in the computer program EZ-FRISK™ (Risk Engineering, 2018) which generally implements the spectral matching algorithm proposed by Lilhanand and Tseng (1987, 1988) with an updated wavelet adjustment to preserve the non-stationary characteristics of the ground motions. Spectral matching was completed such that the resulting spectrum was generally in good agreement with the target spectrum particularly over the period range of interest. The spectrally matched ground motions were compared with the PEER database original ground motions to ensure that the matching process retained the non-stationary characteristics of the record.

The selected, spectrally matched time histories used as the input "outcrop" ground motions in the site response analyses, along with the original time histories as obtained from the PEER database, are presented in Figures H-12 through H-16.

SITE RESPONSE ANALYSIS

Site response analysis was completed in general accordance with the 2025 CBC and Section 21.1 of ASCE 7-22. Evaluations were completed using the best estimate soil profile of the site and the selected and spectrally matched time histories as the "outcrop" ground motions in conjunction with one-dimensional

(1D) equivalent linear and nonlinear time-domain total stress (without porewater pressure generation) site response analyses using the computer program RSSeismic (Rocscience, 2025). Results of the site response analysis were used to develop the site-specific design acceleration response spectrum and seismic design parameters for the project. Details of the site response analysis methodology and results are presented in the subsequent sections.

Models and Parameters

The shear modulus reduction and damping ratio curves for the soils were estimated using the Darendeli (2001) model. In addition to the material properties listed in Table H1, the loading frequency and number of loading cycles were specified as 1 Hz and 10, respectively, per the recommendations of Darendeli (2001). To account for the design shear strengths at large shear strain levels, the reference backbone curves by Darendeli (2001) were used to fit the general quadratic/hyperbolic (GQ/H) backbone curve as described by Groholski et al. (2016) and implemented in RSSeismic. In addition, the reference damping ratio curves were used to fit the non-masing unloading-reloading relationship using the modulus reduction and damping curve fitting (MRDF) Pressure-Dependent Hyperbolic model (Phillips and Hashash, 2009). The fitting procedure was applied to each layer in the soil model. Therefore, the soil model can capture better both the small-strain soil behavior and the design shear strength at larger strain levels.

The viscous small-strain damping used a frequency independent formulation implemented in RSSeismic. The selected, spectrally matched acceleration time histories were inputted as “outcrop” ground motions at the base of the soil profile. The elastic half space was selected to model the “bedrock” at the base of the soil column as “outcrop” ground motions were used.

Results and Recommendations

Generally, the accuracy of the EL method is unacceptable when shear-strains exceed about 0.4 percent. Based on the maximum induced shear strains of the EL models, this threshold value was exceeded. Therefore, we have excluded EL results in the development of the recommended design response spectra. Figure H-17 shows the maximum shear strain profiles for the non-linear total stress (NL-TS) analysis for the soil profile evaluated.

Figure H-18 shows the resulting average surface response spectra and amplification function for the NL-TS analysis. The input base target spectrum is also included for comparison purposes on Figure H-18. The amplification function is developed by taking the average of the ratios of the surface ground motion values to the input base ground motion values. The MCE_R target response spectrum was then amplified using these amplification factors shown in Figure H-18, consistent with the requirements of ASCE 7-22.

According to Section 21.2.3 of ASCE 7-22, the amplified MCE_R response spectrum should not be less than 80 percent of the code-based general MCE_R spectrum for the site class based on the V_{S30} value at the surface, which is Site Class D for this site as discussed in Section 6.3 of the main report. The 80 percent of the code-based MCE_R spectrum for Site Class D was obtained from ASCE hazard tool ASCE Hazard Tool (https://ascehazardtool.org/) as shown in Figure H-19 and Table H9. Furthermore, we also compared the

MCE_R amplified target response spectrum to the average of the surface response spectra from the NL-TS analysis, also shown in Figure H-19.

As shown in Figure H-19, the 80 percent of the code-based spectrum controls for periods less than 0.05 seconds, between periods of 0.08 and 1 second, and at periods greater than 3 seconds. At periods between 0.05 and 0.08 seconds, as well as at a period of 2 seconds, the average of the surface response spectra from the NL-TS analysis controls. At periods of about 1.5 to 2 seconds, the amplified target spectrum controls. Therefore, the final site-specific MCE_R surface response spectrum based on the site response analysis results in an enveloping spectrum of the amplified target spectrum, the average of the surface NL-TS spectra, and the 80 percent of the code-based spectrum for Site Class D. The code-based spectrum for Site Class D is shown in Table H9. The final site-specific design earthquake (DE) spectrum is taken as two-thirds the site-specific MCE_R spectrum. Final recommended DE and MCE_R horizontal response spectra are shown in Figure H-20 and the recommended site-specific DE and MCE_R spectral acceleration values are provided in Table H10.

TABLE H9: CODE-BASED HORIZONTAL SPECTRAL ACCELERATIONS

Period (second)	DE Sa (g)	MCE_R Sa (g)
	Site Class D	
0.01	0.51	0.76
0.02	0.51	0.76
0.03	0.52	0.78
0.05	0.59	0.88
0.075	0.75	1.12
0.1	0.89	1.34
0.15	1.05	1.58
0.2	1.11	1.67
0.25	1.19	1.79
0.3	1.28	1.92
0.4	1.35	2.02
0.5	1.31	1.97
0.75	1.12	1.68
1.0	0.96	1.45
1.5	0.73	1.09
2.0	0.59	0.88
3.0	0.42	0.63
4.0	0.31	0.47
5.0	0.24	0.36

TABLE H10: RECOMMENDED SITE-SPECIFIC HORIZONTAL SPECTRAL ACCELERATIONS

Period (second)	DE Sa (g)	MCE_R Sa (g)
	5% Damping	
0.01	0.408	0.612
0.02	0.408	0.612
0.03	0.416	0.624

Period (second)	DE Sa (g)	MCE_R Sa (g)
	5% Damping	
0.05	0.474	0.711
0.075	0.604	0.906
0.1	0.712	1.068
0.15	0.840	1.260
0.2	0.888	1.332
0.25	0.952	1.428
0.3	1.024	1.536
0.4	1.080	1.620
0.5	1.048	1.572
0.75	0.896	1.344
1.0	0.768	1.152
1.5	0.616	0.924
2.0	0.514	0.771
3.0	0.336	0.504
4.0	0.248	0.372
5.0	0.192	0.288

Site-Specific Parameters for Existing Condition

Seismic design parameters S_{DS} and S_{D1} were obtained from the site-specific results using the procedures outlined in Section 21.4 of ASCE 7-22. According to ASCE 7-22, the parameters S_{DS} shall be taken as 90 percent of the maximum spectral acceleration from 0.2 seconds to 5 seconds. Based on the site-specific results, the spectral acceleration at a period of 0.4 seconds controlled the S_{DS} value. The S_{D1} parameter is taken as 90 percent of the maximum product of the period and spectral acceleration (T*Sa) for periods from 1 to 5 seconds since the site's V_{S30} value taken from the surface is less than 1,450 ft/s. This S_{D1} value should also not be less than 100 percent of the spectral acceleration value at a period of 1 second per Section 21.4 of ASCE 7-22. Based on the site-specific results, the spectral acceleration at 2 seconds controlled the S_{D1} value. The S_{MS} and S_{M1} values shall be taken as 1.5 times the respective design level parameter. The site-specific parameters are shown in Table H11 and on Figure H-20.

TABLE H11: SITE-SPECIFIC DESIGN ACCELERATION PARAMETERS

Parameter	Value (5% Damping)
S_{DS}	0.972g
S_{D1}	0.925g
S_{MS}	1.458g
S_{M1}	1.387g

LIMITATIONS

The values in this appendix were developed using site response analysis in general accordance with 20.2.1 of ASCE 7-22 to support the seismic design for the subject project. The results are subject to the same limitations as contained in the main report and rely upon the available site-specific field investigation and laboratory data.

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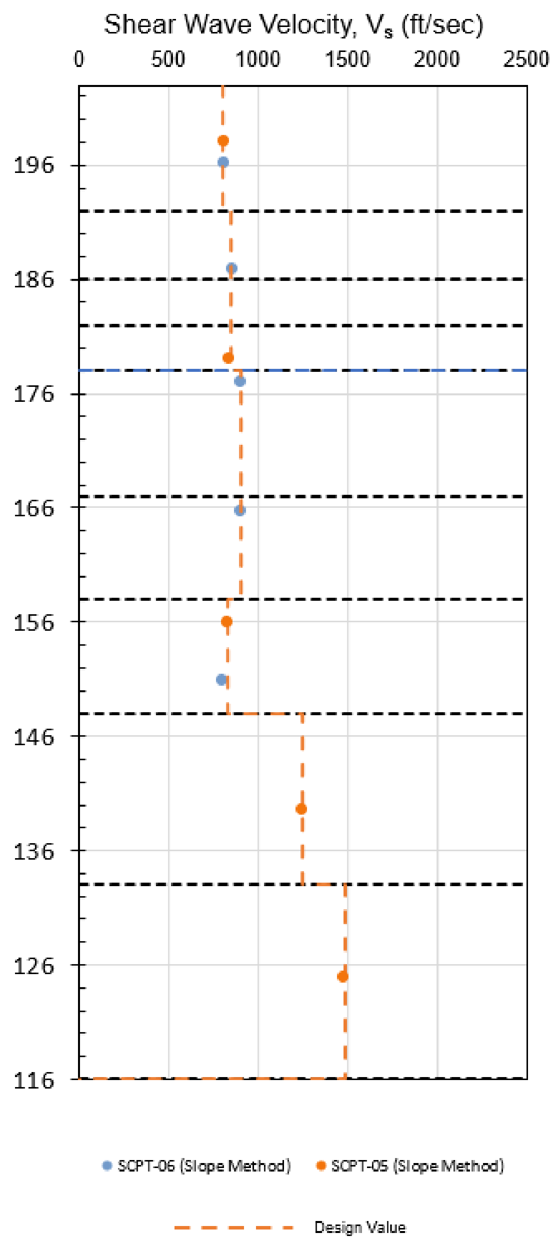

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 26002624.001A	**SHEAR WAVE VELOCITY SCPT-05 AND SCPT-06**	FIGURE
	DATE: 01/2026		H-1
	DRAWN: AP		
	CHECKED BY: JB	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	
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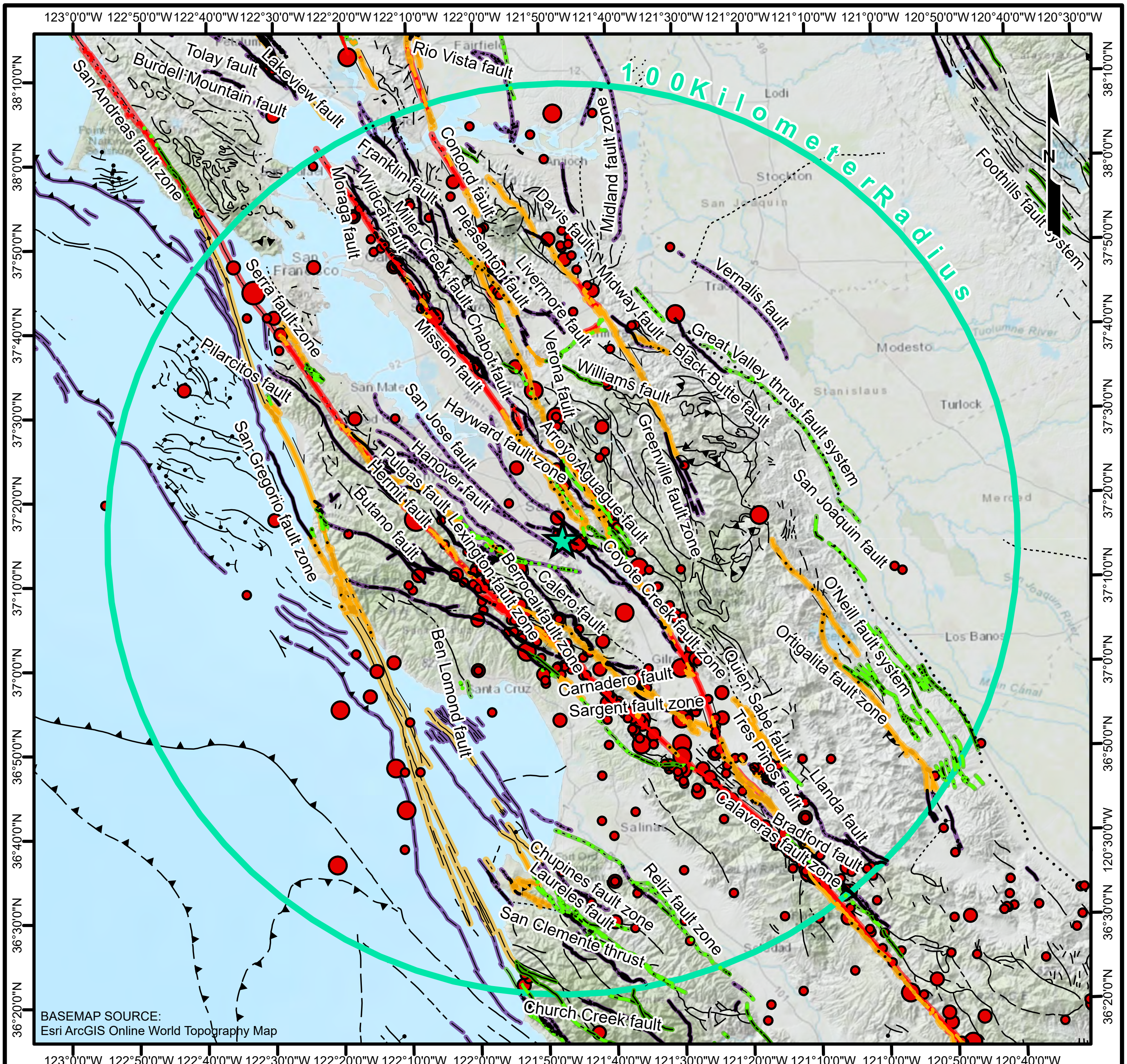

Quaternary Faults (Jennings and Bryant, 2010)

Historic displacement (< 150 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Holocene displacement (< 15,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Late Quaternary displacement (< 750,000 years)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

Quaternary & unspecified displacement (< 1,600,000 years)
- undifferentiated Quaternary Well Constrained
- undifferentiated Quaternary Moderately Constrained
- undifferentiated Quaternary Inferred

Pre-Quaternary geologic structures (CGS, 2010)
- Mapped Fault Location
- Dashed were Approximated
- Concealed

ANSS Earthquakes
Magnitude
- 4.0 - 4.9
- 4.9 - 5.9
- 5.9 - 6.9
- 6.9 - 7.9
- 7.9 - 8.9

0 17 34 68 Kilometers

Date: 1/13/2026 User: ALeonard Path: \\azrgisstorp03\GIS_Projects\Client\Prologis_LP\26002624_SilverCreekDataCEnter\26002624_SilverCreekDataCEnter.aprx

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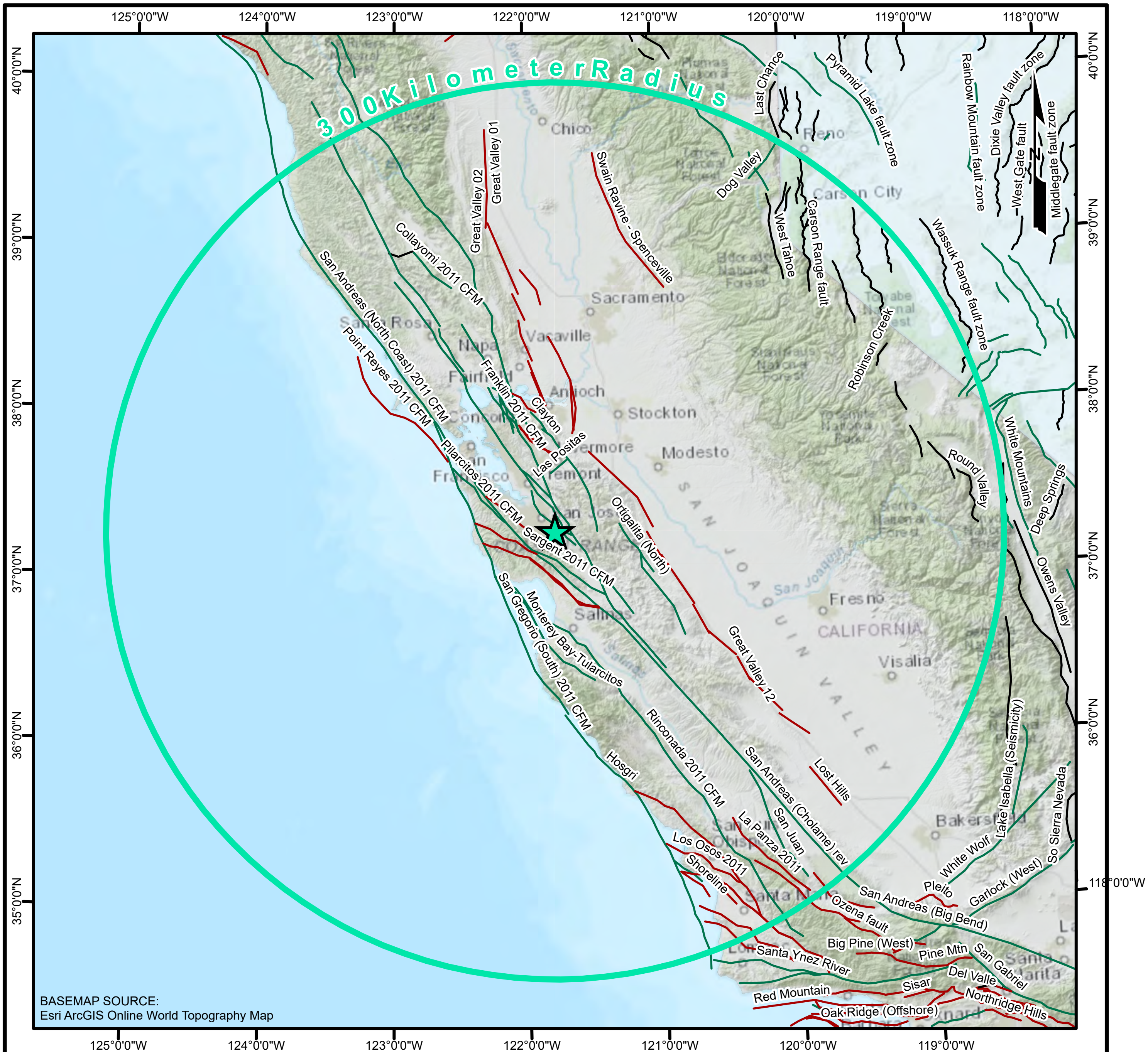
PROJECT NO. 26002624.001A	
CREATED:	1/13/2026
CREATED BY:	ALeonard
CHECKED BY:	APaudyal
FILE NAME:	SilverCreek_EQ_FaultMap_FAM_100km

REGIONAL FAULT MAP AND EARTHQUAKE EPICENTERS

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE
H-2



Faults, National Seismic Hazard Map (NSHM), 2014

- normal
- strike slip
- thrust
- unassigned

0 50 100 200
Kilometers

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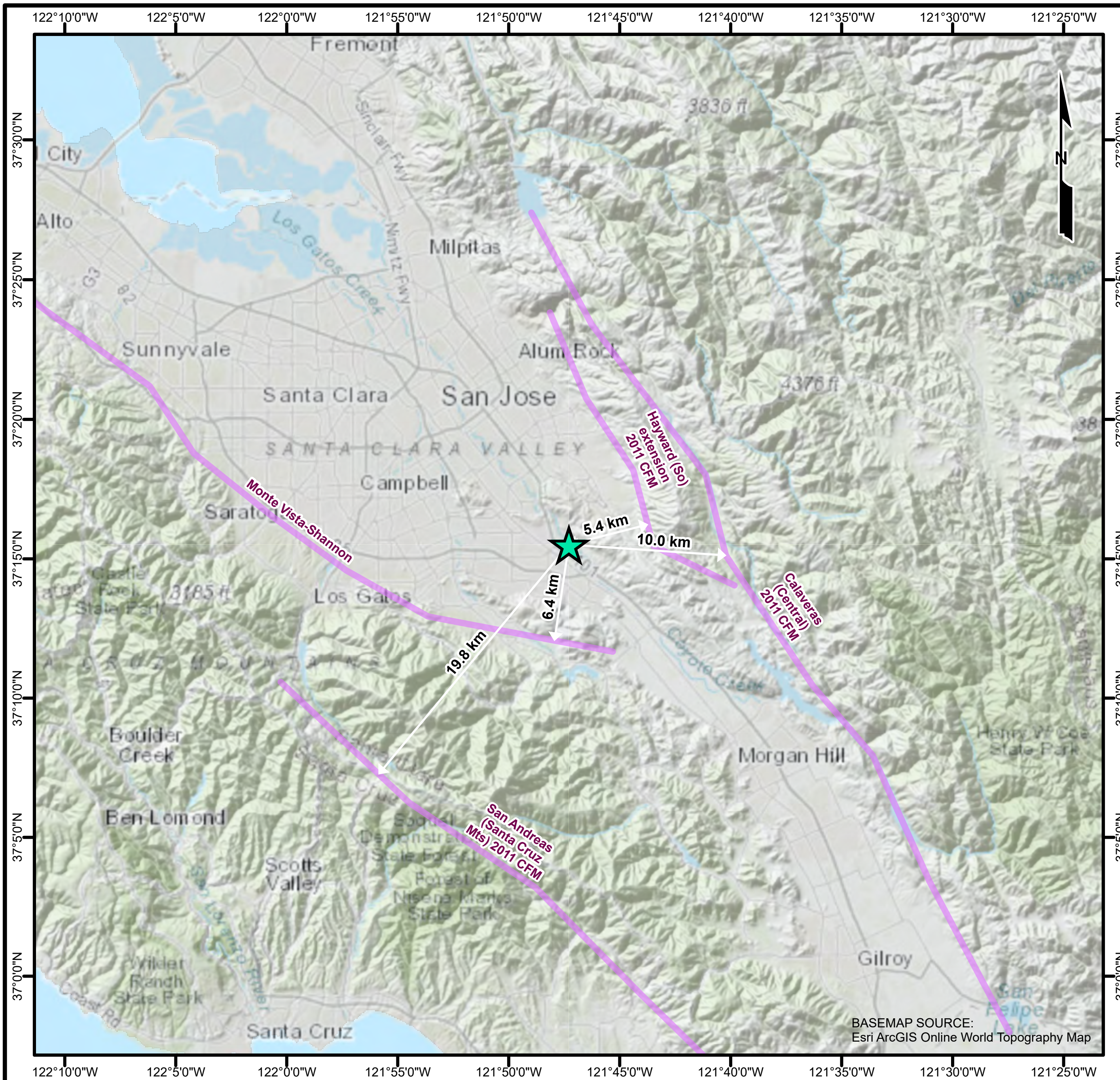
PROJECT NO. 26002624.001A	
CREATED:	1/13/2026
CREATED BY:	ALeonard
CHECKED BY:	APaudyal
FILE NAME:	SilverCreek_EQ_FaultModel_300km

UCERF SEISMIC SOURCE MODEL

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE
H-3



Legend

Project Location

CGS/MS48 UCERF3 Faults

0 7.5 15 30 Kilometers

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PROJECT NO. 26002624.001A	
CREATED:	1/13/2026
CREATED BY:	ALeonard
CHECKED BY:	APaudyal
FILE NAME:	SilverCreek_EQ_FaultDistances

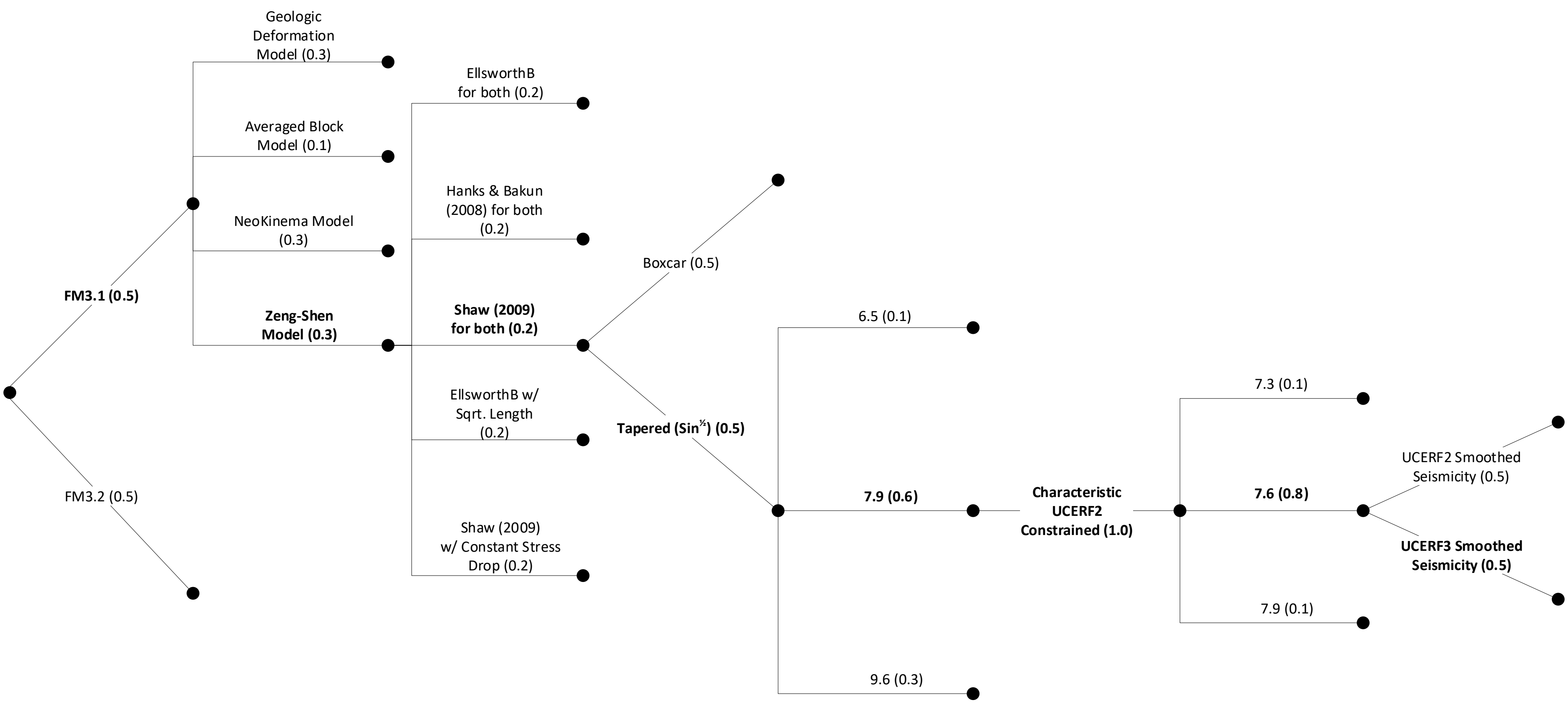
SITE TO SOURCE DISTANCES

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE

H-4

Fault Models	Deformation Models	Scaling Relationships (mag-area & slip-length relationships)	Slip Along Rupture (Dsr)	Total $M \geq 5$ Event Rate (yr^{-1})	Inversion Model	$M_{max}^{off\text{-}fault}$	Off-Fault Spatial Seismicity PDF (aka SpatialPDF)



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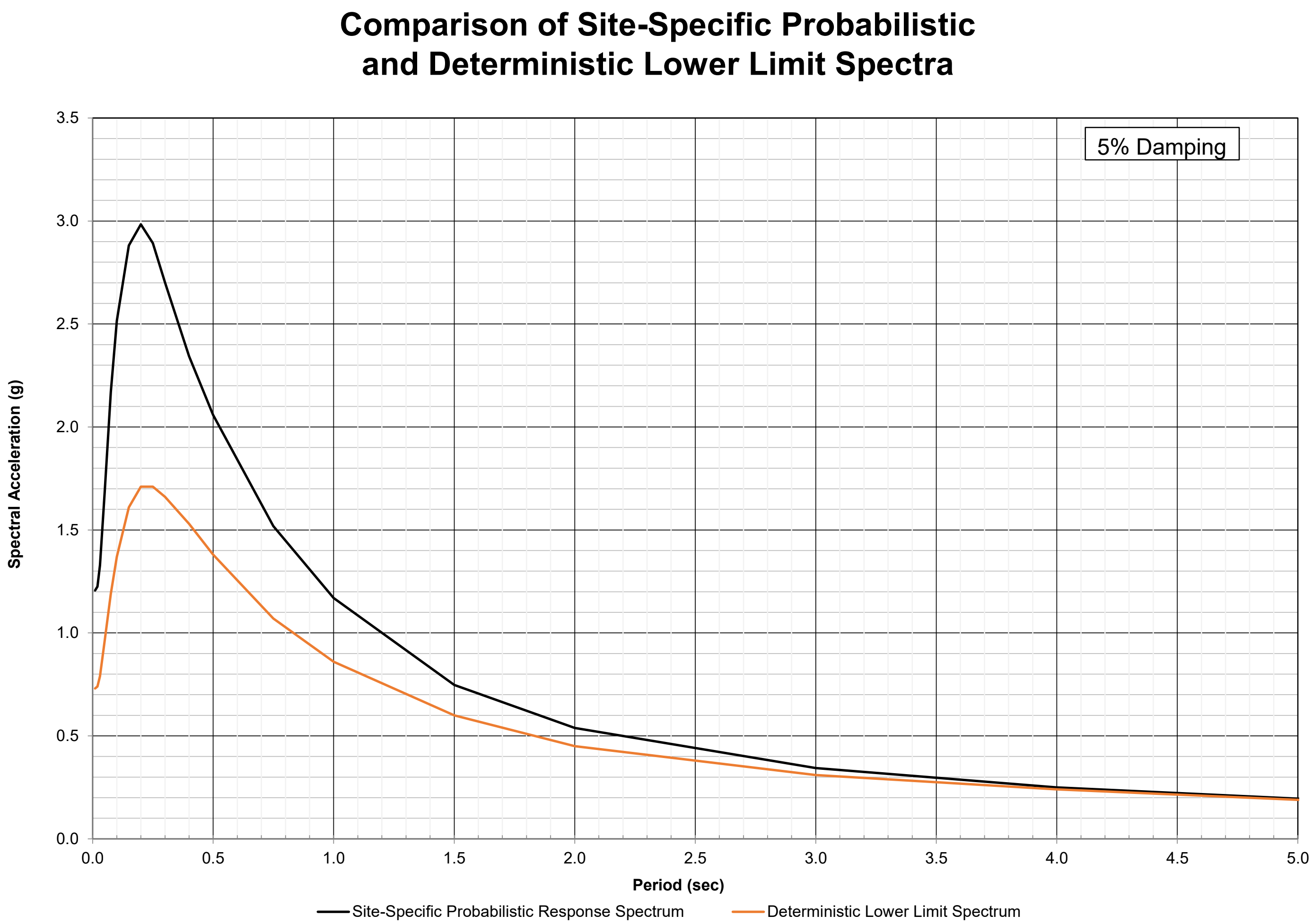
PROJECT NO.	26002624.001A
DRAWN:	01/2026
DRAWN BY:	AP
CHECKED BY:	JB
FILE NAME:	Figure - Model Tree Logic.pdf

UCERF3 SOURCE MODEL LOGIC TREE

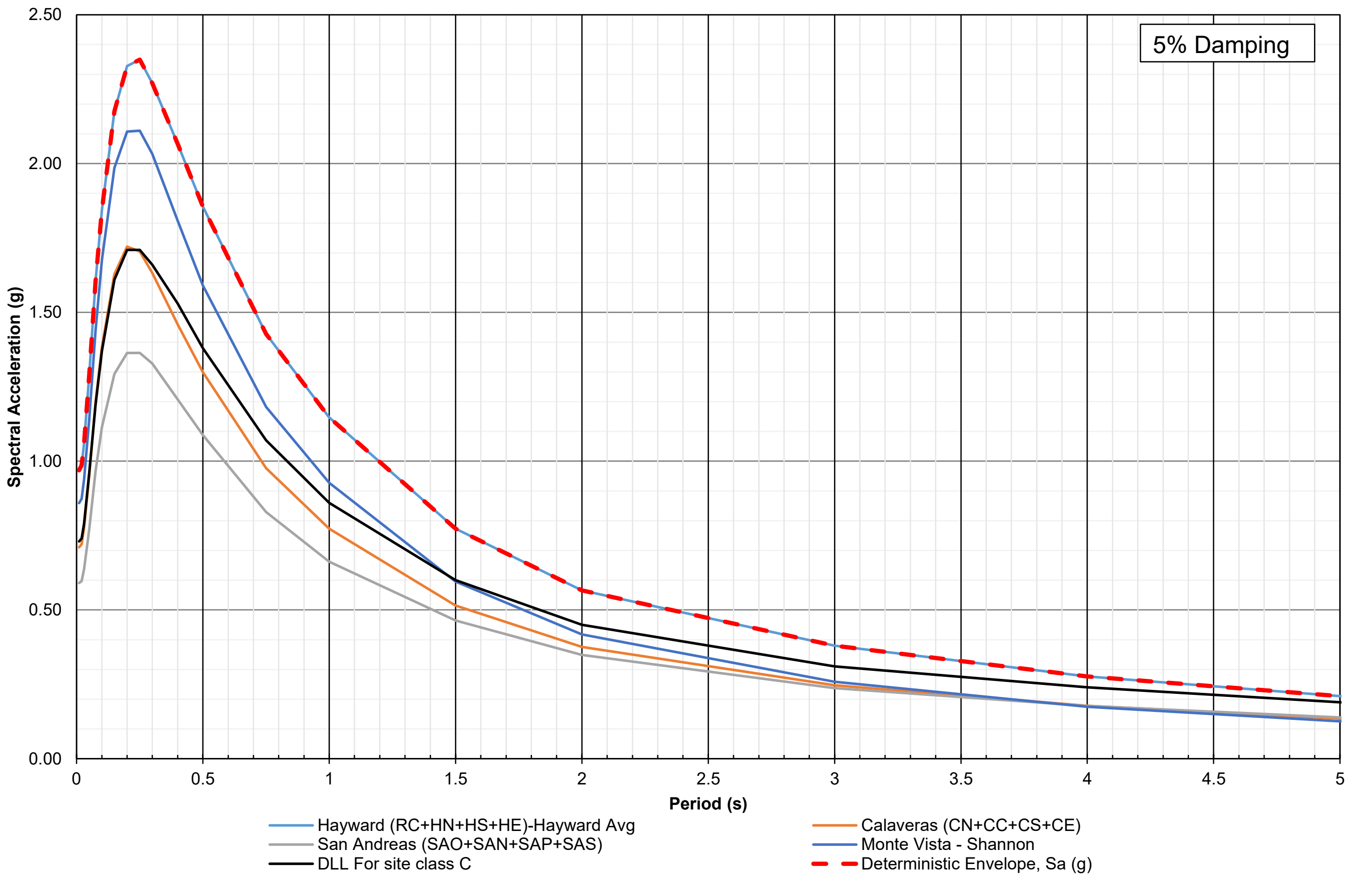
SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE:
H-5



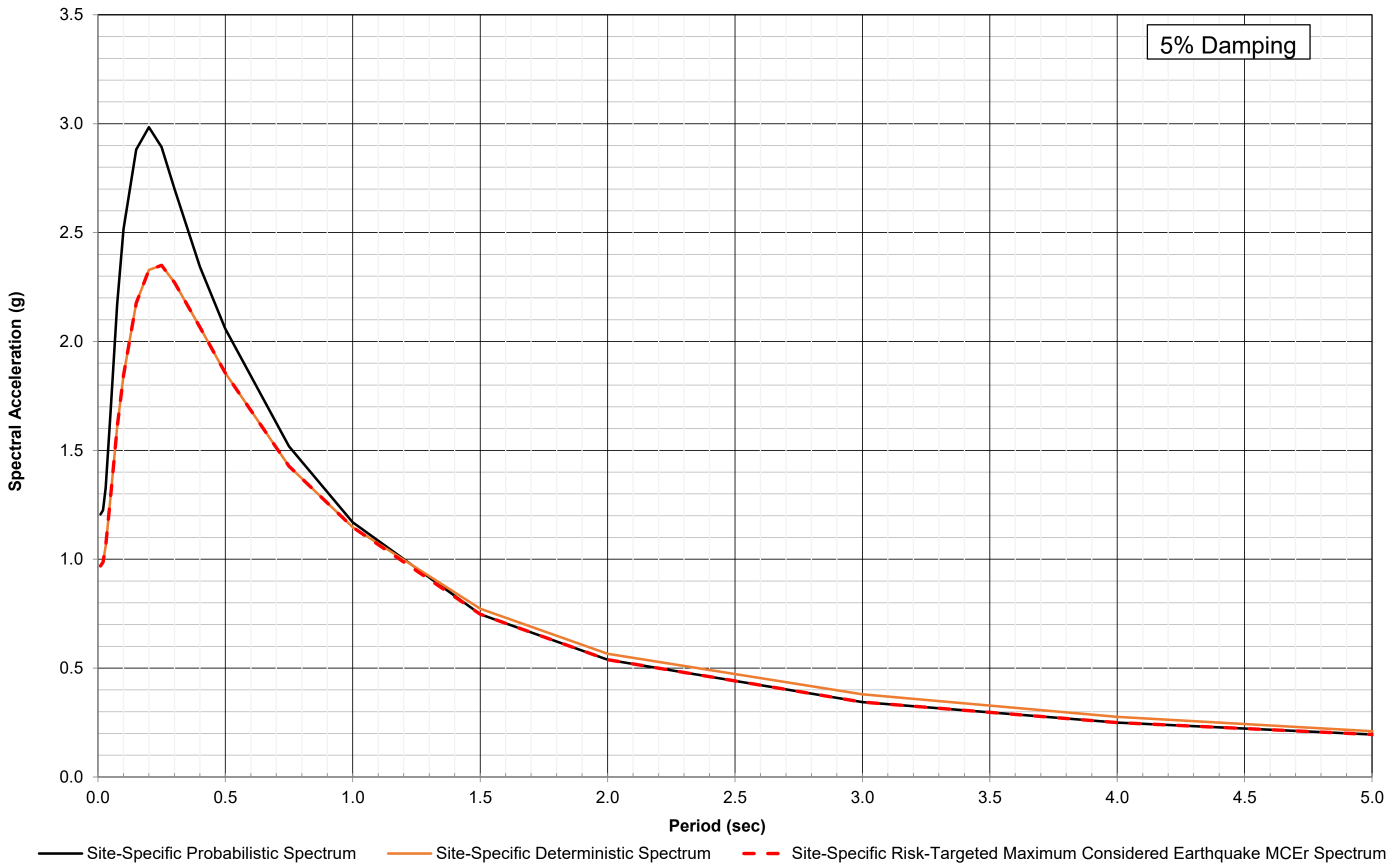
Project No:	26002624.001A	**COMPARISON OF SITE-SPECIFIC PROBABILISTIC AND DETERMINISTIC LOWER LIMIT SPECTRA ASCE 7-22**	**FIGURE**
Date:	1/12/2026		
Drawn By:	A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	**H-6**
Checked By:	JB		
File Name:	GMHA_7_22_SCDC		

Comparison of 84th-Percentile Deterministic Geometric Mean Response Spectra



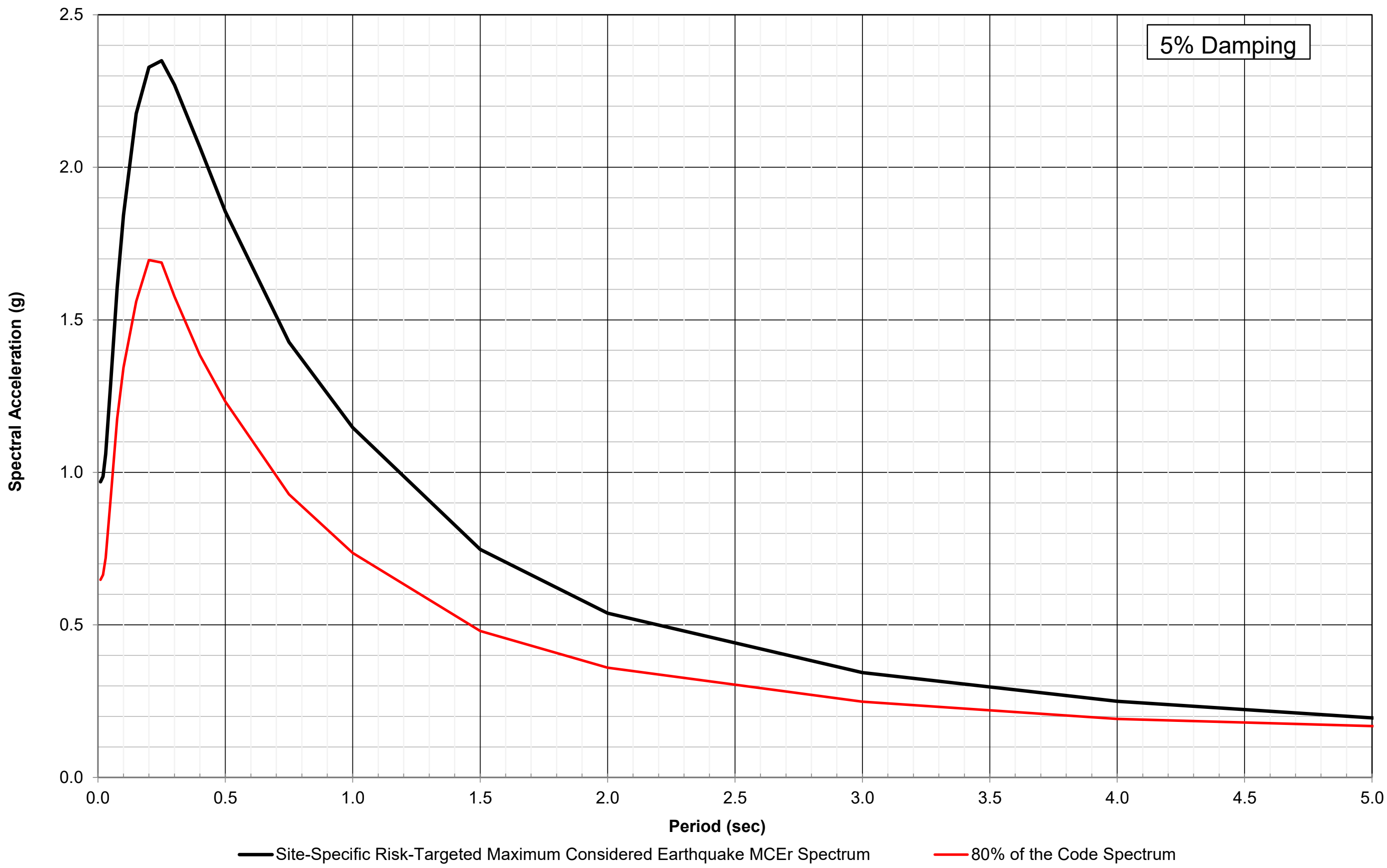
KLEINFELDER Bright People. Right Solutions.	Project No:	26002624.001A	COMPARISON OF 84th PERCENTILE DETERMINISTIC RESPONSE SPECTRA	FIGURE
	Date:	1/12/2026		
	Drawn By:	A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	H-7
	Checked By:	JB		
	File Name:	GMHA_7_22_S CDC _JB_AP.xlsx		

Comparison of Site-Specific Probabilistic and Deterministic Spectra



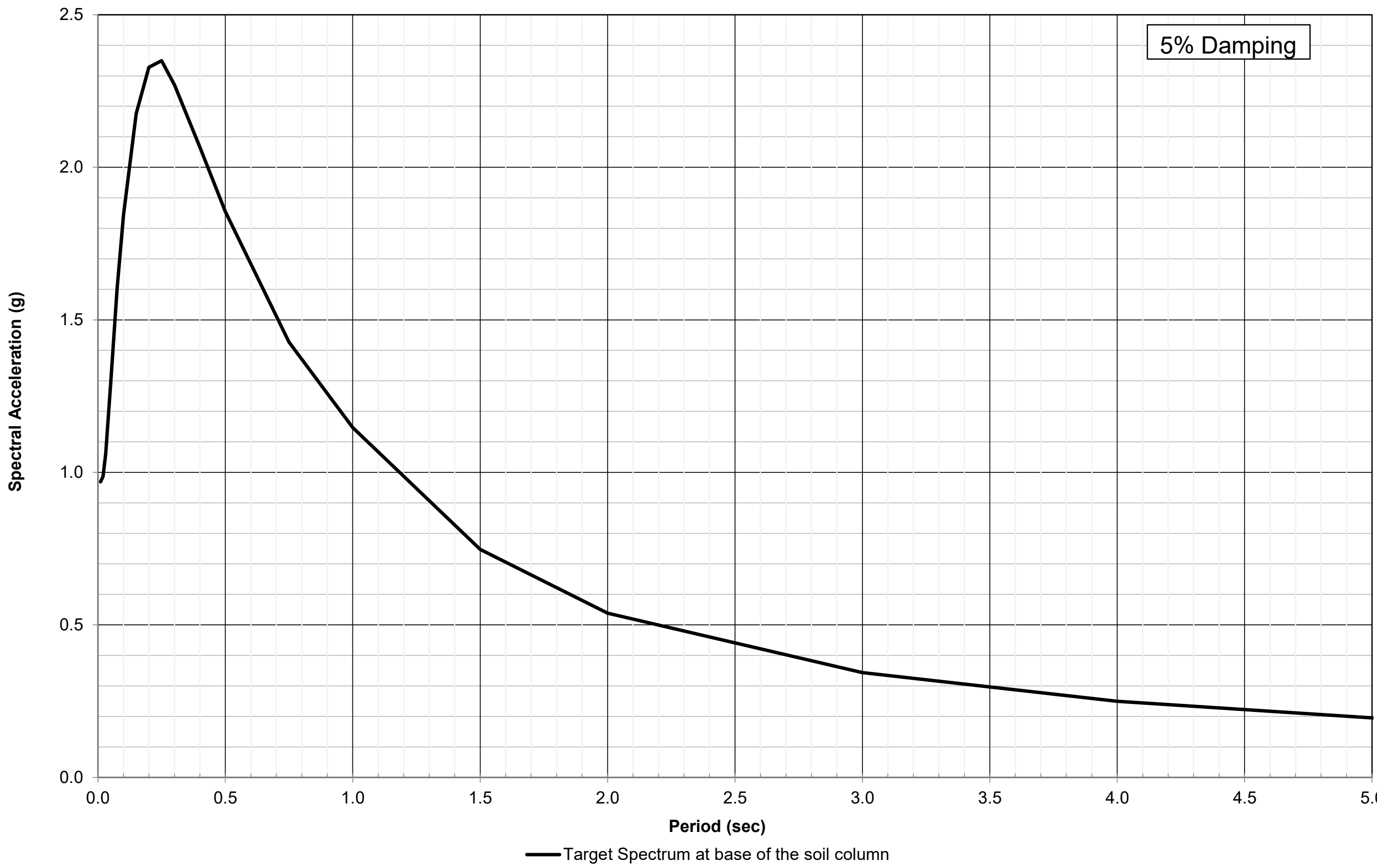
KLEINFELDER Bright People. Right Solutions.	Project No:	26002624.001A	**COMPARISON OF PROBABILISTIC AND DETERMINISTIC SPECTRA ASCE 7-22**	**FIGURE**
	Date:	1/12/2026		
	Drawn By:	A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	**H-8**
	Checked By:	JB		
	File Name:	GMHA_7_22_SCDC		

Comparison of Site-Specific MCE_R and 80% of the Code Spectra

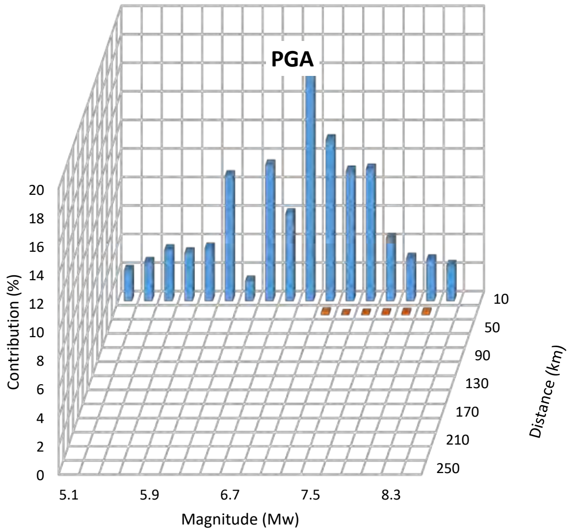


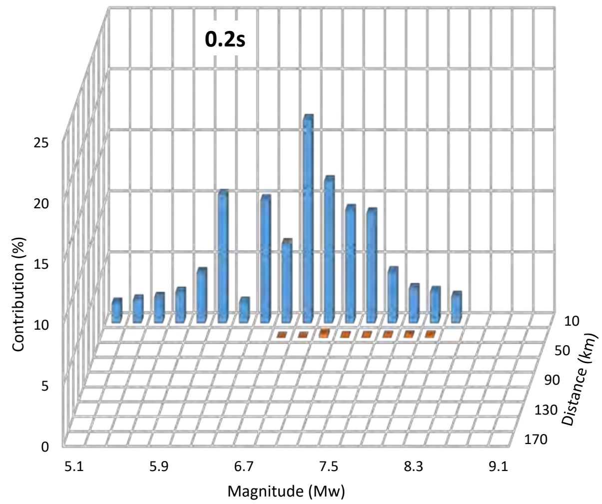
KLEINFELDER Bright People. Right Solutions.	Project No:	26002624.001A	**COMPARISON OF SITE-SPECIFIC MCE_R AND 80% OF THE CODE SPECTRA**	**FIGURE**
	Date:	1/12/2026		
	Drawn By:	A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	**H-9**
	Checked By:	JB		
	File Name:	GMHA_7_22_SCDC		

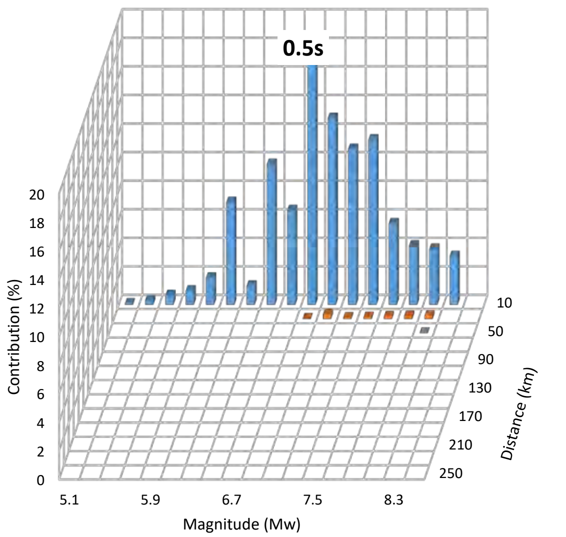
Target Spectrum for Time Histories at Base of the Soil Column

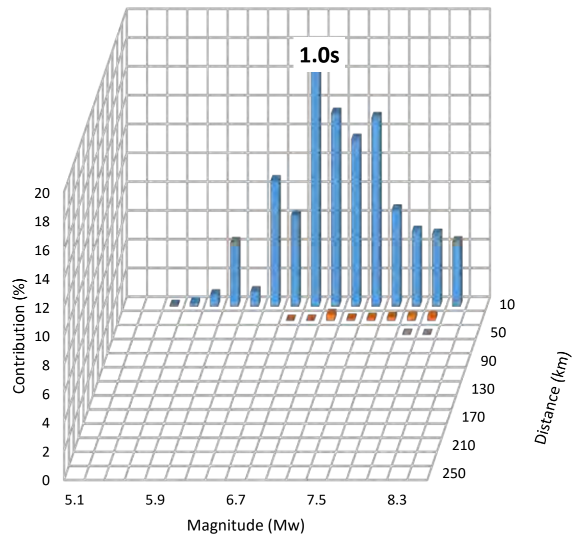


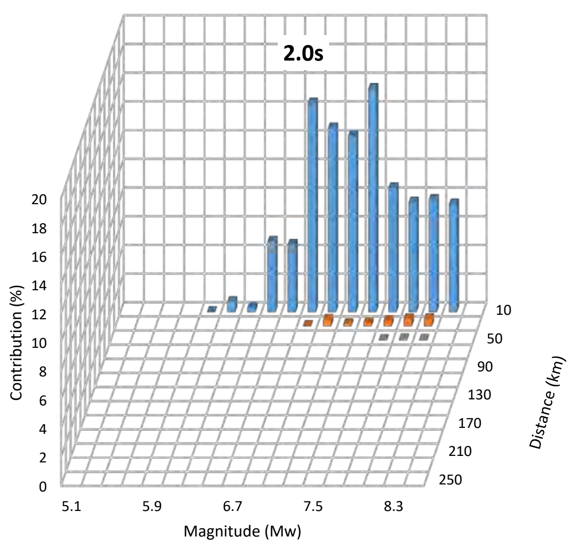
KLEINFELDER Bright People. Right Solutions.	Project No:	26002624.001A	TARGET SPECTRUM FOR TIME HISTORIES AT BASE OF THE SOIL COLUMN	FIGURE
	Date:	1/12/2026		
	Drawn By:	A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	H-10
	Checked By:	JB		
	File Name:	GMHA_7_22_SCDC		

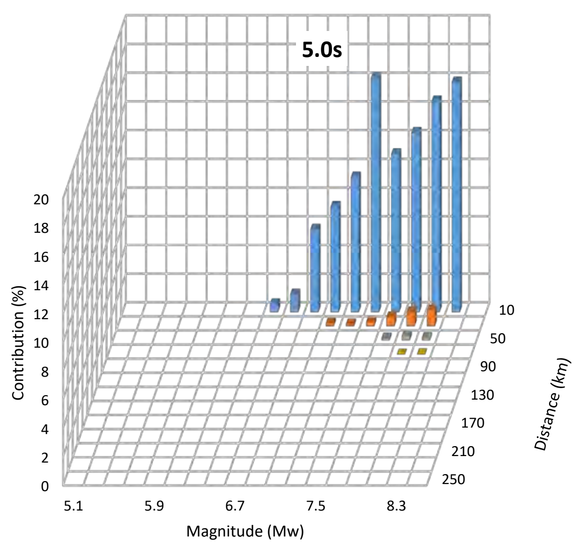












KLEINFELDER Bright People. Right Solutions.	Project No: 26002624.001A	**MAGNITUDE-DISTANCE DEAGGREGATION RESULTS** **MCE_R TARGET RESPONSE SPECTRUM** **(2475 YR. RETURN PERIOD)**	FIGURE:
	Date: 1/12/2026		**H-11**
	Drawn By: A. Paudyal	Site-Specific Ground Motion Hazard Analysis Silver Creek Data Center NW Corner of Silver Creek Valley Road and Fontanoso Way San Jose, California	
	Checked By: JB		
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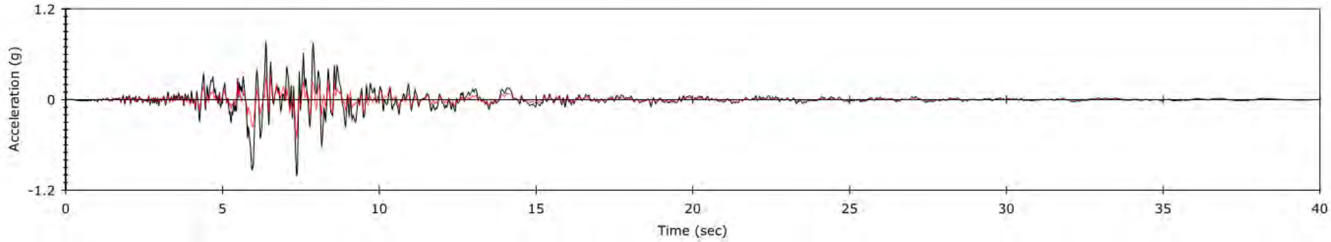

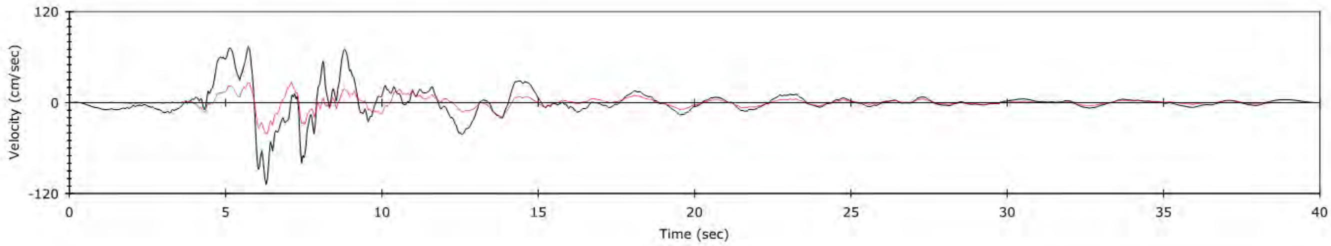

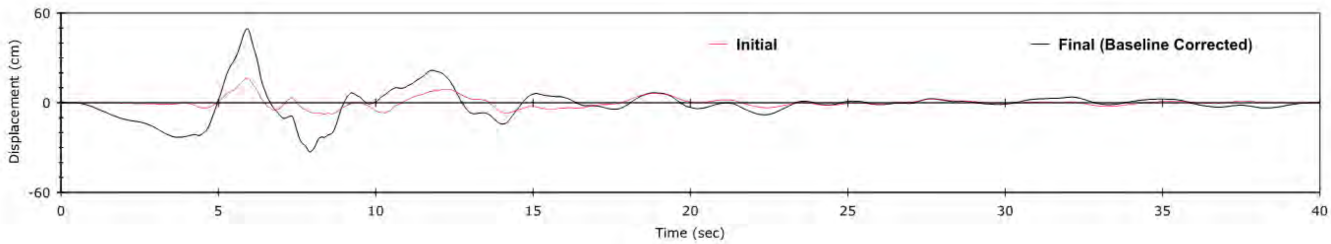

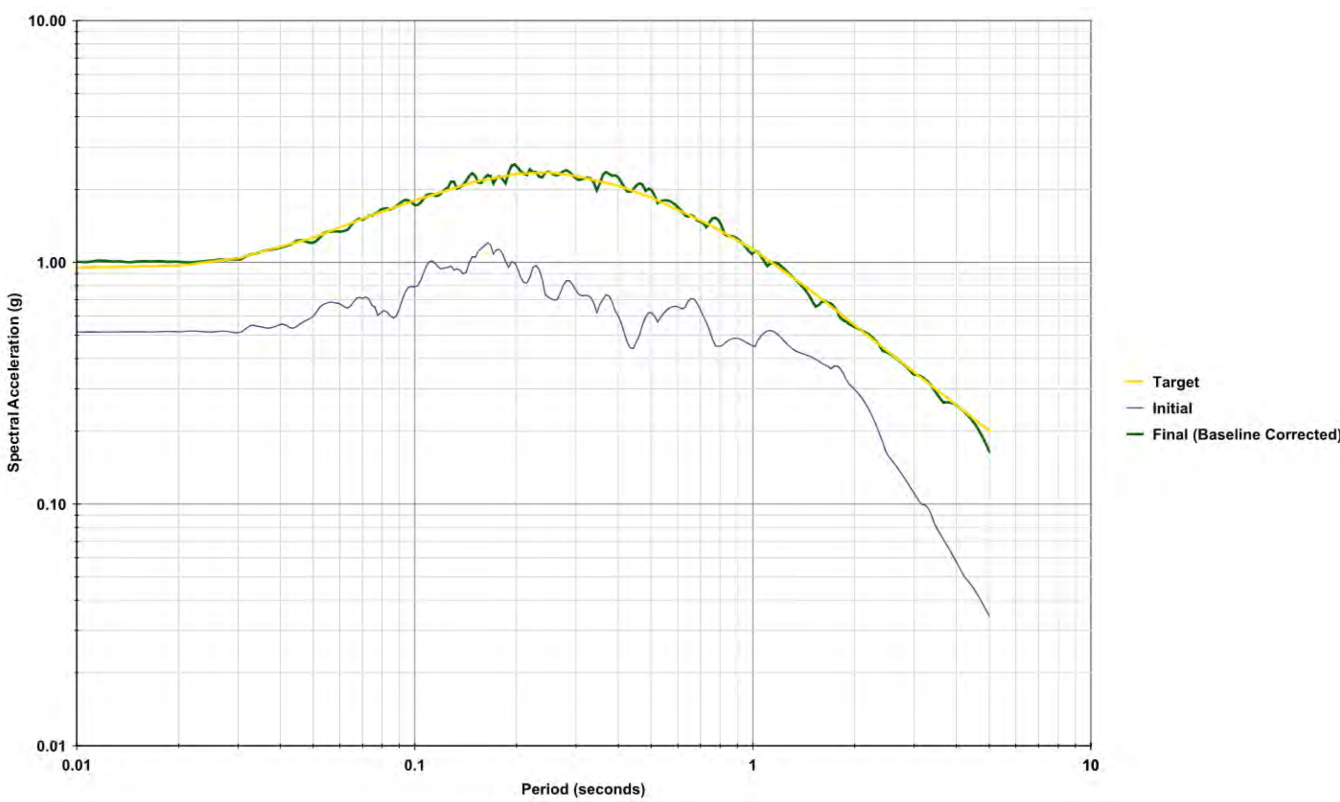

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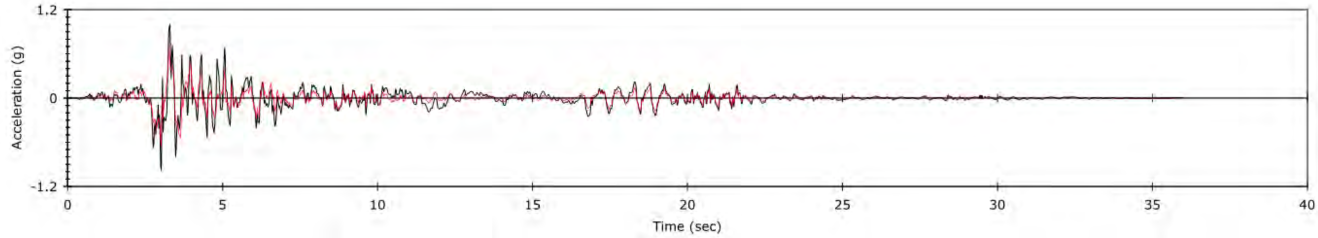
PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	ZZ
CHECKED BY:	JB
File Name:	Time Histories

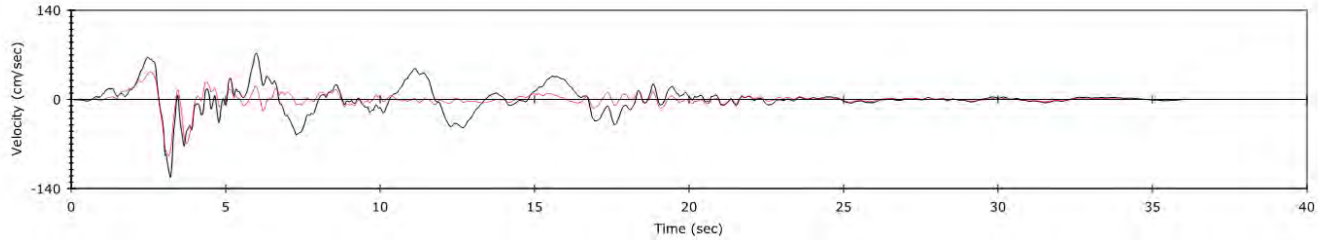
SPECTRAL MATCHING RESULTS
1989 LOMA PRIETA EARTHQUAKE
RSN 802 (0º) SARATOGA – ALOHA AVE

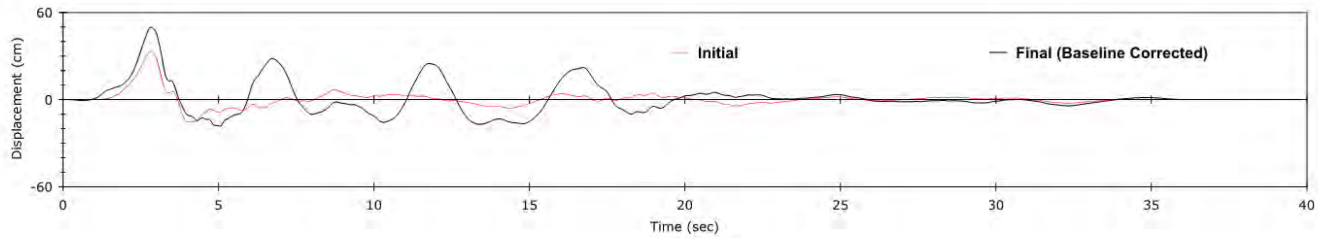
SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

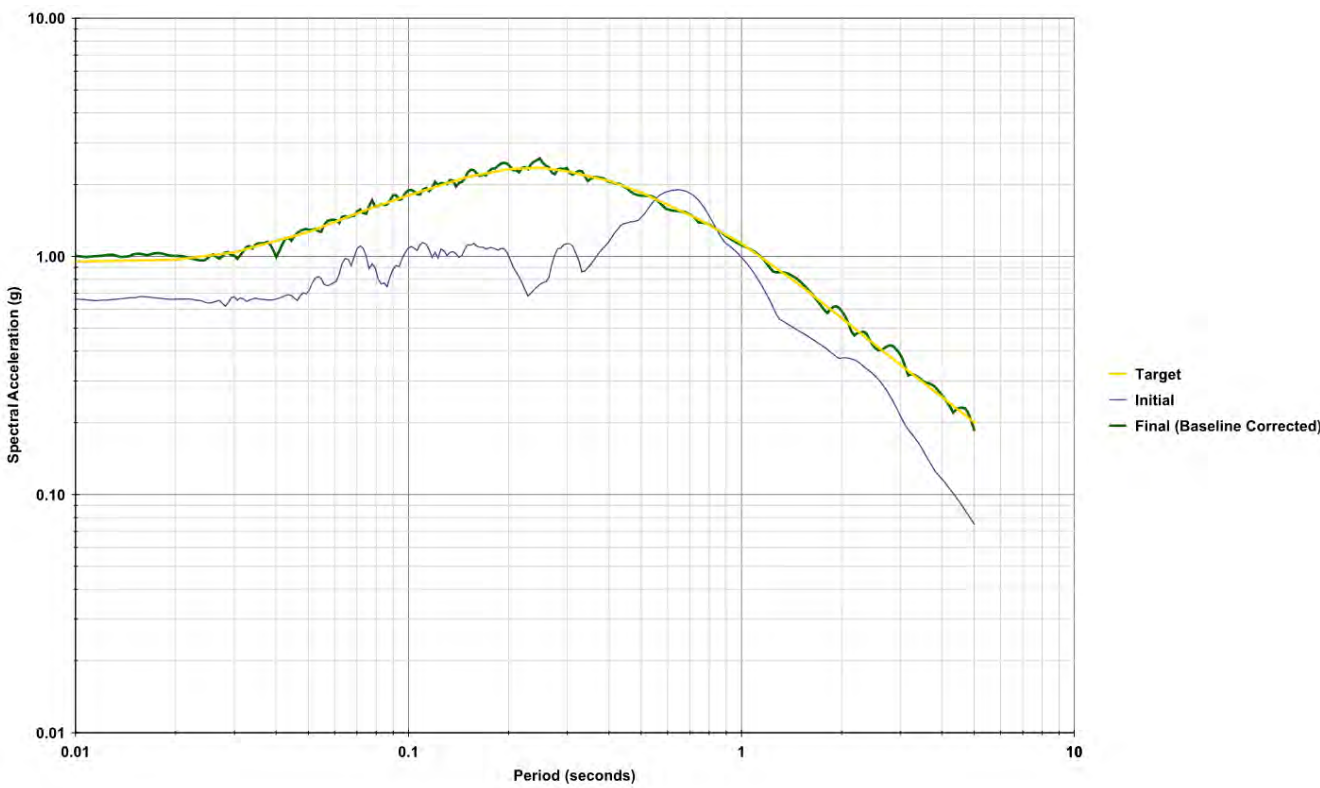
FIGURE

H-12









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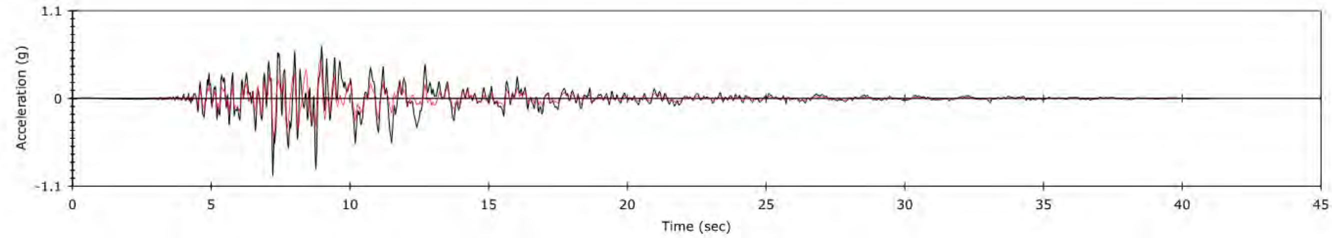
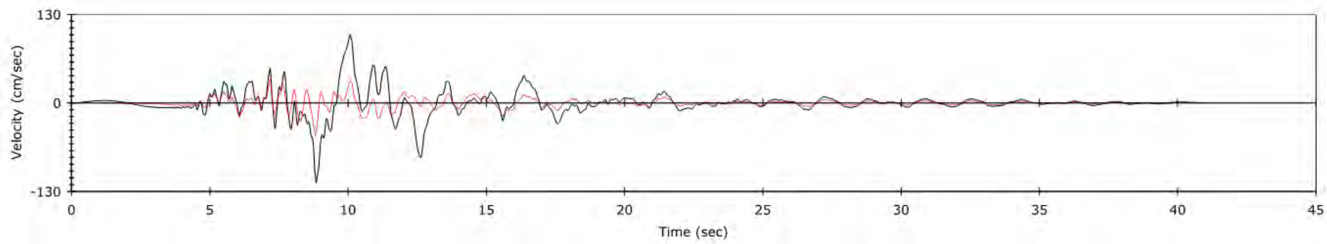
PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	ZZ
CHECKED BY:	JB
File Name:	Time Histories

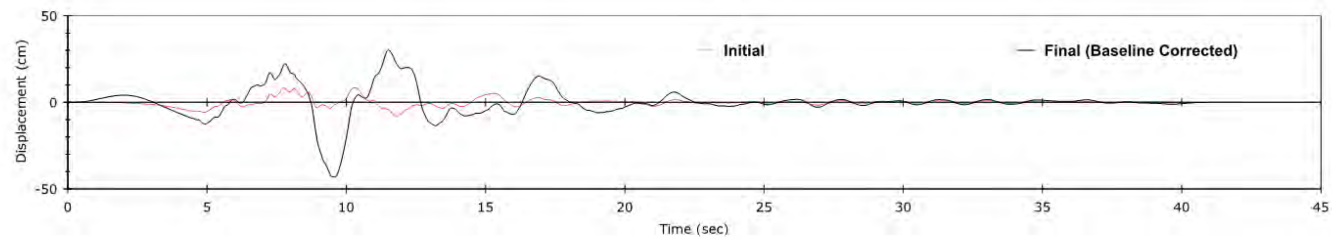
SPECTRAL MATCHING RESULTS
1992 CAPE MENDOCINO EARTHQUAKE
RSN 828 (90°) PETROLIA

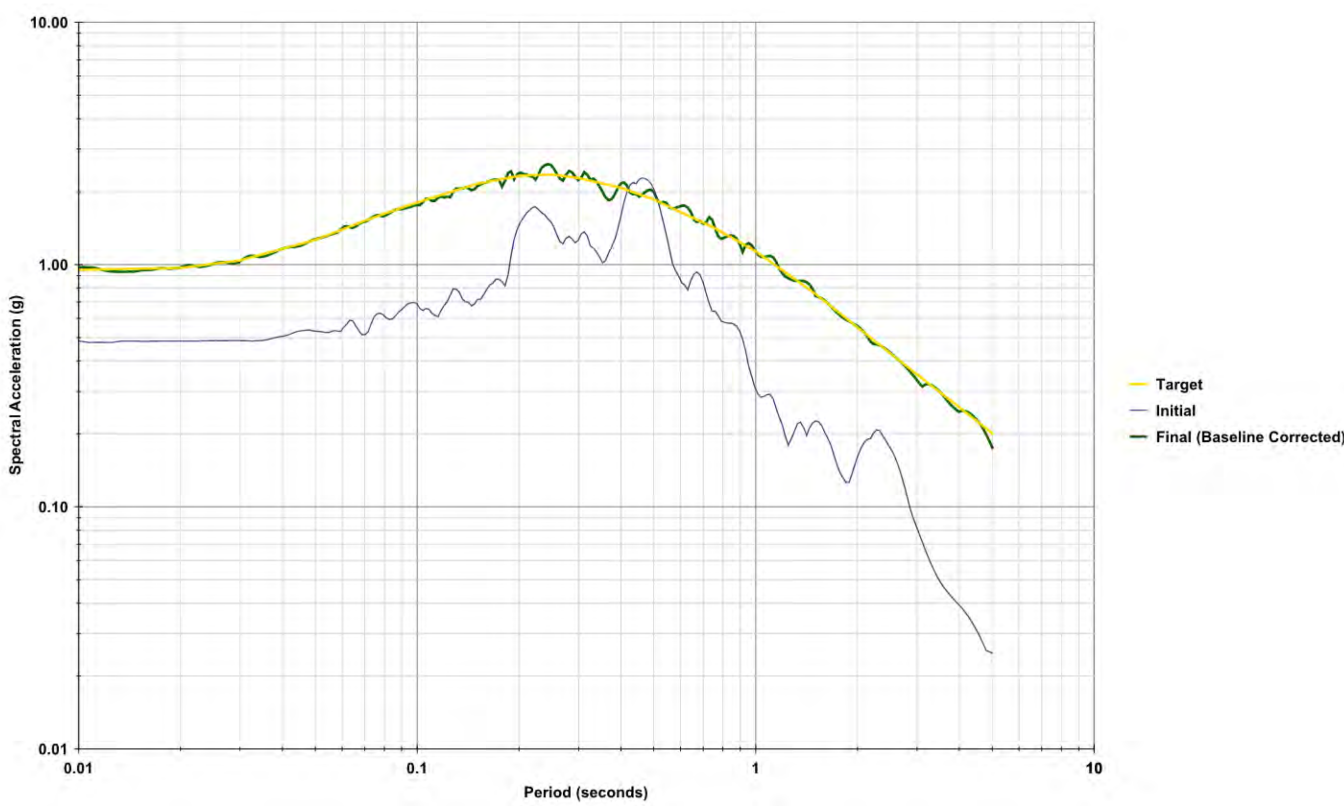
SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE
H-13









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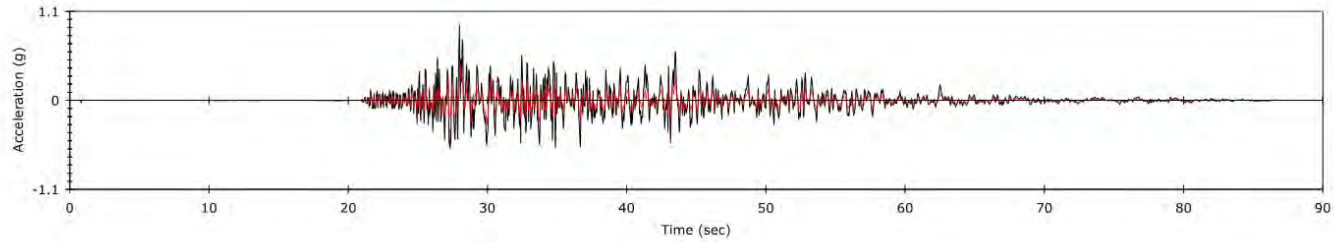
PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	ZZ
CHECKED BY:	JB
File Name:	Time Histories

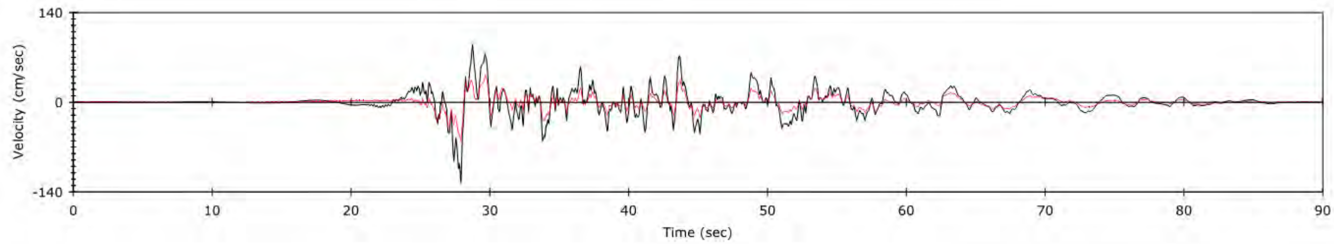
SPECTRAL MATCHING RESULTS
1995 KOBE - JAPAN EARTHQUAKE
RSN 1111 (0º) NISHI-AKASHI

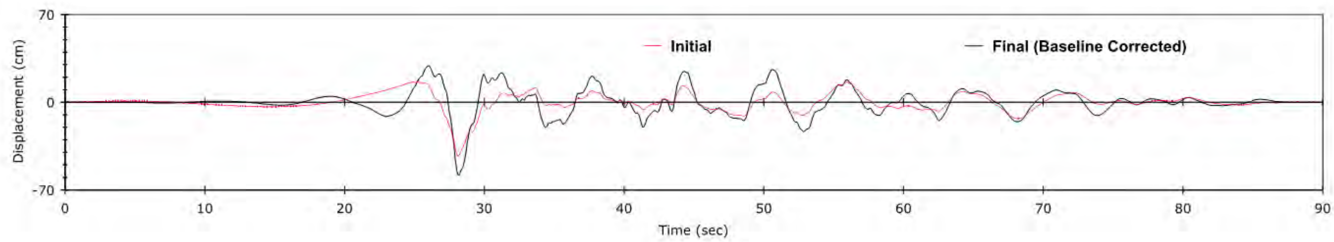
SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

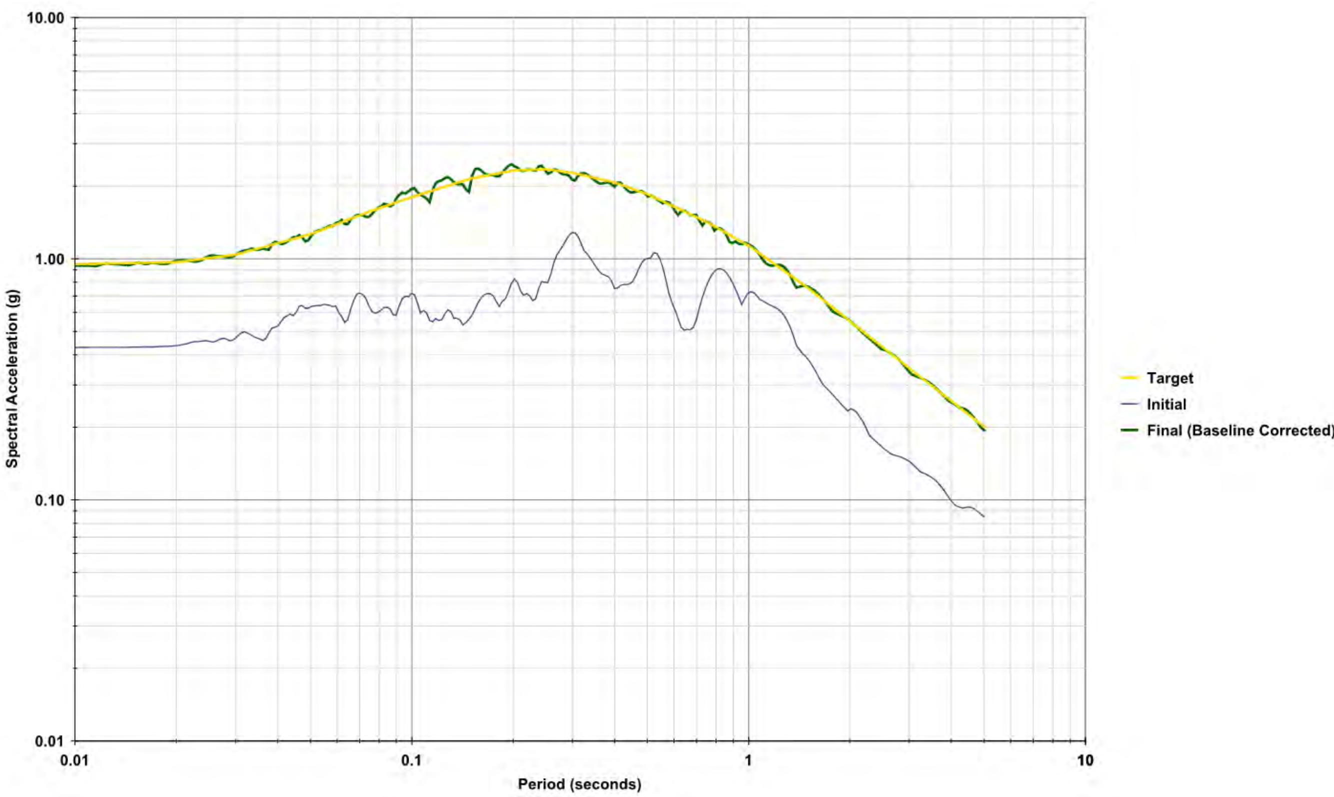
FIGURE

H-14

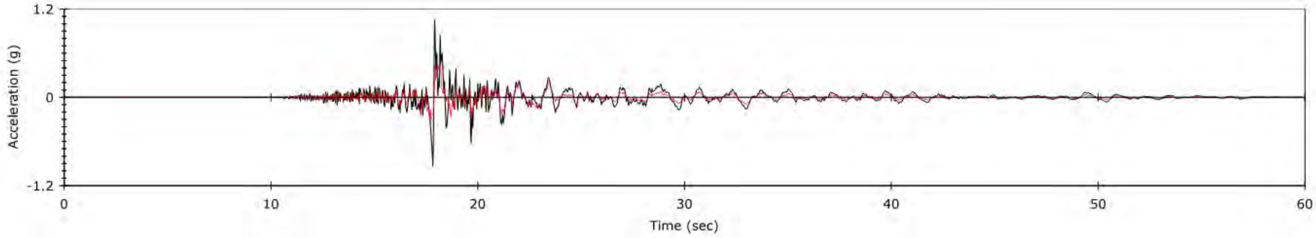


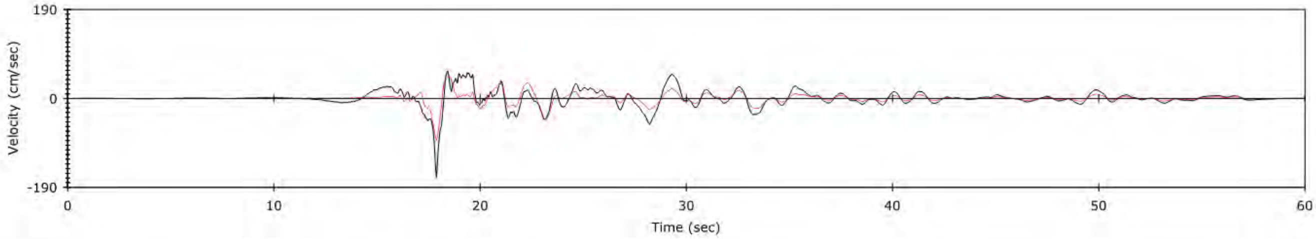


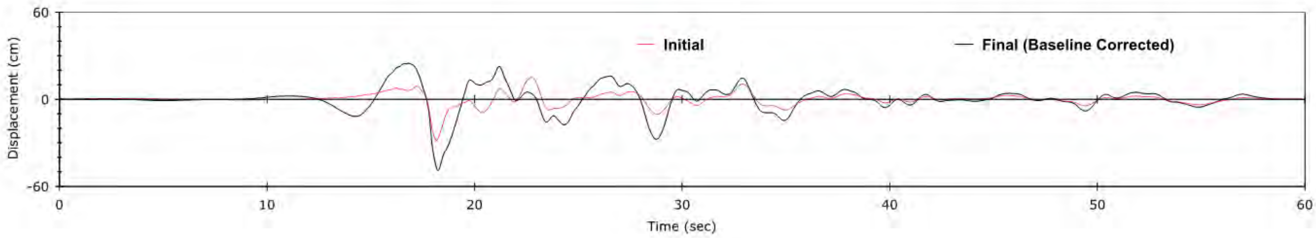


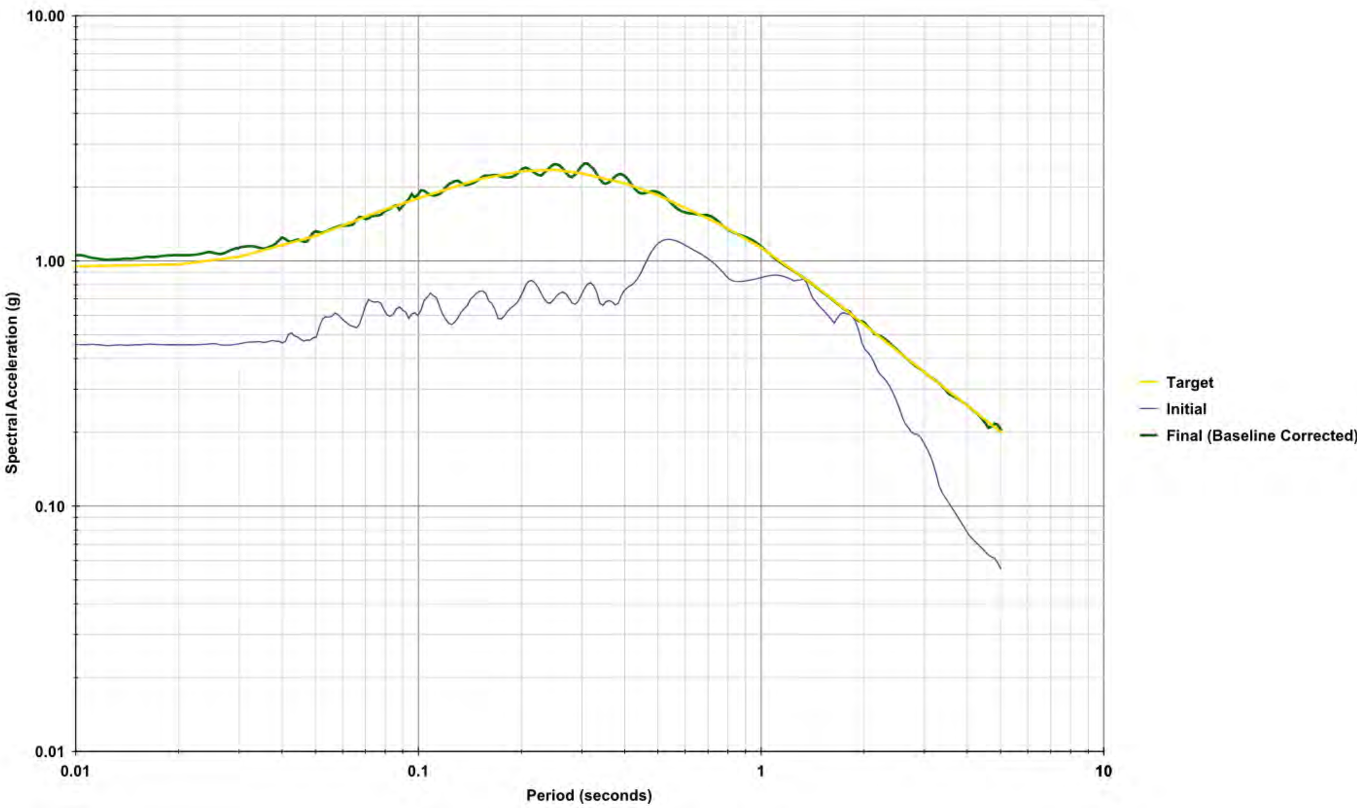


KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 26002624.001A	**SPECTRAL MATCHING RESULTS 1999 CHI-CHI - TAIWAN EARTHQUAKE RSN 1511 (N) TCU076**	FIGURE
	DATE: 01/2026		
	DRAWN: ZZ		H-15
	CHECKED BY: JB	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	
	File Name: Time Histories		









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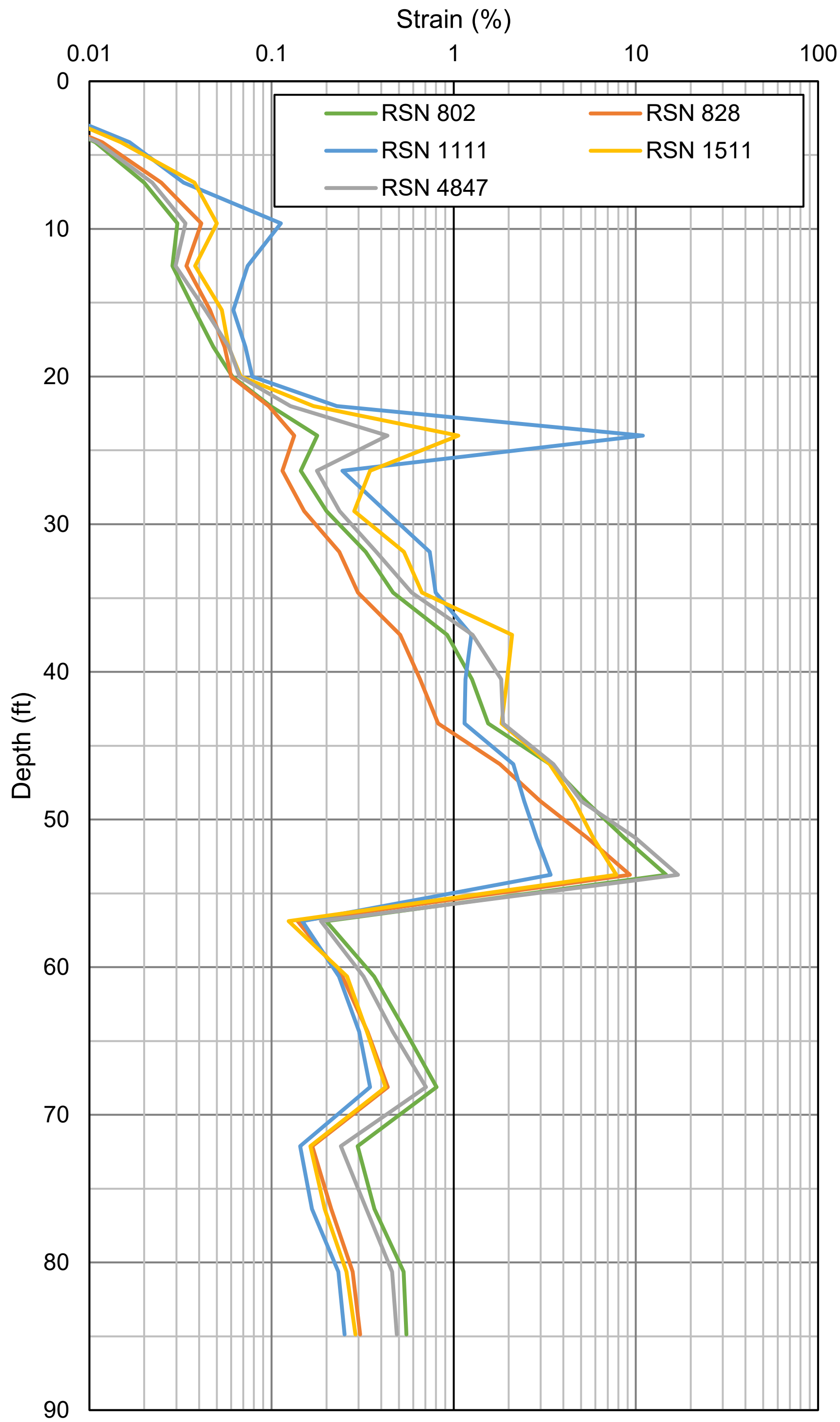
PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	ZZ
CHECKED BY:	JB
File Name:	Time Histories

SPECTRAL MATCHING RESULTS
2007 CHUETSU-OKI - JAPAN EARTHQUAKE
RSN 4847 (EW) JOETSU - KAKIZAKIKU

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE

H-16



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PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	AP
CHECKED BY:	JB
File Name:	fname.ppt

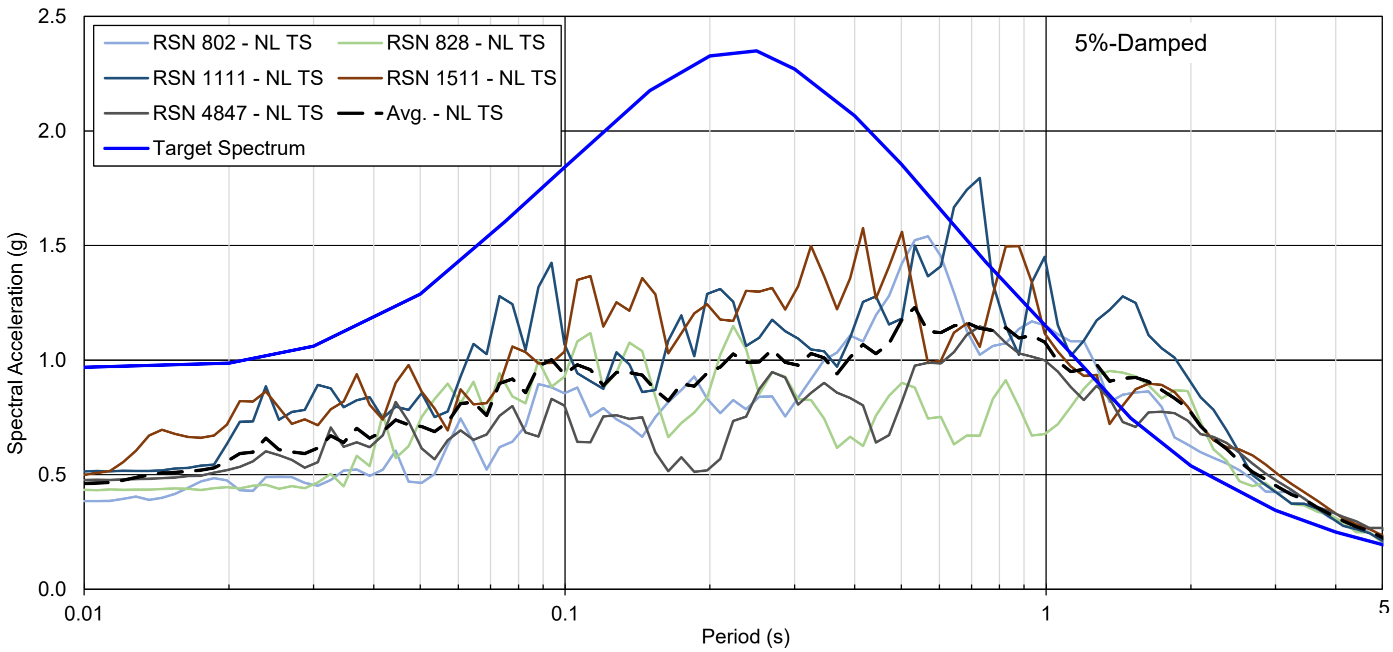
SHEAR STRAIN PROFILE FROM SITE RESPONSE ANALYSIS

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

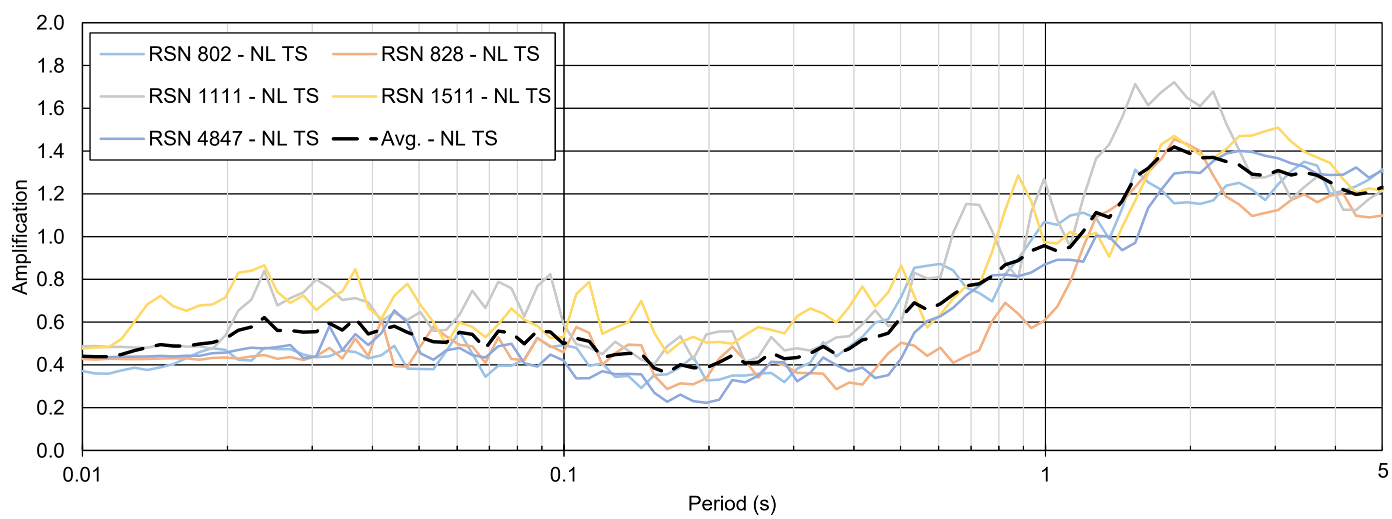
FIGURE

H-17

AVERAGE SURFACE RESPONSE SPECTRA



AMPLIFICATION FACTORS



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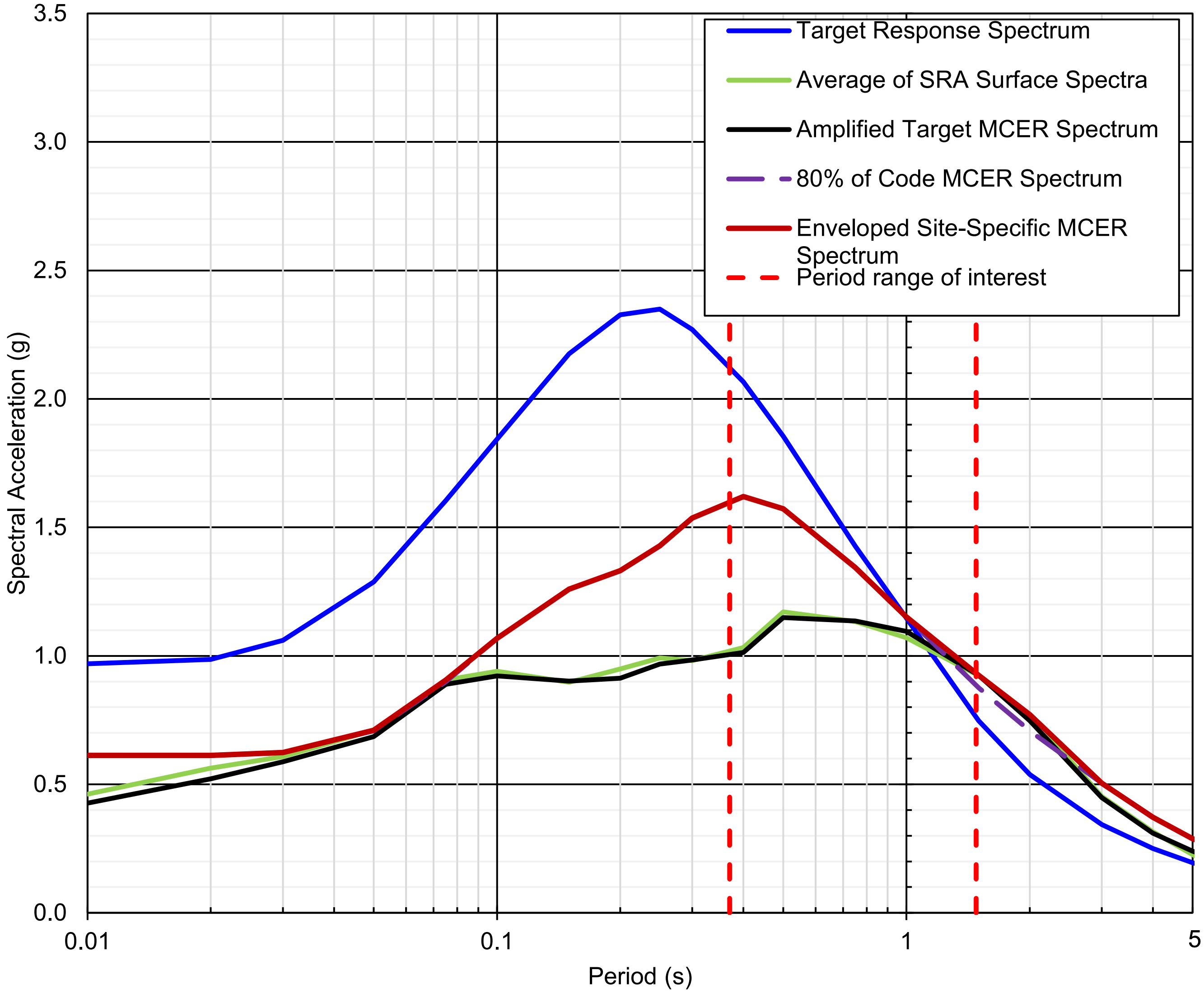
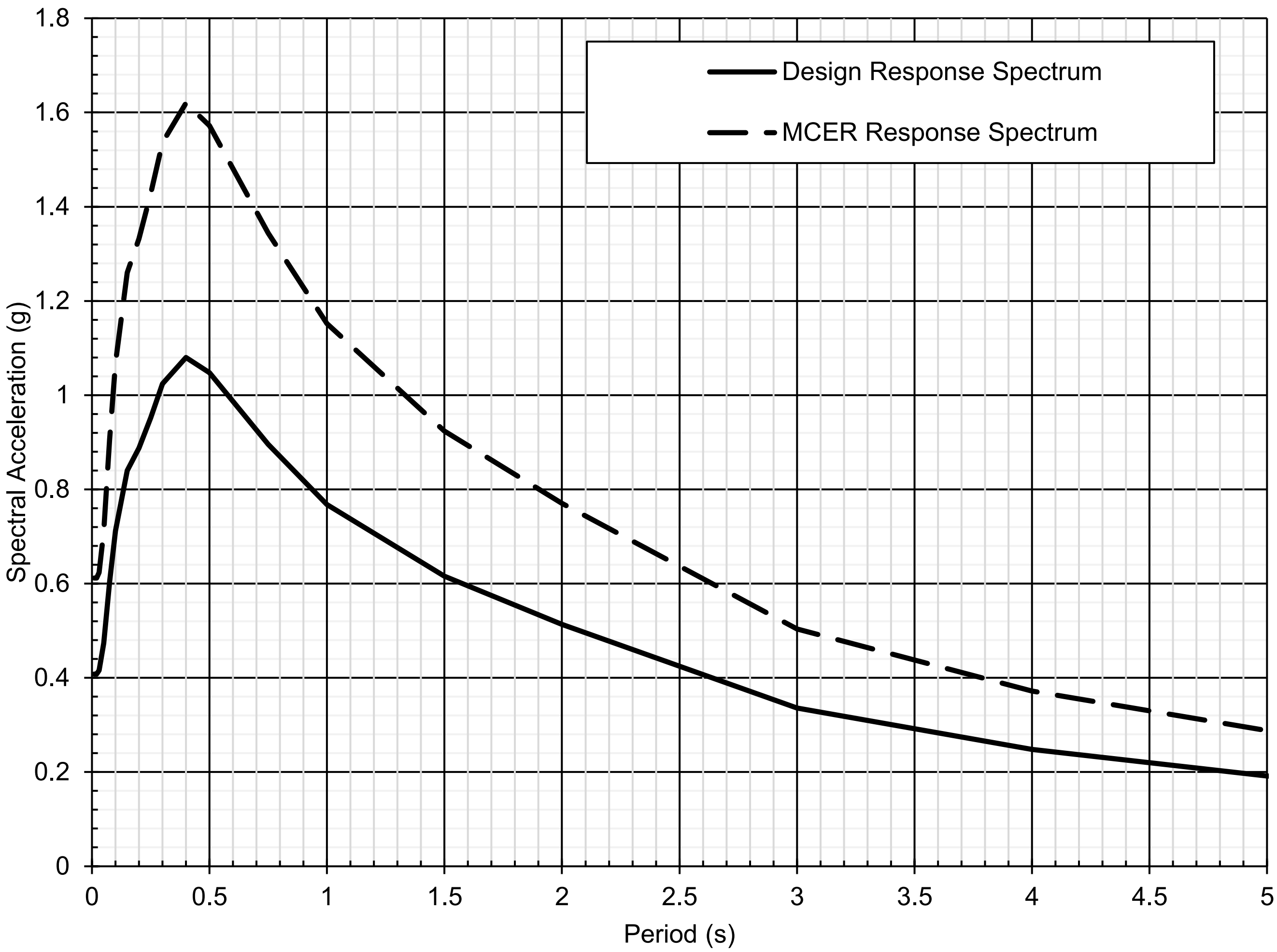
Project No:	26002624.001A	**AVERAGE SURFACE RESPONSE SPECTRA AND AMPLIFICATION FACTORS**	**Figure:**
Date:	2/13/2026		
Drawn By:	AP	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	**H-18**
Checked By:	JB		
File Name:	SCDC_Output_revisedOCR.xlsx		



KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 26002624.001A	**COMPARISON OF SITE-SPECIFIC SPECTRUM AND 80% OF GENERAL CODE SPECTRUM**	FIGURE
	DATE: 01/2026		H-19
	DRAWN: AP		
	CHECKED BY: JB	SILVER CREEK DATA CENTER NW CORNER OF SILVER CREEK VALLEY ROAD AND FONTANOSO WAY SAN JOSE, CALIFORNIA	
	File Name: fname.ppt		



Parameter	Value (5% Damping)
S_{DS}	0.972g
S_{D1}	0.925g
S_{MS}	1.458g
S_{M1}	1.387g

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PROJECT NO.	26002624.001A
DATE:	01/2026
DRAWN:	AP
CHECKED BY:	JB
File Name:	fname.ppt

SITE-SPECIFIC HORIZONTAL MCE_R AND DESIGN RESPONSE SPECTRUM 5% DAMPING

SILVER CREEK DATA CENTER
NW CORNER OF SILVER CREEK VALLEY ROAD
AND FONTANOSO WAY
SAN JOSE, CALIFORNIA

FIGURE

H-20

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Appendix I

Geoprofessional Business Association (GBA) Information Sheet

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Th se who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without fi st conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific fa tors when designing the study behind this report and developing the confi mation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configur tion, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office uilding, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configur tion, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like fl ods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modifi d codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe signifi antly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project fin sh, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confi mation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can fi alize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confi ms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifi ations,
- review pertinent elements of other design professionals' plans and specifi ations, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific roject requirements, including options selected from the report, *only* from the design drawings and specifi ations. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the fi ancial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ signifi antly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental fi dings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficie cies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infi tration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL
BUSINESS
ASSOCIATION

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APPENDIX J

City of San Jose Greenhouse Gas Reduction Strategy Compliance Checklist

DEPARTMENT OF PLANNING, BUILDING AND CODE ENFORCEMENT

Purpose of the Compliance Checklist

In 2020, the City adopted a Greenhouse Gas Reduction Strategy (GHGRS) that outlines the actions the City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions for the interim target year 2030. The purpose of the Greenhouse Gas Reduction Strategy Compliance Checklist (Checklist) is to:

- Implement GHG reduction strategies from the 2030 GHGRS to new development projects.
- Provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

The 2030 GHGRS presents the City's comprehensive path to reduce GHG emissions to achieve the 2030 reduction target, based on SB 32, BAAQMD, and OPR. Additionally, the 2030 GHGRS leverages other important City plans and policies; including the General Plan, Climate Smart San José, and the City Municipal Code in identifying reductions strategies that achieve the City's target. CEQA Guidelines Section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of greenhouse gases. Accordingly, the City of San José's 2030 GHGRS represents San José's qualified climate action plan in compliance with CEQA.

As described in the 2030 GHGRS, these GHG reductions will occur through a combination of City initiatives in various plans and policies and will provide reductions from both existing and new developments. This Compliance Checklist specifically applies to proposed discretionary projects that require environmental review pursuant to CEQA. Therefore, the Checklist is a critical implementation tool in the City's overall strategy to reduce GHG emissions. Implementation of applicable reduction actions in new development projects will help the City achieve incremental reductions toward its target. Per the 2030 GHGRS, the City will monitor strategy implementation and make updates, as necessary, to maintain an appropriate trajectory to the 2030 GHG target.

Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the GHGRS.

Instructions for Compliance Checklist

Applicants shall complete the following sections to demonstrate conformance with the City of San José 2030 Greenhouse Gas Reduction Strategy for the proposed project. All projects must complete Section A. General Plan Policy Conformance and Section B. Greenhouse Gas Reduction Strategies. Projects that propose alternative GHG mitigation measures must also complete Section C. Alternative Project Measures and Additional GHG Reductions.

A. General Plan Policy Compliance

Projects need to demonstrate consistency with the Envision San José 2040 General Plan's relevant policies for Land Use & Design, Transportation, Green Building, and Water Conservation, enumerated in Table A. All applicants shall complete the following steps.

1. Complete Table A, Item #1 to demonstrate the project's consistency with the General Plan Land Use and Circulation Diagram.
2. Complete Table A, Items #2 through #4 to demonstrate the project's consistency with General Plan policies[1] related to green building; pedestrian, bicycle & transit site design; and water conservation and urban forestry, as applicable. For each policy listed, mark the relevant yes/no check boxes to indicate project consistency, and provide a qualitative description of how the policy is implemented in the proposed project or why the policy is not applicable to the proposed project. Qualitative descriptions can be included in Table A or provided as separate attachments. This explanation will provide the basis for analysis in the CEQA document.

B. Greenhouse Gas Reduction Strategies

Table B identifies the GHGRS strategies and recommended consistency options. Projects need to demonstrate consistency with the GHGRS reduction strategies listed in Table B or document why the strategies are not applicable or are infeasible. The corresponding GHGRS strategies are indicated in the table to provide additional context, with the full text of the strategies preceding Table B.

Residential projects must complete Table B, Part 1 and 2; Non-residential projects must complete Table B, Part 2 only. All applicants shall complete the following steps for Table B.

1. Review the project consistency options described in the column titled 'GHGRS Strategy and Consistency Options'.
2. Use the check boxes in the column titled "Project Conformance" to indicate if the strategy is 'Proposed', 'Not Applicable', 'Not Feasible', or if there is an 'Alternative Measure Proposed'.
3. Provide a qualitative analysis of the proposed project's compliance with the GHGRS strategies in the column titled "Description of Project Measure". This will be the basis for

[1] The lists in items # 2-4 do not represent all General Plan policies but allow projects to demonstrate consistency and achievement of policies that are related to quantified reduction estimates in the 2030 GHGRS.

CEQA analysis to demonstrate compliance with the 2030 GHGRS and by extension, with SB 32. The qualitative analysis should provide:

a. A description of which consistency options are included as part of the proposed project, or

b. A description of why the strategy is not applicable to the proposed project, or

c. A description of why the consistency options are infeasible. If applicants select ‘Not Feasible’ or ‘Alternative Measure Proposed’, they must complete Table C to document what alternative project measures will be implemented to achieve a similar level of greenhouse gas reduction and how those reduction estimates were calculated.

C. Alternative Project Measures and Additional GHG Reductions

Projects that propose alternative GHG mitigation measures to those identified in Table B or propose to include additional GHG mitigation measures beyond those described in Tables A and B, shall provide a summary explanation of the proposed measures and demonstrate efficiency or greenhouse gas reductions achievable though the proposed measures. Documentation for these alternative or additional project measures shall be documented in Table C. Any applicants who select ‘Not Feasible’ or ‘Alternative Measure Proposed’ in Table B must complete the following steps for Table C.

1. In the column titled “Description of Proposed Measure” provide a qualitative description of what measure will be implemented, why it is proposed, and how it will reduce GHG emissions.
2. In the column titled “Description of GHG Reduction Estimate” demonstrate how the alternative project measure would achieve the same or greater level of greenhouse gas reductions as the GHGRS strategy it replaces. Documentation or calculation files can be attached separately.
3. In the column titled “Proposed Measure Implementation” identify how the measure will be implemented: incorporated as part of the project design or as an additional measure that is not part of the project (e.g., purchase of carbon offsets).

Compliance Checklist

Evaluation of Project Conformance with the 2030 Greenhouse Gas Reduction Strategy

Table A: General Plan Consistency

Development Type: ☐ Commercial ☐ Residential ☐ Office ☒ Other: Specify

The Silver Creek Data Center project (Project) consists of one industrial data center building and one substation.

1) Consistency with the Land Use/Transportation Diagram (Land Use and Density)	**Yes**	**No**
Is the proposed Project consistent with the Land Use/Transportation Diagram?	☒	☐
If not, and the proposed project includes a General Plan Amendment, does the proposed amendment decrease GHG emissions (in absolute terms or per capita, per employee, per service population) below the level assumed in the GHGRS based on the existing planned land use? (The project could have a higher density, mix of uses, or other features that would reduce GHG emissions compared to the planned land use).[2]	☐	☐
If not, would the proposed project and the General Plan Amendment increase GHG emissions (in absolute terms or per capita, per employee, per service population)? Project is not consistent with GHGRS and further modeling will be required to determine if additional mitigation measures are necessary.	☐	☐

Response documentation: *[Either here or as an attachment]*

The Project will result in the construction of one data center building, a substation, and other associated infrastructure to support the data center on an approximately 15.13-acre site located at 5977 Silver Creek Valley Road in San José. The data center project site is designated as Industrial Park in the Envision San José 2040 General Plan. The proposed industrial data center development will be compatible with this land use designation.

2) Implementation of Green Building Measures	**Yes**	**No**
MS-2.2*: Encourage maximized use of on-site generation of renewable energy for all new and existing buildings.*	☐	☐
Not applicable	☒	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

The project owner will either participate in the San Jose Clean Energy (SJCE) at the Total Green Level (i.e., 100% carbon-free electricity) for electricity accounts associated with the project or enter into an electricity contract with SJCE. Alternatively, the project owner may also participate in a clean energy program that accomplishes the same goals of 100 percent

[2] For example, a General Plan Amendment to change use from single-family residential to multi-family residential or a General Plan Amendment to change the use from regional-serving commercial to mixed-use urban in a transit-served area might reduce travel demand, and therefore GHG emissions from mobile sources.

carbon-free electricity as the SJCE Total Green Level. As a result, on-site renewable energy generation is not needed to offset the project's emissions.

***MS-2.3**: Encourage consideration of solar orientation, including building placement, landscaping, design and construction techniques for new construction to minimize energy consumption.*	☐	☐
Not applicable	☒	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The Project will not utilize solar orientation to minimize energy consumption due to the nature of a data center. To keep the interior of the data center buildings cool, which is necessary for the servers housed in the data centers, the building design includes minimal windows to reduce exposure to the data hall areas. Energy consumption associated with cooling is reduced with this type of building design.		
***MS-2.7**: Encourage the installation of solar panels or other clean energy power generation sources over parking areas.*	☐	☐
Not applicable	☒	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The Project will not install solar panels over the parking areas due to site constraints, which make this design option infeasible. Instead, the project owner will either participate in the SJCE at the Total Green Level (i.e., 100 percent carbon-free electricity) for electricity accounts associated with the project, enter into an electricity contract with SJCE, or participate in a clean energy program that accomplishes the same goals of 100% carbon-free electricity as the SJCE Total Green Level. As a result, on-site renewable energy generation is not needed to offset the project's emissions.		
***MS-2.11**: Require new development to incorporate green building practices, including those required by the Green Building Ordinance. Specifically, target reduced energy use through construction techniques (e.g., design of building envelopes and systems to maximize energy performance), through architectural design (e.g., design to maximize cross ventilation and interior daylight) and through site design techniques (e.g., orienting buildings on sites to maximize the effectiveness of passive solar design).*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The proposed data center building will be constructed in accordance with the current Title 24 and California Green Building Standards (CALGreen) requirements.		
***MS-16.2**: Promote neighborhood-based distributed clean/renewable energy generation to improve local energy security and to reduce the amount of energy wasted in transmitting electricity over long distances.*	☐	☐
Not applicable	☒	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]		

The project owner will either participate in the SJCE at the Total Green Level (i.e., 100 percent carbon-free electricity) for electricity accounts associated with the project or enter into an electricity contract with SJCE or participate in a clean energy program that accomplishes the same goals of 100 percent carbon-free electricity as the SJCE Total Green Level. As a result, additional renewable energy generation is not needed to offset the project's emissions.

3) Pedestrian, Bicycle & Transit Site Design Measures	**Yes**	**No**
***CD-2.1**: Promote the Circulation Goals and Policies in the Envision San José 2040 General Plan. Create streets that promote pedestrian and bicycle transportation by following applicable goals and policies in the Circulation section of the Envision San José 2040 General Plan.*		
a) Design the street network for its safe shared use by pedestrians, bicyclists, and vehicles. Include elements that increase driver awareness.	☒	☐
b) Create a comfortable and safe pedestrian environment by implementing wider sidewalks, shade structures, attractive street furniture, street trees, reduced traffic speeds, pedestrian-oriented lighting, mid-block pedestrian crossings, pedestrian-activated crossing lights, bulb-outs and curb extensions at intersections, and on-street parking that buffers pedestrians from vehicles.	☒	☐
c) Consider support for reduced parking requirements, alternative parking arrangements, and Transportation Demand Management strategies to reduce area dedicated to parking and increase area dedicated to employment, housing, parks, public art, or other amenities. Encourage de-coupled parking to ensure that the value and cost of parking are considered in real estate and business transactions.	☒	☐
Not applicable	☐	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

The Project would provide 16 bicycle parking spaces (four long-term and 12 short-term spaces) for future employees and visitors. The Project would also not alter the sidewalk along its frontage on Fontanoso or Silver Creek way, which would allow pedestrian access to the surrounding roadways and the Coyote Creek Trail approximately 630 feet west of the Project Site boundary.

In addition, the Project will prepare a Transportation Demand Management (TDM) plan in accordance with City of San José Municipal Code Chapter 20.90 Part 9. The TDM plan would reduce vehicle miles traveled. Measures that could be included in the TDM include Provide Commute Trip Reduction Marketing/Education and Rider Sharing Program. The final TDM Plan measures will be decided by the City of San José and the Project Applicant.

	Yes	No
***CD-2.5**: Integrate Green Building Goals and Policies of the Envision San José 2040 General Plan into site design to create healthful environments. Consider factors such as shaded parking areas, pedestrian connections, minimization of impervious surfaces, incorporation of stormwater treatment measures, appropriate building orientations, etc.*	☒	☐
Not applicable	☐	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

As mentioned under Response MS.-2.11, the Project will implement Title 24 and CALGreen design and construction methodologies. Integration of these design practices would reduce energy and water consumption.

	Yes	No
CD-2.11*: Within the Downtown and Urban Village Overlay areas, consistent with the minimum density requirements of the pertaining Land Use/Transportation Diagram designation, avoid the construction of surface parking lots except as an interim use, so that long-term development of the site will result in a cohesive urban form. In these areas, whenever possible, use structured parking, rather than surface parking, to fulfill parking requirements. Encourage the incorporation of alternative uses, such as parks, above parking structures.*	☐	☐
Not applicable	☒	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

This measure is not applicable since the Project Site is not located within the Downtown or an Urban Village Overlay area.

	Yes	No
CD-3.2*: Prioritize pedestrian and bicycle connections to transit, community facilities (including schools), commercial areas, and other areas serving daily needs. Ensure that the design of new facilities can accommodate significant anticipated future increases in bicycle and pedestrian activity.*	☒	☐
Not applicable	☐	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

The Project would provide 16 bicycle parking spaces (four long-term and 12 short-term spaces) for future employees and visitors. The Project would also not alter the sidewalk along its frontage on Fontanoso or Silver Creek way, which would allow pedestrian access to the surrounding roadways and the Coyote Creek Trail approximately 630 feet west of the Project Site boundary.

	Yes	No
CD-3.4*: Encourage pedestrian cross-access connections between adjacent properties and require pedestrian and bicycle connections to streets and other public spaces, with particular attention and priority given to providing convenient access to transit facilities. Provide pedestrian and vehicular connections with cross-access easements within and between new and existing developments to encourage walking and minimize interruptions by parking areas and curb cuts.*	☒	☐
Not applicable	☐	☐

Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment]

The Project Site would include adequate pedestrian connectivity on-site such as an internal network of sidewalks and crosswalks connecting the buildings, substation, and parking lots. The sidewalks and crosswalks would connect to the existing pedestrian facilities on Fontanoso Way and Silver Creek Valley Road, which would allow pedestrians to travel to adjacent properties.

	Yes	No
***LU-3.5**: Balance the need for parking to support a thriving Downtown with the need to minimize the impacts of parking upon a vibrant pedestrian and transit oriented urban environment. Provide for the needs of bicyclists and pedestrians, including adequate bicycle parking areas and design measures to promote bicyclist and pedestrian safety.*	☐	☐
Not applicable	☒	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] This measure is not applicable since the Project Site is not located within the Downtown area.		

	Yes	No
***TR-2.8:** Require new development to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The Project would provide 16 bicycle parking spaces (four long-term and 12 short-term spaces) for future employees and visitors.		
***TR-7.1:** Require large employers to develop TDM programs to reduce the vehicle trips and vehicle miles generated by their employees through the use of shuttles, provision for car-sharing, bicycle sharing, carpool, parking strategies, transit incentives and other measures.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] As mentioned above in response to General Plan Policy CD-2.1, the TDM plan will demonstrate how the project will reduce vehicle miles traveled.		
***TR-8.5:** Promote participation in car share programs to minimize the need for parking spaces in new and existing development.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] As mentioned above, the Project will prepare a TDM plan. Measures that could be included in the TDM include Provide Commute Trip Reduction Marketing/Education and Rider Sharing Program. The final TDM Plan measures will be decided by the City of San José and the Project Applicant.		

4) Water Conservation and Urban Forestry Measures	**Yes**	**No**
***MS-3.1**: Require water-efficient landscaping, which conforms to the State's Model Water Efficient Landscape Ordinance, for all new commercial, institutional, industrial and developer-installed residential development unless for recreation needs or other area functions.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The project's landscaping would conform to the State's Model Water Efficient Landscape Ordinance.		

	Yes	**No**
***MS-3.2**: Promote the use of green building technology or techniques that can help reduce the depletion of the City's potable water supply, as building codes permit. For example, promote the use of captured rainwater, graywater, or recycled water as the preferred source for non-potable water needs such as irrigation and building cooling, consistent with Building Codes or other regulations.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] To reduce water use, the proposed data center building would utilize air cooled chillers to remove the heat generated during operation. There is no water requirement for this type of cooling technology.		
***MS-19.4**: Require the use of recycled water wherever feasible and cost-effective to serve existing and new development.*	☐	☐
Not applicable	☒	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] Recycled water service is not currently available at the site. As mentioned above in response to General Plan Policy MS-3.2, the project would install cooling technology that would not require the use of any water. This feature would reduce the overall water use of the proposed data center.		
***MS-21.3**: Ensure that San José's Community Forest is comprised of species that have low water requirements and are well adapted to its Mediterranean climate. Select and plant diverse species to prevent monocultures that are vulnerable to pest invasions. Furthermore, consider the appropriate placement of tree species and their lifespan to ensure the perpetuation of the Community Forest.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The landscaping proposed by the project would be reviewed by the City prior to receiving building permits, which would ensure that the plant species selected would be appropriate and comply with the City's Community Forest guidelines.		

***MS-26.1**: As a condition of new development, require the planting and maintenance of both street trees and trees on private property to achieve a level of tree coverage in compliance with and that implements City laws, policies or guidelines.*	☒	☐
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] The project will comply with the City's laws, policies, and/or guidelines regarding the planting and maintenance of street trees or trees.		

	Yes	**No**
***ER-8.7**: Encourage stormwater reuse for beneficial uses in existing infrastructure and future development through the installation of rain barrels, cisterns, or other water storage and reuse facilities.*	☐	☒
Not applicable	☐	☐
Describe how the project is consistent or why the measure is not applicable. [Either here or as an attachment] Based on the low annual stormwater runoff within the San José region, the Project will not include infrastructure for water storage or reuse of runoff water.		

GHGRS Strategies

GHGRS #1: The City will implement the San José Clean Energy program to provide residents and businesses access to cleaner energy at competitive rates.

GHGRS #2: The City will implement its building reach code ordinance (adopted September 2019) and its prohibition of natural gas infrastructure ordinance (adopted October 2019) to guide the city's new construction toward zero net carbon (ZNC) buildings.

GHGRS #3: The City will expand development of rooftop solar energy through the provision of technical assistance and supportive financial incentives to make progress toward the Climate Smart San José goal of becoming a one-gigawatt solar city.

GHGRS #4: The City will support a transition to building decarbonization through increased efficiency improvements in the existing building stock and reduced use of natural gas appliances and equipment.

GHGRS #5: As an expansion to Climate Smart San José, the City will update its Zero Waste Strategic Plan and reassess zero waste strategies. Throughout the development of the update, the City will continue to divert 90 percent of waste away from landfills through source reduction, recycling, food recovery and composting, and other strategies.

GHGRS #6: The City will continue to be a partner in the Caltrain Modernization Project to enhance local transit opportunities while simultaneously improving the city's air quality.

GHGRS #7: The City will expand its water conservation efforts to achieve and sustain long-term per capita reductions that ensure a reliable water supply with a changing climate, through regional partnerships, sustainable landscape designs, green infrastructure, and water-efficient technology and systems.

Table B: 2030 Greenhouse Gas Reduction Strategy Compliance

GHGRS Strategy and Consistency Options	Description of Project Measure	Project Conformance
PART 1: RESIDENTIAL PROJECTS ONLY		
Zero Net Carbon Residential Construction 1. Achieve/exceed the City's Reach Code, and 2. Exclude natural gas infrastructure in new construction, or 3. Install on-site renewable energy systems or participate in a community solar program to offset 100% of the project's estimated energy demand, or 4. Participate in San José Clean Energy at the Total Green level (i.e., 100% carbon-free electricity) for electricity accounts associated with the project until which time SJCE achieves 100% carbon-free electricity for all accounts. **Supports Strategies**: GHGRS #1, GHGRS #2, GHGRS #3	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* This measure is not applicable to the Project since it applies to residential projects only. The data center building and substation are industrial developments.	☐ Proposed ☒ Not Applicable ☐ Not Feasible* ☐ Alternative Measure Proposed ** The 2030 GHGRS assumed this strategy would be feasible for 50% of residential units constructed between 2020 and 2030.*
PART 2: RESIDENTIAL AND NON-RESIDENTIAL PROJECTS		
Renewable Energy Development 1. Install solar panels, solar hot water, or other clean energy power generation sources on development sites, or 2. Participate in community solar programs to support development of renewable energy in the community, or 3. Participate in San José Clean Energy at the Total Green level (i.e., 100% carbon-free electricity) for electricity accounts associated with the project. **Supports Strategies**: GHGRS #1, GHGRS #3	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* The Project Owner will either participate in the SJCE at the Total Green Level (i.e., 100% carbon-free electricity) for electricity accounts associated with the project, enter into an electricity contract with SJCE, or participate in a clean energy program that accomplishes the same goals of 100% carbon-free electricity as the SJCE Total Green Level.	☐ See Part 1 (Residential projects only) ☒ Proposed ☐ Not Applicable ☐ Not Feasible ☐ Alternative Measure Proposed

GHGRS Strategy and Consistency Options	Description of Project Measure	Project Conformance
Building Retrofits – Natural Gas[3] This strategy only applies to projects that include a retrofit of an existing building. If the proposed project does not include a retrofit, select "Not Applicable" in the Project Conformance column. 1. Replace an existing natural gas appliance with an electric alternative (e.g., space heater, water heater, clothes dryer), or 2. Replace an existing natural gas appliance with a high-efficiency model **Supports Strategies:** GHGRS #4	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* This measure is not applicable to the Project because it does not include the retrofitting of an existing building.	☐ Proposed ☒ Not Applicable ☐ Not Feasible ☐ Alternative Measure Proposed
Zero Waste Goal 1. Provide space for organic waste (e.g., food scraps, yard waste) collection containers, and/or 2. Exceed the City's construction & demolition waste diversion requirement. **Supports Strategies:** GHGRS #5	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* The Project would exceed the City's construction and demolition waste diversion requirement.	☒ Proposed ☐ Not Applicable ☐ Not Feasible ☐ Alternative Measure Proposed
Caltrain Modernization 1. For projects located within ½ mile of a Caltrain station, establish a program through which to provide project tenants and/or residents with free or reduced Caltrain passes or	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* The project would implement a TDM plan, as required for all new development in San José, to reduce vehicle miles traveled.	☒ Proposed ☐ Not Applicable ☐ Not Feasible ☐ Alternative Measure Proposed

[3] GHGRS Strategy #4 applies to existing building retrofits and not to new construction; Strategy #2 applies to new construction to reduce natural gas related GHG emissions

GHGRS Strategy and Consistency Options	Description of Project Measure	Project Conformance
2. Develop a program that provides project tenants and/or residents with options to reduce their vehicle miles traveled (e.g., a TDM program), which could include transit passes, bike lockers and showers, or other strategies to reduce project related VMT. **Supports Strategies:** GHGRS #6		
Water Conservation 1. Install high-efficiency appliances/fixtures to reduce water use, and/or include water-sensitive landscape design, and/or 2. Provide access to reclaimed water for outdoor water use on the project site. **Supports Strategies:** GHGRS #7	*Describe which, if any, project consistency options from the leftmost column you are implementing.* *OR,* *Describe why this strategy is not applicable to your project.* *OR,* *Describe why such measures are infeasible.* The Project will install high-efficiency appliances and fixtures pursuant with Title 24 and CALGreen requirements and include a water-sensitive landscape design.	☐ Proposed ☐ Not Applicable ☐ Not Feasible ☐ Alternative Measure Proposed

Table C: Applicant Proposed Greenhouse Gas Reduction Measures

Description of Proposed Measure	Description of GHG Reduction Estimate	Proposed Measure Implementation
[Describe the proposed project measure and why it is proposed] The project owner shall participate in the SJCE at the Total Green Level (i.e., 100% carbon-free electricity) for electricity accounts associated with the project, or enter into an electricity contract with SJCE or participate in a clean energy program that accomplishes the same goals of 100% carbon-free electricity as the SJCE Total Green Level. **Supports Strategies/Sectors:** GHGRS #	*[Demonstrate the effectiveness of the proposed measure to reduce the project's GHG emissions.* *Include a description of how your measure will reduce emissions and provide supporting quantification documentation/assumptions.]* By either participating in SJCE's Total Green Level or participating in a clean energy program that accomplishes the same goals of 100% carbon-free electricity as the SJCE Total Green Level, all GHG emissions associated with the project's electricity consumption would be offset.	☒ Part of Design ☐ Additional Measure
[Describe the proposed project measure and why it is proposed] **Supports Strategies/Sectors:** GHGRS #	*[Demonstrate the effectiveness of the proposed measure to reduce the project's GHG emissions.* *Include a description of how your measure will reduce emissions and provide supporting quantification documentation/assumptions.]*	☐ Part of Design ☐ Additional Measure
[Describe the proposed project measure and why it is proposed] **Supports Strategies/Sectors:** GHGRS #	*[Demonstrate the effectiveness of the proposed measure to reduce the project's GHG emissions.* *Include a description of how your measure will reduce emissions and provide supporting quantification documentation/assumptions.]*	☐ Part of Design ☐ Additional Measure
[Describe the proposed project measure and why it is proposed] **Supports Strategies/Sectors:** GHGRS #	*[Demonstrate the effectiveness of the proposed measure to reduce the project's GHG emissions.* *Include a description of how your measure will reduce emissions and provide supporting quantification documentation/assumptions.]*	☐ Part of Design ☐ Additional Measure