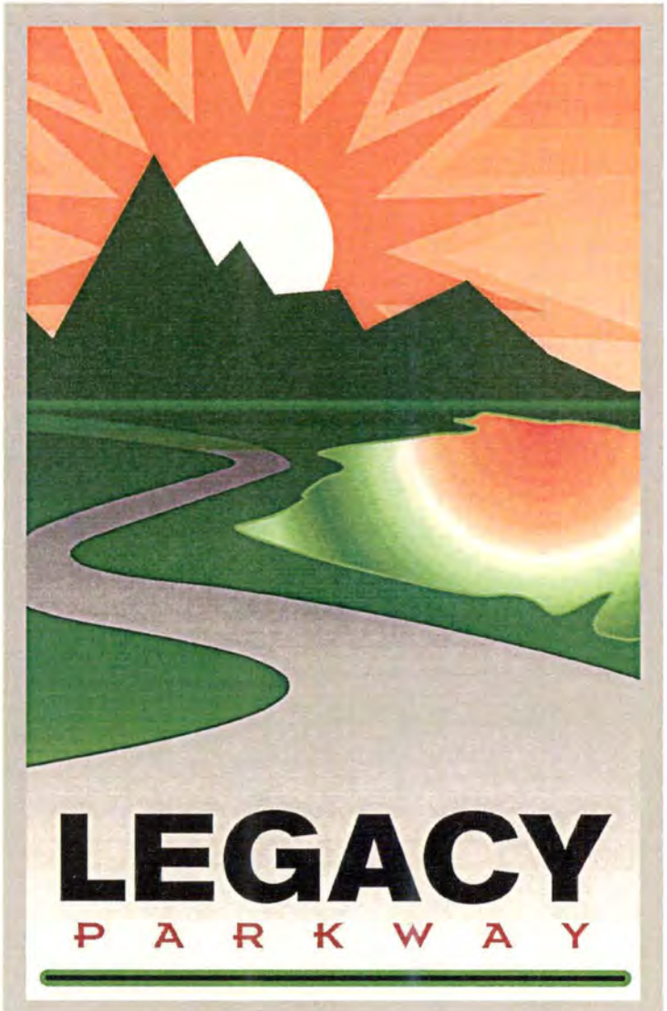
REPORT OF GEOTECHNICAL FIELD AND LABORATORY INVESTIGATIONS LEGACY PARKWAY PREFERRED ALTERNATIVE SALT LAKE AND DAVIS COUNTIES, UTAH

VOLUME 1 OF 4



Prepared for: HDR *and* UDOT

Prepared by: KLEINFELDER

REPORT OF GEOTECHNICAL FIELD AND LABORATORY INVESTIGATIONS LEGACY PARKWAY - PREFERRED ALTERNATIVE I-215 INTERCHANGE TO I-15/U. S. 89 INTERCHANGE

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For

and

Engineering, Inc.

June 2, 2000

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HDR Engineering, Inc.
3990 South 700 East, Suite 100
Salt Lake City, Utah 84107

Attention: Mr. Glen Cross
Administrative Manager

Subject: Report of Geotechnical Field and Laboratory Investigations
Legacy Parkway Preferred Alternative
Salt Lake and Davis Counties, Utah

Dear Mr. Cross:

Kleinfelder is pleased to present the attached report of the geotechnical and laboratory investigations for the referenced project. In general, the purposes of these investigations were to evaluate the general subsurface soil conditions, obtain field and laboratory data to describe subsurface soil conditions and present engineering properties for the proposed roadway, bridge approach embankments, bridges, and retaining walls. The subsurface conditions encountered, and laboratory test results are presented in the following report.

We appreciate the opportunity to provide our services to you on this project. If you have any questions regarding this report or if we may be of further assistance, please contact the undersigned.

Respectfully submitted,

KLEINFELDER, INC.

Curt Christensen, P.E.
Senior Geotechnical Engineer

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REPORT OF
GEOTECHNICAL FIELD
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EXECUTIVE SUMMARY

This report presents the results of the geotechnical field and laboratory investigations performed for the Legacy Parkway Preferred Alternative located in Salt Lake and Davis Counties, Utah. The proposed Legacy Parkway will provide a new highway from near the I-215 Redwood Road Interchange in North Salt Lake to the I-15/S.R.89 Interchange in Farmington. The subsurface soil conditions were explored by drilling 168 borings and performing 69 cone penetrometer (CPT) soundings. Representative samples taken during the field investigation were tested in the laboratory to evaluate the physical and engineering properties of the subsurface soils.

The Legacy Parkway Preferred Alternative alignment generally traverses relatively level ground through commercial/industrial, and agricultural areas located in the north, central portion of the Salt Lake Valley. Soil conditions along the parkway generally consist of interbedded soft to stiff CLAY (CL) and loose to dense SAND (SP) and silty SAND (SM). The depth to groundwater below natural grade was generally 2 to 5 meters.

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1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of the geotechnical field and laboratory investigations performed for the Legacy Parkway Preferred Alternative located in Salt Lake and Davis Counties, Utah. The general location and vicinity of the Legacy Parkway are shown on Plates A-1 through A-3. In general, the purposes of this investigation were to evaluate the general subsurface conditions and obtain field and laboratory data to describe the subsurface soil conditions and the physical and engineering properties of the subsurface soils along the alignment and at bridge and retaining wall structures as well as structure approach embankments. Investigations were performed for 30 bridges, 22 retaining walls, and 27 approach embankments as well as the general highway alignment. For the purposes of this study, pairs of parallel bridges were considered as two separate, individual structures. The investigation included subsurface exploration, soil sampling, field and laboratory testing, and preparation of this report. Analysis required for design are to be performed during the design/build process.

We understand that the information provided in this report will be used by the design/build contractors in preparation of their bids and for design and construction of the proposed improvements. Our investigation was based on preliminary design information available to us at the time of our investigation and report preparation. As the final design is developed and requirements for individual features are established, it may be necessary to supplement the information in this report with additional studies prior to final design.

The work performed for this report was authorized by Mr. Frank Ularich of HDR Engineering, Inc. and was conducted in accordance with our proposals dated November 22, 1999 and April 18, 2000.

1.2 PROJECT DESCRIPTION

Based on our review of the alignment plan provided at the time of our investigations, and report preparation, and on discussions with the Client, we understand that the Legacy Parkway Preferred Alternative will provide a new highway from the existing I-215 Belt Route near Redwood Road north to I-15 at the I-15/U.S. 89 Interchange. The project will include

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interchanges at Parrish Lane and Glovers Lane as well as freeway to freeway interchanges at I-215 and I-15. The general alignment of the project is shown on Exploration Location Plan Plates in Appendix A.

The typical section for the Legacy Parkway will include six lanes, three each northbound and southbound. Structures will be required for several local streets, the Jordan River, and the Oil Drain drainage canal.

1.3 PREVIOUS STUDIES

A geotechnical study was performed by Dames and Moore to investigate and evaluate the general subsurface and groundwater conditions for the original preliminary Legacy Highway study corridor (Dames and Moore, 1998). Copies of this study should be requested from HDR Engineering, Inc. or the UDOT Legacy Parkway Management Team.

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2.0 EXISTING FACILITIES

The existing highway facilities in the preferred alternative include the existing I-215 belt route, Interstate I-15, Highway U.S. 89, and the I-15/U.S.89 interchange. The embankments at the existing interchanges range up to approximately 9 to 10 meters in height.

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3.0 FIELD EXPLORATION AND TESTING PROGRAM

3.1 GENERAL

The subsurface soil conditions along the Legacy Parkway alignment were explored by drilling a total of 168 borings and performing 69 cone penetrometer (CPT) soundings. The borings were drilled to depths ranging from 7 to 92 meters (m) below the existing ground surface and the CPT soundings varied from approximately 9 to 55 m below the existing ground surface. The planned depth of each exploration was based on the location and type of anticipated construction, i.e., retaining wall, highway approach embankment, or bridge structure. The boring and CPT depths for the highway features are summarized in the table below:

TABLE 1
Summary of Boring and CPT Depths
Legacy Parkway

Feature	Borings		CPT	
	No.	Depth, m	No	Depth, m
Retaining Walls	37	7.3-35.7	16	9.1-15.2
Structures	66	17.4-92.1	52	12.2-54.9
Roadway Approach Embankments	36	18.3-37.2	-	-
Roadway - General	29	8.8-9.4	1	15.8

In general, structure borings were drilled until SPT N values of about 30 blows per 0.3 meter were observed for three consecutive 1.5m intervals. One boring drilled in softer soils was extended to a depth of approximately 92 meters. Other borings where hard or very dense soils were not apparent were terminated at depths of about 60 meters, as requested by HDR Engineering and the UDOT Legacy Management Team. CPT soundings for structures were performed until refusal of the cone was reached.

Boring and CPT soundings for retaining walls were generally performed to depths of 7 to 15 meters, with the shallower depths associated with walls of lesser height three borings drilled for relative high walls with wide and high embankments were drilled to depths of about 34.7 to 35.7 m.

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The depth of the borings for the roadway structure approach embankments varied depending on the height of the embankment. In general the following criteria were used.

Embankment Height, meters	Boring Depths, meters
10 or less	23
10 – 16	30
Greater than 16	36.5

The borings and for the general roadway alignment were made to depths of about 9m since the embankment heights were generally less than 3 m.

The approximate locations of the explorations are shown on the Exploration Location Drawings, Plates A-5 through A-24 in Appendix A. Logs of the subsurface conditions, as encountered in the explorations, were recorded at the time of the exploration, and are presented on the Boring or Sounding Logs in Appendices B, C and D. Each boring and CPT sounding is identified with an alpha-numeric format as indicated below with the following interpretation;

(RB, SB, WB, SC, WC) – XX – YYY

RB - Roadway Boring
SB - Structure Boring
WB - Wall Boring
SC - Structure CPT Sounding
WC - Wall CPT Sounding
XX - Two Digit Number (indicating the wall or bridge structure number; blank for roadway borings)
YYY – Three Digit number (sequentially numbered borings and soundings)

The exploration locations were surveyed by Forsgren Associates/Inc. using Global Positioning Satellite (GPS) methods to evaluate the Northing, Easting, and ground surface elevation. The surveys were performed using a Trimble 4700 Real Time Kinematic (RTK) System. The accuracy of the equipment is approximately plus or minus 3 centimeters (cm) horizontally and plus or minus 6 cm vertically. The offset and station of each location were calculated by HDR Engineering, Inc. based on the survey coordinates.

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3.2 BORINGS

Drilling was accomplished with truck, track, and ATV-mounted drills using hollow-stem auger or rotary wash drilling procedures and equipped for soil sampling. Drilling fluid was typically used in the hollow stem of the augers and in the casing to equalize hydrostatic pressures at the bottom of the augers and casing to prevent soil heave and to control artesian water pressures. Soil sampling uses generally attempted at 1.5 to 3 meter intervals depending on depth using a Modified California split barrel sampler or a split barrel sampler driven by a 63.5 kg hammer free-falling from a height of 762 mm. Undisturbed samples of the fine-grained soils were obtained by pushing 76.2 mm diameter by 762 mm long Shelby tubes with a hydraulic or mechanically operated piston sampler. Sampler driving resistance, expressed as "blows per 0.3 meters of penetration," is presented on the boring logs at the respective sampling depths. Each hammer used on this project was tested for energy efficiency by UDOT and the appropriate correction factor was applied to each value to obtain an energy-corrected $(N)_{60}$ blowcount. This value was then corrected for overburden pressure to obtain an $(N_1)_{60}$ blowcount.

In addition to correcting the blowcounts for sampling hammer efficiency and overburden pressure, the values for the modified California sampler were also corrected for sampler diameter using the following formula:

$$N_{correct} = N_{measured} \times \frac{(2)^2 - (1.375)^2}{D_o^2 - D_i^2}$$

Where D_o = outside diameter of modified sampler (2.5 inches for this study)
D_i = inside diameter of modified sampler (2.0 inches for this study)

The blowcounts presented on the logs represent $(N_1)_{60}$ values corrected for hammer efficiency, overburden, rod length and sampler diameter. The samples were visually classified in the field by an engineer/geologist and each sample was packaged to prevent moisture loss and transported to our laboratory for testing.

After completion, borings were backfilled with a 30 percent solid bentonite grout placed with tremie methods. Any remaining drilling fluid and water was displaced with the grout.

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3.3 CONE PENETROMETER TEST SOUNDINGS

CPT soundings were accomplished using a rubber-tired truck or track-mounted rig designed specifically for performing cone penetrometer testing. A piezocone (CPTU) was used to record tip resistance (Q_T), sleeve friction (F_S), and pore pressure. Soil stratigraphy is estimated according to a CPT Classification chart developed by Robertson and Campanella (1990), which is based on a combination of the cone tip resistance and the friction ratio (F_S/Q_T). It should be noted that the CPT correlations between "soil behavior" and "soil classification" are general in nature and may not correlate exactly to soil classification developed by laboratory tests. All data were obtained and transferred in real-time to an on-board computer and downloaded to disks. The data was then processed with specially designed software programs to plot and tabulate the CPTU test results which are presented as the Sounding Logs in Appendices B, C and D. Pore pressure measurements were obtained during the sounding. At periodic intervals, typically once per sounding, the CPTU was held stationary and a dynamic pore pressure dissipation test was performed. A plot containing pore pressure versus time was prepared which may be used to evaluate permeability and consolidation characteristics of the soil at that depth. These plots are presented in Appendix G.

The soundings were grouted after the CPTU was removed, using a bentonite grout placed from the bottom up using tremie methods with a small diameter PVC pipe. Appropriate surface completions were performed based on the existing surface conditions.

Shear wave velocity measurements were performed at one meter intervals in three CPT soundings; one each at the I-215 Interchange, Parrish Lane, and the I-15/U.S. 89 Interchange. These measurements were performed to obtain data for seismic analysis to be performed by others.

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4.0 LABORATORY TESTING PROGRAM

All samples recovered in the field were visually classified at the time of sampling by our field engineer/geologist and in the laboratory by a second engineer or geologist. Shelby tube samples were extruded in the laboratory and observed to assess the frequency of stratagraphic variations, such as sand and silt layers. Torvane shear tests were also performed on cohesive soil samples during the laboratory classification process. Representative samples were tested in the laboratory to evaluate selected physical and engineering properties of the soil. Density and moisture content determinations were performed to evaluate the various soil deposits vertically and laterally along the alignment. Particle size analyses, liquid limit, and plastic limit determinations were performed on selected samples to aid in classification of the soils along the alignment. One-dimensional consolidation tests were conducted on relatively undisturbed Shelby tube samples to provide consolidation and rate of consolidation data for settlement analysis. Unconfined compression and direct shear tests were performed on representative samples to evaluate strength characteristics of the soils for foundation design and slope stability analyses. Resistivity, pH, total soluble salts and water soluble sulfate tests were also performed to provide information to evaluate corrosion potential of subsurface soils at various locations along the alignment.

The results of our laboratory testing are presented on the boring logs in Appendices B, C and D in Appendix K.

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5.0 FINDINGS

5.1 SURFACE CONDITIONS

The alignment of the Legacy Parkway traverses generally level ground through a commercial/industrial and agricultural area located in the northern portion of the Salt Lake Valley. The major topographic features along the alignment include the Jordan River, the Oil Drain drainage canal , the existing structures and roadway embankments at I-215 and Redwood Road and the I-15/U.S. 89 Interchange, and major local surface streets.

5.2 GEOLOGIC CONDITIONS

5.2.1 Geologic Setting

Elevations along the proposed alignment range from approximately 1283 meters on the south end of the project to about 1363 meters near the north end. Mountain peaks to the east of the alignment are in excess of 9,000 feet, and the Great Salt Lake to west has a historic mean elevation of 1280 meters. The proposed alignment is located in the Bonneville Basin which is within the Basin and Range Physiographic Province (Hunt, 1967). As proposed, the alignment will be located a few kilometers to the west of the transition between the Basin and Range Physiographic Province and the Middle Rocky Mountain Physiographic Province. The Basin and Range Province is characterized by generally north-trending valleys and mountain ranges that have formed by displacement along normal faults resulting from tectonic extension. Mountain building (tectonic) activity commenced about 20 million years ago and continues to the present. The Wasatch fault zone forms the boundary between the two provinces and has been seismically active for approximately 10 million years. The Wasatch Mountains which are part of the Middle Rocky Mountains Physiographic Province were formed during a period of regional compression commencing in Cretaceous time, about 75 to 70 million years ago. The Bonneville Basin is a sediment-filled fault-bounded structural basin that has formed since the Cenozoic Epoch over the past 20 million years (Hunt, 1967).

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The projected climate conditions for the vicinity can be extrapolated from the Salt Lake City Airport Weather Station (1286 meters msl), which is located approximately 4 km southwest of the proposed alignment. Mean annual precipitation for the airport is 15.71 inches. The highest average precipitation, 1.99 inches, falls during the month of April, and the lowest, 0.63 inches falls in July. The annual mean temperature at the airport is 51.8 degrees F, with a range of 28.0 degrees F (January mean) to 63.4 degrees F (July mean) (U.S. Department of Commerce, 1990).

Except for periods when high pressure settles over the region, a westerly air flow dominates the region during the winter months. The westerly flow brings moist frontal storms inland from the Pacific Ocean (Gifford et al., 1967). When frontal storms encounter the Wasatch Mountains the resultant orographic uplift causes a marked increase in precipitation and higher snow falls. Snow accumulation for the region generally occurs between November and March. During the summer months, moisture comes primarily in the form of convectional storms that are driven northward from the Pacific (Gifford et al., 1967).

5.2.2 Surficial Geology

The surficial geology of the alignment vicinity is dominated by unconsolidated Quaternary sediments with Precambrian to Tertiary aged rock outcrops on Wasatch Mountain slopes east of the project. Bedrock is estimated to be from 180 to 770 meters beneath the surface along the proposed alignment. The Quaternary deposits along the alignment are related to Pleistocene paleolake inundation and subsequent Holocene alluvial, lacustrine and mass wasting processes.

Paleolakes have inundated the location of the alignment at least four times during the late-Pleistocene, and seven times since the Pleistocene, with historic high levels of 1283.8 meters and 1284.0 meters recorded in 1874 and 1987 respectively (Currey and Oviatt, 1985; Murchison, 1989; Currey et al, 1984). The Bonneville lake cycle which inundated the area between 27,000 to 12,000 years ago was the highest of the late-Pleistocene lake cycles with an elevation of 1585 meters (Currey and Oviatt, 1985).

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Because the proposed alignment is located near the bottom of the basin, the surficial geology is dominated primarily by fine-grained materials related to regressive lake cycles. Based on geological mapping by Personius and Scott (1992), and Nelson and Personius (1993) surficial geology from south to north along the alignment is mapped as follows:

al1 Stream alluvium 1 (upper Holocene)

clsp Lateral-spread deposits (Holocene to middle Pleistocene)

lbpm Lacustrine silt and clay undivided (uppermost Pleistocene)

ly Young lacutrine and marsh (upper Holocene)

The units listed above are discussed as follows in their order of relative-age. The oldest Quaternary deposits along the alignment consist of the lacustrine silts (lbpm). These sediments were deposited during the high-stand and regression of Lake Bonneville between approximately 16,000 and 12,000 years ago (Currey and Oviatt, 1985). The lateral-spread deposits (clsp) are derived from older lacustrine deposits, which have failed by moving laterally in response to seismic loading and liquefaction of sediments at depth (Hylland and Lowe, 1998). Hylland and Lowe (1998) believe that portions of the northern lateral-spread deposits have moved on four different occasions in response to prehistoric earthquake loads and/or high waters levels on the Great Salt Lake.

The stream alluvium deposits (al1) are overbank and channel deposits related to post-lacustral alluvial deposition along the Jordan River.

The young lacustrine (ly) and marsh deposits are likely related to prehistoric (Murchison, 1989) and historic (Currey, et al. 1984) high lake cycles on the Great Salt Lake.

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5.3 GEOLOGICAL HAZARDS

5.3.1 Seismicity

Active faults in the region are potential sources for seismic loading hazards for the proposed alignment. Active earthquake faults are generally considered as faults that have moved during the past 10,000 years. The north end of the proposed alignment is located 0.9 km west of the Weber segment of the Wasatch fault zone that is considered active. Besides the Weber segment of the Wasatch fault zone, an inferred trace of the Taylorsville fault of the West Valley fault zone ends approximately 4.0 km south of the proposed alignment (Hecker, 1993).

Given the proximity of the proposed alignment to the Weber segment of the Wasatch Fault Zone, this system should be considered as the primary contributor to the seismic hazard to the proposed alignment. The Wasatch fault zone is considered capable of generating earthquakes as large as magnitude 7.3 (Arabasz et al., 1992). Surface faulting commonly occurs in conjunction with events of magnitude 6 or larger. Black, et al. (1995) have determined that four surface-faulting earthquakes have occurred on the Salt Lake City segment of the Wasatch fault zone during the past 6,000 years. The West Valley fault zone is also considered active and capable of generating earthquakes as large as magnitude 7.0 (Keaton, et al., 1987).

Based on probabilistic estimates, the expected peak horizontal ground acceleration (PHA) from a large earthquake on the proposed alignment with a ten (10) percent probability of exceedance in 50 years ranges from 0.24*g*, on the north end of the alignment to 0.29*g* on the south end of the alignment. The PHA with a five (5) percent probability of exceedance in 50 years ranges from 0.38*g*, on the north end of the alignment to 0.53*g* on the south end of the alignment (U.S. Geological Survey Web Page, 1999). Ground accelerations greater than 0.53*g* are possible but will have a lower probability of occurrence. The peak horizontal ground accelerations described above are bedrock values. Additional information on seismic hazards in the Salt lake area are presented in "Final Report, Seismic Hazard Analysis of the I-15 Corridor; (Dames and Moore, 1996).

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5.3.2 Faulting

Because no active faults are known to cross the alignment, fault rupture hazards are not expected to impact the alignment. Although the site is located away from active faults, ground shaking should be anticipated at the site in the event of an earthquake occurring on a fault in the region. The Wasatch and West Valley fault zones are considered active and capable of generating earthquakes as large as magnitude 7.3 (Arabasz et al., 1992) and 7.0 (Keaton et al., 1987), respectively.

5.3.3 Liquefaction Hazards

In conjunction with the ground shaking potential of large magnitude seismic events as discussed previously, certain areas along the alignment may possess a potential for liquefaction during such events. Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure buildup resulting from dynamic loading, such as that caused by an earthquake. Among other effects, liquefaction can result in densification of such deposits causing settlements of overlying layers after an earthquake as excess pore water pressures are dissipated. The primary factors affecting liquefaction potential of a soil deposit are: (1) level and duration of seismic ground motions; (2) soil type and consistency; and (3) depth to groundwater.

Based on the evidence of liquefaction induced lateral-spreading (Personius and Scott, 1992; Hylland and Lowe, 1998), and the potentially liquefiable sediments encountered at depth in our borings and soundings, we believe that liquefaction related hazards may impact the proposed construction during the future. The evaluation of liquefaction potential and development of mitigation measures at specific locations are beyond the scope of this report.

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5.3.4 Landslides

Because the proposed alignment does not traverse any areas with steep slopes and is primarily on level terrain, we do not expect landslide hazards related to deep-seated mass slope stability and /or cuts and fills to impact the project. However, lateral-spreading related to liquefaction, as discussed in the previous section, may impact the proposed construction during the future.

5.3.5 Flooding

Because the proposed alignment is located in a low-lying area, local areas of potential inundation may occur where streams cross the alignment. The highest historical recorded level of the Great Salt Lake occurred in late 1986 and early 1987. The level recorded during this rise was 1284.0 meters. Because of potential property damage surrounding the lake, the State of Utah constructed pumps on the west-side of the lake in 1987 to lower levels in the main body of the lake. Optimally, the pumps would maintain levels below 1283 meters during the future, however a sizable and rapid Spring run-off could result in inflows that far exceed outflow capacity of the pumps (personnel conversation Mr. Wallace Qwynn, Utah Geological Survey).

5.4 SUBSURFACE CONDITIONS

To provide a general summary of the subsurface soil conditions, the Legacy Parkway Preferred Alternative alignment has been divided into five sections: the I-215 Interchange, Center Street to Parrish Lane, Parrish Lane, Parrish Lane to the I-15/U.S. 89 Interchange, and the I-15/U.S. 89 Interchange. Overconsolidation in the upper 3.0 to 6.0 meters was apparent in the soils along the alignment. Below these depths, the soils exhibited normal to slight overconsolidation.

5.4.1 Center Street to Parrish Lane

The native soils from the I-215 Interchange area were typically soft to medium stiff/lean clay and silt. Layers and lenses of fine-grained, medium dense sand and silty sand approximately 5 to 10 meters apart were evident throughout the clay and silt strata. Approximately 25 to 30 meters

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below the ground surface the soils become dense sand and silty sand with some very stiff silt layers.

5.4.2 Center Street to Parrish Lane

The soil profile for the Center Street to Parrish Lane area is characterized by approximately 15 to 20 meters of soft to medium stiff lean clay and silt. These strata contained occasional silty sand seams and layers. Near Center Street, medium dense to dense silty sands and poorly graded sands were encountered to depths of approximately 25 to 35 meters. Soil below the sand was generally stiff to very stiff lean clay and silt with frequent 0.3 to 1 meter thick sand layers. From 500 South to Parrish Lane, the thick sand layers from approximately 15 to 35 meters below ground surface were absent and the profile mainly consisted of lean clay and silt with occasional sand seams and thin sand layers.

5.4.3 Parrish Lane

The top 15 to 20 meters of soil at the Parrish Lane area was soft to medium stiff lean clay with frequent silt and sand seams and occasional silty sand layers 1 to 2 meters thick. Below approximately 20 meters, 2 to 6 meter layers of interbedded medium dense silty sand and stiff to hard lean clay layers were encountered. Below this depth, soft to medium stiff clay and silt and loose sand were observed to a depth of about 92 m, the maximum depth explored in this area.

5.4.4 Parrish Lane to the I-15/U.S. 89 Interchange

Soils in the roadway borings drilled along the alignment between Parrish Lane and the North I-15 Interchange contained lean clay as the main constituent. The lean clay was interbedded with 0.6 to 3.0 meter silt and sand layers.

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5.4.5 I-15/U.S. 89 Interchange

Medium stiff to stiff silt containing frequent clay and sand seams is prevalent in the upper 10 to 15 meters of soil at the North I-15 Interchange. Below the silt lies dense to very dense silty sand and poorly graded sand layers with frequent lean clay and silt layers. These conditions were encountered to the maximum depths explored in this area.

5.5 HYDROGEOLOGIC CONDITIONS

5.5.1 Regional Groundwater Conditions

The Quaternary basin-fill material in the Salt Lake Valley is generally divided into a deep confined aquifer, a shallow unconfined aquifer overlying the confined aquifer, and locally unconfined perched aquifers (e.g., Thiros, 1995; Seiler and Waddell, 1984). The upper-most confining layer in the basin, which defines the top of the deep confined aquifer, is generally within about 15 meters of the ground surface.

The deep confined aquifer consists of interbedded clay, silt, sand, and gravel (Thiros, 1995). The primary recharge area for the confined aquifer is near the mountain front, where there is relatively little fine-grained material to impede infiltration of groundwater. In the vicinity of the parkway, the gradient of the potentiometric surface is generally toward the west. The potentiometric surface of the deep confined aquifer in the vicinity of the alignment is generally within about 2 to 5 meters of the ground surface, and is locally above the ground surface (Price, 1988). This observation of local artesian conditions is consistent with observations during our subsurface exploration program (see Section 5.5.2).

5.5.2 Site-Specific Groundwater Conditions

Kleinfelder's subsurface investigation provided additional information on the groundwater conditions along the parkway. Many of the borings however, extended through structural fill placed above natural grade. Taking the thickness of fill into account, the depth to groundwater

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below natural grade was generally 2 to 5 meters. Excess hydrostatic pressures in sand strata were periodically evident during drilling.

All depths-to-water established by our subsurface investigation were based on observations during drilling. Because drilling mud was used for both hollow-stem auger and rotary drilling methods and no piezometers were installed, depths-to-water established by this investigation should be considered estimates. Furthermore, groundwater elevations may fluctuate depending on factors such as: seasonal rainfall, groundwater withdrawal, and construction activities on this site or on adjacent properties. Typically, groundwater conditions are highest in the spring.

Since piezometers were installed during the previous roadway geotechnical study (Dames and Moore, 1998), installation of additional piezometers were not included for this investigation. Water levels in the previously installed piezometers were periodically observed and recorded by HDR Engineering, Inc. personnel.

5.5.3 Surface Water Conditions

The closest major surface water bodies near the Legacy Parkway include the Great Salt Lake, the Jordan River, and the Oil Drain drainage canal. The later two streams cross near the south end of the alignment. The Great Salt Lake is located approximately 2 to 5 kilometers west of the Legacy Parkway.

5.6 POTENTIALLY HAZARDOUS MATERIALS

No obvious soil or groundwater contamination was noted by our field personnel during the subsurface exploration phase of our investigation. Assessment of potentially hazardous materials, beyond those obviously apparent by sight or odor during the subsurface exploration, is beyond the scope of this investigation.

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6.0 GENERAL SOIL PROPERTIES

6.1 INTRODUCTION

The following sections present summaries of the general soil properties obtained from this study. Detailed data are presented on the boring and CPT logs and in Appendix K.

6.2 IN-PLACE MOISTURE AND DRY DENSITY

Water contents for the predominantly clayey soils generally range from 20 to 50 percent with occasional higher values. Corresponding dry densities are generally in the range of 10 to 18 kN/m^3. Sandy and silty soils exhibit water content in the lower portion of the range or below with corresponding greater dry densities.

6.3 LIQUID AND PLASTIC LIMITS AND PLASTICITY INDEX

The clay soils are generally of low to medium plasticity with liquid limits ranging from 24 to 73 with most values generally between 35 and 60. Plastic limits varied from 13 to 29. The plasticity index ranged from 7 to 43.

Liquid limits for the silt soils varied from 5 to 69 with plastic limits ranging from non-plastic to 36. Plasticity index values varied from non-plastic to 33.

6.4 PENETRATION RESISTANCE AND UNDRAINED SHEAR STRENGTH

The corrected $(N_1)_{60}$ values for clay soils are generally less than 10 with softer zones less than 4. The $(N_1)_{60}$ for sands generally ranges from 10 to 40 and CPT tip resistance values generally indicate somewhat higher equivalent values of $(N_1)_{60}$.

The undrained shear strength (S_u) of clay soils varies considerably with depth and within specific depth intervals. The upper 8 meters of soil generally have undrained shear strengths between 30 to 60 kPa although one test result of about 150 kPa was observed. A fairly consistent softer zone from approximately 8 to 14 meters indicated lower shear strengths

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between 15 to 30 kPa. Soils below 14 meters depth generally ranged in strength from 30 to 80 kPa. Within each of the above mentioned zones locally weaker and stronger values were measured.

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7.0 LIMITATIONS

The field and laboratory data contained in this report are based on our field explorations, laboratory tests, and our understanding of the proposed construction obtained from preliminary design concepts provided by others. The subsurface data used in preparation of this report were obtained from the 168 borings drilled and the 69 Cone Penetrometer Test explorations conducted for this investigation. It is possible and likely that variations in the soil and groundwater conditions could exist between the points explored. The nature and extent of variations may not be evident until construction occurs.

It should be noted this report does not address geotechnical and foundation issues at a final design level. Geotechnical issues, such as consolidation and stability, must be evaluated once the final plan, profile, and structural configurations are known. Detailed design studies to develop appropriate measures to achieve acceptable settlement performance are beyond the scope of this study. Pavements and foundation elements for bridges, walls, drainage structures, etc. must be developed in their entirety. The field and laboratory data developed and reported for this study may be used for final design so far as the exploration locations are within the geometry of the final alignment. However, additional exploration and laboratory testing may be necessary and should be anticipated. This report was prepared in accordance with the generally accepted standard of practice in Salt Lake City, Utah at the time the report was written. No warranty, express or implied, is made.

It is the client's responsibility to see that all parties to the project, including the prospective design/build teams, are made aware of this report in its entirety. The use of information contained in this report for bidding purposes is at the Contractor's option and risk.

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8.0 REFERENCES

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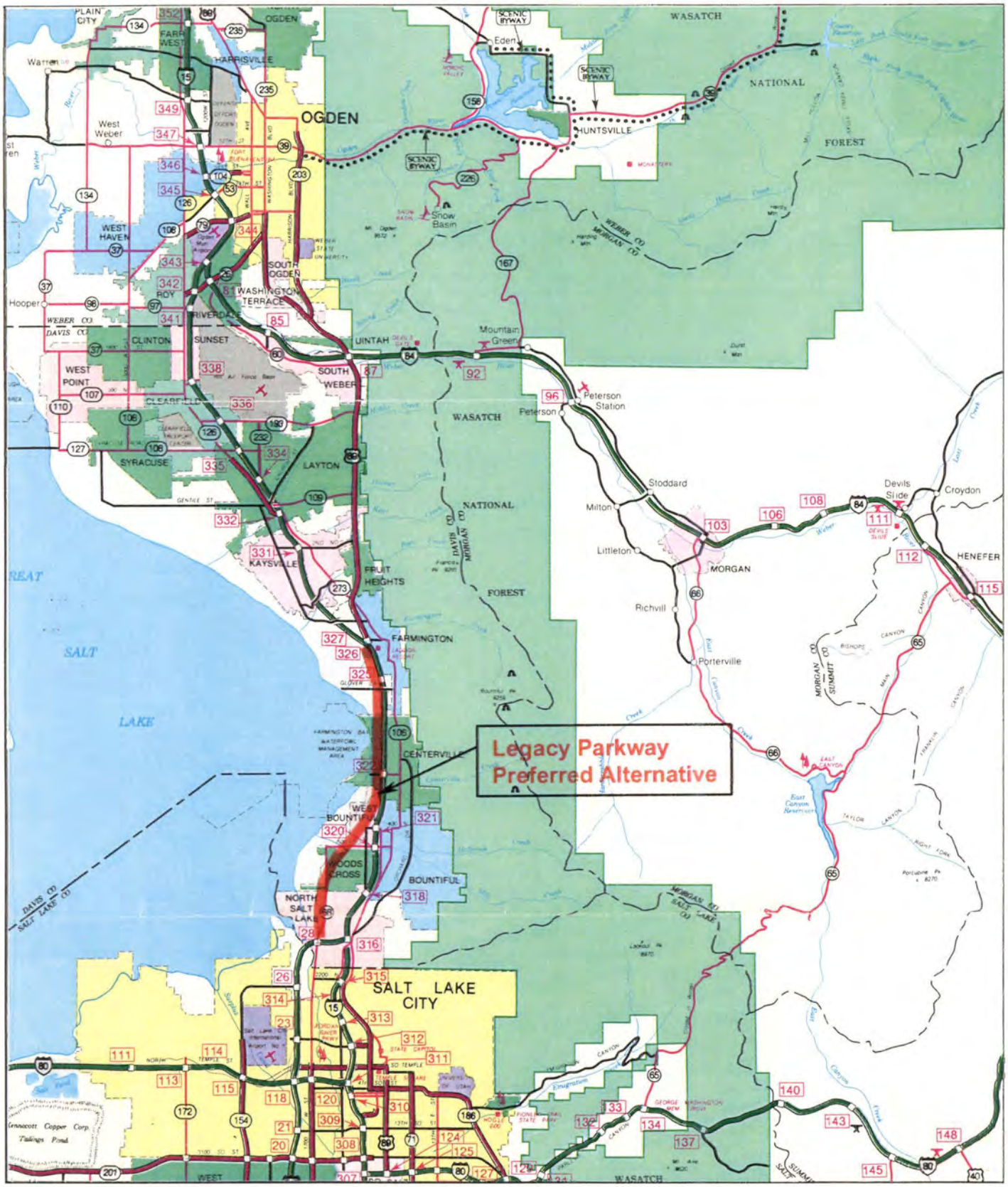

Source:
Official Highway Map
Utah Department of Transportation
1995

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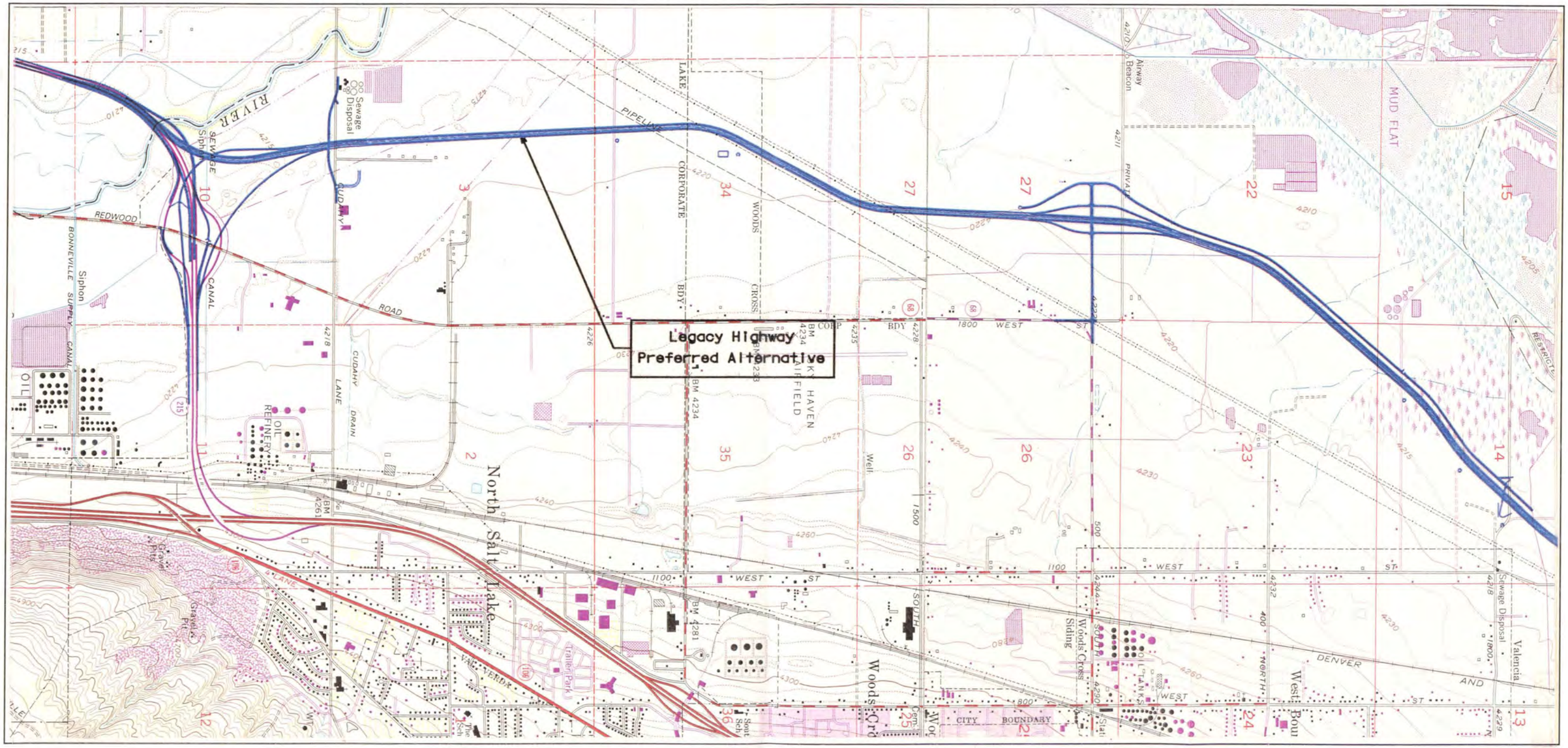
Project Number 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PROJECT LOCATION MAP

PLATE

A-1



BASE MAPS:
SALT LAKE CITY NORTH AND FARMINGTION, UTAH
U.S.G.S. 7.5 MINUTE QUADRANGLE
1963 AND 1952
Photorevised 1969 and 1975

Project Number - 35-8163-05

SCALE 1:24,000

0 1000 2000 FEET

1" = 2000'

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTAH

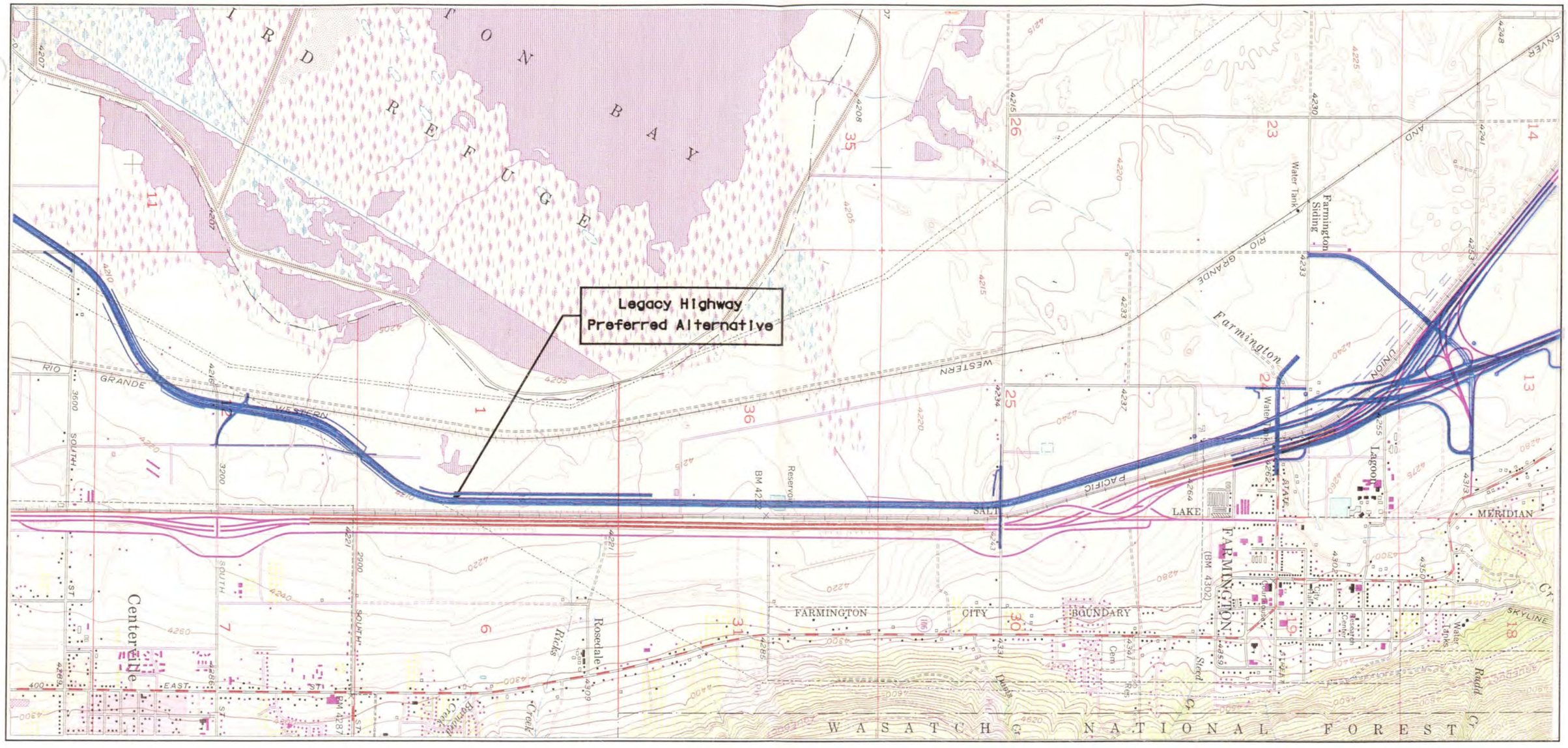
QUADRANGLE LOCATION

KLEINFELDER, INC.

Legacy Parkway - Preferred Alternative
I-215 Interchange to I-15/U.S. 89 Interchange

PROJECT VICINITY MAP

PLATE
A-2



BASE MAP:
FARMINGTION, UTAH
U.S.G.S. 7.5 MINUTE QUADRANGLE
1952
Photorevised 1969 and 1975
Project Number - 35-8163-05

SCALE 1:24,000

0 1000 2000 FEET

1" = 2000'

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

N

KLEINFELDER, INC.

Legacy Parkway - Preferred Alternative
I-215 Interchange to I-15/U.S. 89 Interchange

PROJECT VICINITY MAP

PLATE
A-3

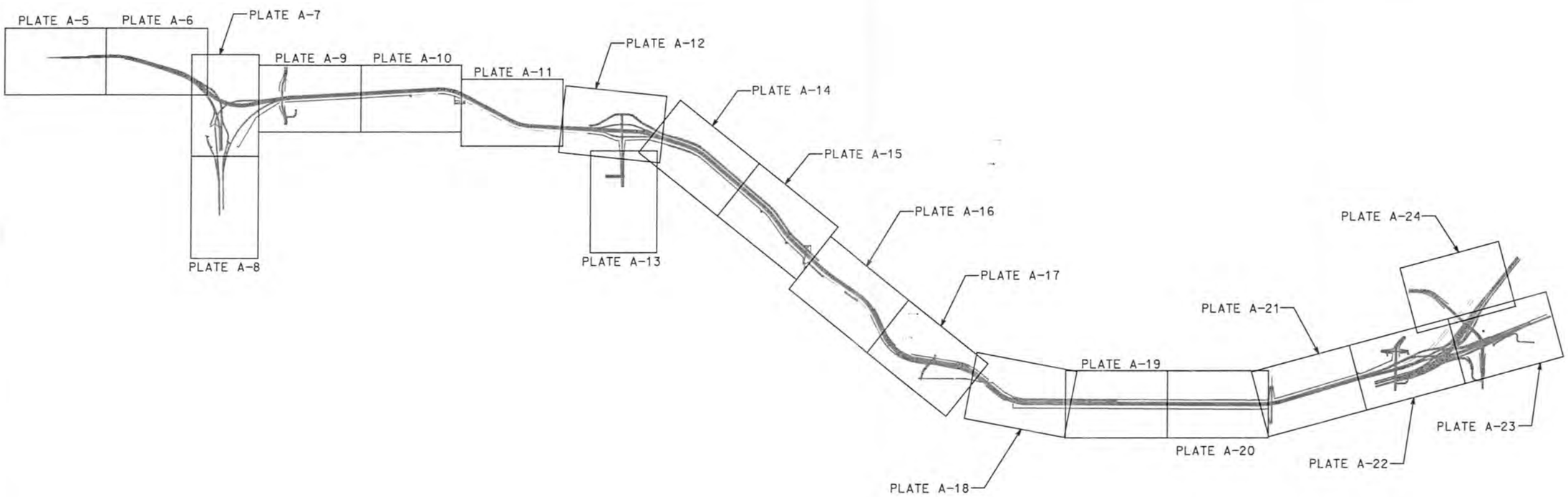
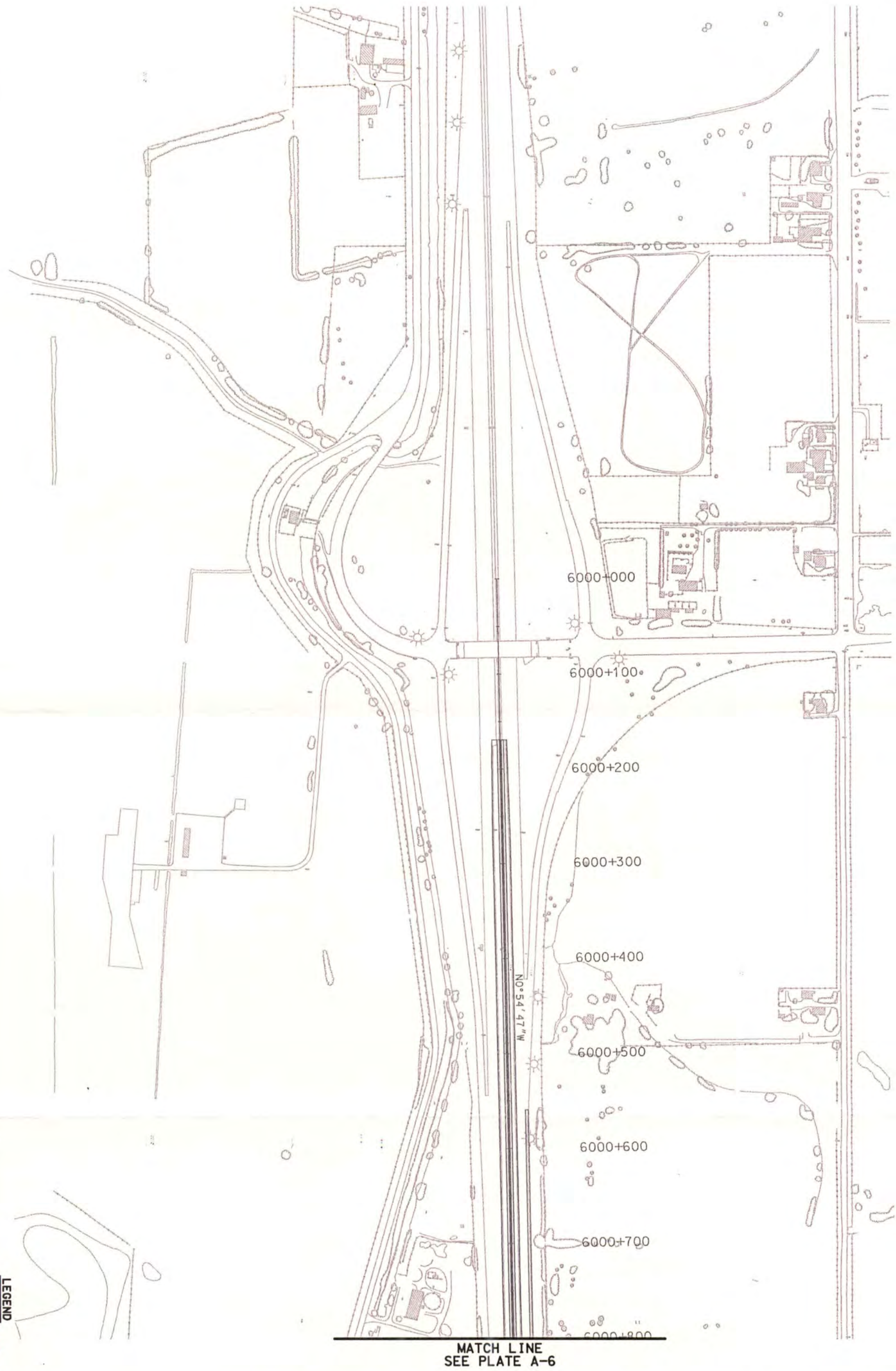


PLATE A-4

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KEY TO
EXPLORATION LOCATION DRAWING

KLEINFELDER
Project No. 35-8163-05



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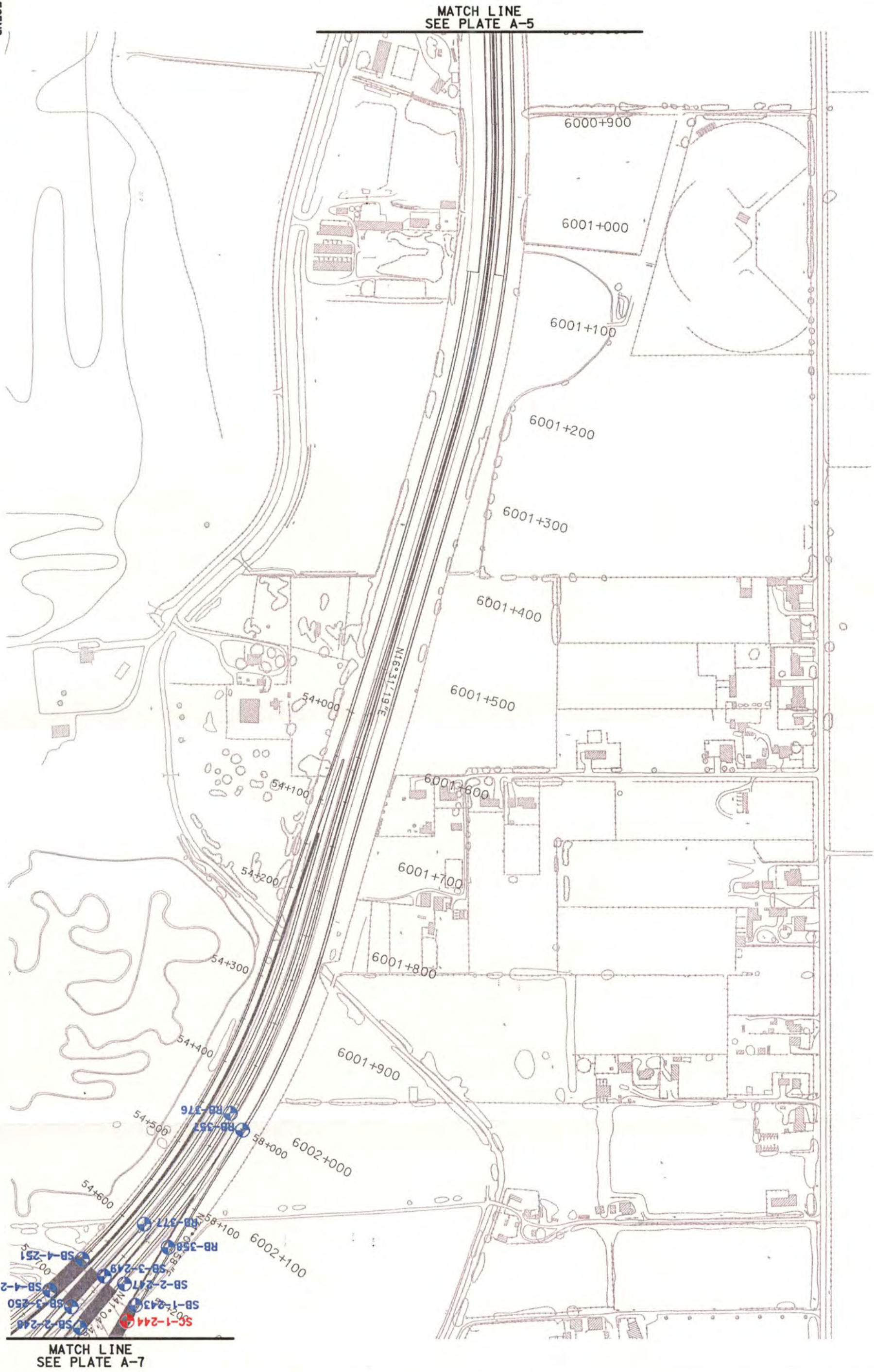
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-5



KLEINFELDER

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Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-6

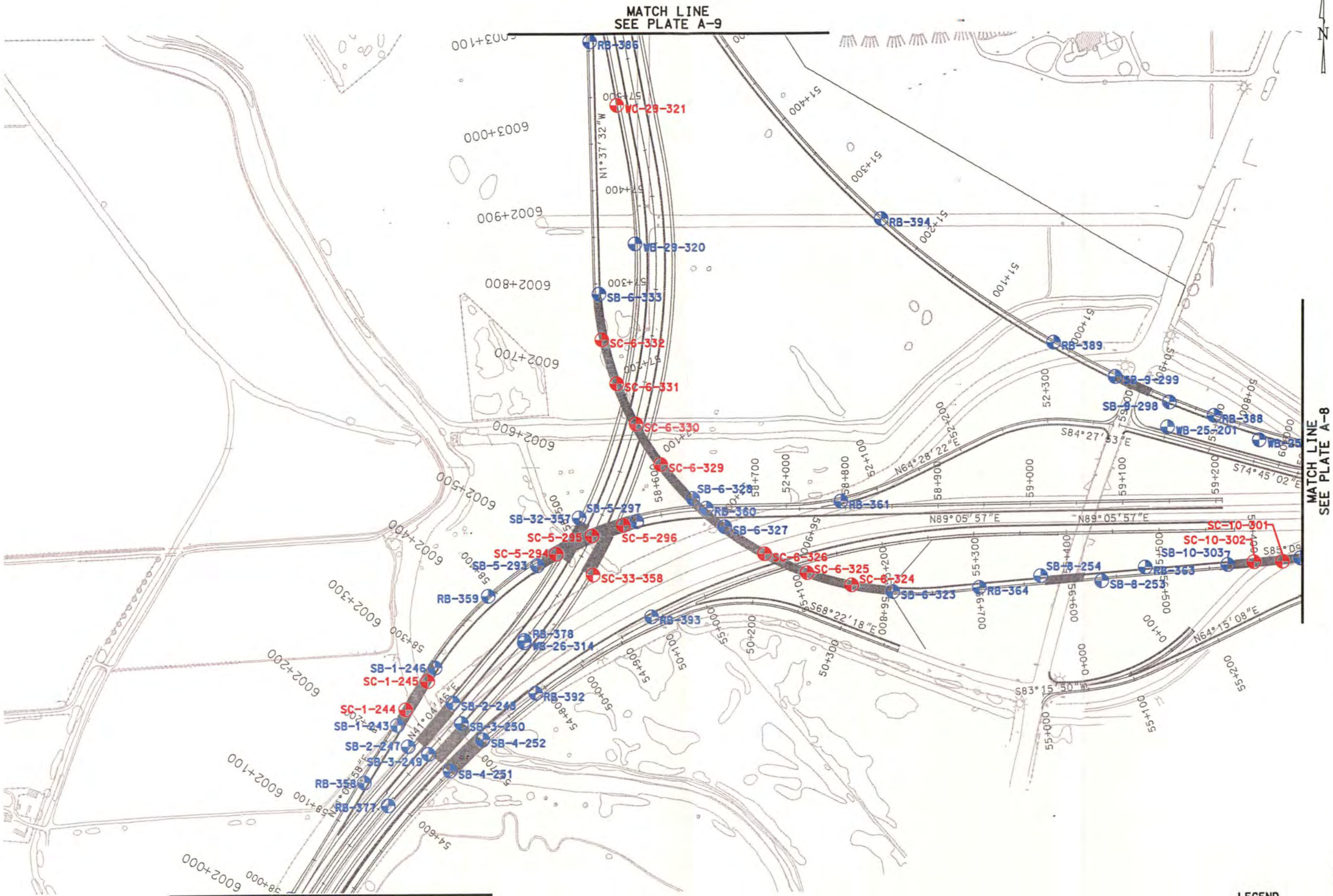

PLATE A-7

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

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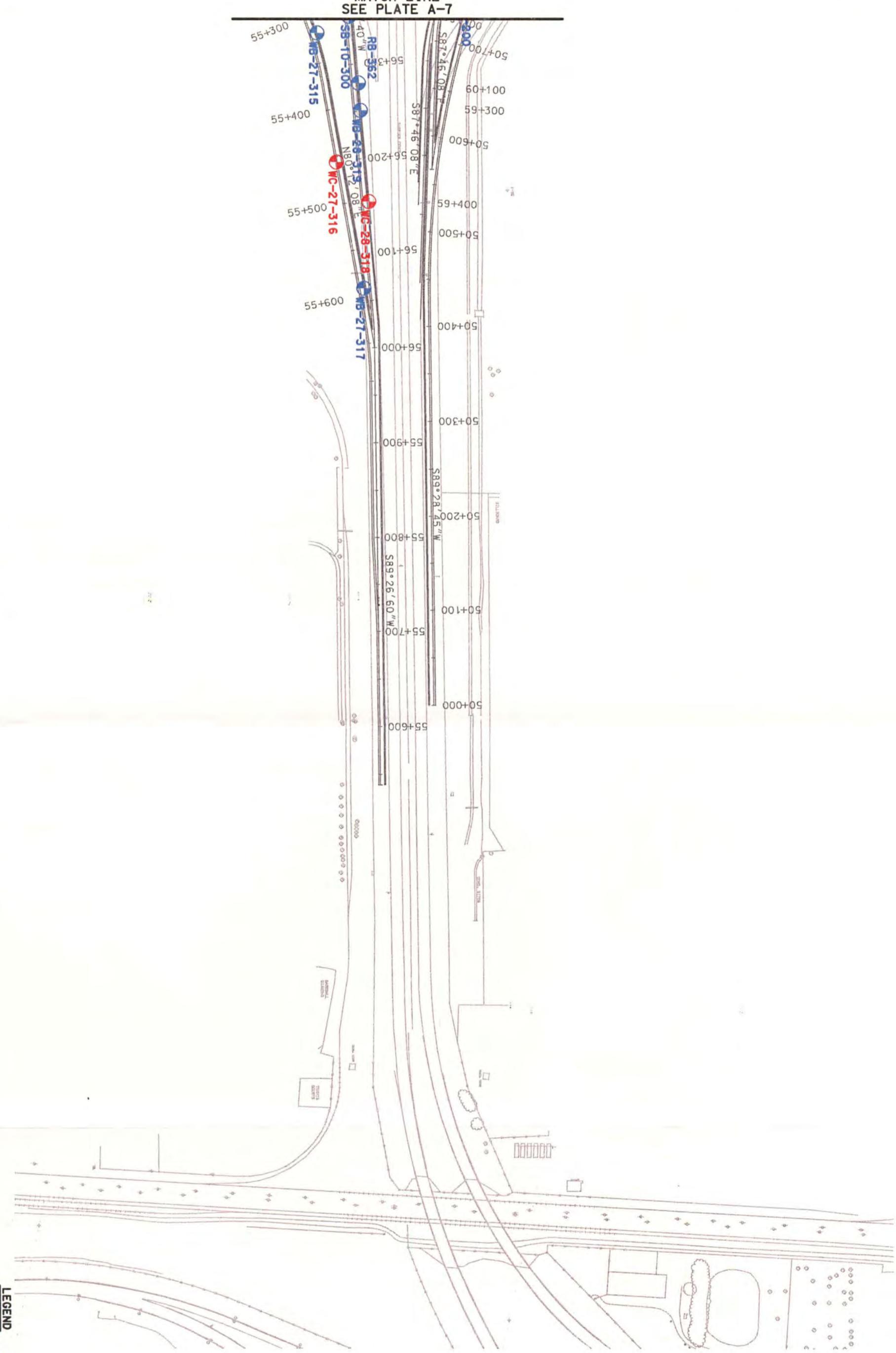
KLEINFELDER

Project No. 35-8163-0563-05



KLEINFELDER

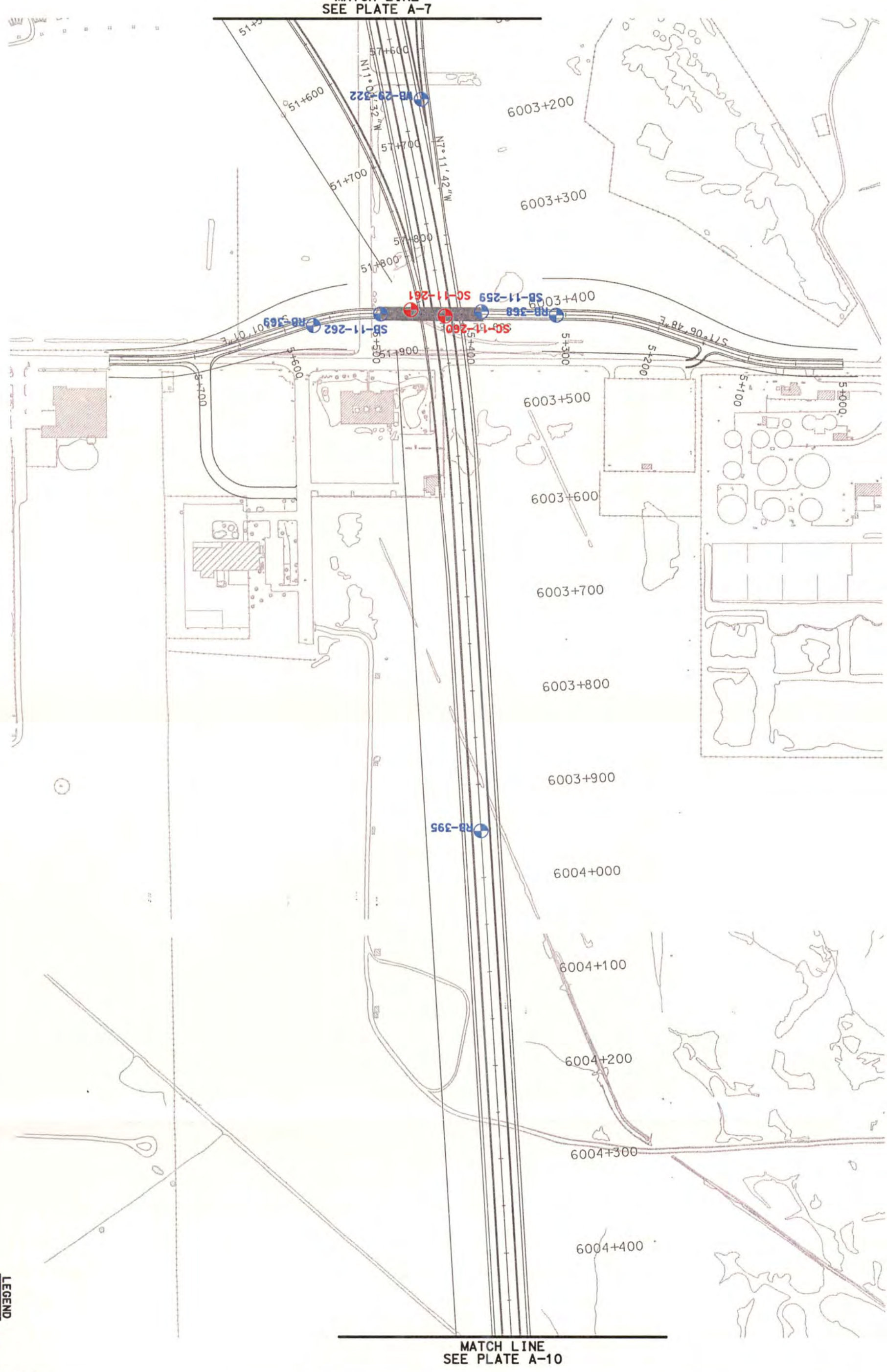
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-8



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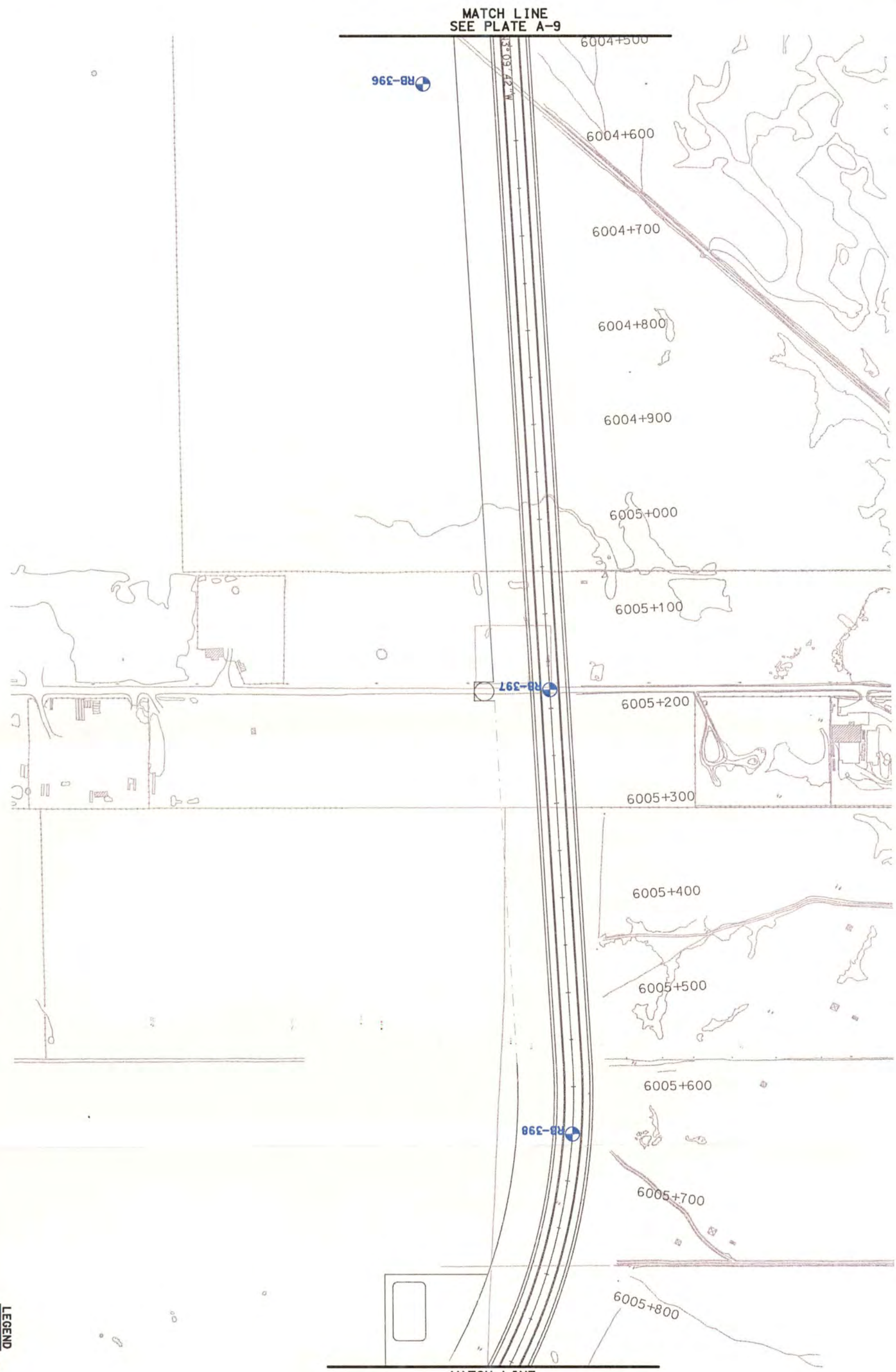
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-9



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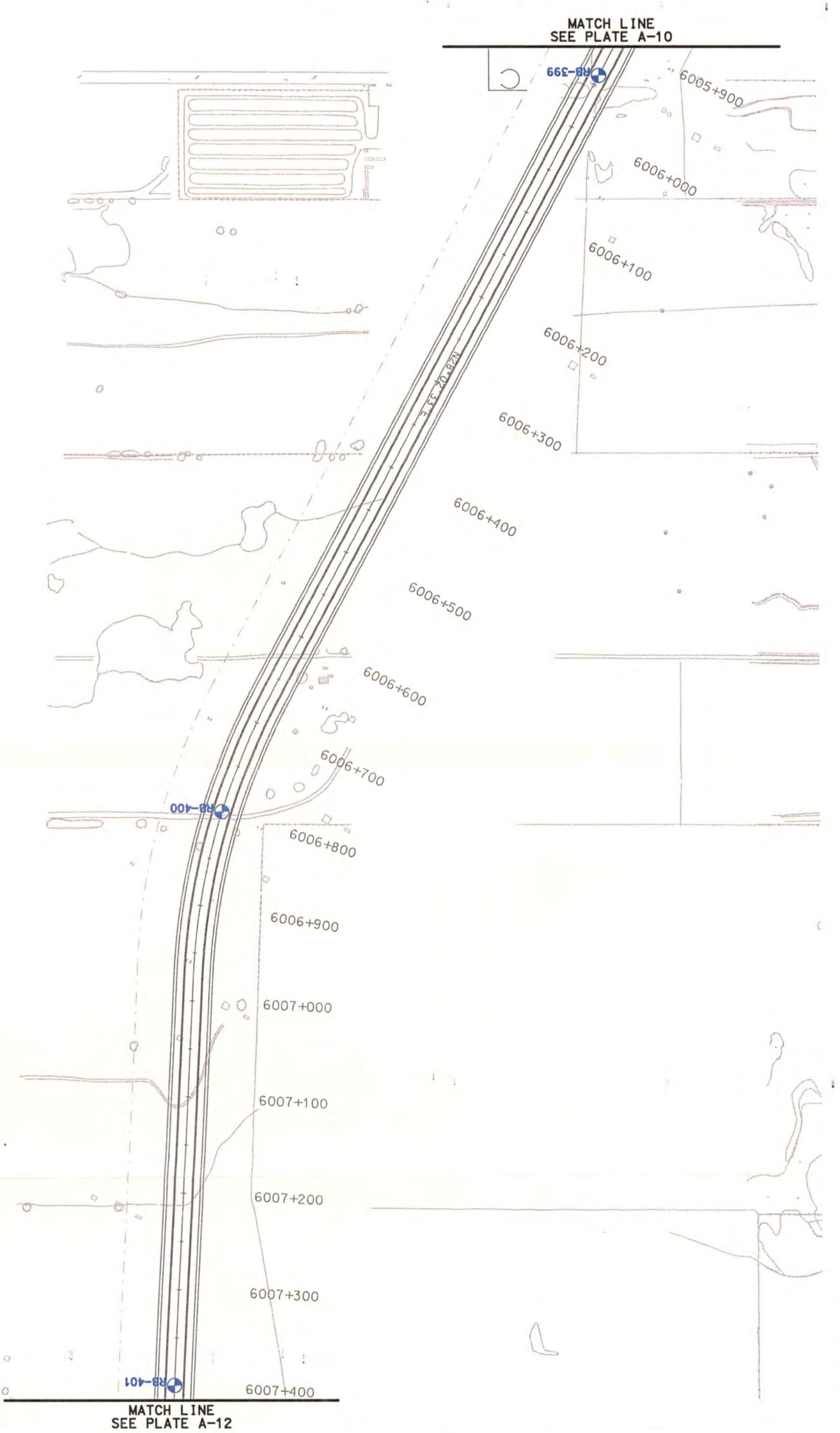
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-10



LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

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EXPLORATION LOCATION DRAWING

PLATE

A-11

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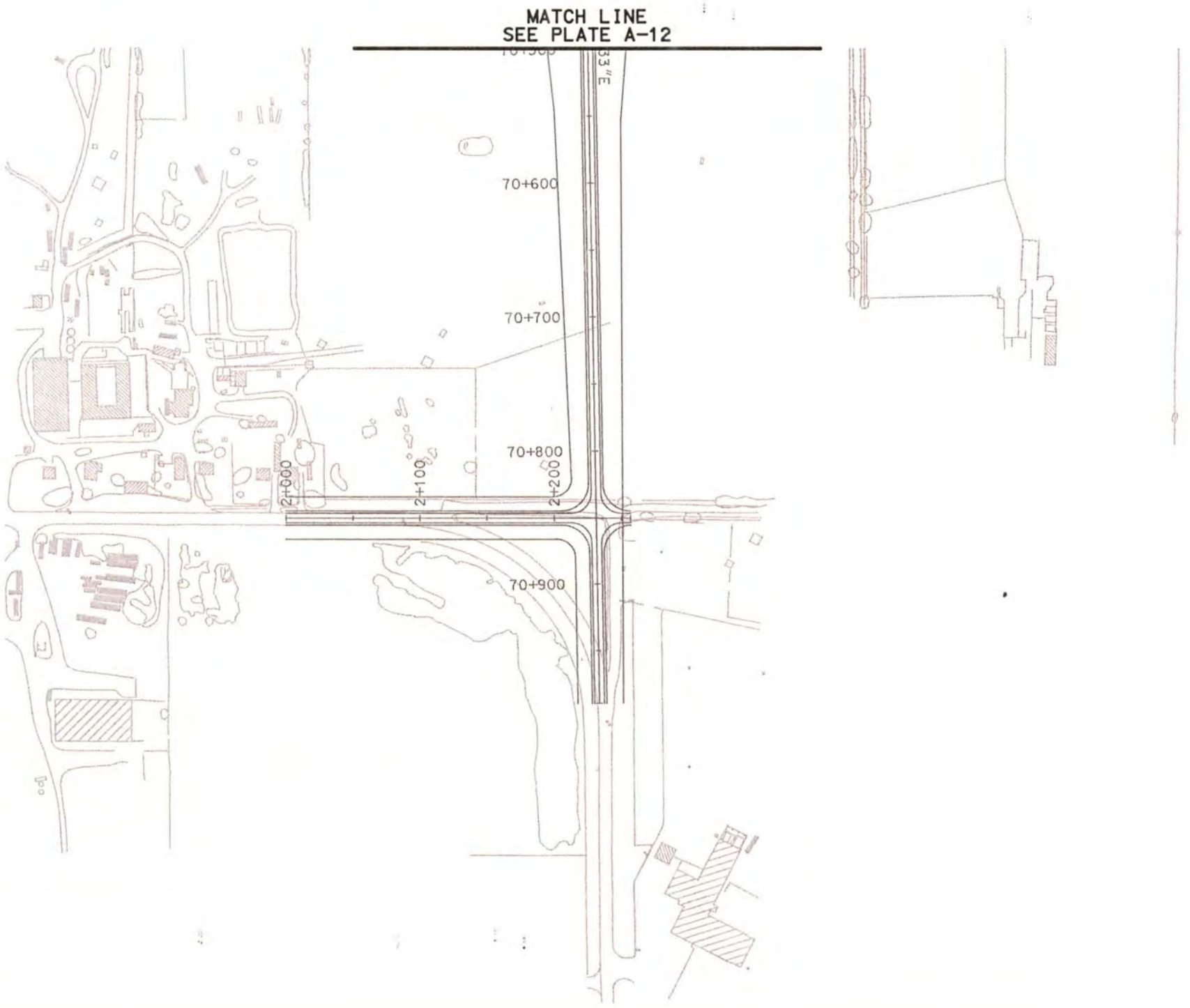
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-12



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SC-31-356 CPT Location

SB-31-356 Boring Location

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Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-13

LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

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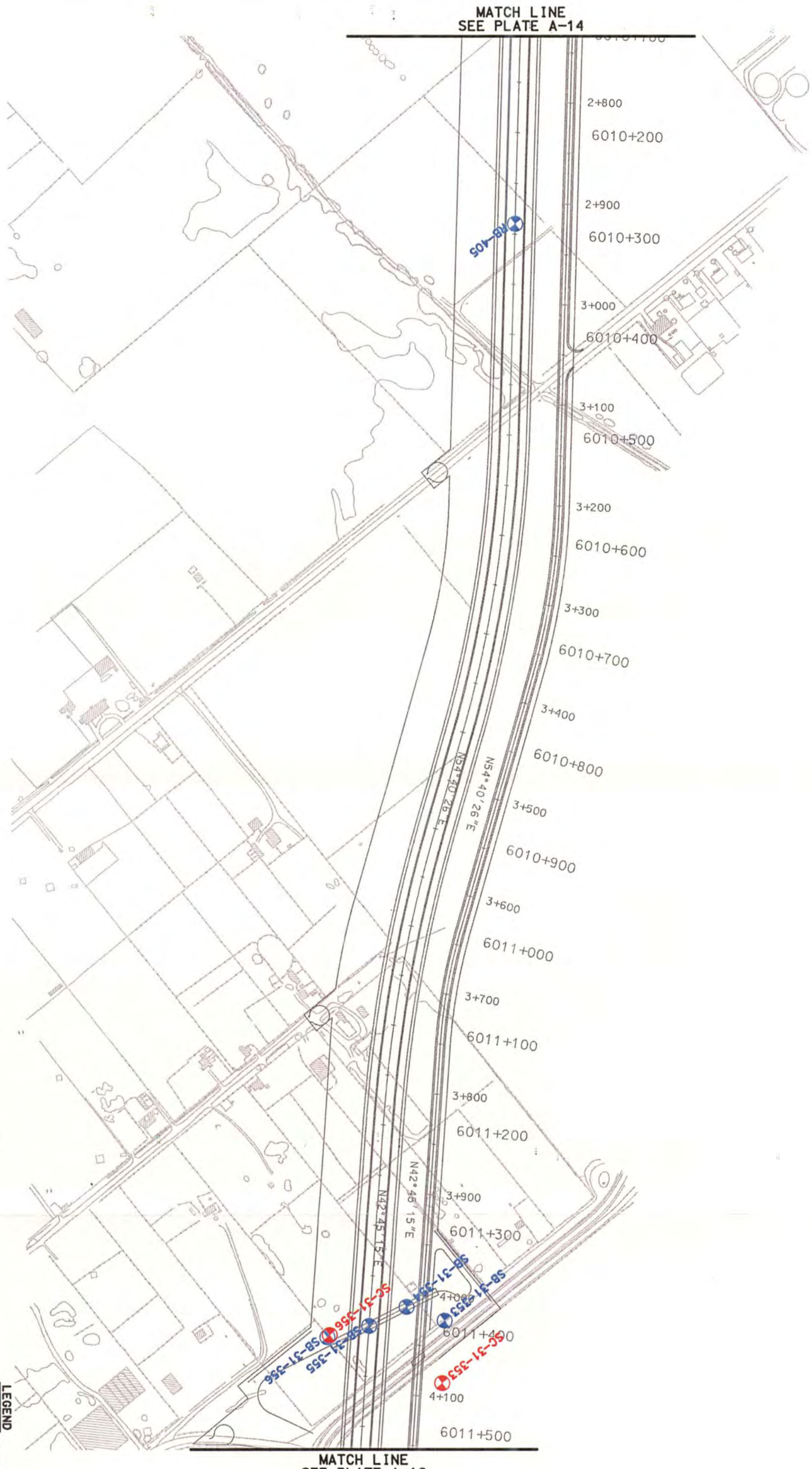
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-14



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SC-31-356 CPT Location

SB-31-356 Boring Location

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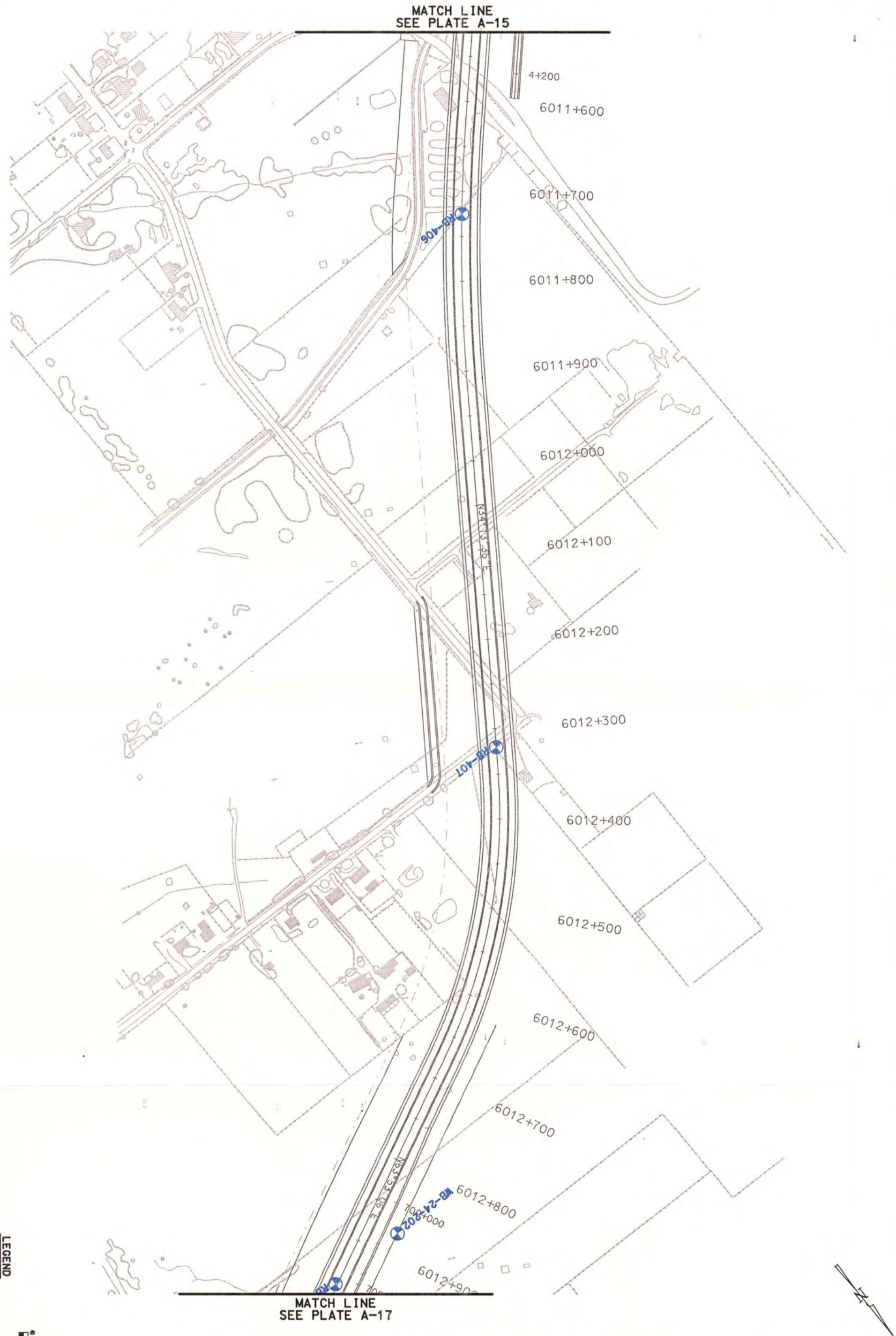
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-15



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SC-31-356 CPT Location

SB-31-356 Boring Location

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I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

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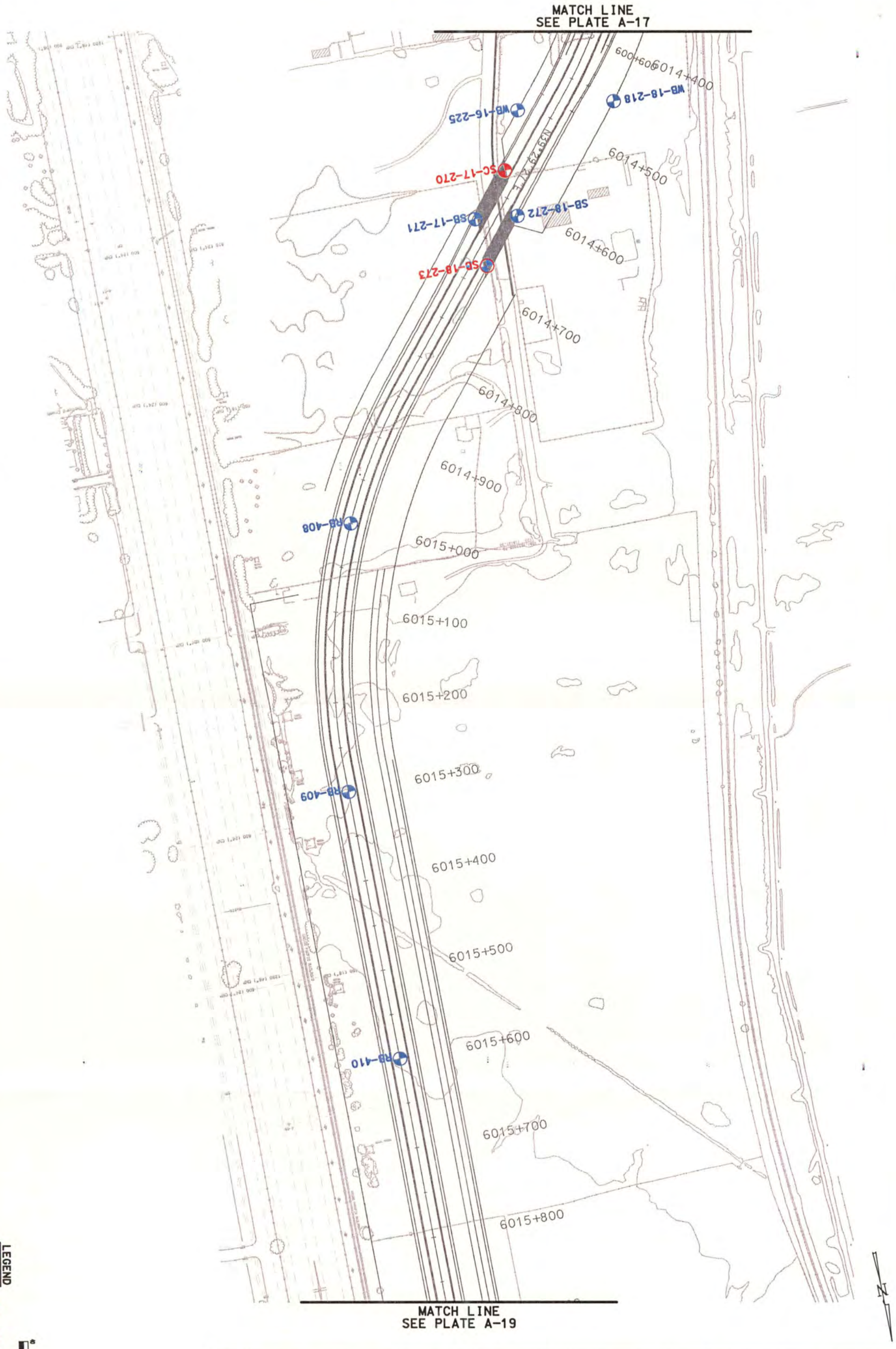
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-17



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SC-31-356 CPT Location

SB-31-356 Boring Location

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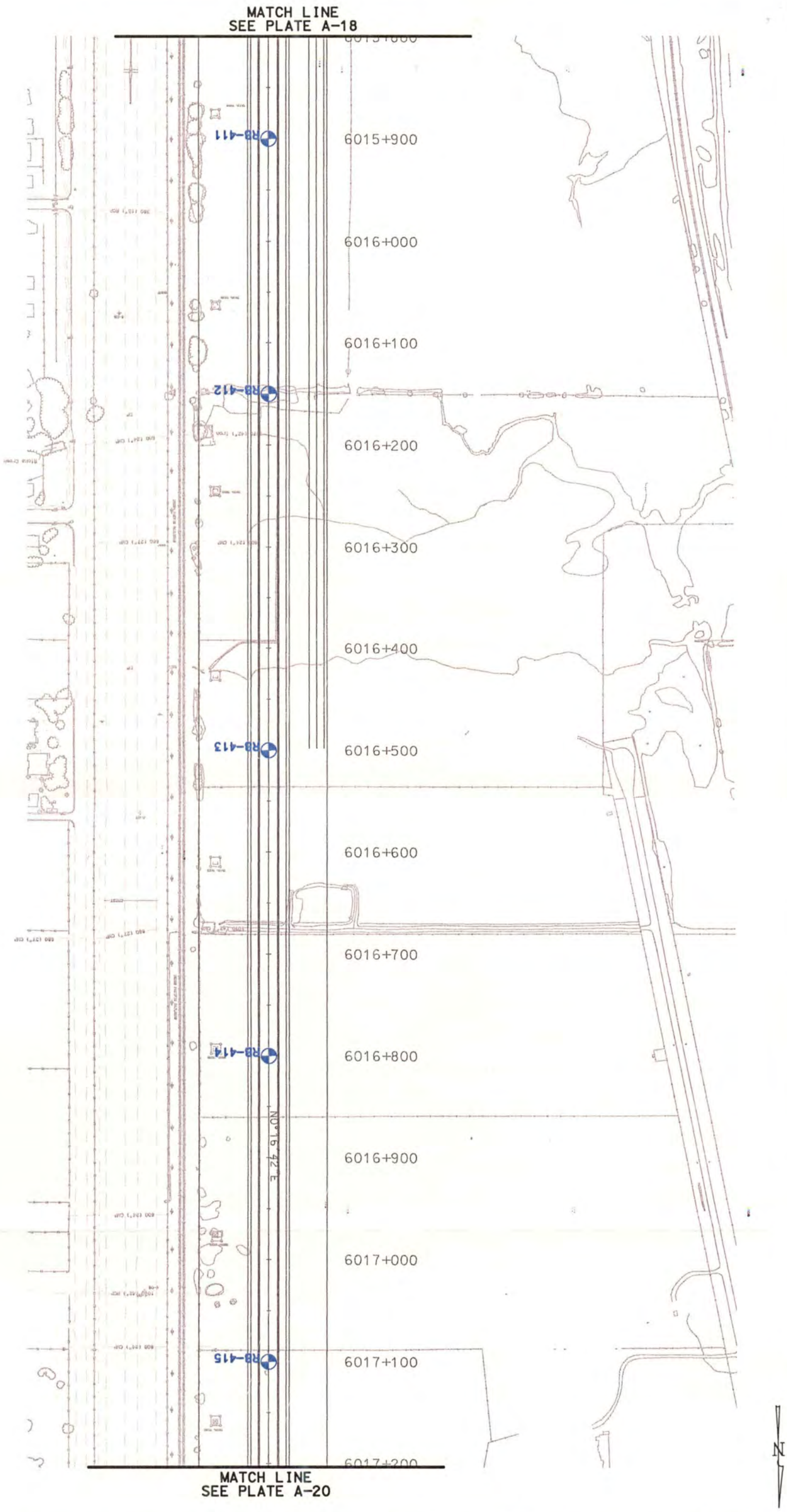
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-18



LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

KLEINFELDER

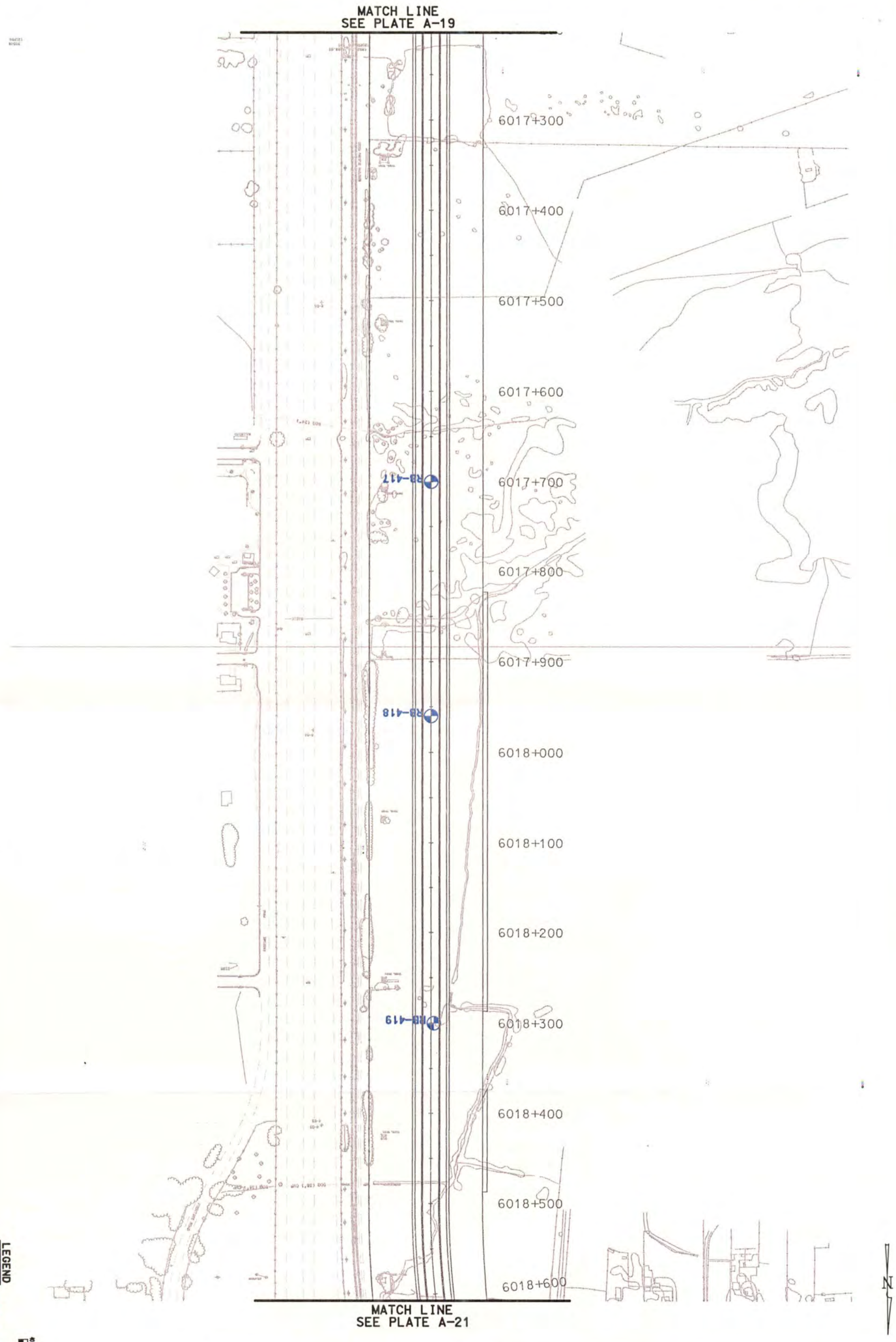
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-19



LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

KLEINFELDER

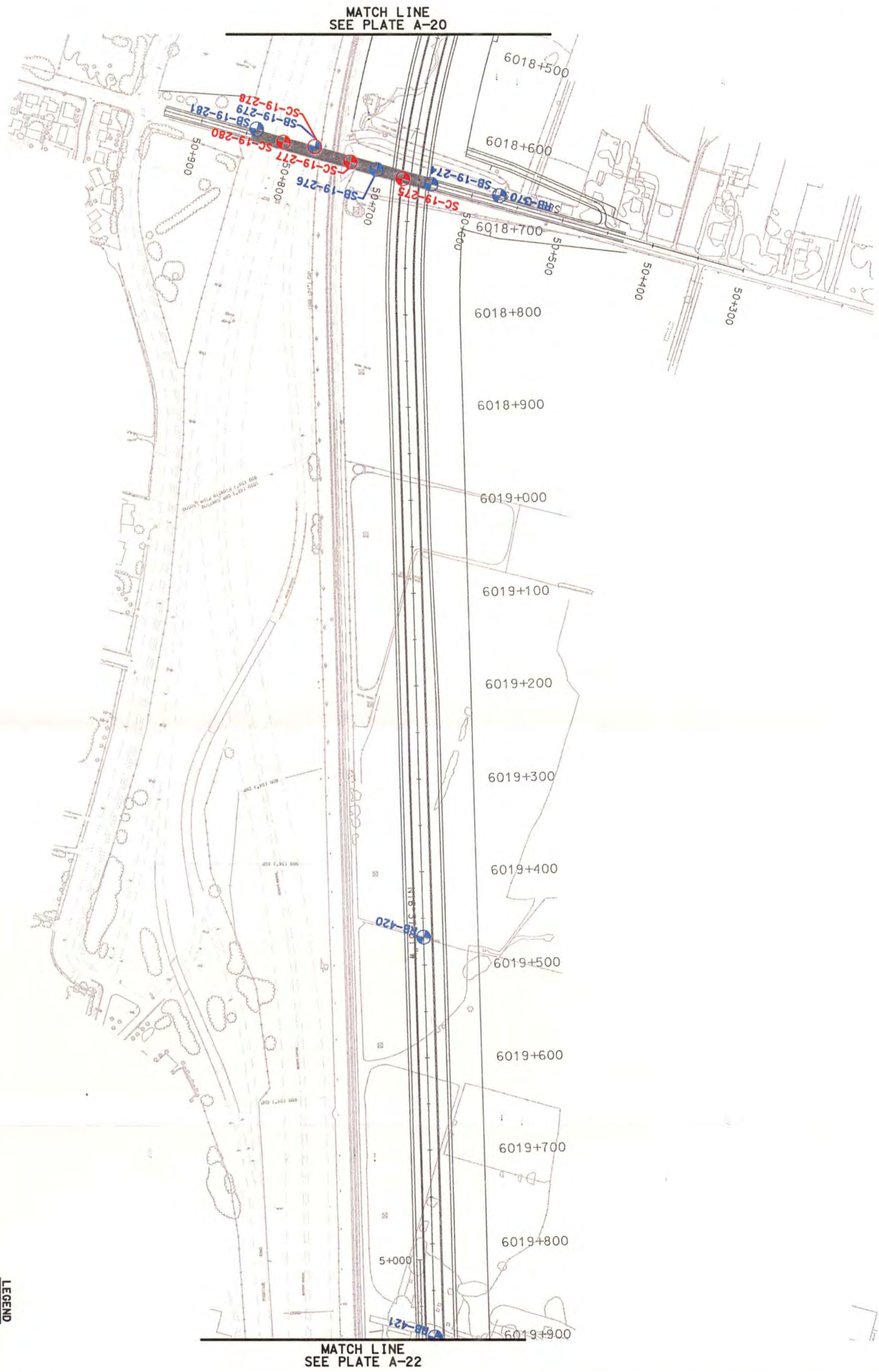
Project No. 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-20



LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

KLEINFELDER

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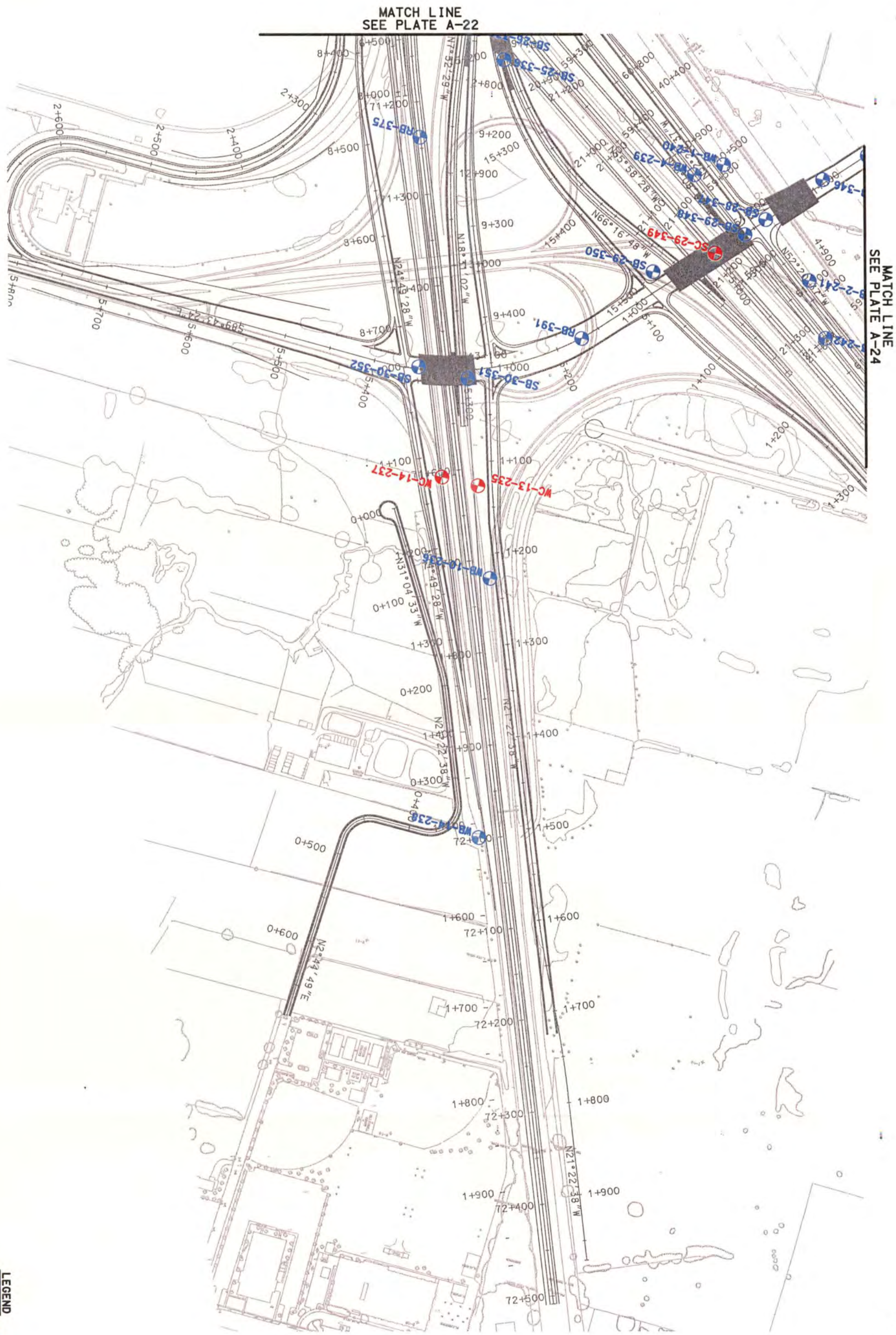
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE

A-21



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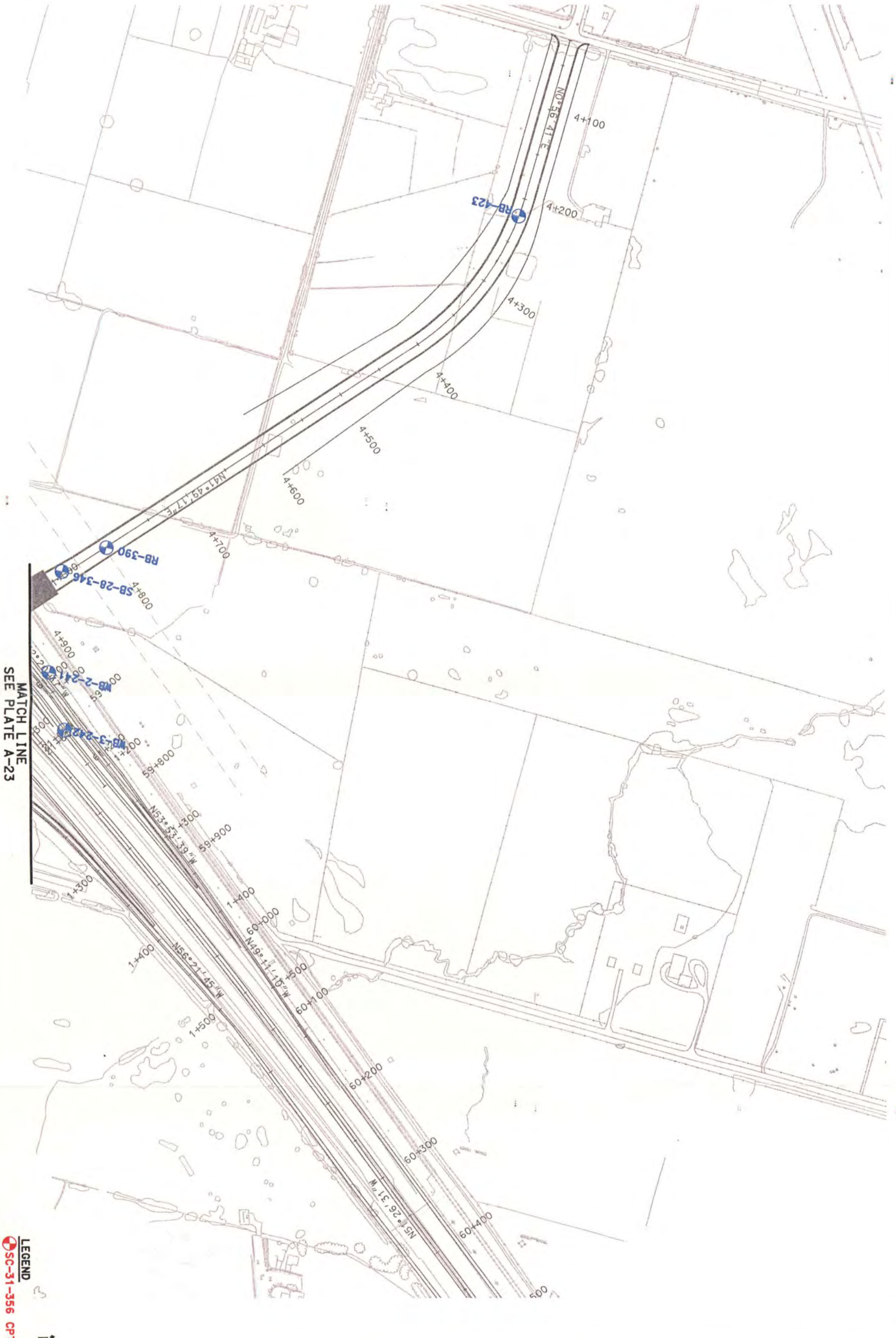
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-23



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Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

EXPLORATION LOCATION DRAWING

PLATE
A-24

Legacy Parkway
Preferred Alignment
Soil Exploration Location Information

(according to exploration number)

POINT	LINE	STATION	OFFSET	NORTHING (m)	EASTING (m)	ELEVATION (m)
WB-25-200	I-15 NB to LP NB	50+774.766	9.87 LT	107,241.666	16,421.958	1,285.033
WB-25-201	I-15 NB to LP NB	50+871.420	29.02 LT	107,256.072	16,322.823	1,285.209
WB-24-202	D MAINLINE	6012+874.145	36.01 LT	116,344.116	18,793.895	1,284.308
WC-24-203B	D MAINLINE	6013+015.976	23.12 LT	116,394.943	18,926.047	1,284.468
WB-24-204	D MAINLINE	6013+186.647	42.51 LT	116,504 878	19,045.723	1,285.510
WB-21-205	D MAINLINE	6013+102.889	57.21 RT	116,374.242	19,044.139	1,285.360
WB-22-206	D MAINLINE	6013+740.032	27.20 LT	116,975.593	19,260.281	1,284.904
WC-22-207	D MAINLINE	6013+675.376	27.61 LT	116,911 828	19,249.579	1,285.313
WB-22-208	D MAINLINE	6013+563.430	26.77 LT	116,802.911	19,231.797	1,284.577
WB-20-209	D MAINLINE	6013+371.756	52 20 RT	116,593.090	19,234.256	1,287.092
WB-20-210	D MAINLINE	6013+468.564	40.59 RT	116,691.774	19,268.400	1,285.489
WB-20-211	D MAINLINE	6013+568.805	46.61 RT	116,792.638	19,304.653	1,285.675
WB-19-212	D MAINLINE	6013+678.755	21.98 RT	116,907.262	19,299.075	1,285.455
WB-17-213B	D MAINLINE	6013+894.559	22.53 LT	117,127.401	19,289.518	1,285.971
WC-17-214	D MAINLINE	6014+006.532	20.20 LT	117,237.572	19,309.662	1,285.490
WB-17-215B	D MAINLINE	6014+082.307	18.03 LT	117,312.033	19,323.878	1,284.358
WB-18-216	D MAINLINE	6014+224.874	28.78 LT	117,457.132	19,342.953	1,284 434
WC-18-217	D MAINLINE	6014+334.481	53.46 LT	117,574.374	19,364.053	1,284.011
WB-18-218	D MAINLINE	6014+451.631	52.30 LT	117,680.820	19,432.828	1,284.825
WB-15-219	D MAINLINE	6013+879.882	34.51 RT	117,103.822	19,343.493	1,286.243
WC-15-220	D MAINLINE	6013+953.596	26.94 RT	117,177.800	19,347.767	1,285.408
WC-15-221	D MAINLINE	6013+962.670	51.01 RT	117,182.924	19,372.972	1,285.745
WB-16-222	D MAINLINE	6014+082.036	62.01 RT	117,299.012	19,402.848	1,285.742
WC-16-223B	D MAINLINE	6014+200.115	48.11 RT	117,412 444	19,410.094	1,285.147
WB-16-224	D MAINLINE	6014+367.880	32 77 RT	117,562.965	19,455.986	1,286 045
WB-16-225	D MAINLINE	6014+509.641	35.70 RT	117,671.162	19,538.430	1,286.597
WB-9-226	I-15 NB to US 89 NB	1+406.133	1.01 RT	123,822.721	19,430.441	1,298.147
WC-9-227	I-15 NB to US 89 NB	1+500.557	8 10 RT	123,911.285	19,395.932	1,301.460
WB-9-228	I-15 NB to US 89 NB	1+608.843	8.56 RT	124,005 160	19,340.414	1,298.732
WB-9-229	I-15 NB to US 89 NB	1+719.031	12.69 RT	124,098.389	19,282.261	1,298.918
WC-9-230	I-15 NB to US 89 NB	1+822.003	19.87 RT	124,190.669	19,242.937	1,299.148
WB-9-231	I-15 NB to US 89 NB	1+920.608	44.42 RT	127,295 100	19,198.787	1,302.280
WC-10-232	I-15	58+734.533	23.51 RT	123,873.306	19,393.068	1,301.210
WB-10-233	I-15	58+881.649	1.16 RT	123,990 684	19,299.166	1,300.973
WB-10-234	I-15	59+019.306	27.99 RT	124,117.524	19,235.458	1,298.457
WC-10-234	I-15	59+019.196	27.36 RT	124,117.024	19,235.058	1,298.457
WC-13-235	US 89 SB to LP SB	71+619.643	18 65 LT	124,739.947	18,971.031	1,298.069
WB-13-236	US 89 SB to LP SB	71+721.381	20.11 LT	124,834.150	18,932.579	1,297.676
WC-14-237	US 89 SB to LP SB	71+606.215	18.72 RT	124,741.062	19,010.718	1,301 664
WB-14-238	US 89 SB to LP SB	71+998.327	23.07 RT	125,107.784	18,871.845	1,298.566
WB-4-239	I-15	59+480.935	39.09 LT	124,353 670	18,833.082	1,296.272
WB-1-240	I-15	59+493.295	70.03 LT	124,334.943	18,805.525	1,296.584
WB-2-241	I-15	59+647.927	57.07 LT	124,432.213	18,684.621	1,299.469
WB-3-242	I-15	59+706.550	28.93 LT	124,488.338	18,651.781	1,298.160
SB-1-243	I-215 to LP SB	58+220.478	1.99 RT	106,937.510	15,489.756	1,284.413
SC-1-244	I-215 to LP SB	58+239.780	0.93 RT	106,954.599	15,498.793	1,284.182
SC-1-245	I-215 to LP SB	58+277.957	5.45 RT	106,984.987	15,522.341	1,286.107
SB-1-246	I-215 to LP SB	58+294.659	4.26 RT	106,999.639	15,530.064	1,285.602
SB-2-247	D MAINLINE	6002+221.649	19.91 LT	106,914.589	15,501.290	1,286.810
SB-2-248	D MAINLINE	6002+288.697	14.78 LT	106,961.761	15,549.213	1,286.972
SB-3-249	D MAINLINE	6002+229.597	1.90 RT	106,906.251	15,522.950	1,285.632
SB-3-250	D MAINLINE	6002+277.848	6.92 RT	106,939.326	15,558.438	1,285.948
SB-4-251	LP NB to I-15 (I-215)	54+663.358	0.41 RT	106,888.086	15,546.287	1,284.770
SB-4-252	LP NB to I-15 (I-215)	54+711.938	0.83 RT	106,921.417	15,581.574	1,285.979
SB-8-253	LP SB TO I-15 SB	56+566.172	3.62 LT	107,090.496	16,252.432	1,284.862
SB-8-254	LP SB TO I-15 SB	56+631.897	7.58 RT	107,096.113	16,185.997	1,285.875
SB-24-255	LP NB to I-15 NB (US 89)	20+512.743	20.84 LT	123,943.153	19,142.978	1,295.173
SC-24-256	LP NB to I-15 NB (US 89)	20+554.154	10.26 LT	123,986 818	19,136.718	1,295.320
SC-24-257	LP NB to I-15 NB (US 89)	20+623.800	11.20 RT	124,059.940	19,138.703	1,297.923
SB-24-258	LP NB to I-15 NB (US 89)	20+666.464	1.21 RT	124,099.054	19,118.949	1,297.642
SB-11-259	CENTER STREET	5+389.204	2.96 RT	107,991.325	15,633.072	1,285.130
SC-11-260	CENTER STREET	5+427.520	2 05 LT	107,996.029	15,671.426	1,285.188
SC-11-261	CENTER STREET	5+463.933	4.38 RT	107,989.317	15,707.787	1,285.307
SB-11-262	CENTER STREET	5+495.950	0.22 LT	107,993.664	15,739.839	1,286.060

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POINT	LINE	STATION	OFFSET		NORTHING (m)	EASTING (m)	ELEVATION (m)
SB-12-263	500 SOUTH	70+189.825	4.65	LT	112,713.423	16,081.296	1,286.454
SC-12-264	500 SOUTH	70+224.505	2.59	LT	112,711.797	16,115.999	1,286.546
SB-12-265	500 SOUTH	70+260.053	3.46	LT	112,713.116	16,151.533	1,286.577
SB-15-266	D MAINLINE	6013+775.425	10.05	LT	117,007.801	19,282.855	1,285.514
SC-15-266	D MAINLINE	6013+776.788	14.55	LT	117,009.863	19,278.630	1,285.514
SB-15-267	D MAINLINE	6013+826.409	15.73	LT	117,059.038	19,285.373	1,285.545
SC-15-267	D MAINLINE	6013+828 702	14.07	LT	117,061.038	19,287.373	1,285 545
SB-16-268	D MAINLINE	6013+763.715	14.55	RT	116,992.320	19,305.276	1,285 847
SC-16-269	D MAINLINE	6013+814.559	14 96	RT	117,042.449	19,313.785	1,276.815
SC-16-269A	D MAINLINE	6013+814 559	14.96	RT	117,042.449	19,313.785	1,276 815
SC-17-270	D MAINLINE	6014+574.642	16.25	RT	117,733.695	19,564.758	1,284.002
SB-17-271	D MAINLINE	6014+637.289	19.57	RT	117,779.928	19,607.163	1,284.744
SB-18-272	D MAINLINE	6014+611.633	19.41	LT	117,784.919	19,560.763	1,285 329
SB-18-273	D MAINLINE	6014+676.059	16.52	LT	117,832.799	19,603.968	1,284.529
SC-18-273	D MAINLINE	6014+676.059	16.52	LT	117,832.799	19,603.968	1,284.529
SB-19-274	GLOVERS LANE	50+645 384	0.04	RT	121,728.818	19,846.262	1,299.095
SC-19-275	GLOVERS LANE	50+676.025	2.45	LT	121,731.185	19,876.913	1,300.597
SB-19-276	GLOVERS LANE	50+705.923	0.19	LT	121,728.795	19,906.801	1,302.008
SC-19-277	GLOVERS LANE	50+734.701	0.00	LT	121,728.480	19,935.578	1,290.960
SC-19-278	GLOVERS LANE	50+775 871	5.71	RT	121,722.593	19,976.723	1,291 890
SB-19-279	GLOVERS LANE	50+775.871	5.71	RT	121,722.593	19,976.723	1,291.890
SC-19-280	GLOVERS LANE	50+809.297	1.40	RT	121,726.760	20,010.168	1,292.810
SB-19-281	GLOVERS LANE	50+840.936	7.44	RT	121,720 587	20,041.780	1,291.920
SB-21-282	STATE ST.	0+648.656	3.03	LT	123,444.419	19,302 374	1,300.590
SB-21-283	STATE ST.	0+687.382	1.75	LT	123,442.842	19,341.089	1,302.674
SC-21-283	STATE ST.	0+687.382	1.75	LT	123,442.842	19,341.089	1,302.674
SB-21-284	STATE ST.	0+740.395	3.19	LT	123,443.868	19,394.112	1,305.301
SB-22-285	STATE ST.	0+773.642	3.26	LT	123,443.685	19,427.358	1,306.543
SC-22-286	STATE ST.	0+815.552	0.00	LT	123,440.104	19,469.242	1,295.750
SC-22-287	STATE ST.	0+854.444	2.22	RT	123,437.583	19,508.116	1,296.540
SB-22-288	STATE ST.	0+918.648	12.68	RT	123,426.636	19,572.238	1,304.491
SB-23-289	I-15 SB TO LP SB	60+436.602	0.52	LT	123,977.638	19,114.208	1,295.020
SC-23-290A	I-15 SB TO LP SB	60+480.966	5 61	LT	124,021.035	19,103.686	1,295.394
SB-23-290C	I-15 SB TO LP SB	60+599.449	4.87	LT	124,132.337	19,070 781	1,297.364
SC-23-291	I-15 SB TO LP SB	60+551.904	6.21	RT	124,092.787	19,099.480	1,297.876
SB-5-293	I-215 to LP SB	58+453.275	3.53	RT	107,109.165	15,640.754	1,284.280
SC-5-294	I-215 to LP SB	58+477.751	3.24	RT	107,121.593	15,661.574	1,284.490
SC-5-295	I-215 to LP SB	58+521.464	1.91	RT	107,141.014	15,700 387	1,284 568
SC-5-296	I-215 to LP SB	58+557.465	1.98	RT	107,152.375	15,734.332	1,284.895
SB-5-297	I-215 to LP SB	58+572.515	1.73	RT	107,156.398	15,748.756	1,284.846
SB-9-298	I15 NB to LP NB	50+879.456	3.59	LT	107,282.704	16,324.792	1,285.367
SB-9-299	I15 NB to LP NB	50+943.558	1.87	LT	107,310.302	16,266.744	1,286.520
SB-10-300	LP SB TO I-15 SB	56+350 479	2.36	RT	107,114.650	16,466.852	1,285.129
SC-10-301	LP SB TO I-15 SB	56+370.085	0.45	RT	107,111.094	16,447.477	1,286.010
SC-10-302	LP SB TO I-15 SB	56+400.982	2.76	RT	107,110.790	16,416.495	1,286.790
SB-10-303	LP SB TO I-15 SB	56+429.922	2.23	RT	107,107.828	16,387.702	1,284.853
SB-13-304	D MAINLINE	6013+183.023	12.24	RT	116,462.617	19,080.707	1,285.038
SC-13-305	D MAINLINE	6013+215.305	14.45	RT	116,484.189	19,105.722	1,284.630
SC-13-306	D MAINLINE	6013+251.717	15.39	RT	116,511.123	19,131.488	1,284.641
SC-13-307	D MAINLINE	6013+292.924	23.04	RT	116,539.414	19,164.043	1,285.026
SB-13-308	D MAINLINE	6013+313.168	14.02	RT	116,561.569	19,169.000	1,285.071
SB-14-309	D MAINLINE	6013+229.665	16.35	LT	116,515.743	19,093.134	1,285.660
SC-14-310	D MAINLINE	6013+262.480	19.25	LT	116,541.662	19,111.940	1,285.020
SC-14-311	D MAINLINE	6013+310.311	17.20	LT	116,577.254	19,141.852	1,284.876
SC-14-312	D MAINLINE	6013+341.048	72.05	LT	116,631.594	19,112.348	1,285.930
SB-14-313	D MAINLINE	6013+394.540	17.55	LT	116,647.190	19,184.405	1,285.295
WB-26-314	D MAINLINE	6002+387.809	1.33	RT	107,026.080	15,626.314	1,287.141
WB-27-315	Redwood to I-15 SB	55+318.567	6.64	LT	107,081.167	16,484.057	1,284.425
WC-27-316	Redwood to I-15 SB	55+455.720	1.02	RT	107,100 986	16,620.596	1,285.246
WB-27-317	Redwood to I-15 SB	55+591.440	4 18	LT	107,129.202	16,753.452	1,285.854
WC-28-318	Redwood to I-15 SB	55+502.496	25.27	LT	107,134.854	16,662.215	1,286.456
WB-28-319	Redwood to I-15 SB	55+406.081	33.38	LT	107,126 439	16,565.826	1,285.144
WB-29-320	D MAINLINE	6002+849 932	22.67	LT	107,454.442	15,746.727	1,285.614
WC-29-321	D MAINLINE	6003+003.280	20.95	LT	107,602.902	15,726.861	1,285.298

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WB-29-322	D MAINLINE	6003+168.988	20.61	LT	107,765.625	15,695.549	1,285.339
SB-6-323	LP SB TO I-15 SB	56+793.225	0.75	RT	107,079.976	16,025 800	1,284.849
SC-6-324	LP SB TO I-15 SB	56+838.125	2.15	RT	107,087.455	15,981.726	1,284.969
SC-6-325	LP SB TO I-15 SB	56+888.696	1.92	RT	107,100.841	15,933.311	1,284.943
SC-6-326	LP SB TO I-15 SB	56+939.431	1.85	RT	107,121.324	15,887.245	1,286.420
SB-6-327	LP SB TO I-15 SB	56+992.123	3.26	RT	107,150.640	15,843.966	1,285.595
SB-6-328	LP SB TO I-15 SB	57+038.520	3.72	RT	107,180.940	15,809 488	1,285.021
SC-6-329	LP SB TO I-15 SB	57+089.432	1.85	RT	107,217.647	15,774.816	1,285.290
SC-6-330	LP SB TO I-15 SB	57+140.715	3.07	RT	107,261.054	15,748.256	1,286.099
SC-6-331	LP SB TO I-15 SB	57+189 352	1.85	RT	107,304.420	15,727.059	1,285.593
SC-6-332	LP SB TO I-15 SB	57+239.350	0.31	LT	107,351.605	15,710.853	1,285.561
SB-6-333	LP SB TO I-15 SB	57+288.790	3.48	RT	107,400.810	15,707.505	1,285.270
SB-25-334	LP NB to I-15 NB (US 89)	20+723.909	2.88	LT	124,153.922	19,101.451	1,296.674
SC-25-335	LP NB to I-15 NB (US 89)	20+791.718	1.98	RT	124,220.759	19,088.753	1,297.649
SB-25-336	LP NB to I-15 NB (US 89)	20+862 412	6 42	RT	124,287.360	19,062.514	1,297.090
SB-26-337	US 89 SB to 1-15 SB	12+605.204	1.91	LT	124,130.372	19,139.171	1,297.010
SC-26-338	US 89 SB to 1-15 SB	12+670.717	4.98	LT	124,193.322	19,119.094	1,297.766
SB-26-339	US 89 SB to 1-15 SB	12+741 455	16.33	LT	124,261.994	19,097.767	1,297.519
SB-27.340	US 89 SB to LP SB	70+686.974	0.76	RT	123,852.107	19,215.247	1,295.785
SC-27-341	US 89 SB to LP SB	70+750 382	0 47	RT	123,915.509	19,214 299	1,297.574
SC-27-342	US 89 SB to LP SB	70+835.805	14.36	LT	124,000.680	19,198.573	1,297.770
SC-27-343	US 89 SB to LP SB	70+880.983	13.03	RT	124,046.870	19,224.153	1,297.174
SC-27-344	US 89 SB to LP SB	70+944.734	0.00	LT	124,109.520	19,205.164	1,296.850
SB-27-345	US 89 SB to LP SB	71+011.211	0.83	RT	124,175.305	19,195.454	1,298.128
SB-28-346	BURKE LANE	4+859.468	3.67	RT	124,322.805	18,698.933	1,294.258
SB-28-347	BURKE LANE	4+934.261	1.02	RT	124,380.313	18,746.828	1,296.320
SB-29-348	BURKE LANE	4+961.767	0.38	LT	124,401.740	18,764.131	1,296.206
SC-29-349	BURKE LANE	5+000.045	0.01	LT	124,430.020	18,789.930	1,296.024
SB-29-350	BURKE LANE	5+066.599	19 50	RT	124,466 611	18,848.846	1,304.692
SB-30-351	BURKE LANE	5+299.649	9.45	LT	124,631.325	19,011.152	1,298 224
SB-30-352	BURKE LANE	5+352.141	2.08	RT	124,632.729	19,065.430	1,297.372
SB-31-353	PEDESTRIAN BR.	99+835.873	14.26	RT	115,305.881	17,747.055	1,284 513
SC-31-353	PEDESTRIAN BR.	100+036.369	83.64	LT	115,352.857	17,787.830	1,284.513
SB-31-354	PEDESTRIAN BR.	100+033.967	0.00	LT	115,271.520	17,768 174	1,284.345
SB-31-355	PEDESTRIAN BR.	100+075.967	0.00	LT	115,262.830	17,809.265	1,284.263
SB-31-356	PEDESTRIAN BR.	100+118.329	8.80	RT	115,245.451	17,848.889	1,284.932
SC-31-356	PEDESTRIAN BR.	100+115.395	9.43	RT	115,245.451	17,845 890	1,284.932
RB-357	I-215 to LP SB	58+000 295	0.61	LT	106,750.145	15,374.077	1,286.335
SB-32-357	D MAINLINE	6002+535.900	21.40	LT	107,160.592	15,686.012	1,284.490
RB-358	I-215 to LP SB	58+149.095	3.41	RT	106,875.602	15,454.189	1,284.889
SC-33-358	D MAINLINE	6002+489.100	21 40	RT	107,099.147	15,701.608	1,284 490
RB-359	I-215 to LP SB	58+390.722	2.56	LT	107,076.516	15,587.237	1,284.897
SB-1504-359	D MAINLINE	6013+625.601	15.30	LT	116,860.727	19,253 802	1,285.324
RB-360	I-215 to LP SB	58+649.195	2.48	LT	107,170.518	15,824.180	1,285.150
SC-1604-360	D MAINLINE	6013+666.567	14.50	RT	116,896.422	19,289.746	1,285.048
RB-361	I-215 to LP SB	58+794.720	7.25	LT	107,177.594	15,969.637	1,287.201
SC-15-361	D MAINLINE	6013+844.850	14.50	LT	117,077.048	19,289.525	1,285.053
RB-362	LP SB TO I-15 SB	56+279.804	6.27	RT	107,124.513	16,536.945	1,284.916
SB-16-362	D MAINLINE	6013+745.798	14.50	RT	116,974.640	19,302.370	1,285.156
RB-363	LP SB TO I-15 SB	56+518.546	7.08	RT	107,105.185	16,298.985	1,284.960
RB-364	LP SB TO I-15 SB	56+698.883	0.85	RT	107,083.755	16,119.817	1,284.652
RB-365	I-15 SB to LP SB	60+408.284	1.91	RT	123,949.836	19,120.112	1,295.007
RB-366	I-15 SB to LP SB	60+267.794	3 08	LT	123,811.316	19,143.614	1,294.660
RB-367	I-15 SB to LP SB	60+110.925	19.11	RT	123,676.840	19,226.605	1,294.582
RB-368	CENTER STREET	5+309.965	0.06	LT	107,994.964	15,553.859	1,285.173
RB-369	CENTER STREET	5+569.100	3.99	LT	108,005.988	15,811.167	1,286.099
RB-370	GLOVERS LANE	50+571.675	7.54	RT	121,721.642	19,772.521	1,294.969
RB-371	500 SOUTH	70+338.171	0.29	RT	112,710.357	16,229.692	1,286.763
RB-372	US 89 SB to LP SB	70+447.152	11.43	RT	123,619.606	19,255.658	1,294.959
RB-373	US 89 SB to LP SB	70+601.650	4 71	RT	123,766.960	19,220 257	1,295.444
RC-373	US 89 SB to LP SB	70+601.725	2.71	RT	123,766.960	19,218.257	1,295 444
RB-374	US 89 SB to LP SB	71+086.495	1.40	RT	124,248.802	19,178.835	1,298.372
RB-375	US 89 SB to LP SB	71+238.091	0.81	RT	124,391.737	19,128.227	1,299.022
RB-376	D MAINLINE	6002+008.023	0.84	LT	106,731.773	15,387.081	1,285.566

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RB-377	D MAINLINE	6002+159.558	5.75 RT	106,850.936	15,479.920	1,286.581
RB-378	D MAINLINE	6002+389.999	0.01 LT	107,028.622	15,626.672	1,285.231
RB-379	D MAINLINE	6012+954.442	2.22 RT	116,345.140	18,882.819	1,284.925
RB-380	D MAINLINE	6013+100.373	4.61 RT	116,415.350	19,011.228	1,284.964
RB-381	D MAINLINE	6013+583.830	0.67 RT	116,816.965	19,262.688	1,285.001
RB-382	D MAINLINE	6014+004.126	7.46 RT	117,230.789	19,336.585	1,285.756
RB-383	D MAINLINE	6014+195.674	1.25 RT	117,420.236	19,363.684	1,284.368
RB-384	D MAINLINE	6014+384.292	0.97 RT	117,592.969	19,436.867	1,284.541
RB-385	LP NB to I-15 NB (US 89)	20+438.886	16.47 RT	123,894.805	19,211.113	1,296.995
RB-386	LP SB TO I-15 SB	57+559.728	1.00 RT	107,671.397	15,696.993	1,285.288
RB-388	I15 NB to LP NB	50+829.497	0.07 RT	107,268.266	16,372.839	1,285.174
RB-389	I15 NB to LP NB	51+019.953	0.01 RT	107,347.322	16,199.835	1,285 950
RB-390	BURKE LANE	4+804.884	0.88 LT	124,285.160	18,659.148	1,293.901
RB-391	BURKE LANE	5+171.083	0.76 LT	124,557.265	18,904.272	1,302 471
RB-392	LP NB to I-15 (I-215)	54+787.955	1.05 LT	106,971.375	15,638 881	1,285.947
RB-393	LP NB to I-15 (I-215)	54+938.150	4.05 LT	107,053.676	15,764.860	1,285.631
RB-394	I-15 WD NB	51+250.000	0.00 LT	107,480.746	16,012.949	1,286 550
RB-395	D MAINLINE	6003+950.000	0.00 LT	108,545.276	15,635.838	1,286.199
RB-396	D MAINLINE	6004+534.815	93.86 RT	109,134.378	15,697.296	1,286.923
RB-397	D MAINLINE	6005+180.000	0.00 LT	109,773.404	15,567.997	1,286 833
RB-398	D MAINLINE	6005+650.000	0.00 LT	110,242.756	15,546.896	1,286.465
RB-399	D MAINLINE	6005+940.000	0.00 LT	110,517.894	15,630.526	1,286.404
RB-400	D MAINLINE	6006+800.000	0.00 LT	111,281.939	16,023.839	1,287.180
RB-401	D MAINLINE	6007+400 000	0.00 LT	111,878.170	16,076.232	1,287.011
RB-402	D MAINLINE	6007+800.000	0.00 LT	112,277.663	16,096.364	1,286.950
RB-403	D MAINLINE	6008+885.000	0.00 LT	113,346 442	16,240.119	1,285.277
RB-404	D MAINLINE	6009+670.000	0.00 LT	114,028.968	16,606.006	1,284.548
RB-405	D MAINLINE	6010+290.000	0.00 LT	114,500.642	17,008.403	1,284.282
RB-406	D MAINLINE	6011+725.000	0.00 LT	115,503.490	18,027.912	1,285.707
RB-407	D MAINLINE	6012+320.000	0.00 LT	115,989.980	18,370.089	1,284.637
RB-408	D MAINLINE	6015+000.000	0.00 LT	118,084 056	19,805.674	1,284.841
RB-409	D MAINLINE	6015+300.000	0.00 LT	118,375.510	19,864.557	1,284.055
RB-410	D MAINLINE	6015+600.000	0.00 LT	118,675.507	19,866.014	1,284.088
RB-411	D MAINLINE	6015+900.000	0.00 LT	118,975.503	19,867.472	1,284.923
RB-412	D MAINLINE	6016+150.000	0.00 LT	119,225.500	19,868.686	1,286.251
RB-413	D MAINLINE	6016+500.000	0.00 LT	119,575.496	19,870.387	1,286.389
RB-414	D MAINLINE	6016+800.000	0.00 LT	119,875.493	19,871.844	1,287.031
RB-415	D MAINLINE	6017+100.000	0.00 LT	120,175.489	19,873.302	1,287.442
RB-417	D MAINLINE	6017+700.000	0.00 LT	120,775.482	19,876.216	1,284.832
RB-418	D MAINLINE	6017+960.001	0.19 RT	121,035 479	19,877.674	1,285.296
RB-419	D MAINLINE	6018+299.985	3.00 LT	121,375.475	19,876 131	1,288.020
RB-420	D MAINLINE	6019+470.000	0.00 LT	122,513.204	19,644.905	1,297.222
RB-421	D MAINLINE	6019+900.000	0.00 LT	122,925.217	19,521.837	1,297.852
RB-422	D MAINLINE	6020+210.000	0.00 LT	123,221.186	19,429.774	1,295.335
RB-423	BURKE LANE	4+220.000	0.00 LT	123,819.432	18,320.892	1,291.511

Legacy Parkway
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POINT	LINE	STATION	OFFSET		NORTHING (m)	EASTING (m)	ELEVATION (m)
SC-1-244	I-215 to LP SB	58+239.780	0.93	RT	106,954.599	15,498.793	1,284 182
SC-1-245	I-215 to LP SB	58+277.957	5.45	RT	106,984.987	15,522.341	1,286.107
SB-1-246	I-215 to LP SB	58+294 659	4.26	RT	106,999.639	15,530.064	1,285.602
SB-2-247	D MAINLINE	6002+221.649	19.91	LT	106,914.589	15,501.290	1,286.810
SB-2-248	D MAINLINE	6002+288.697	14.78	LT	106,961.761	15,549.213	1,286.972
SB-3-249	D MAINLINE	6002+229.597	1.90	RT	106,906.251	15,522.950	1,285 632
SB-3-250	D MAINLINE	6002+277.848	6.92	RT	106,939.326	15,558.438	1,285.948
SB-4-251	LP NB to I-15 (I-215)	54+663.358	0.41	RT	106,888.086	15,546 287	1,284.770
SB-4-252	LP NB to I-15 (I-215)	54+711.938	0.83	RT	106,921.417	15,581.574	1,285.979
SB-5-293	I-215 to LP SB	58+453.275	3.53	RT	107,109.165	15,640.754	1,284.280
SC-5-294	I-215 to LP SB	58+477.751	3.24	RT	107,121.593	15,661.574	1,284.490
SC-5-295	I-215 to LP SB	58+521.464	1.91	RT	107,141.014	15,700.387	1,284 568
SC-5-296	I-215 to LP SB	58+557.465	1.98	RT	107,152.375	15,734.332	1,284.895
SB-5-297	I-215 to LP SB	58+572.515	1.73	RT	107,156.398	15,748.756	1,284.846
SB-6-323	LP SB TO I-15 SB	56+793 225	0.75	RT	107,079.976	16,025.800	1,284 849
SC-6-324	LP SB TO I-15 SB	56+838.125	2 15	RT	107,087.455	15,981.726	1,284.969
SC-6-325	LP SB TO I-15 SB	56+888.696	1.92	RT	107,100.841	15,933.311	1,284.943
SC-6-326	LP SB TO I-15 SB	56+939.431	1.85	RT	107,121.324	15,887.245	1,286.420
SB-6-327	LP SB TO I-15 SB	56+992.123	3.26	RT	107,150.640	15,843.966	1,285.595
SB-6-328	LP SB TO I-15 SB	57+038.520	3.72	RT	107,180.940	15,809 488	1,285.021
SC-6-329	LP SB TO I-15 SB	57+089.432	1.85	RT	107,217.647	15,774.816	1,285.290
SC-6-330	LP SB TO I-15 SB	57+140.715	3.07	RT	107,261.054	15,748.256	1,286.099
SC-6-331	LP SB TO I-15 SB	57+189.352	1.85	RT	107,304 420	15,727.059	1,285.593
SC-6-332	LP SB TO I-15 SB	57+239.350	0.31	LT	107,351.605	15,710.853	1,285.561
SB-6-333	LP SB TO I-15 SB	57+288.790	3 48	RT	107,400.810	15,707.505	1,285.270
SB-8-253	LP SB TO I-15 SB	56+566.172	3.62	LT	107,090.496	16,252 432	1,284 862
SB-8-254	LP SB TO I-15 SB	56+631.897	7.58	RT	107,096 113	16,185.997	1,285.875
SB-9-298	I15 NB to LP NB	50+879.456	3.59	LT	107,282.704	16,324.792	1,285.367
SB-9-299	I15 NB to LP NB	50+943.558	1.87	LT	107,310.302	16,266.744	1,286.520
SB-10-300	LP SB TO I-15 SB	56+350.479	2.36	RT	107,114.650	16,466.852	1,285.129
SC-10-301	LP SB TO I-15 SB	56+370.085	0.45	RT	107,111.094	16,447.477	1,286.010
SC-10-302	LP SB TO I-15 SB	56+400.982	2.76	RT	107,110.790	16,416.495	1,286.790
SB-10-303	LP SB TO I-15 SB	56+429.922	2.23	RT	107,107.828	16,387.702	1,284.853
SB-11-259	CENTER STREET	5+389.204	2.96	RT	107,991 325	15,633.072	1,285.130
SC-11-260	CENTER STREET	5+427.520	2.05	LT	107,996.029	15,671 426	1,285.188
SC-11-261	CENTER STREET	5+463 933	4.38	RT	107,989.317	15,707.787	1,285.307
SB-11-262	CENTER STREET	5+495.950	0.22	LT	107,993.664	15,739.839	1,286.060
SB-12-263	500 SOUTH	70+189.825	4.65	LT	112,713.423	16,081.296	1,286.454
SC-12-264	500 SOUTH	70+224.505	2.59	LT	112,711 797	16,115.999	1,286.546
SB-12-265	500 SOUTH	70+260.053	3 46	LT	112,713.116	16,151.533	1,286.577
SB-13-304	D MAINLINE	6013+183.023	12.24	RT	116,462.617	19,080.707	1,285.038
SC-13-305	D MAINLINE	6013+215.305	14.45	RT	116,484.189	19,105 722	1,284.630
SC-13-306	D MAINLINE	6013+251.717	15.39	RT	116,511.123	19,131.488	1,284.641
SC-13-307	D MAINLINE	6013+292.924	23.04	RT	116,539.414	19,164.043	1,285.026
SB-13-308	D MAINLINE	6013+313.168	14.02	RT	116,561.569	19,169.000	1,285.071
SB-14-309	D MAINLINE	6013+229.665	16.35	LT	116,515.743	19,093.134	1,285.660
SC-14-310	D MAINLINE	6013+262.480	19.25	LT	116,541.662	19,111 940	1,285.020
SC-14-311	D MAINLINE	6013+310.311	17.20	LT	116,577.254	19,141.852	1,284.876
SC-14-312	D MAINLINE	6013+341.048	72.05	LT	116,631.594	19,112 348	1,285.930
SB-14-313	D MAINLINE	6013+394.540	17.55	LT	116,647.190	19,184.405	1,285.295
SB-15-266	D MAINLINE	6013+775 425	10.05	LT	117,007.801	19,282.855	1,285.514
SC-15-266	D MAINLINE	6013+776.788	14.55	LT	117,009.863	19,278.630	1,285.514
SB-15-267	D MAINLINE	6013+826.409	15.73	LT	117,059.038	19,285.373	1,285.545
SC-15-267	D MAINLINE	6013+828.702	14 07	LT	117,061.038	19,287.373	1,285.545
SB-1504-359	D MAINLINE	6013+625.601	15.30	LT	116,860.727	19,253.802	1,285.324
SC-15-361	D MAINLINE	6013+844.850	14.50	LT	117,077.048	19,289.525	1,285.053
SB-16-268	D MAINLINE	6013+763.715	14.55	RT	116,992.320	19,305.276	1,285.847
SC-16-269	D MAINLINE	6013+814.559	14.96	RT	117,042.449	19,313.785	1,276.815
SC-16-269A	D MAINLINE	6013+814.559	14.96	RT	117,042.45	19,313 79	1,276.82
SC-1604-360	D MAINLINE	6013+666.567	14.50	RT	116,896.422	19,289 746	1,285 048
SB-16-362	D MAINLINE	6013+745.798	14.50	RT	116,974.640	19,302.370	1,285 156
SC-17-270	D MAINLINE	6014+574.642	16.25	RT	117,733.695	19,564.758	1,284.002
SB-17-271	D MAINLINE	6014+637.289	19.57	RT	117,779.928	19,607.163	1,284.744
SB-18-272	D MAINLINE	6014+611.633	19.41	LT	117,784.919	19,560.763	1,285.329

Legacy Parkway
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POINT	LINE	STATION	OFFSET		NORTHING (m)	EASTING (m)	ELEVATION (m)
SB-18-273	D MAINLINE	6014+676.059	16 52	LT	117,832.799	19,603.968	1,284.529
SC-18-273	D MAINLINE	6014+676.059	16.52	LT	117,832.799	19,603.968	1,284 529
SB-19-274	GLOVERS LANE	50+645.384	0.04	RT	121,728.818	19,846.262	1,299.095
SC-19-275	GLOVERS LANE	50+676.025	2.45	LT	121,731.185	19,876.913	1,300.597
SB-19-276	GLOVERS LANE	50+705 923	0 19	LT	121,728 795	19,906.801	1,302.008
SC-19-277	GLOVERS LANE	50+734 701	0.00	LT	121,728 480	19,935.578	1,290.960
SC-19-278	GLOVERS LANE	50+775.871	5.71	RT	121,722.593	19,976.723	1,291.890
SB-19-279	GLOVERS LANE	50+775.871	5.71	RT	121,722.593	19,976.723	1,291.890
SC-19-280	GLOVERS LANE	50+809.297	1 40	RT	121,726.760	20,010.168	1,292.810
SB-19-281	GLOVERS LANE	50+840.936	7 44	RT	121,720.587	20,041.780	1,291.920
SB-21-282	STATE ST.	0+648.656	3.03	LT	123,444.419	19,302.374	1,300.590
SB-21-283	STATE ST.	0+687.382	1.75	LT	123,442.842	19,341.089	1,302.674
SC-21-283	STATE ST	0+687.382	1 75	LT	123,442.842	19,341.089	1,302.674
SB-21-284	STATE ST.	0+740.395	3.19	LT	123,443.868	19,394.112	1,305.301
SB-22-285	STATE ST.	0+773.642	3.26	LT	123,443.685	19,427.358	1,306 543
SC-22-286	STATE ST.	0+815.552	0.00	LT	123,440 104	19,469.242	1,295.750
SC-22-287	STATE ST.	0+854.444	2.22	RT	123,437.583	19,508.116	1,296.540
SB-22-288	STATE ST.	0+918.648	12.68	RT	123,426.636	19,572.238	1,304.491
SB-23-289	I-15 SB TO LP SB	60+436.602	0.52	LT	123,977.638	19,114.208	1,295.020
SB-23-290C	I-15 SB TO LP SB	60+599.449	4.87	LT	124,132.337	19,070.781	1,297.364
SC-23-290A	I-15 SB TO LP SB	60+480.966	5.61	LT	124,021.035	19,103 686	1,295.394
SC-23-291	I-15 SB TO LP SB	60+551.904	6.21	RT	124,092.787	19,099.480	1,297.876
SB-24-255	LP NB to I-15 NB (US 89)	20+512.743	20.84	LT	123,943.153	19,142.978	1,295.173
SC-24-256	LP NB to I-15 NB (US 89)	20+554.154	10.26	LT	123,986.818	19,136.718	1,295.320
SC-24-257	LP NB to I-15 NB (US 89)	20+623.800	11.20	RT	124,059.940	19,138.703	1,297.923
SB-24-258	LP NB to I-15 NB (US 89)	20+666.464	1.21	RT	124,099.054	19,118.949	1,297.642
SB-25-334	LP NB to I-15 NB (US 89)	20+723.909	2.88	LT	124,153.922	19,101.451	1,296.674
SC-25-335	LP NB to I-15 NB (US 89)	20+791.718	1.98	RT	124,220.759	19,088.753	1,297.649
SB-25-336	LP NB to I-15 NB (US 89)	20+862.412	6.42	RT	124,287.360	19,062.514	1,297.090
SB-26-337	US 89 SB to 1-15 SB	12+605.204	1.91	LT	124,130.372	19,139.171	1,297.010
SC-26-338	US 89 SB to 1-15 SB	12+670.717	4.98	LT	124,193.322	19,119.094	1,297.766
SB-26-339	US 89 SB to 1-15 SB	12+741.455	16.33	LT	124,261.994	19,097.767	1,297.519
SB-27-340	US 89 SB to LP SB	70+686.974	0.76	RT	123,852.107	19,215.247	1,295.785
SC-27-341	US 89 SB to LP SB	70+750.382	0.47	RT	123,915 509	19,214.299	1,297.574
SC-27-342	US 89 SB to LP SB	70+835.805	14.36	LT	124,000.680	19,198 573	1,297.770
SC-27-343	US 89 SB to LP SB	70+880.983	13.03	RT	124,046.870	19,224.153	1,297.174
SC-27-344	US 89 SB to LP SB	70+944.734	0.00	LT	124,109.520	19,205.164	1,296.850
SB-27-345	US 89 SB to LP SB	71+011.211	0.83	RT	124,175.305	19,195.454	1,298.128
SB-28-346	BURKE LANE	4+859.468	3.67	RT	124,322.805	18,698.933	1,294.258
SB-28-347	BURKE LANE	4+934.261	1.02	RT	124,380.313	18,746.828	1,296.320
SB-29-348	BURKE LANE	4+961.767	0.38	LT	124,401.740	18,764.131	1,296.206
SC-29-349	BURKE LANE	5+000.045	0.01	LT	124,430.020	18,789.930	1,296.024
SB-29-350	BURKE LANE	5+066.599	19.50	RT	124,466.611	18,848.846	1,304.692
SB-30-351	BURKE LANE	5+299.649	9.45	LT	124,631.325	19,011.152	1,298.224
SB-30-352	BURKE LANE	5+352.141	2.08	RT	124,632.729	19,065.430	1,297.372
SB-31-353	PEDESTRIAN BR.	99+835.873	14.26	RT	115,305.881	17,747.055	1,284.513
SC-31-353	PEDESTRIAN BR.	100+036.369	83.64	LT	115,352.857	17,787.830	1,284.513
SB-31-354	PEDESTRIAN BR.	100+033.967	0.00	LT	115,271.520	17,768.174	1,284.345
SB-31-355	PEDESTRIAN BR.	100+075.967	0.00	LT	115,262.830	17,809.265	1,284.263
SB-31-356	PEDESTRIAN BR.	100+118.329	8.80	RT	115,245.451	17,848.889	1,284.932
SC-31-356	PEDESTRIAN BR.	100+115.395	9.43	RT	115,245.451	17,845.890	1,284.932
SB-32-357	D MAINLINE	6002+535.900	21.40	LT	107,160.592	15,686.012	1,284.490
SC-33-358	D MAINLINE	6002+489 100	21.40	RT	107,099.147	15,701.608	1,284.490
SB-1-243	I-215 to LP SB	58+220.478	1.99	RT	106,937.510	15,489.756	1,284 413
WB-1-240	I-15	59+493.295	70.03	LT	124,334.943	18,805.525	1,296.584
WB-2-241	I-15	59+647.927	57.07	LT	124,432.213	18,684.621	1,299.469
WB-3-242	I-15	59+706.550	28.93	LT	124,488.338	18,651.781	1,298.160
WB-4-239	I-15	59+480.935	39.09	LT	124,353.670	18,833.082	1,296.272
WB-9-226	I-15 NB to US 89 NB	1+406.133	1.01	RT	123,822.721	19,430.441	1,298.147
WC-9-227	I-15 NB to US 89 NB	1+500.557	8.10	RT	123,911.285	19,395.932	1,301.460
WB-9-228	I-15 NB to US 89 NB	1+608.843	8.56	RT	124,005.160	19,340.414	1,298.732
WB-9-229	I-15 NB to US 89 NB	1+719.031	12.69	RT	124,098.389	19,282.261	1,298.918
WC-9-230	I-15 NB to US 89 NB	1+822.003	19.87	RT	124,190.669	19,242.937	1,299.148
WB-9-231	I-15 NB to US 89 NB	1+920.608	44.42	RT	127,295.100	19,198.787	1,302.280

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POINT	LINE	STATION	OFFSET		NORTHING (m)	EASTING (m)	ELEVATION (m)
WC-10-232	I-15	58+734.533	23.51	RT	123,873.306	19,393.068	1,301.210
WB-10-233	I-15	58+881.649	1.16	RT	123,990.684	19,299.166	1,300.973
WB-10-234	I-15	59+019.306	27.99	RT	124,117.524	19,235 458	1,298.457
WC-10-234	I-15	59+019.196	27.36	RT	124,117.024	19,235.058	1,298.457
WC-13-235	US 89 SB to LP SB	71+619.643	18.65	LT	124,739.947	18,971.031	1,298.069
WB-13-236	US 89 SB to LP SB	71+721.381	20 11	LT	124,834 150	18,932.579	1,297.676
WC-14-237	US 89 SB to LP SB	71+606.215	18.72	RT	124,741.062	19,010.718	1,301.664
WB-14-238	US 89 SB to LP SB	71+998.327	23.07	RT	125,107.784	18,871.845	1,298.566
WB-15-219	D MAINLINE	6013+879.882	34.51	RT	117,103.822	19,343 493	1,286.243
WC-15-220	D MAINLINE	6013+953.596	26.94	RT	117,177 800	19,347.767	1,285 408
WC-15-221	D MAINLINE	6013+962.670	51.01	RT	117,182.924	19,372.972	1,285.745
WB-16-222	D MAINLINE	6014+082.036	62.01	RT	117,299.012	19,402.848	1,285.742
WC-16-223B	D MAINLINE	6014+200.115	48.11	RT	117,412.444	19,410.094	1,285.147
WB-16-224	D MAINLINE	6014+367.880	32.77	RT	117,562.965	19,455.986	1,286 045
WB-16-225	D MAINLINE	6014+509.641	35.70	RT	117,671.162	19,538.430	1,286.597
WB-17-213B	D MAINLINE	6013+894.559	22.53	LT	117,127.401	19,289.518	1,285.971
WC-17-214	D MAINLINE	6014+006.532	20.20	LT	117,237.572	19,309.662	1,285.490
WB-17-215B	D MAINLINE	6014+082.307	18.03	LT	117,312.033	19,323.878	1,284.358
WB-18-216	D MAINLINE	6014+224.874	28.78	LT	117,457.132	19,342.953	1,284.434
WC-18-217	D MAINLINE	6014+334.481	53.46	LT	117,574.374	19,364.053	1,284.011
WB-18-218	D MAINLINE	6014+451.631	52.30	LT	117,680.820	19,432.828	1,284.825
WB-19-212	D MAINLINE	6013+678.755	21.98	RT	116,907.262	19,299.075	1,285 455
WB-20-209	D MAINLINE	6013+371.756	52.20	RT	116,593.090	19,234.256	1,287.092
WB-20-210	D MAINLINE	6013+468 564	40.59	RT	116,691.774	19,268.400	1,285.489
WB-20-211	D MAINLINE	6013+568.805	46.61	RT	116,792.638	19,304.653	1,285.675
WB-21-205	D MAINLINE	6013+102.889	57.21	RT	116,374.242	19,044.139	1,285.360
WB-22-206	D MAINLINE	6013+740.032	27.20	LT	116,975.593	19,260.281	1,284.904
WC-22-207	D MAINLINE	6013+675.376	27.61	LT	116,911.828	19,249.579	1,285.313
WB-22-208	D MAINLINE	6013+563.430	26.77	LT	116,802.911	19,231.797	1,284.577
WB-24-202	D MAINLINE	6012+874.145	36.01	LT	116,344.116	18,793.895	1,284.308
WC-24-203B	D MAINLINE	6013+015.976	23.12	LT	116,394.943	18,926.047	1,284.468
WB-24-204	D MAINLINE	6013+186.647	42.51	LT	116,504.878	19,045.723	1,285.510
WB-25-200	I-15 NB to LP NB	50+774.766	9.87	LT	107,241.666	16,421.958	1,285.033
WB-25-201	I-15 NB to LP NB	50+871.420	29.02	LT	107,256.072	16,322.823	1,285.209
WB-26-314	D MAINLINE	6002+387.809	1.33	RT	107,026.080	15,626.314	1,287.141
WB-27-315	Redwood to I-15 SB	55+318.567	6.64	LT	107,081.167	16,484.057	1,284.425
WC-27-316	Redwood to I-15 SB	55+455.720	1 02	RT	107,100.986	16,620.596	1,285.246
WB-27-317	Redwood to I-15 SB	55+591 440	4.18	LT	107,129.202	16,753 452	1,285.854
WC-28-318	Redwood to I-15 SB	55+502.496	25.27	LT	107,134.854	16,662.215	1,286.456
WB-28-319	Redwood to I-15 SB	55+406.081	33.38	LT	107,126.439	16,565.826	1,285.144
WB-29-320	D MAINLINE	6002+849 932	22.67	LT	107,454.442	15,746.727	1,285.614
WC-29-321	D MAINLINE	6003+003.280	20.95	LT	107,602.902	15,726 861	1,285.298
WB-29-322	D MAINLINE	6003+168.988	20 61	LT	107,765.625	15,695.549	1,285.339
RB-357	I-215 to LP SB	58+000.295	0.61	LT	106,750.145	15,374.077	1,286.335
RB-358	I-215 to LP SB	58+149.095	3.41	RT	106,875 602	15,454.189	1,284.889
RB-359	I-215 to LP SB	58+390.722	2.56	LT	107,076.516	15,587.237	1,284.897
RB-360	I-215 to LP SB	58+649.195	2.48	LT	107,170.518	15,824.180	1,285.150
RB-361	I-215 to LP SB	58+794.720	7.25	LT	107,177.594	15,969.637	1,287.201
RB-362	LP SB TO I-15 SB	56+279.804	6.27	RT	107,124.513	16,536.945	1,284.916
RB-363	LP SB TO I-15 SB	56+518.546	7.08	RT	107,105.185	16,298.985	1,284.960
RB-364	LP SB TO I-15 SB	56+698.883	0.85	RT	107,083.755	16,119.817	1,284.652
RB-365	I-15 SB to LP SB	60+408.284	1.91	RT	123,949.836	19,120.112	1,295.007
RB-366	I-15 SB to LP SB	60+267.794	3.08	LT	123,811.316	19,143.614	1,294.660
RB-367	I-15 SB to LP SB	60+110.925	19.11	RT	123,676.840	19,226.605	1,294.582
RB-368	CENTER STREET	5+309.965	0.06	LT	107,994.964	15,553.859	1,285.173
RB-369	CENTER STREET	5+569.100	3.99	LT	108,005.988	15,811.167	1,286.099
RB-370	GLOVERS LANE	50+571.675	7.54	RT	121,721.642	19,772.521	1,294.969
RB-371	500 SOUTH	70+338.171	0.29	RT	112,710.357	16,229.692	1,286.763
RB-372	US 89 SB to LP SB	70+447 152	11.43	RT	123,619.606	19,255.658	1,294.959
RB-373	US 89 SB to LP SB	70+601.650	4.71	RT	123,766.960	19,220.257	1,295.444
RC-373	US 89 SB to LP SB	70+601.725	2.71	RT	123,766.960	19,218.257	1,295.444
RB-374	US 89 SB to LP SB	71+086.495	1.40	RT	124,248.802	19,178.835	1,298.372
RB-375	US 89 SB to LP SB	71+238.091	0.81	RT	124,391.737	19,128.227	1,299.022
RB-376	D MAINLINE	6002+008.023	0.84	LT	106,731.773	15,387.081	1,285.566

Legacy Parkway
Preferred Alignment
Soil Exploration Location Information

(according to structure number)

POINT	LINE	STATION	OFFSET	NORTHING (m)	EASTING (m)	ELEVATION (m)
RB-377	D MAINLINE	6002+159.558	5.75 RT	106,850.936	15,479.920	1,286.581
RB-378	D MAINLINE	6002+389.999	0.01 LT	107,028.622	15,626.672	1,285.231
RB-379	D MAINLINE	6012+954.442	2.22 RT	116,345.140	18,882.819	1,284.925
RB-380	D MAINLINE	6013+100.373	4.61 RT	116,415.350	19,011.228	1,284.964
RB-381	D MAINLINE	6013+583.830	0.67 RT	116,816.965	19,262.688	1,285.001
RB-382	D MAINLINE	6014+004.126	7.46 RT	117,230.789	19,336.585	1,285.756
RB-383	D MAINLINE	6014+195.674	1.25 RT	117,420.236	19,363.684	1,284.368
RB-384	D MAINLINE	6014+384.292	0.97 RT	117,592.969	19,436.867	1,284.541
RB-385	LP NB to I-15 NB (US 89)	20+438.886	16.47 RT	123,894.805	19,211.113	1,296.995
RB-386	LP SB TO I-15 SB	57+559.728	1.00 RT	107,671.397	15,696.993	1,285.288
RB-388	I15 NB to LP NB	50+829.497	0.07 RT	107,268.266	16,372.839	1,285.174
RB-389	I15 NB to LP NB	51+019.953	0.01 RT	107,347.322	16,199.835	1,285.950
RB-390	BURKE LANE	4+804.884	0.88 LT	124,285.160	18,659.148	1,293.901
RB-391	BURKE LANE	5+171.083	0.76 LT	124,557.265	18,904.272	1,302.471
RB-392	LP NB to I-15 (I-215)	54+787.955	1.05 LT	106,971.375	15,638.881	1,285.947
RB-393	LP NB to I-15 (I-215)	54+938.150	4.05 LT	107,053.676	15,764.860	1,285.631
RB-394	I-15 WD NB	51+250.000	0.00 LT	107,480.746	16,012.949	1,286.550
RB-395	D MAINLINE	6003+950.000	0.00 LT	108,545.276	15,635.838	1,286.199
RB-396	D MAINLINE	6004+534.815	93.86 RT	109,134.378	15,697.296	1,286.923
RB-397	D MAINLINE	6005+180.000	0.00 LT	109,773.404	15,567.997	1,286.833
RB-398	D MAINLINE	6005+650.000	0.00 LT	110,242.756	15,546.896	1,286.465
RB-399	D MAINLINE	6005+940.000	0.00 LT	110,517.894	15,630.526	1,286.404
RB-400	D MAINLINE	6006+800.000	0.00 LT	111,281.939	16,023.839	1,287.180
RB-401	D MAINLINE	6007+400.000	0.00 LT	111,878.170	16,076.232	1,287.011
RB-402	D MAINLINE	6007+800.000	0.00 LT	112,277.663	16,096.364	1,286.950
RB-403	D MAINLINE	6008+885.000	0.00 LT	113,346.442	16,240.119	1,285.277
RB-404	D MAINLINE	6009+670.000	0.00 LT	114,028.968	16,606.006	1,284.548
RB-405	D MAINLINE	6010+290.000	0.00 LT	114,500.642	17,008.403	1,284.282
RB-406	D MAINLINE	6011+725.000	0.00 LT	115,503.490	18,027.912	1,285.707
RB-407	D MAINLINE	6012+320.000	0.00 LT	115,989.980	18,370.089	1,284.637
RB-408	D MAINLINE	6015+000.000	0.00 LT	118,084.056	19,805.674	1,284.841
RB-409	D MAINLINE	6015+300.000	0.00 LT	118,375.510	19,864.557	1,284.055
RB-410	D MAINLINE	6015+600.000	0.00 LT	118,675.507	19,866.014	1,284.088
RB-411	D MAINLINE	6015+900.000	0.00 LT	118,975.503	19,867.472	1,284.923
RB-412	D MAINLINE	6016+150.000	0.00 LT	119,225.500	19,868.686	1,286.251
RB-413	D MAINLINE	6016+500.000	0.00 LT	119,575.496	19,870.387	1,286.389
RB-414	D MAINLINE	6016+800.000	0.00 LT	119,875.493	19,871.844	1,287.031
RB-415	D MAINLINE	6017+100.000	0.00 LT	120,175.489	19,873.302	1,287.442
RB-417	D MAINLINE	6017+700.000	0.00 LT	120,775.482	19,876.216	1,284.832
RB-418	D MAINLINE	6017+960.001	0.19 RT	121,035.479	19,877.674	1,285.296
RB-419	D MAINLINE	6018+299.985	3.00 LT	121,375.475	19,876.131	1,288.020
RB-420	D MAINLINE	6019+470.000	0.00 LT	122,513.204	19,644.905	1,297.222
RB-421	D MAINLINE	6019+900.000	0.00 LT	122,925.217	19,521.837	1,297.852
RB-422	D MAINLINE	6020+210.000	0.00 LT	123,221.186	19,429.774	1,295.335
RB-423	BURKE LANE	4+220.000	0.00 LT	123,819.432	18,320.892	1,291.511

Boring: SB- 1-243
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Elastic SILT - brown						MH	A-7-6									
	- stiff, gray	5	1, 2		P	508					53						pH WSS R
	- soft	10	3, 4		SPT	610			1 1 1 1	4							
1280	- medium stiff	15	5		P						20 24	9.2	69	51	20		C SG
	- some black coloring, trace of fine sand	20	6, 7		SPT				1 2 2 1	6							
	- soft, wet, brown with some black	25			SPT	457			1 2 1 1	3							
	Sandy SILT - soft, wet with frequent silty sand layers	30	8, 9		SPT	508	ML	A-2-4	1 2 3 6	5							
1275	- medium stiff, occasional gray coloring	35	10, 11		P						29						
	Lean CLAY - very soft, wet, black	40	12		SPT	432	CL	A-7-6	0 1 0 0	1							
	- stiff	45	13, 14		P						57	14.5	33	44	23		
1270	- soft, some gray coloring, some sand	50	15		SPT	457			4 2 1 1	3							
		55	16, 17														
		60	18, 19		P	51											
1265		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB- 1-243**

Sheet **1** of **2**

Logged by:	J. Criss
Date Start:	3/1/00
Date Finish:	3/3/00
Station:	58+220.478 1.99 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,937.510 E 15,489.756
Elevation (m):	1284.476
Total Depth Drilled (m):	38.4
Drill Contractor:	Haz-tech
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB- 1-243
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - soft, wet, black (continued)																
	- very soft, gray	70	21		SPT	610			1 0 0 0	0							
		75	22														
			23														
			24														
1260	Sandy SILT - medium stiff, wet, gray with frequent silty sand layers	80	25		P	610	ML	A-2-4			38						
		85	26														
			27														
	- medium stiff	90	28		SPT	610			5 4 6 26	7							
1255		95	29														
	Fat CLAY - stiff, wet, gray	100	30		P		CH	A-7-6			77						
		105	31														
			32														
	Silty SAND - medium dense, wet, gray, fine to medium grained sand	110	33		SPT	330	SM	A-2-4	0 0 19 32	12							
1250		115	34		SPT	0			20 25 30 40	33							
		120	35		SPT	406			22 25 16 24	23							
		125	36		SPT	432			13 27 34 38	34							
1245		130	37														
			38														
			39														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB- 1-243**

Sheet 2 of 2

Logged by:	J. Criss
Date Start:	3/1/00
Date Finish:	3/3/00
Station:	58+220.478 1.99 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,937.510 E 15,489.756
Elevation (m):	1284.476
Total Depth Drilled (m):	38.4
Drill Contractor:	Haz-tech
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

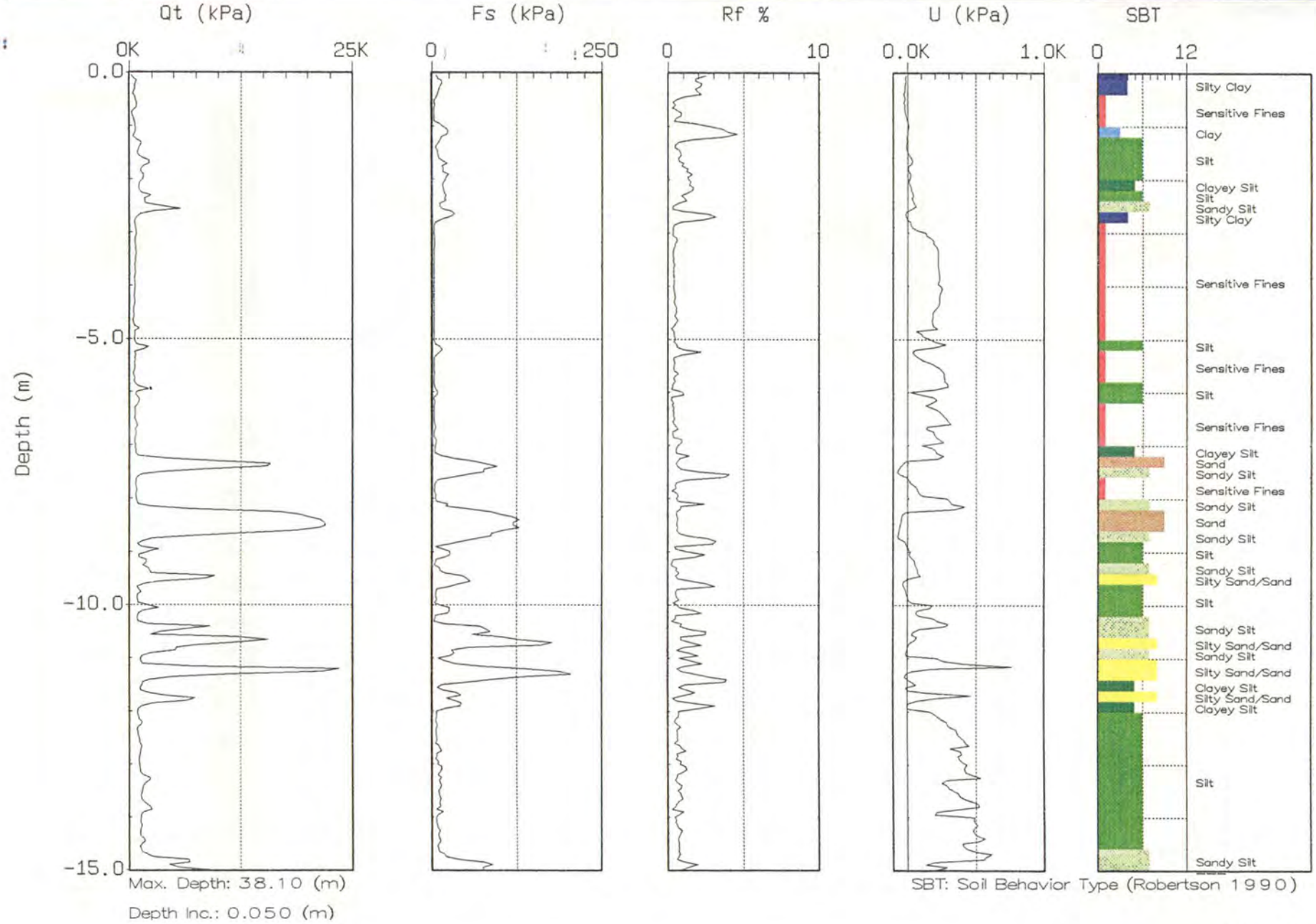
BAG = Bulk Sample

UTDOT Z0035B1.GPJ 5/30/00

Legacy Parkway

Site: SC-1-244
Station: 58+239.780 0.93 RT
Elevation: 1284.182

Cone: 20 TON A 058
Date: 02:23:00 10:46



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

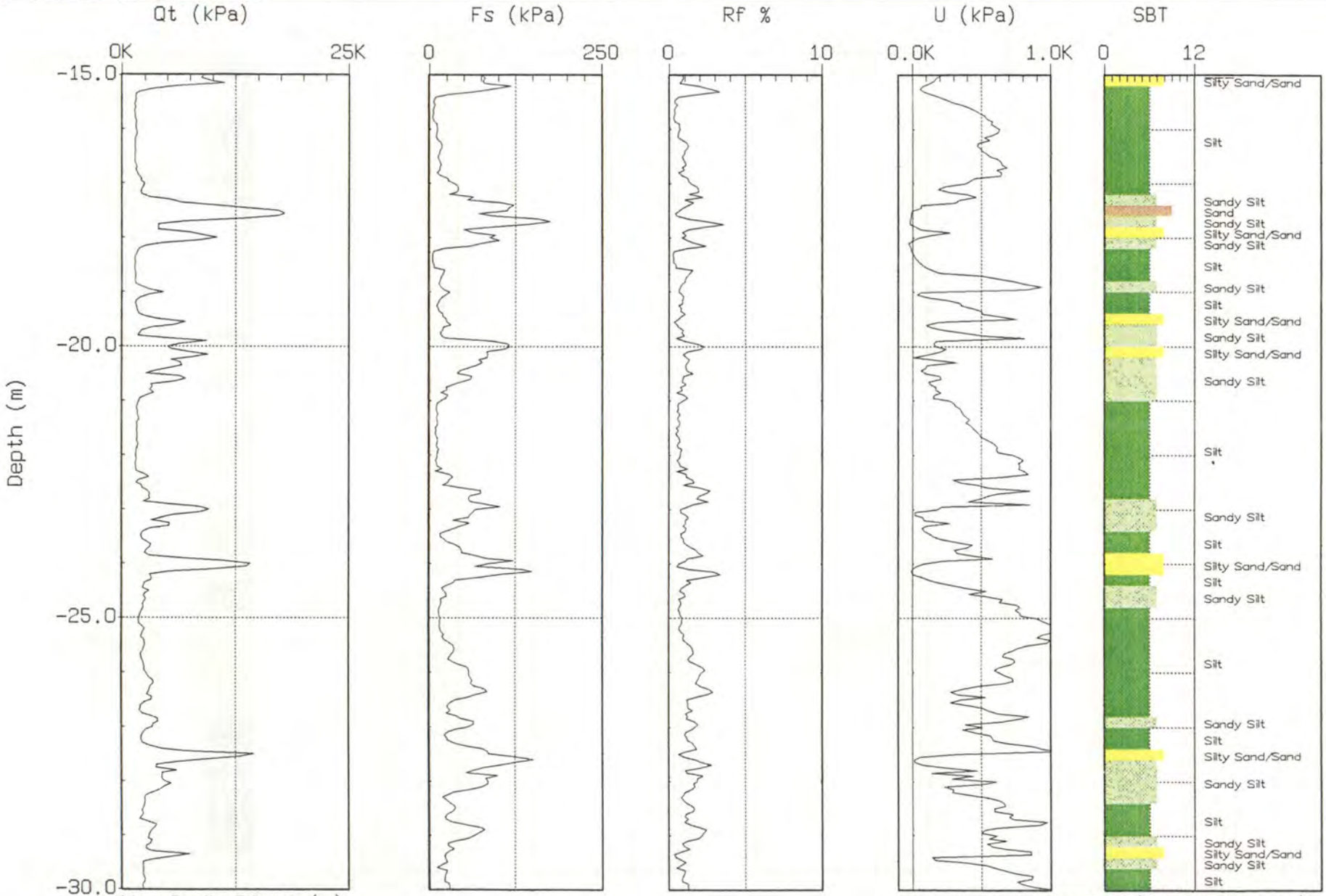
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-3

Legacy Parkway

Site: SC-1-244
Station: 58+239.780 0.93 RT
Elevation: 1284.182

Cone: 20 TON A 058
Date: 02:23:00 10:46



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

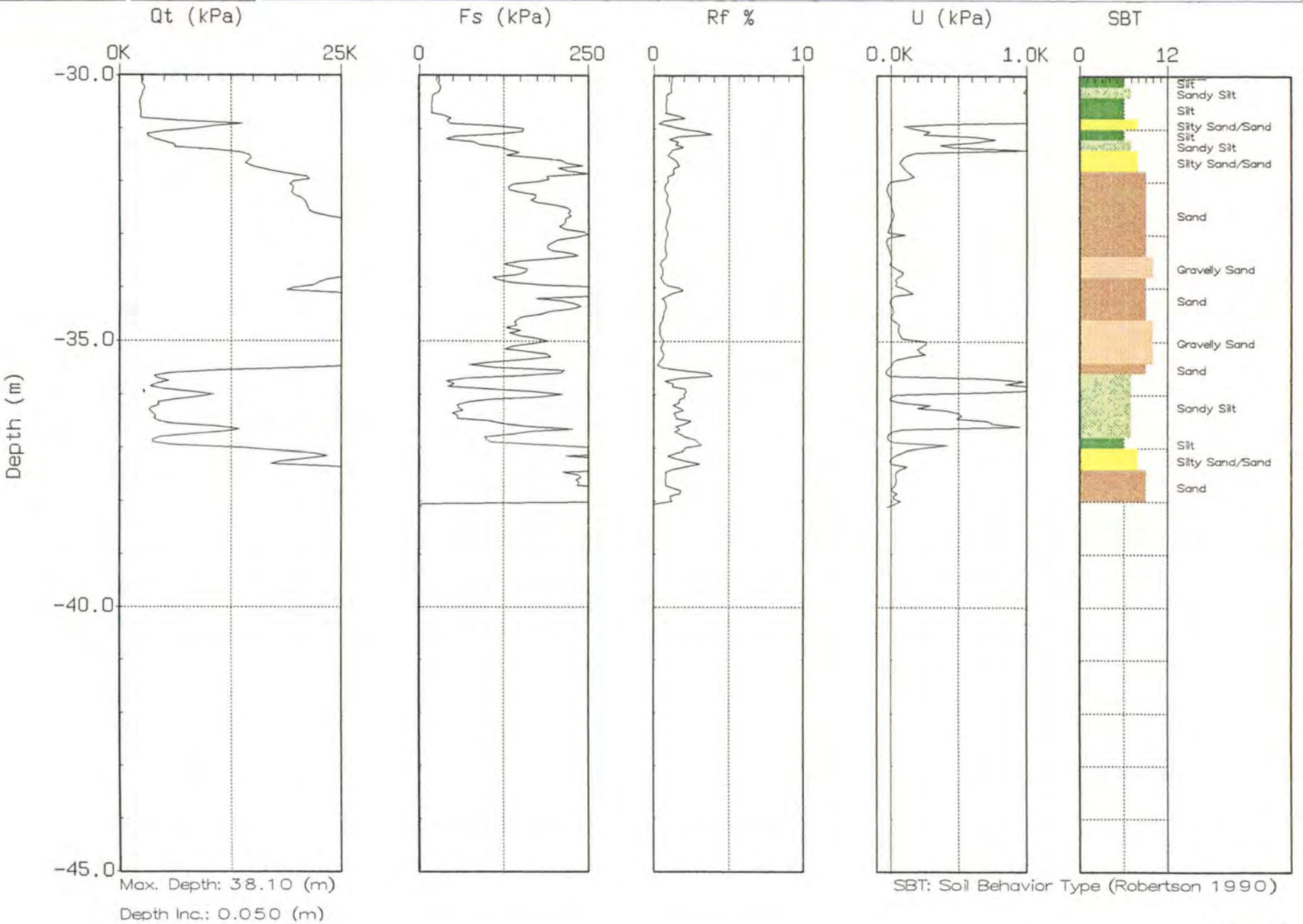
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-4

Legacy Parkway

Site: SC-1-244
Station: 58+239.780 0.93 RT
Elevation: 1284.182

Cone: 20 TON A 058
Date: 02:23:00 10:46



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

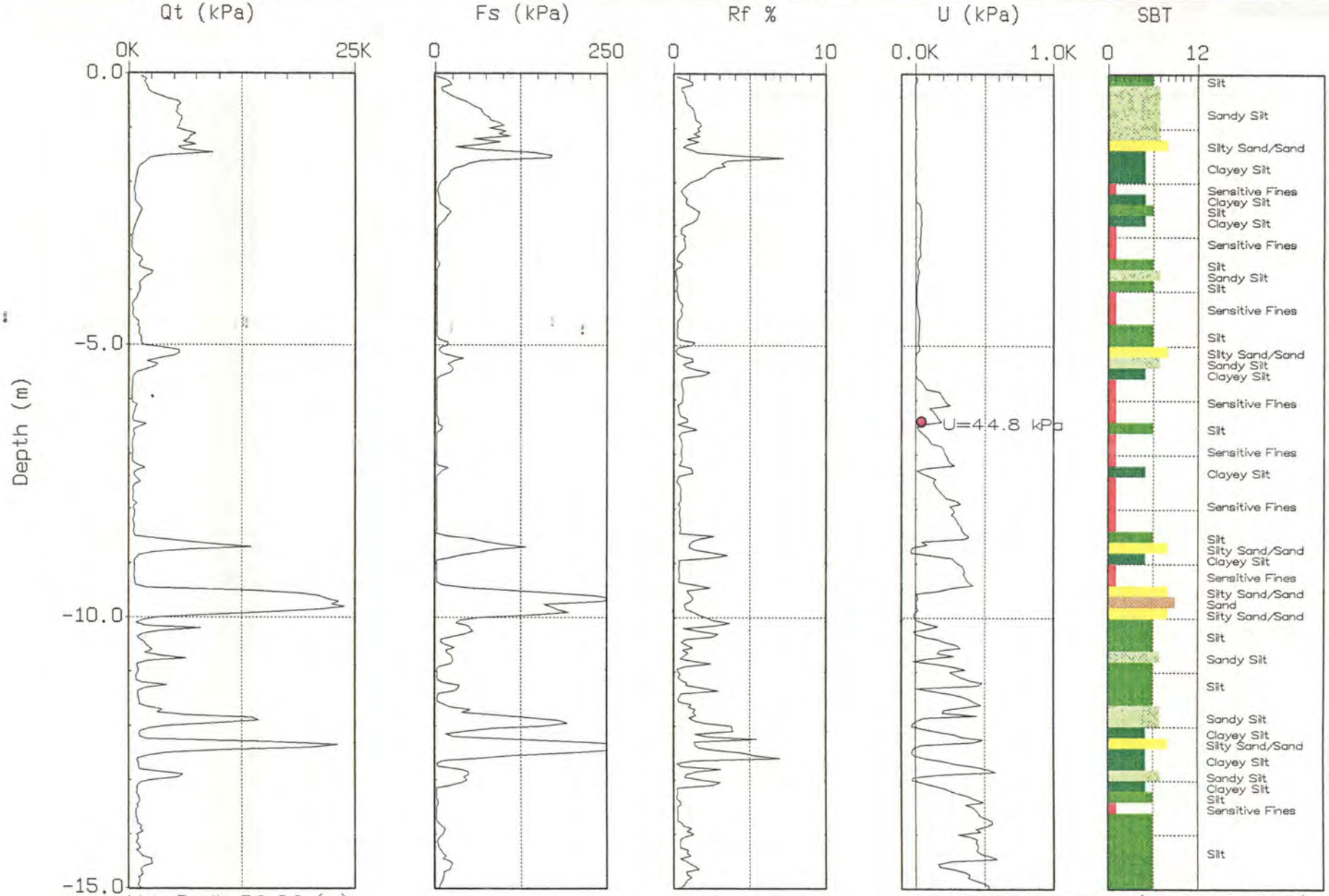
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-5

Legacy Parkway

Site: SC-1-245
Station: 58+277.957 5.45 RT
Elevation: 1286.107

Cone: 20 TON A 092
Date: 02:03:00 13:27



Max. Depth: 39.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

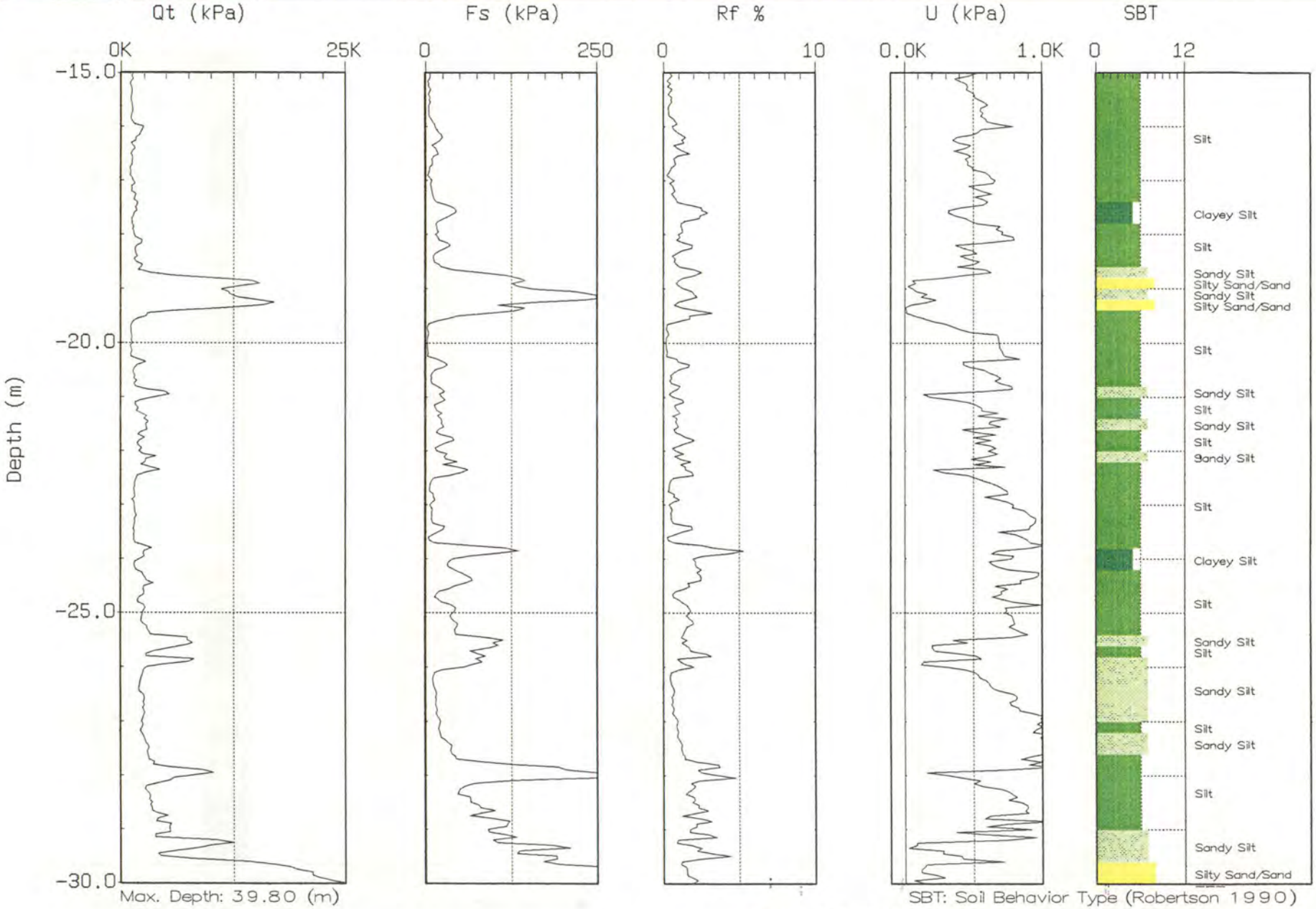
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-6

Legacy Parkway

Site: SC-1-245
Station: 58+277.957 5.45 RT
Elevation: 1286.107

Cone: 20 TON A 092
Date: 02:03:00 13:27



Max. Depth: 39.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

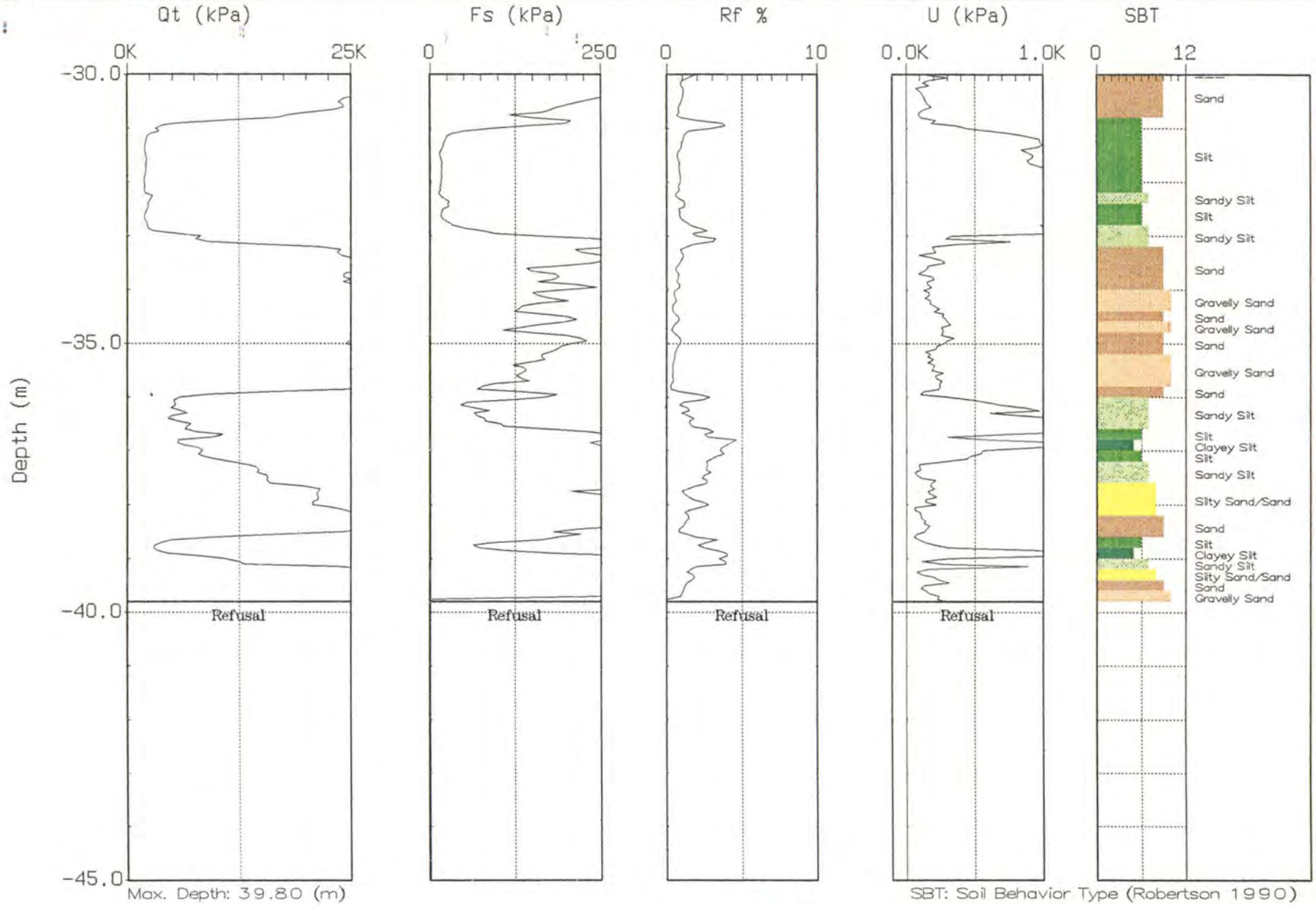
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-7

Legacy Parkway

Site: SC-1-245
Station: 58+277.957 5.45 RT
Elevation: 1286.107

Cone: 20 TON A 092
Date: 02:03:00 13:27



Max. Depth: 39.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

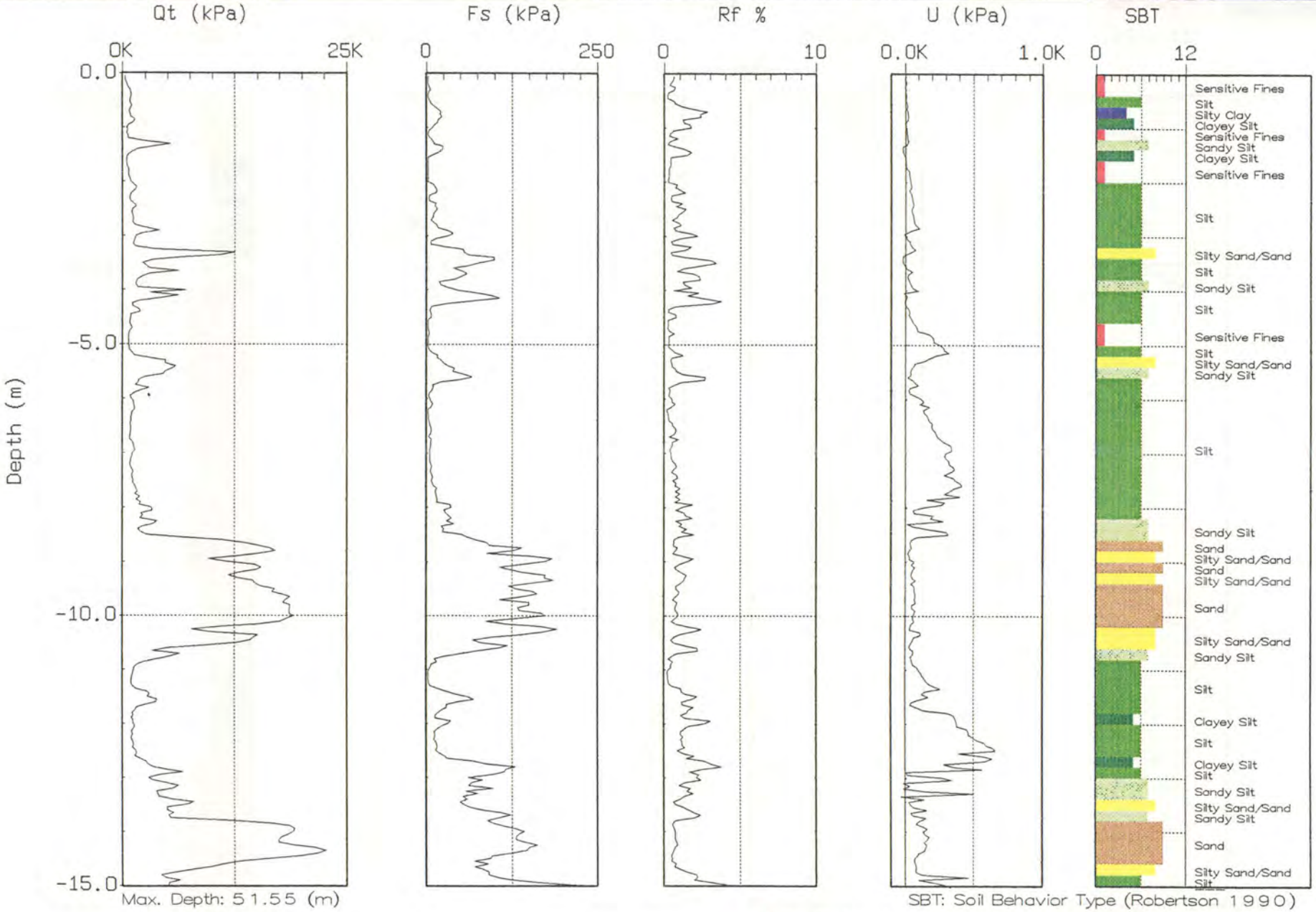
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-8

Legacy Parkway

Site: SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188

Cone: 20 TON A 092
Date: 01:31:00 13:50



Max. Depth: 51.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

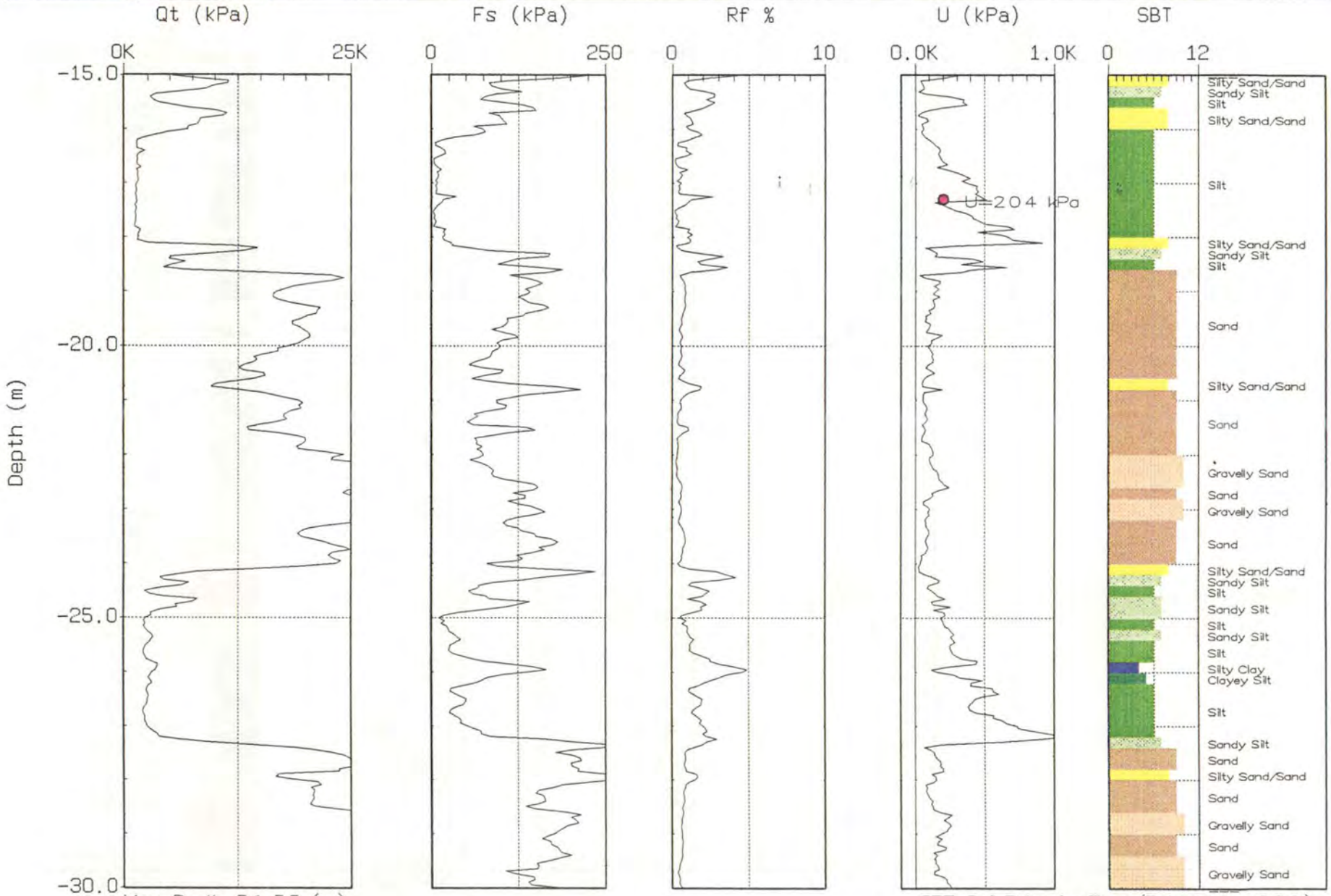
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-97

Legacy Parkway

Site: SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188

Cone: 20 TON A 092
Date: 01:31:00 13:50



Max. Depth: 51.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

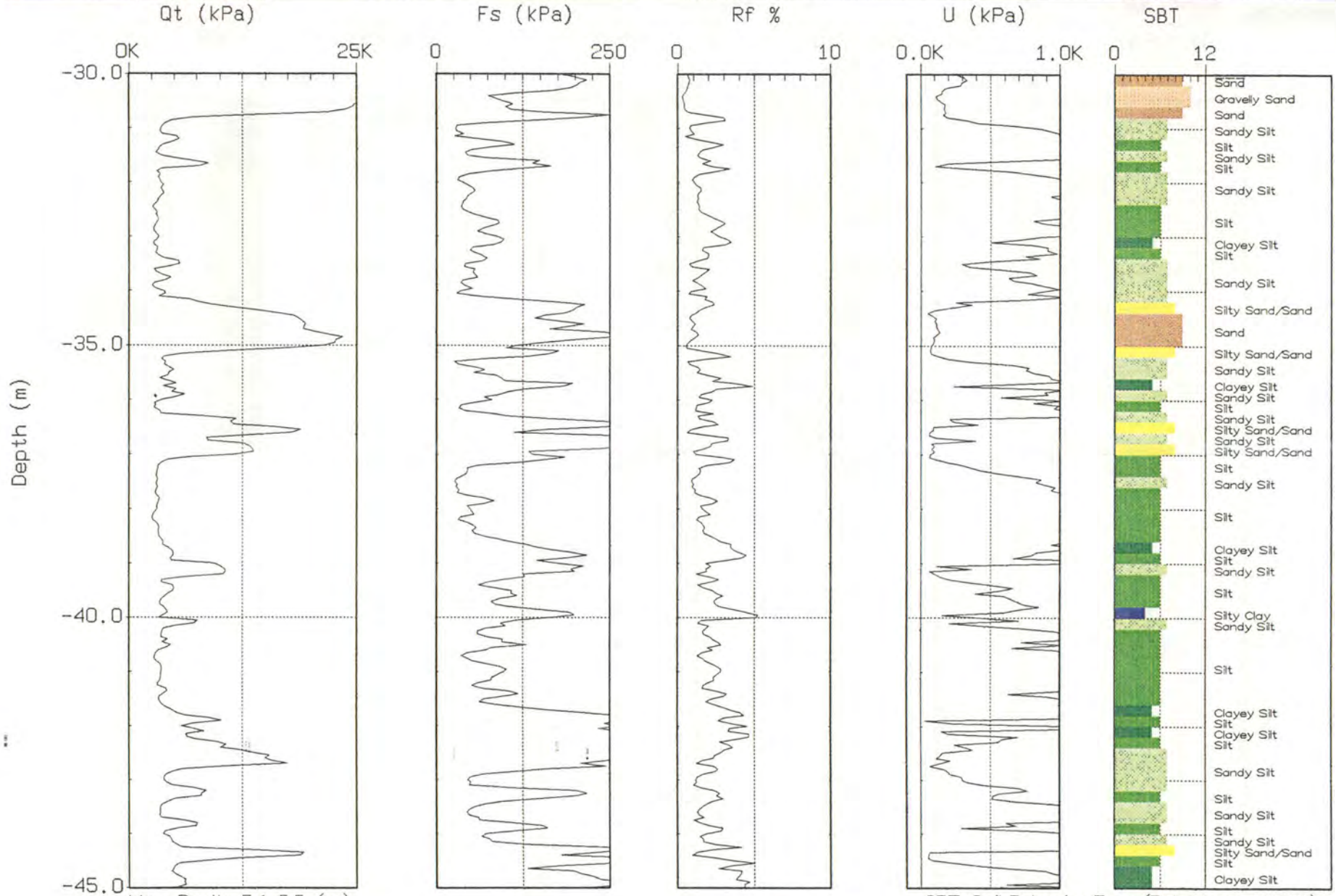
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-98

Legacy Parkway

Site: SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188

Cone: 20 TON A 092
Date: 01:31:00 13:50



Max. Depth: 51.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

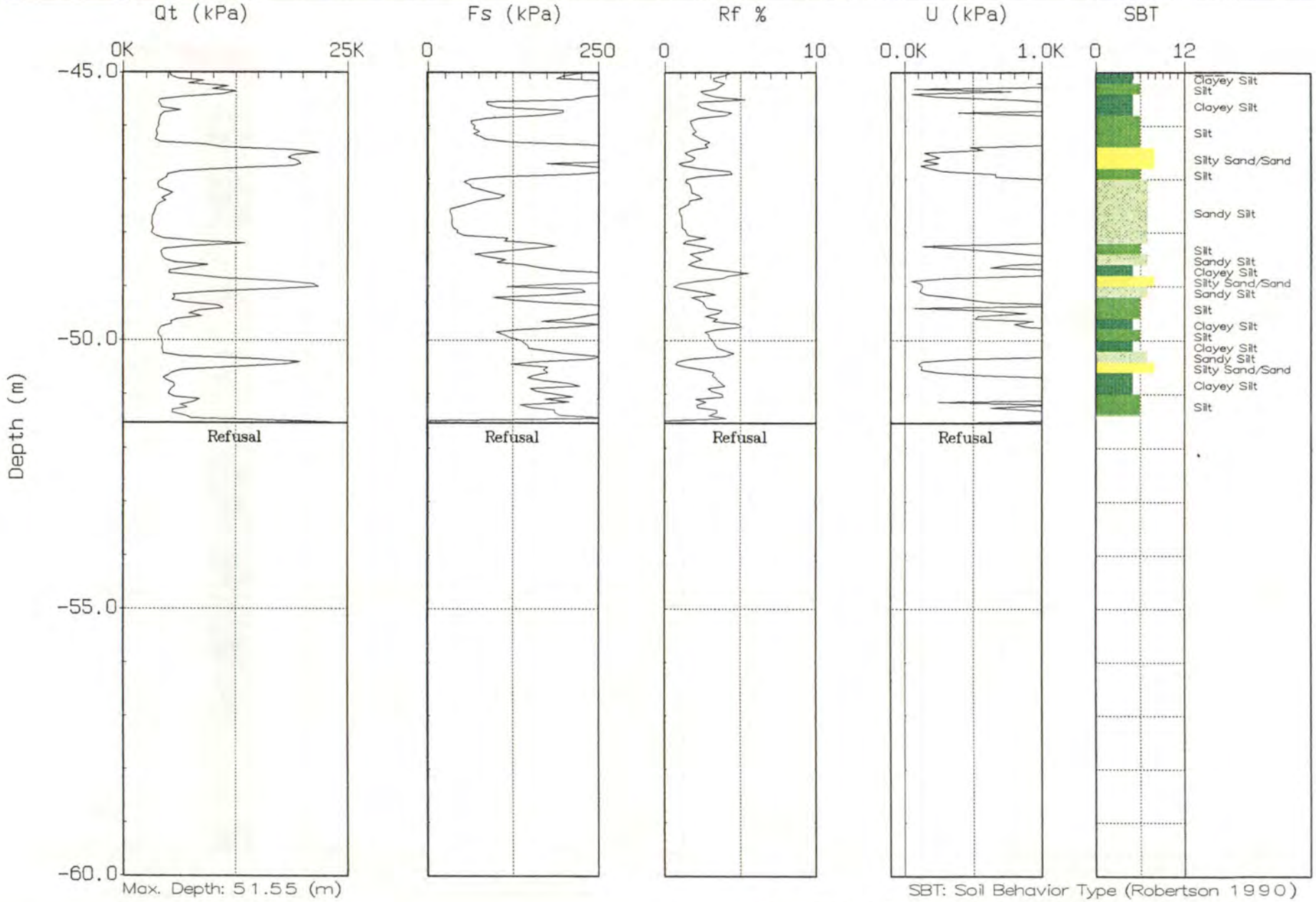
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-99

Legacy Parkway

Site: SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188

Cone: 20 TON A 092
Date: 01:31:00 13:50



Max. Depth: 51.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

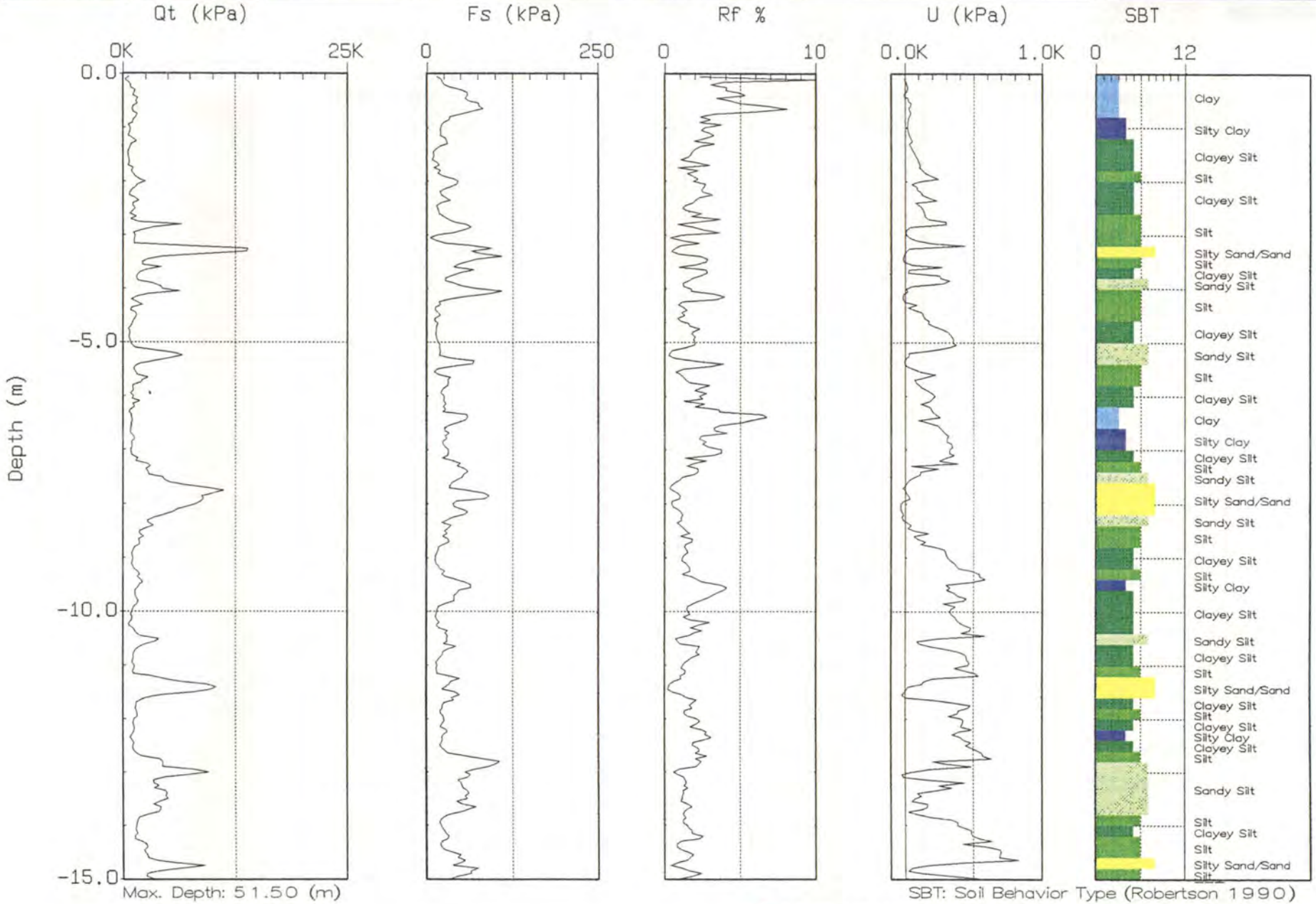
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-100

Legacy Parkway

Site: SC-11-261
Station: 5+463.933 4.38 RT
Elevation: 1285.307

Cone: 20 TON A 092
Date: 01:31:00 07:47



Max. Depth: 51.50 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

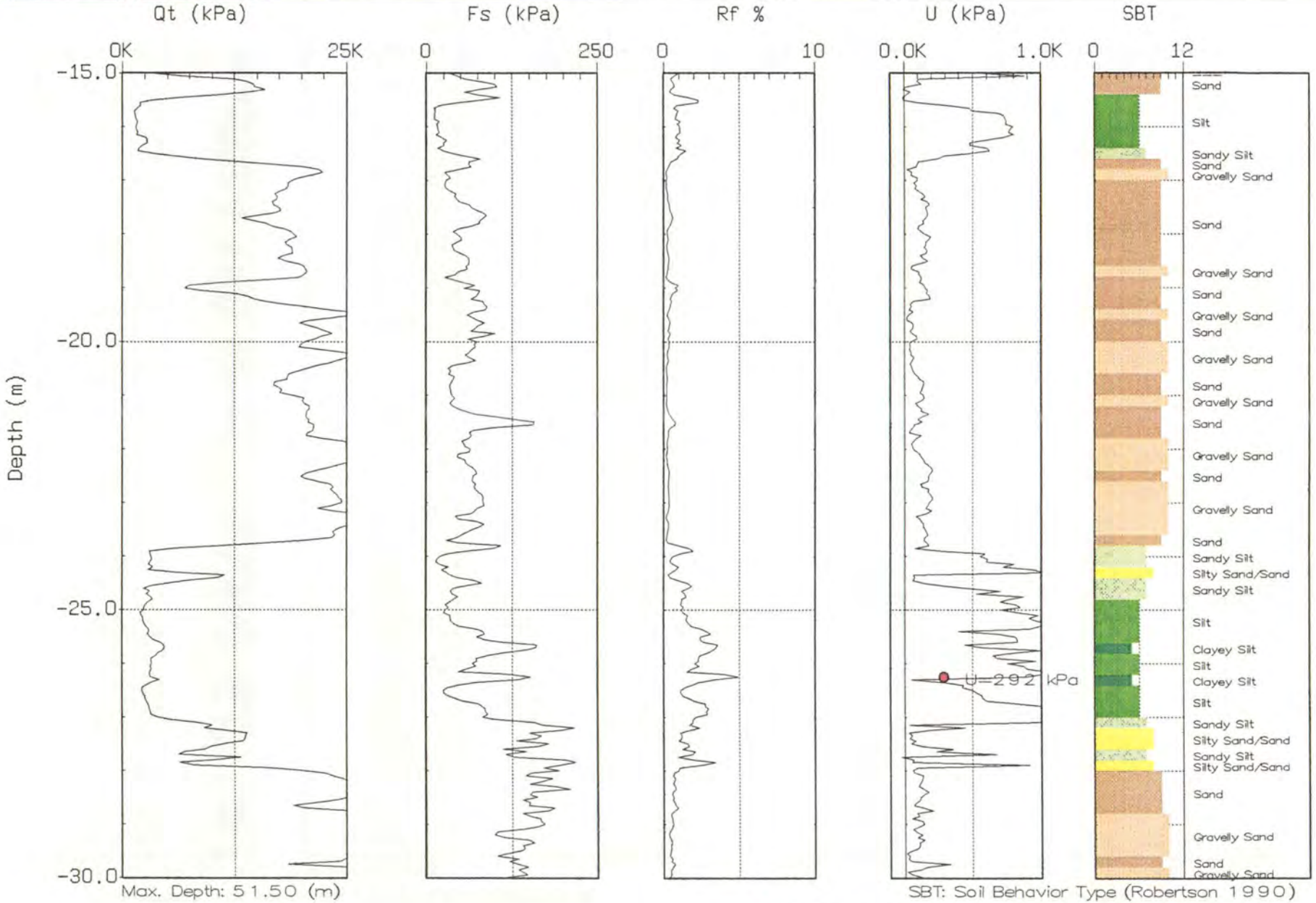
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-101

Legacy Parkway

Site: SC-11-261
Station: 5+463.933 4.38 RT
Elevation: 1285.307

Cone: 20 TON A 092
Date: 01:31:00 07:47



Max. Depth: 51.50 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

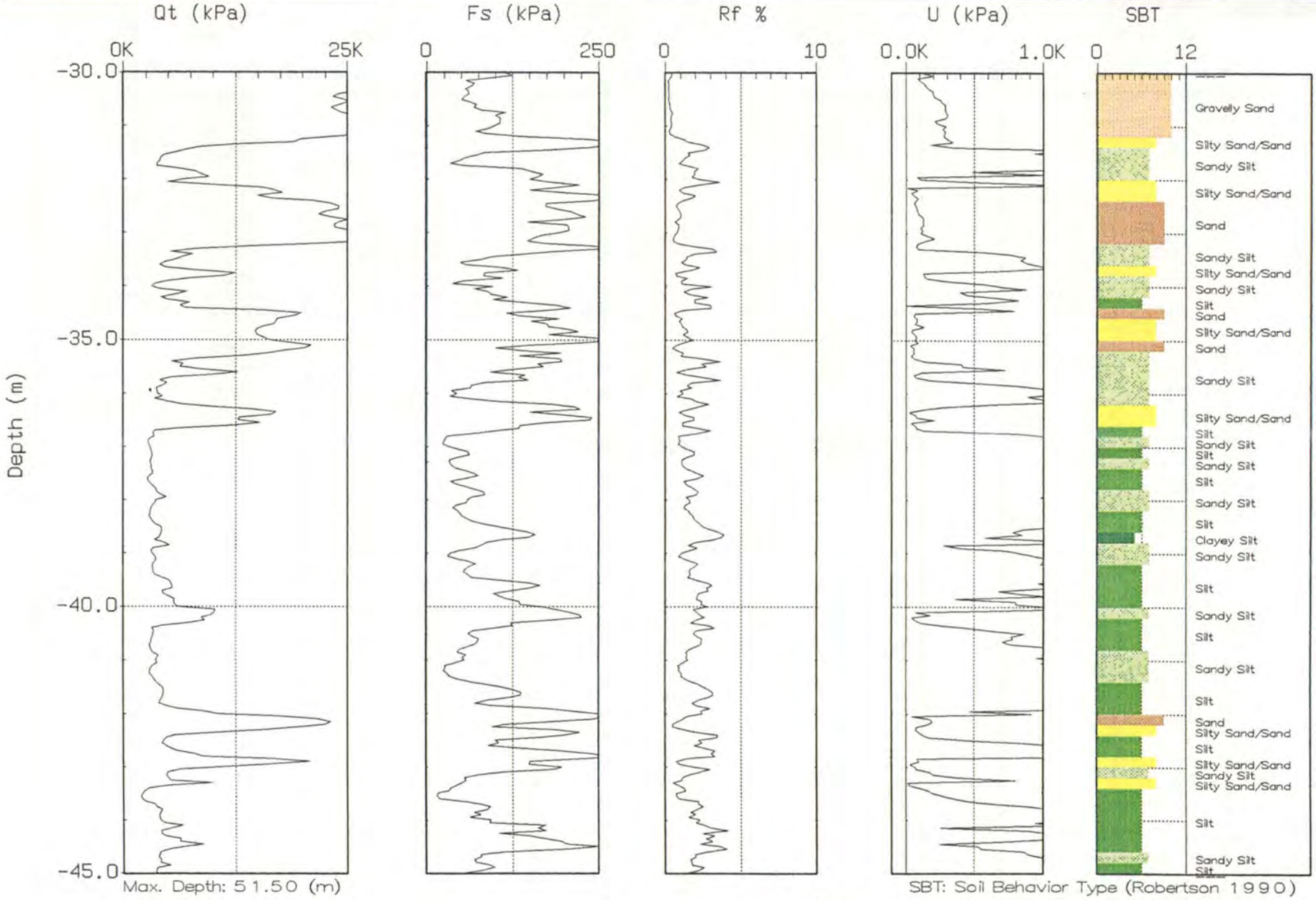
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-102

Legacy Parkway

Site: SC-11-261
Station: 5+463.933 4.38 RT
Elevation: 1285.307

Cone: 20 TON A 092
Date: 01:31:00 07:47



Max. Depth: 51.50 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

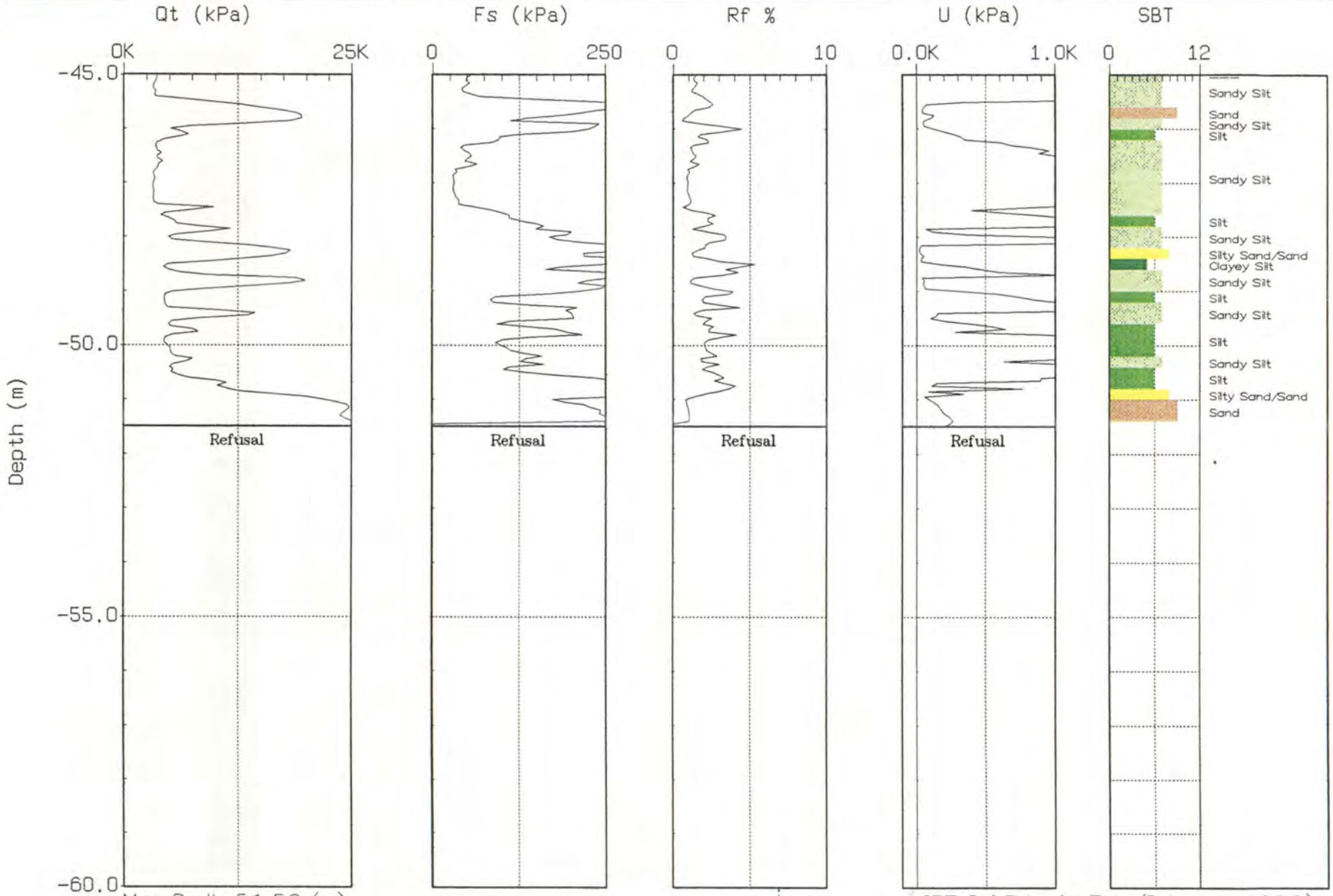
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-103

Legacy Parkway

Site: SC-11-261
Station: 5+463.933 4.38 RT
Elevation: 1285.307

Cone: 20 TON A 092
Date: 01:31:00 07:47



Max. Depth: 51.50 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-11-262
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty GRAVEL - loose, moist				SPT	330			1 2 2 4	●8							
1285		5	1		SH	457											pH WSS R
	SILT - moist, light brown		2				ML	A-4									
	Lean CLAY - very soft, moist, red mottling, frequent micaceous sand seams 3 mm thick	10	3		SPT	432	CL	A-6	0 0 1 4	●2							
		15	4		SH	356											SV
	Sandy SILT - very soft, wet, gray, frequent sand seams		5				ML	A-4									
1280	- medium stiff, moist, bluish-gray	20	6		SPT	610			1 2 2 1	●6							
		25	7		SH	457					21 *38*	17.3	10	29	9	77	SV C SG
		30	8		SPT	559			3 2 2 3	●6							
1275		35	9		SH	559					37 *24*	15.0	29				
	Fat CLAY - soft, wet, black to blackish-gray, occasional 3 mm thick sand seams	40	10		SPT	610	CH	A-7-6	0 0 3 3	●4			51	72	44		
		45	11		SH	0											
	- stiff, interbedded with silt and sand seams		12		SPT	610			3 3 8 9	●12							
		50	13		SH	0											
1270	- very stiff		14		SPT	610			8 9 10 9	●21							
		55	15		SH						62 *67*	13.6	33	61	35	99	C SG
	Silty SAND - medium dense, wet, gray	60	16		SPT	610	SM	A-2-4	0 6 14 24	●20							
		65	17														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-11-262**

Sheet 1 of 3

Logged by:	M. Hislop
Date Start:	1/26/00
Date Finish:	1/28/00
Station:	5+495.950 0.22 LT
Line:	CENTER STREET
Coordinates (m):	N 107,993.664 E 15,739.839
Elevation (m):	1286.123
Total Depth Drilled (m):	46.3
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0039B1.GPJ 5/30/00

Boring: SB-11-262
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - medium dense, wet, gray (continued)															
1265		70	21													
			22													
	- dense	75	23	SPT	305			14 15 20 23	● 32							
			24													
	- occasional poorly graded sand layers	80	25	SPT	610			8 11 28 36	● 34							
1260		85	26													
			27													
	SILT - hard, wet, light brown, with clay layers up to 0.3 m	90	28	SPT	457	ML	A-4	15 20 30 36	● 41							
		95	29	SPT	610			15 20 24 24	● 35							
			30													
	- occasional poorly graded sand layers	100	31	SPT	610			7 8 37 37	● 35							
1255		105	32													
			33													
	- very stiff, light brown	110	34	SPT	610			11 11 15 18	● 19							
		115	35													
			36													
1250	Lean CLAY - stiff, wet, light brown, occasional silt layers up to 0.15 m	120	37	SPT	610	CL	A-6	0 8 8 9	● 12							
		125	38	SPT	610			9 15 27 25	● 29							
			39													
		130		SPT					● 45							

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-11-262**

Sheet **2** of **3**

Logged by:	M. Hislop
Date Start:	1/26/00
Date Finish:	1/28/00
Station:	5+495.950 0.22 LT
Line:	CENTER STREET
Coordinates (m):	N 107,993.664 E 15,739.839
Elevation (m):	1286.123
Total Depth Drilled (m):	46.3
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

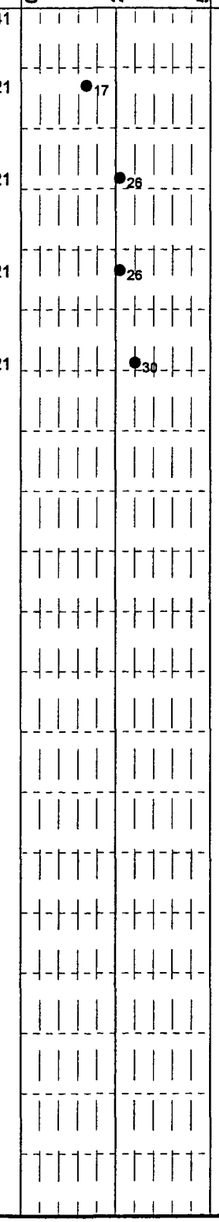
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-11-262
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - hard, wet, light brown, trace of clay seams					610	ML	A-4	8 28 38 41							
1245	Lean CLAY - very stiff, wet, gray - light brown	135	41		SPT	457	CL	A-6	7 11 15 21							
			42													
	- olive-gray, trace of sand seams up to 4 mm thick	140	43		SPT	610			10 17 23 21							
		145	44		SPT	610			11 18 22 21							
			45													
1240		150	46		SPT	610			8 20 26 21							
			47													
		155	48													
		160	49													
			50													
1235		165	51													
		170	52													
			53													
		175	54													
		180	55													
1230			56													
		185	57													
		190	58													
			59													
		195														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)



Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-11-262**

Sheet 3 of 3

Logged by:	M. Hislop
Date Start:	1/26/00
Date Finish:	1/28/00
Station:	5+495.950 0.22 LT
Line:	CENTER STREET
Coordinates (m):	N 107,993.664 E 15,739.839
Elevation (m):	1286.123
Total Depth Drilled (m):	46.3
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0038B1.GPJ 5/30/00

Boring: SB-12-263
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - stiff, moist, light gray, with light brown mottling, trace silt				SPT	254	CL	A-6	4 3 4 7	11							
1285	- wet	5	1		SH	610					62						pH WSS R
	- very soft, wet, light grayish-brown, with 6 mm seams of olive-gray silty sand	10	2		SPT	610			1 1 1 1	2							
	SILT - medium stiff, wet, dark olive-gray, with fine-grained sand, trace clay	15	3		SPT	508	ML	A-4	4 5 2 2	8							
	Lean CLAY - medium stiff, wet, dark gray, with trace of organics	20	4		SH	610	CL	A-6			37 48	13.1	38	41	22		C SG
1280			5		SPT	457			1 1 2 3	3							
	SILT - soft, wet, dark olive-gray, with mica flakes, trace clay	25	6		SH	610	ML	A-4			48						
	- stiff	30	7		SPT	559			2 6 7 7	13							
	Silty SAND - medium dense, wet, olive-gray, fine-grained	35	8		SH	610	SM	A-2-4									
1275	Sandy SILT - soft, wet, olive-gray, fine-grained sand	40	9		SPT	584	ML	A-4	3 2 2 3	4							
	Silty SAND - medium dense, wet, light brownish-gray, fine-grained sand	45	10		SH	610	SM	A-2-4									
	Lean CLAY - medium stiff, wet, dark gray, with fine-grained sand, with mica flakes	50	11		SPT	610	CL	A-6	2 3 4 6	5							
1270		55	12														
		60	13		SH	381					52 57	16.5	22	42	23	94	
		65	14														

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-263**

Sheet 1 of 4

Logged by:	S. Lewis
Date Start:	1/31/00
Date Finish:	2/4/00
Station:	70+189.825 4.65 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.423 E 16,081.296
Elevation (m):	1286.517
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cat Head
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-12-263
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - medium stiff, wet, dark gray, with fine-grained sand, with mica flakes (continued)															
1265	- olive-gray to light brown, mottled, 25 mm seam of light brown lean clay	70	21 22		SPT	483			3 5 6 8							
		75	23 24													
	- light gray	80	25		SH	610				38						
1260		85	26 27													
	- light olive-gray	90	28		SPT	508			4 4 8 10							
		95	29 30													
	Poorly Graded SAND with silt - medium dense, wet, gray, fine to coarse-grained, with layers of fine to medium-grained, with mica flakes, shell fragments	100	31		SPT	559	SP-SM	A-3	4 14 24 25							
1255	SILT - medium stiff, wet, gray, with light brown mottling, with trace organics	105	32 33		SPT	610	ML	A-4	2 5 7 10							
		110	34													
	Sandy SILT - wet, gray, fine-grained sand	115	35 36		SH	330	ML	A-4		57						
1250		120	37													
	SILT - medium stiff, wet, dark gray, with mica flakes, fine-grained	125	38 39		SPT	610	ML	A-4	3 6 7 6							
		130														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

0 25 50

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-263**

Sheet **2** of **4**

Logged by:	S. Lewis
Date Start:	1/31/00
Date Finish:	2/4/00
Station:	70+189.825 4.65 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.423 E 16,081.296
Elevation (m):	1286.517
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cat Head
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z03SB1.GPJ 8/30/00

Boring: SB-12-263
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - medium stiff, wet, dark gray, with mica flakes, fine-grained (continued)															
1245	- stiff, wet, dark olive-gray	135	41		SH	610				131 67	15.1	28			99	C SG
		140	42													
			43													
		145	44		SPT	610	SP-SM	A-3	13 23 33 35							
	Poorly Graded SAND with silt - medium dense, wet, light gray, fine to medium-grained sand, with gray silt at top		45													
	Lean CLAY - very stiff, wet, light olive-gray, with white mottling	150	46		SPT	610	CL	A-6	5 8 13 17							
1240		155	47													
			48													
	- chalky light gray	160	49		SH	457										
		165	50													
			51													
1235	Silty SAND - loose, wet, olive-gray, fine to medium-grained sand, with mica flakes, with silt layers	170	52		SPT		SM	A-2-4	4 5 7 10							
	SILT - very stiff, wet, olive-gray, with fine-grained sand, mica flakes, shell fragments	175	53		SPT	610	ML	A-4	8 18 23 35							
			54													
		180	55													
			56													
1230		185	57		SH	610										
	Silty SAND - wet, dark gray, fine-grained, with mica flakes						SM	A-2-4								
	Poorly Graded SAND with silt - medium dense, wet, brown-gray, fine to medium-grained	190	58		SPT	457	SP-SM	A-3	16 35 50							
			59													
	SILT - very stiff, wet, mottled grayish-brown and light olive-gray, with mica flakes	195			SPT	610	ML	A-4	10 18 23 26							

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-263**

Sheet 3 of 4

Logged by:	S. Lewis
Date Start:	1/31/00
Date Finish:	2/4/00
Station:	70+189.825 4.65 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.423 E 16,081.296
Elevation (m):	1286.517
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cat Head
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B1.GPJ 5/30/00

Boring: SB-12-263
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - very stiff, wet, mottled grayish-brown and light olive-gray, with mica flakes (continued)																
	- medium stiff, gray, with fine-grained sand	200	61		SPT	610			5 6 15 18	●8							
1225																	
			62														
		205															
			63														
		210	64														
			65														
		215															
			66														
1220																	
		220	67														
			68														
		225															
			69														
		230	70														
			71														
1215		235															
			72														
		240	73														
			74														
		245															
			75														
			76														
		250															
1210			77														
		255															
			78														
			79														
		260															

UTDOT Z003SB1.GPJ 8/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-263**

Sheet 4 of 4

Logged by:	S. Lewis
Date Start:	1/31/00
Date Finish:	2/4/00
Station:	70+189.825 4.65 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.423 E 16,081.296
Elevation (m):	1286.517
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cat Head
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

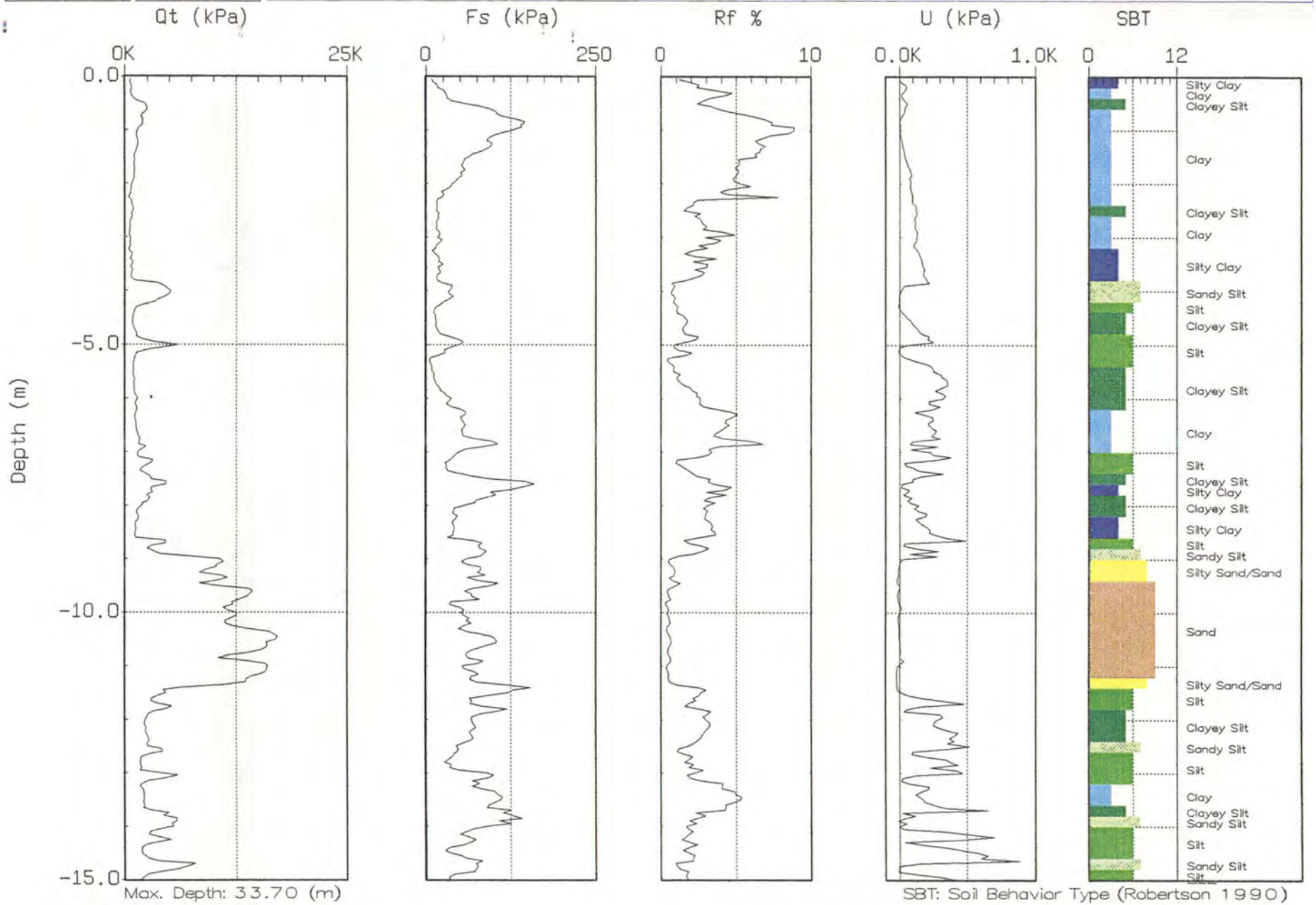
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-12-264
Station: 70+224.505 2.59 LT
Elevation: 1286.546

Cone: 20 TON A 058
Date: 01:26:00 09:47



Max. Depth: 33.70 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

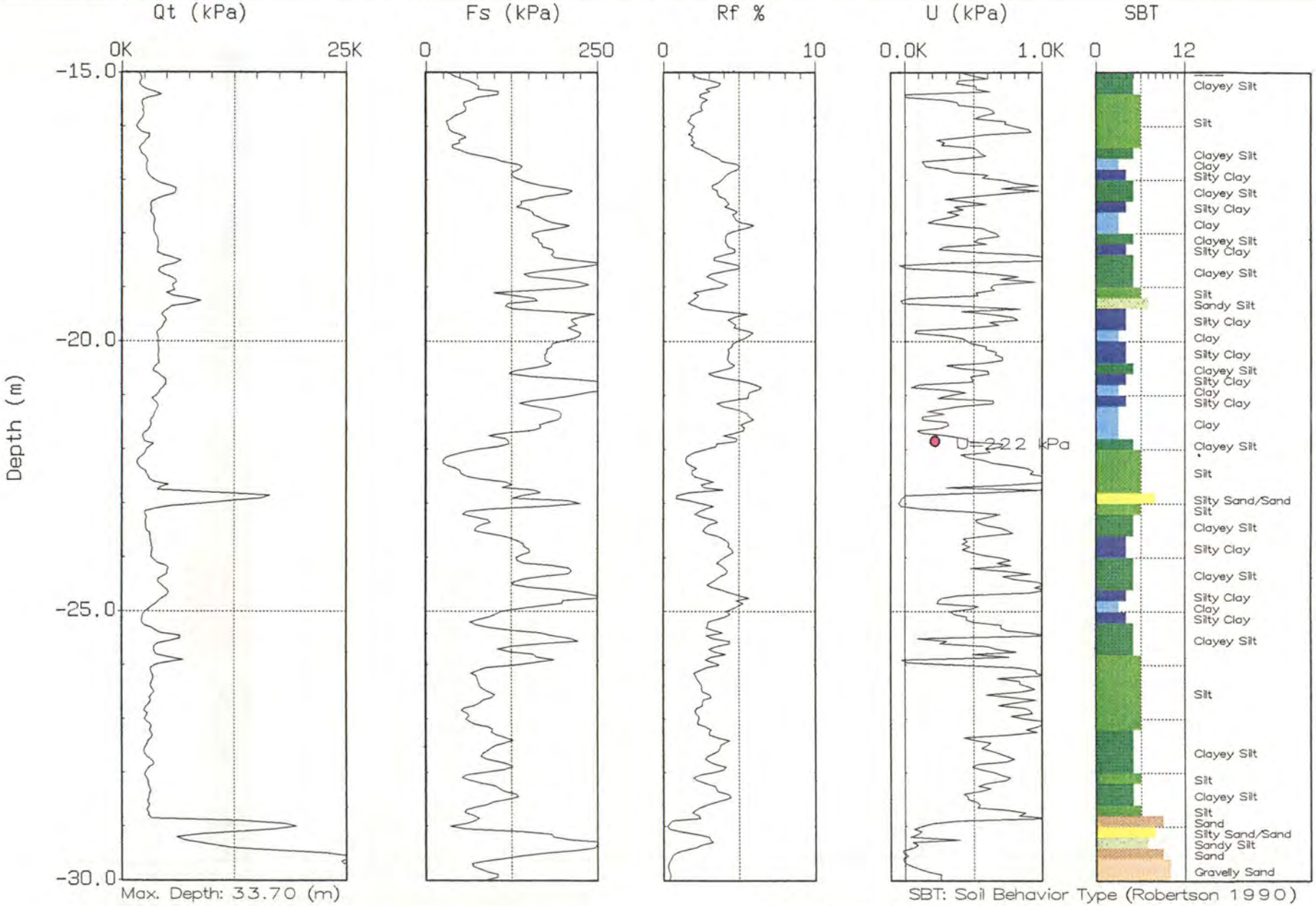
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-112

Legacy Parkway

Site: SC-12-264
Station: 70+224.505 2.59 LT
Elevation: 1286.546

Cone: 20 TON A 058
Date: 01:26:00 09:47



Max. Depth: 33.70 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

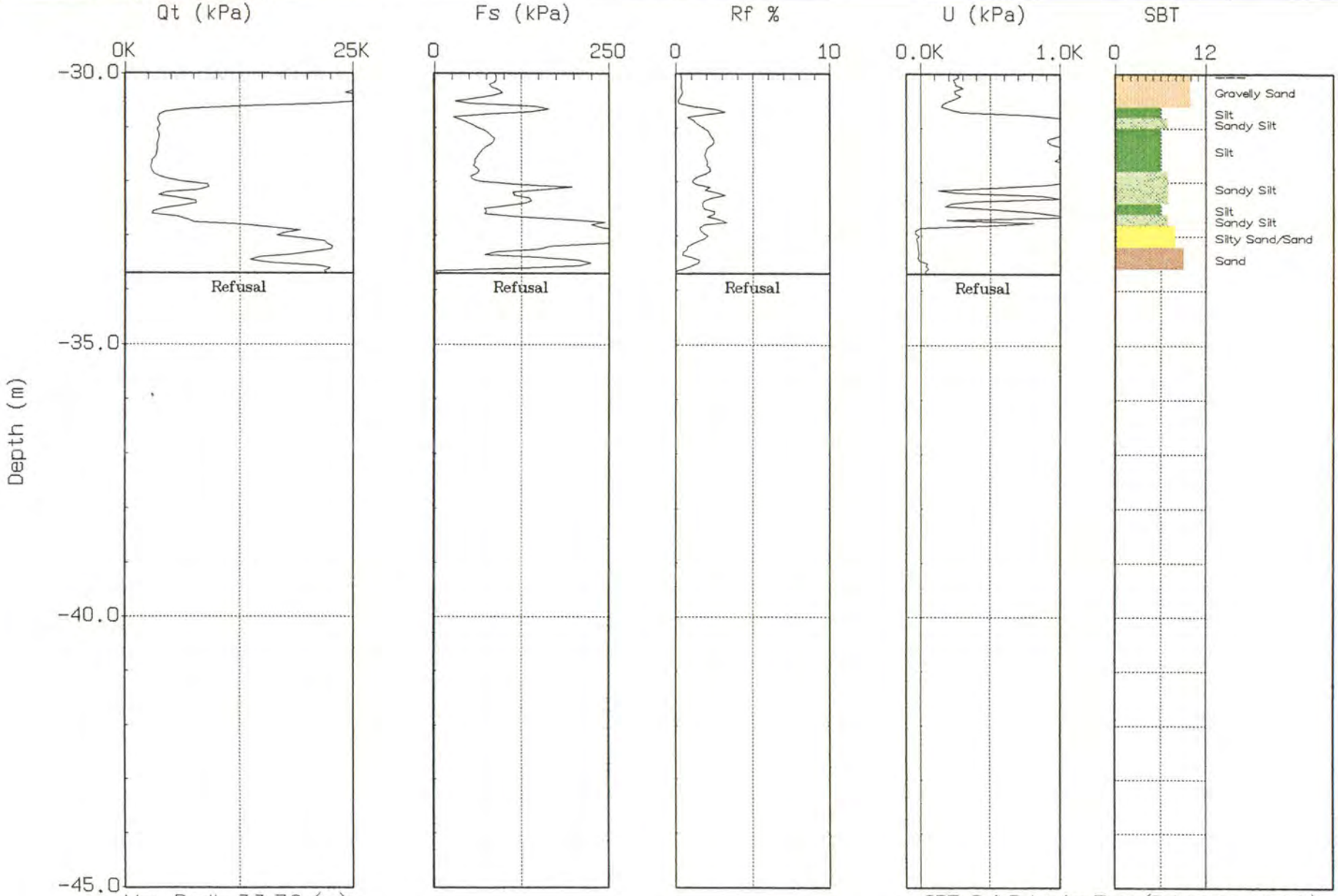
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-113

Legacy Parkway

Site: SC-12-264
Station: 70+224.505 2.59 LT
Elevation: 1286.546

Cone: 20 TON A 058
Date: 01:26:00 09:47



Max. Depth: 33.70 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-114

Boring: SB-12-265
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - stiff, moist, dark brown, with organics		1		SPT	457	ML	A-4	2 3 3 5	10							
1285	Lean CLAY - stiff, wet, light gray to light brown, mottled, occasional fine-grained sand	5	2		SH	610	CL	A-6			67						pH WSS R
	- soft, with trace organics	10	3		SPT	584			1 2 2 2	4							
	- stiff	15	4 5		SH	610					83 *4*	15.7	27	39	17	97	C SG
	SILT - medium stiff, wet, olive-gray	20	6		SPT	559	ML	A-4	1 3 3 4	8							
1280	- with sand	25	7 8		SH	610											
	- light brown to olive-gray	30	9 10		SPT	584			2 3 3 6	6							
1275		35	11		SH	483											
		40	12 13		SPT	610			2 3 2 4	5							
	- grayish-brown	45	14		SH	610					62						
	- soft, 10 mm seam of fine sand	50	15 16		SPT	610			2 2 3 4	4							
1270		55	17														
	Lean CLAY - wet, light grayish-brown	60	18		SH	508	CL	A-6									
	SILT - wet, olive-gray, with occasional fine-grained sand and trace of clay	65	19				ML	A-4									

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-265**

Sheet 1 of 4

Logged by:	W. Lewis
Date Start:	1/22/00
Date Finish:	1/26/00
Station:	70+260.053 3.46 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.116 E 16,151.533
Elevation (m):	1286.640
Total Depth Drilled (m):	77.1
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-12-265
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - soft, wet, light brown with trace organics and light gray mottling						CL	A-6									
1265		70	21		SPT	610			4 3 3 3	●4							
		75	22														
			23														
		80	24		SH	533					57						
			25														
1260		85	26														
	- stiff	90	27		SPT	610			4 6 9 11	●10							
			28														
		95	29														
			30														
	Silty CLAY - stiff, wet, gray, trace of organics	100	31		SH	610	CL-ML	A-7-6			136 *43*	16.1	26	43	17	99	C SG
1255		105	32														
			33														
	SILT - medium stiff, wet, light olive-gray with white chalky mottling	110	34		SPT	610	ML	A-4	3 4 5 7	●5							
		115	35														
			36														
	Poorly Graded SAND - medium dense, wet, gray	120	37		SH	508	SP	A-3									
1250	Lean CLAY - stiff, wet, mottled light brown to light gray	125	38		SPT	610	CL	A-6	3 4 16 16	●10							
	Poorly Graded SAND - medium dense, wet, dark gray		39				SP	A-3									
		130			SPT					●15							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-265**

Sheet **2** of **4**

Logged by:	W. Lewis
Date Start:	1/22/00
Date Finish:	1/26/00
Station:	70+260.053 3.46 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.116 E 16,151.533
Elevation (m):	1286.640
Total Depth Drilled (m):	77.1
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-12-265
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT with sand - very stiff, wet, dark gray-brown					610	ML	A-4	8 12 18 25								
1245	Lean CLAY - wet, gray	135	41				CL	A-6									
	Silty SAND - medium dense, wet, light gray, occasional poorly graded sand layers	140	42		SH	356	SM	A-2-4									
	- 25 mm clay layer	145	43		SPT	533			11 34 25 26	28							
	SILT - stiff, wet, olive-gray, with minor chalky white mottling	150	44		SPT	508	ML	A-7-6	4 8 13 26	10							
1240	- gray	155	45		SH	381					110 *62*	15.1	27	44	17	100	C SG
1235	- medium stiff, with occasional silty sand layers	160	46		SPT	610			4 5 15 14	8							
		165	47														
		170	48														
		175	49														
		180	50		SH	508											
1230		185	51														
	Lean CLAY - stiff, wet, light brown, 0.3 m poorly graded sand layer	190	52		SPT	584	CL	A-6	8 17 16 15	12							
		195	53														
			54														
			55														
			56														
			57														
			58														
			59														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-265**

Sheet **3** of **4**

Logged by:	W. Lewis
Date Start:	1/22/00
Date Finish:	1/26/00
Station:	70+260.053 3.46 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.116 E 16,151.533
Elevation (m):	1286.640
Total Depth Drilled (m):	77.1
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-12-265
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (*torvane in italics*)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - stiff, wet, light brown (continued)																
1225		200	61		SH	457											
		205	62														
			63														
	Silty SAND - dense, wet, light grayish-brown						SM	A-2-4									
		210	64		SPT	610			15 27 12 16	●13							
	Lean CLAY - stiff, wet, dark gray, with fine-grained sand seams						CL	A-6									
			65														
		215	66														
1220		220	67		SH	356											
			68														
		225	69														
	- medium stiff, light grayish-brown with occasional olive-gray coloring	230	70		SPT	610			6 10 14 20	●8							
			71														
1215		235	72														
		240	73		SH	381					99 *120*	16.4	26	39	16	96	C SG
			74														
		245	75														
		250	76		SPT	432			11 22 50/ 125mm								
1210	- very stiff, light olive gray		77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-12-265**

Sheet **4** of **4**

Logged by:	W. Lewis
Date Start:	1/22/00
Date Finish:	1/26/00
Station:	70+260.053 3.46 LT
Line:	500 SOUTH
Coordinates (m):	N 112,713.116 E 16,151.533
Elevation (m):	1286.640
Total Depth Drilled (m):	77.1
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-13-304
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND with gravel - medium dense, moist, yellowish-brown		1		SPT	610			5 4 3 3	14							
	Lean CLAY - stiff, moist, gray to yellowish-brown, with frequent layers of silt to 25 mm	5	2		P	559	CL	A-7-6			53						pH WSS R
		10	3		SPT	610			3 3 4 4	11							
		15	5		P	559					25 57	14.4	33	45	24		C SG
1280	- medium stiff, gray	20	6		SPT	610			2 2 1 2	5							
		25	8		P	508											
	Silty SAND - loose, wet, gray	30	9		SPT	610	SM	A-2-5	0 0 0 0	0							
	Lean CLAY - very soft, wet, gray		10				CL	A-6									
1275	- stiff	35	11		P	584					48						
	- very soft, with 50 mm layer of fine-grained sand	40	12		SPT	610			0 0 0 0	0							
	Silty SAND		13				SM	A-2-4									
	Lean CLAY - soft, wet, gray	45	14		P	610	CL	A-6			48						
1270	Silty SAND - medium dense, wet, gray - layer of lean clay 150 mm thick	50	15		SPT	610	SM	A-2-5	8 8 6 5	16							
		55	17														
		60	18		SPT	457			12 24 44								
		65	19														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-304**

Sheet 1 of 4

Logged by:	J. Rajek
Date Start:	1/25/00
Date Finish:	1/27/00
Station:	6013+183.023 12.24 RT
Line:	D MAINLINE
Coordinates (m):	N 116,462.617 E 19,080.707
Elevation (m):	1285.101
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-13-304
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0–25–50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - soft, moist, gray				SPT	610	CL	A-6	2 3 4 4								
		70	21														
			22														
	Silty SAND - medium dense, wet, gray	75	23		SH	559	SM	A-2-4									
			24														
	- medium dense, frequent silt and clay layers	80			SPT	610			6 15 15 8	●28							
1260			25														
		85	26														
			27														
	Sandy CLAY - medium dense, wet, gray	90			P	686	CL	A-6			44 *29*	16.0	28	34	14	85	C SG
			28														
		95	29														
			30														
1255	Silty SAND - wet, gray	100			BAG		SM	A-2-5									
			31														
	- medium dense	105	32		SPT	457			8 9 13	●18							
	Lean CLAY - wet, gray						CL	A-6									
			33														
	Silty SAND - medium dense, wet, gray, fine-grained	110			SPT	457	SM	A-2-5	6 10 9	●15							
			34														
1250		115	35														
			36														
	Sandy Lean CLAY - very stiff, wet, gray	120					CL	A-6									
			37		SPT	610			7 10 11 10	●16							
		125	38														
			39														
		130			SPT					●13							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-304**

Sheet **2** of **4**

Logged by:	J. Rajek
Date Start:	1/25/00
Date Finish:	1/27/00
Station:	6013+183.023 12.24 RT
Line:	D MAINLINE
Coordinates (m):	N 116,462.617 E 19,080.707
Elevation (m):	1285.101
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

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SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-13-304
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy Lean CLAY - stiff, wet, gray (continued)								7 8 10 10								
		135	41														
			42														
	- medium stiff	140	43		P	584					29						
		145	44														
1240			45														
	- stiff	150	46		SPT	610			4 10 7 8	10							
		155	47														
			48														
		160	49		SH	0											
	Lean CLAY with sand - stiff, wet, gray, fine-grained sand				SPT	457	CL	A-6	6 10 13	13							
1235		165	50														
			51														
		170	52		P	610					73	14.1	33				
		175	53														
			54														
	Silty SAND - wet, gray	180	55		BAG		SM	A-2-5									
1230			56														
	- medium dense	185	57		SPT	457			7 10 12	11							
	- dense	190	58		SPT	610			8 23 40 39	31							
		195	59														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-304**

Sheet 3 of 4

Logged by:	J. Rajek
Date Start:	1/25/00
Date Finish:	1/27/00
Station:	6013+183.023 12.24 RT
Line:	D MAINLINE
Coordinates (m):	N 116,462.617 E 19,080.707
Elevation (m):	1285.101
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-13-304
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 ○ (Greater than 50 Blows) 0 25 50	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - dense, wet, gray (continued)																
	Lean CLAY - medium stiff, wet, gray	200	61		SPT	610	CL	A-6	5 7 8 8	● 7							
			62														
		205															
			63														
		210	64														
1220			65														
		215	66														
		220	67														
			68														
		225	69														
1215		230	70														
			71														
		235	72														
		240	73														
			74														
1210		245	75														
		250	76														
			77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-304**

Sheet 4 of 4

Logged by:	J. Rajek
Date Start:	1/25/00
Date Finish:	1/27/00
Station:	6013+183.023 12.24 RT
Line:	D MAINLINE
Coordinates (m):	N 116,462.617 E 19,080.707
Elevation (m):	1285.101
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

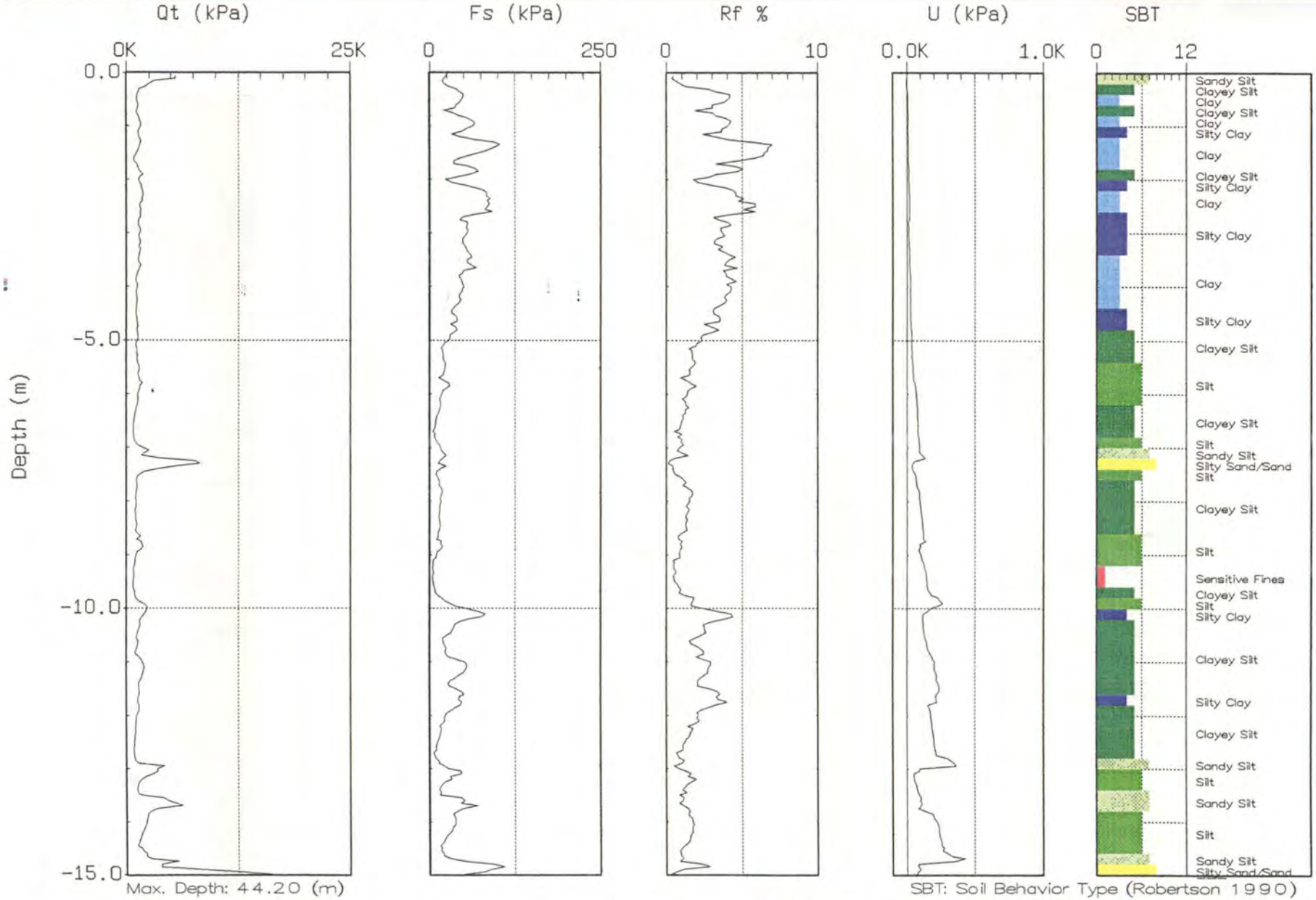
BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway

Site: SC-13-305
Station: 6013+215.305 14.45 RT
Elevation: 1284.630

Cone: 20 TON A 070
Date: 02:04:00 08:11



Max. Depth: 44.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

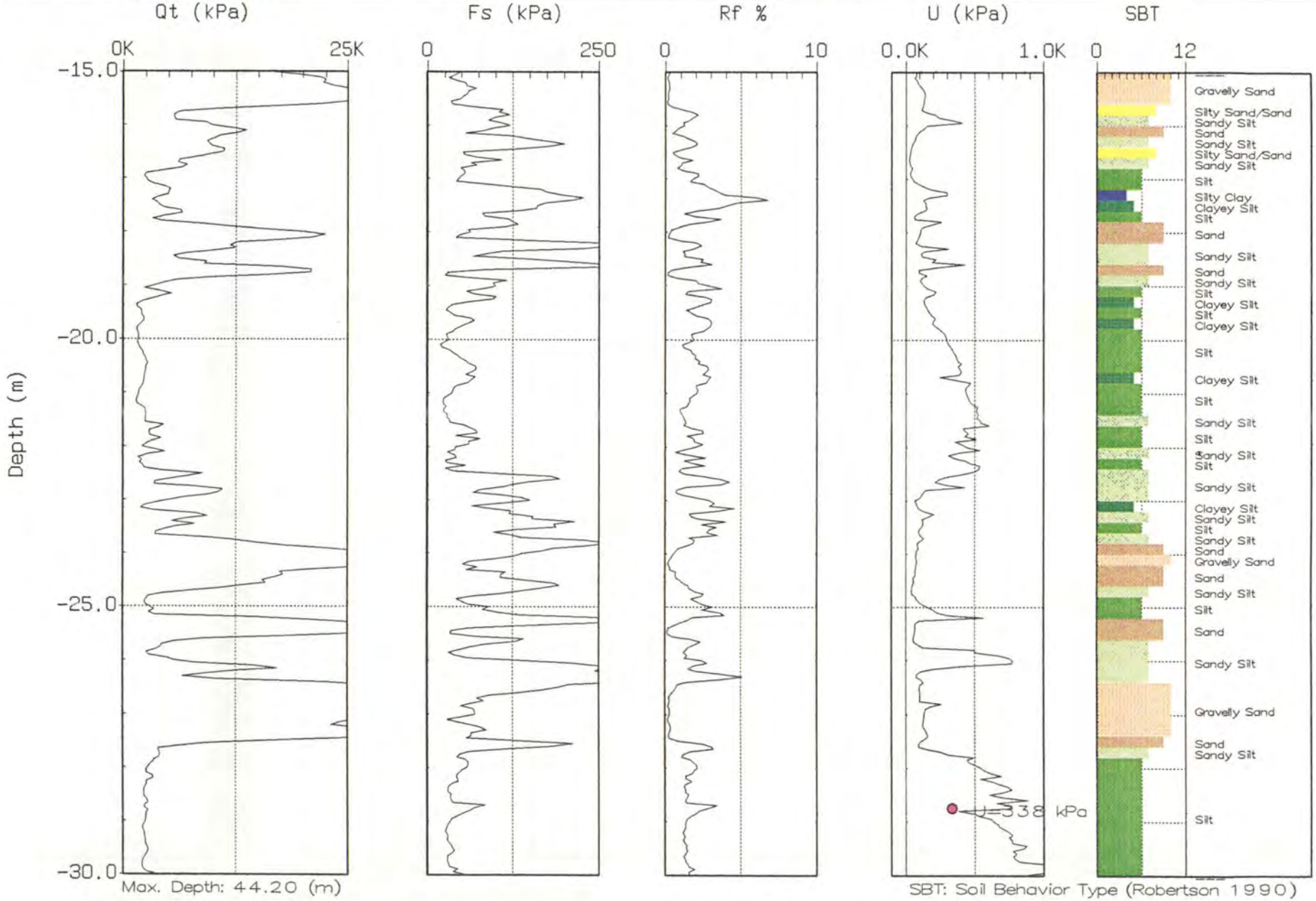
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-123

Legacy Parkway

Site: SC-13-305
Station: 6013+215.305 14.45 RT
Elevation: 1284.630

Cone: 20 TON A 070
Date: 02:04:00 08:11



Max. Depth: 44.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

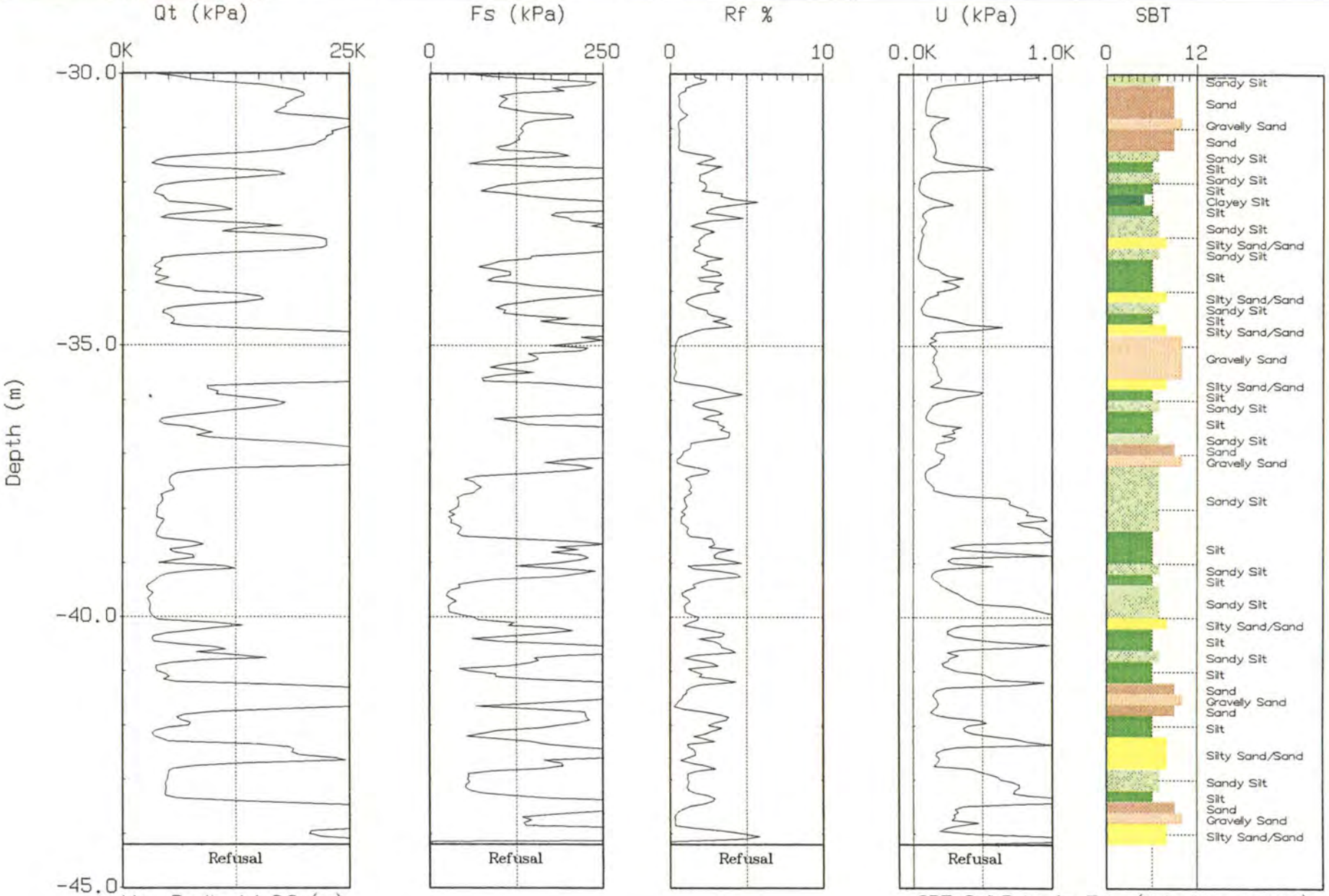
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-124

Legacy Parkway

Site: SC-13-305
Station: 6013+215.305 14.45 RT
Elevation: 1284.630

Cone: 20 TON A 070
Date: 02:04:00 08:11



Max. Depth: 44.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

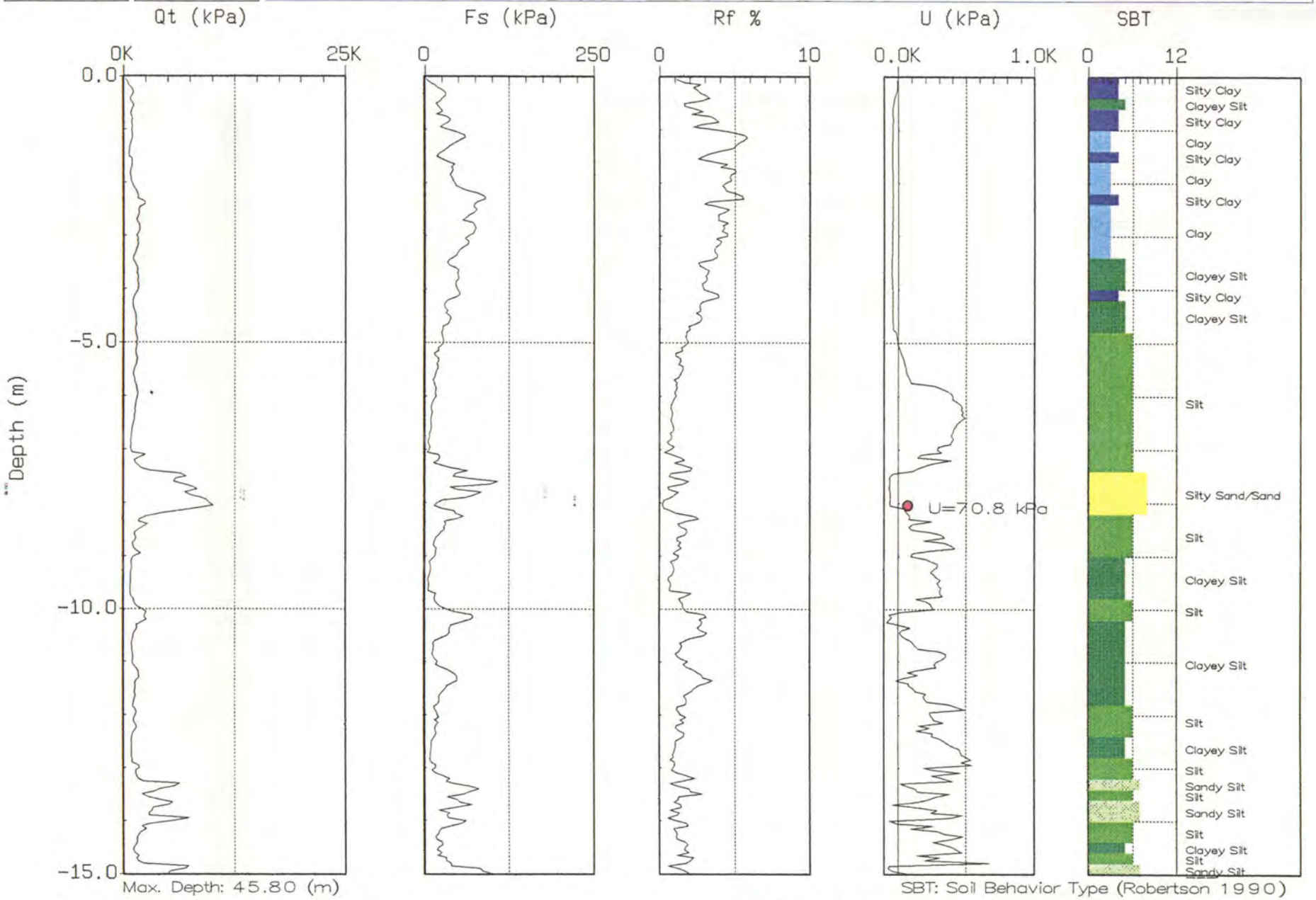
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-125

Legacy Parkway

Site: SC-13-306
Station: 6013+251.717 15.39 RT
Elevation: 1284.641

Cone: 20 TON A 058
Date: 01:18:00 08:43



Max. Depth: 45.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

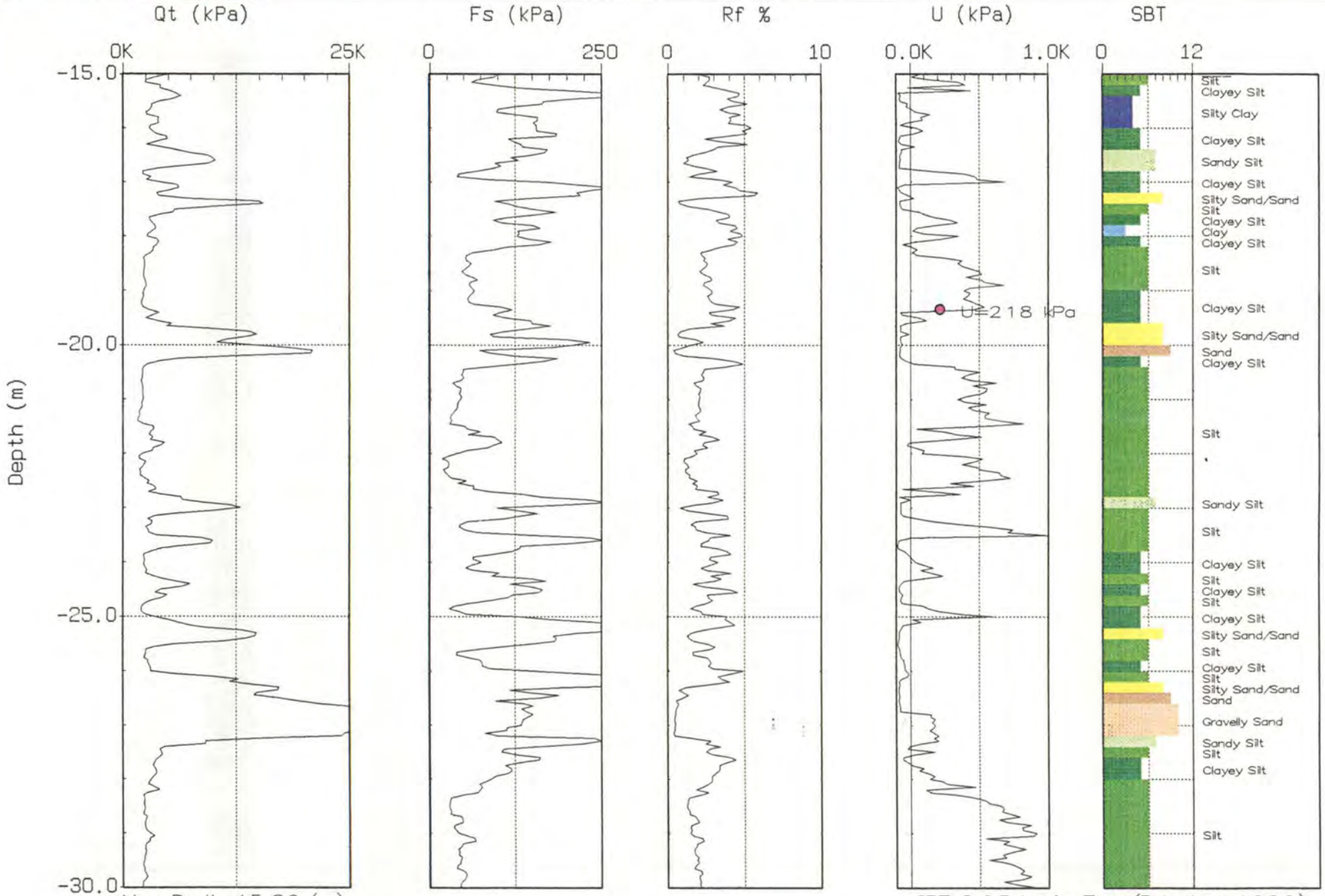
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-126

Legacy Parkway

Site: SC-13-306
Station: 6013+251.717 15.39 RT
Elevation: 1284.641

Cone: 20 TON A 058
Date: 01:18:00 08:43



Max. Depth: 45.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

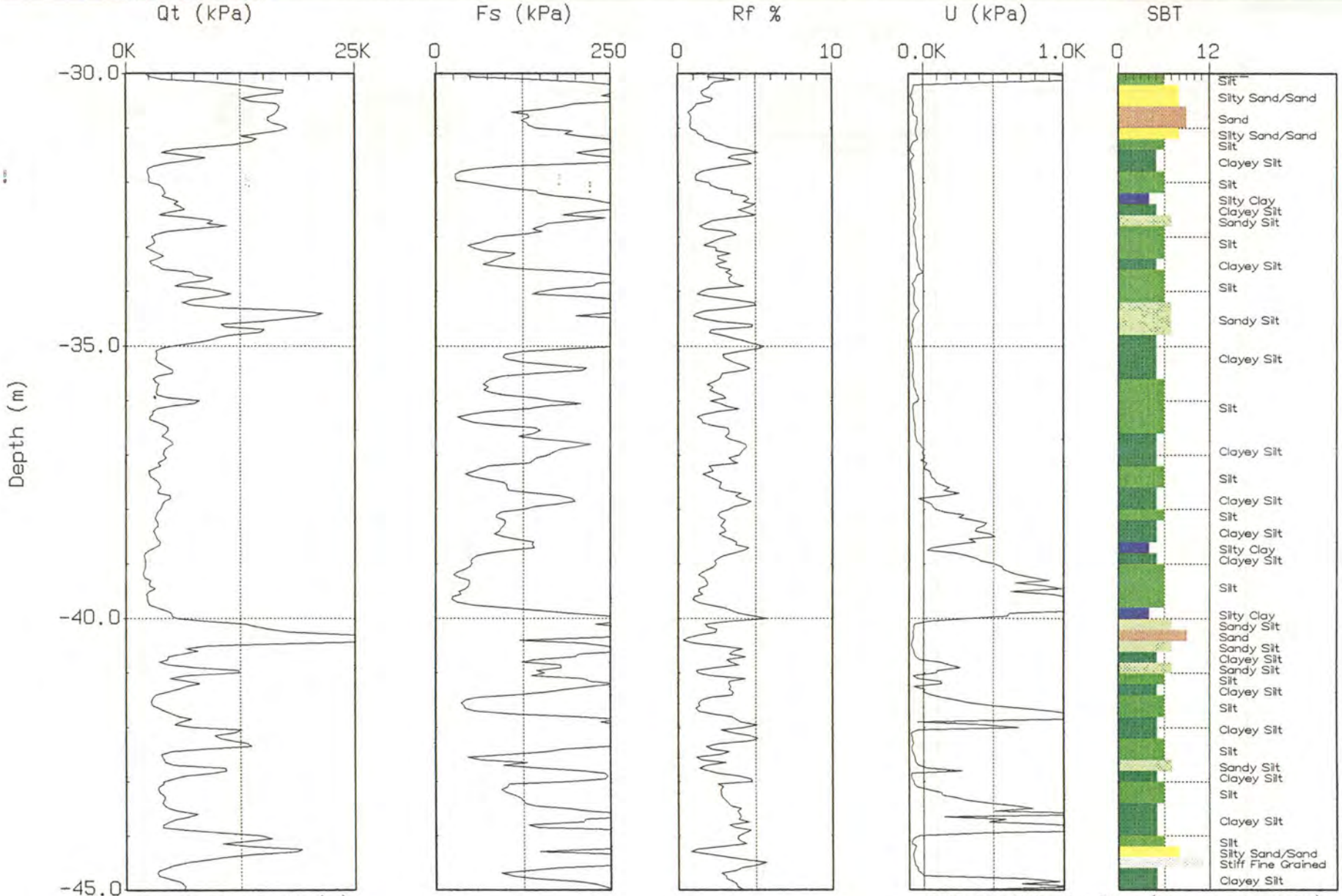
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-127

Legacy Parkway

Site: SC-13-306
Station: 6013+251.717 15.39 RT
Elevation: 1284.641

Cone: 20 TON A 058
Date: 01:18:00 08:43



Max. Depth: 45.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

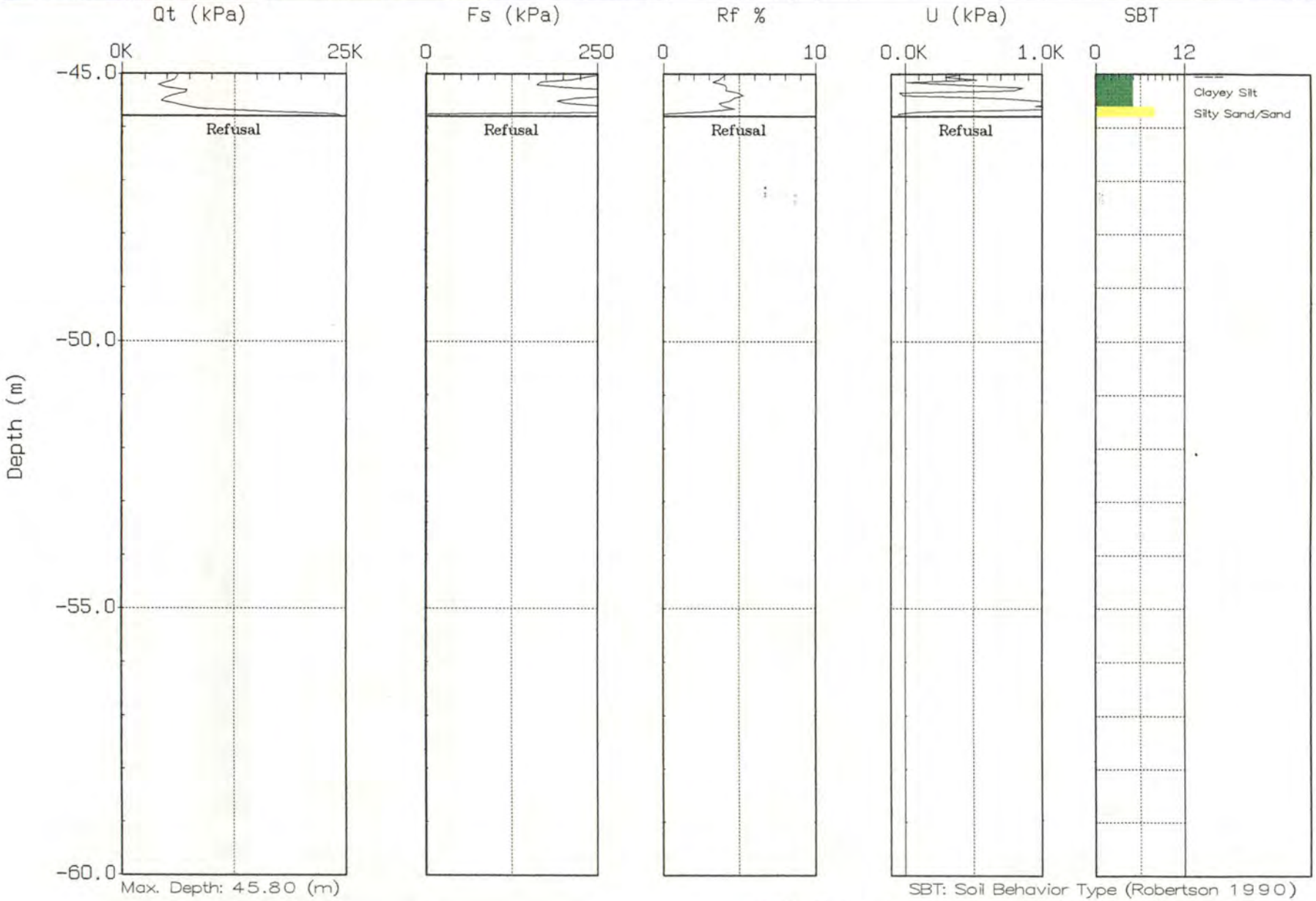
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-128

Legacy Parkway

Site: SC-13-306
Station: 6013+251.717 15.39 RT
Elevation: 1284.641

Cone: 20 TON A 058
Date: 01:18:00 08:43



Max. Depth: 45.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

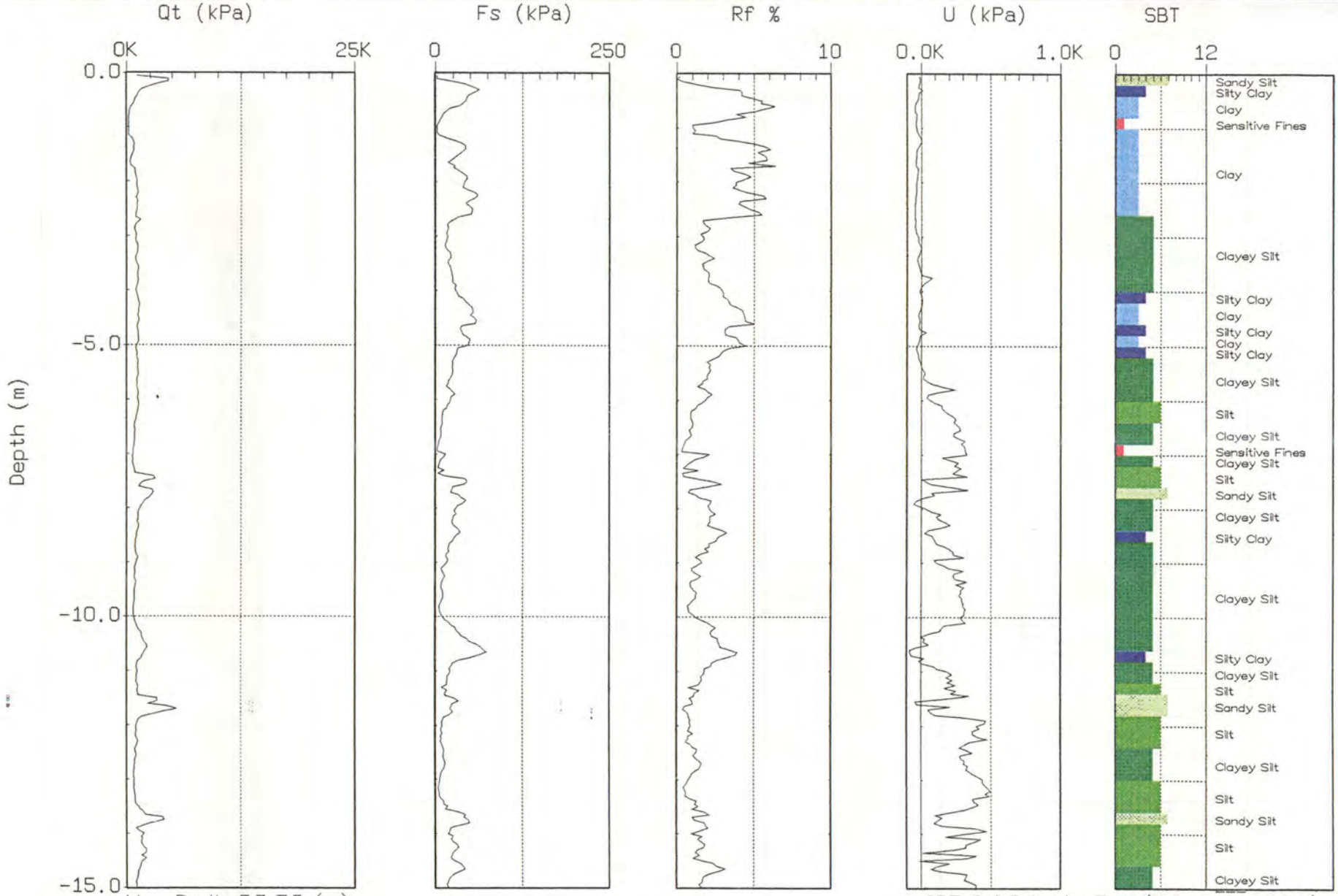
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-129

Legacy Parkway

Site: SC-13-307
Station: 6013+292.924 23.04 RT
Elevation: 1285.026

Cone: 20 TON A 058
Date: 01:14:00 08:34



Max. Depth: 53.75 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

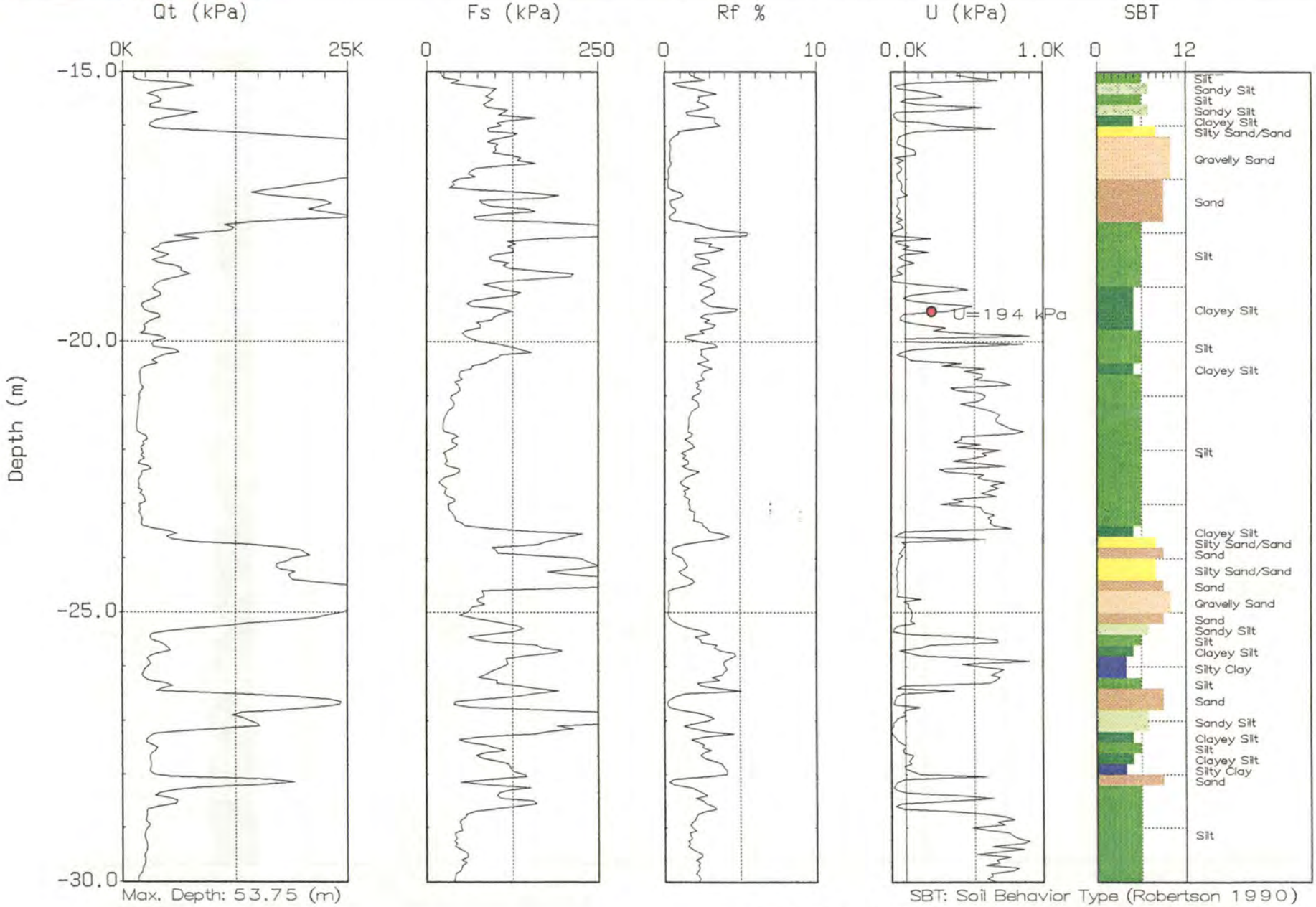
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-130

Legacy Parkway

Site: SC-13-307
Station: 6013+292.924 23.04 RT
Elevation: 1285.026

Cone: 20 TON A 058
Date: 01:14:00 08:34



Max. Depth: 53.75 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

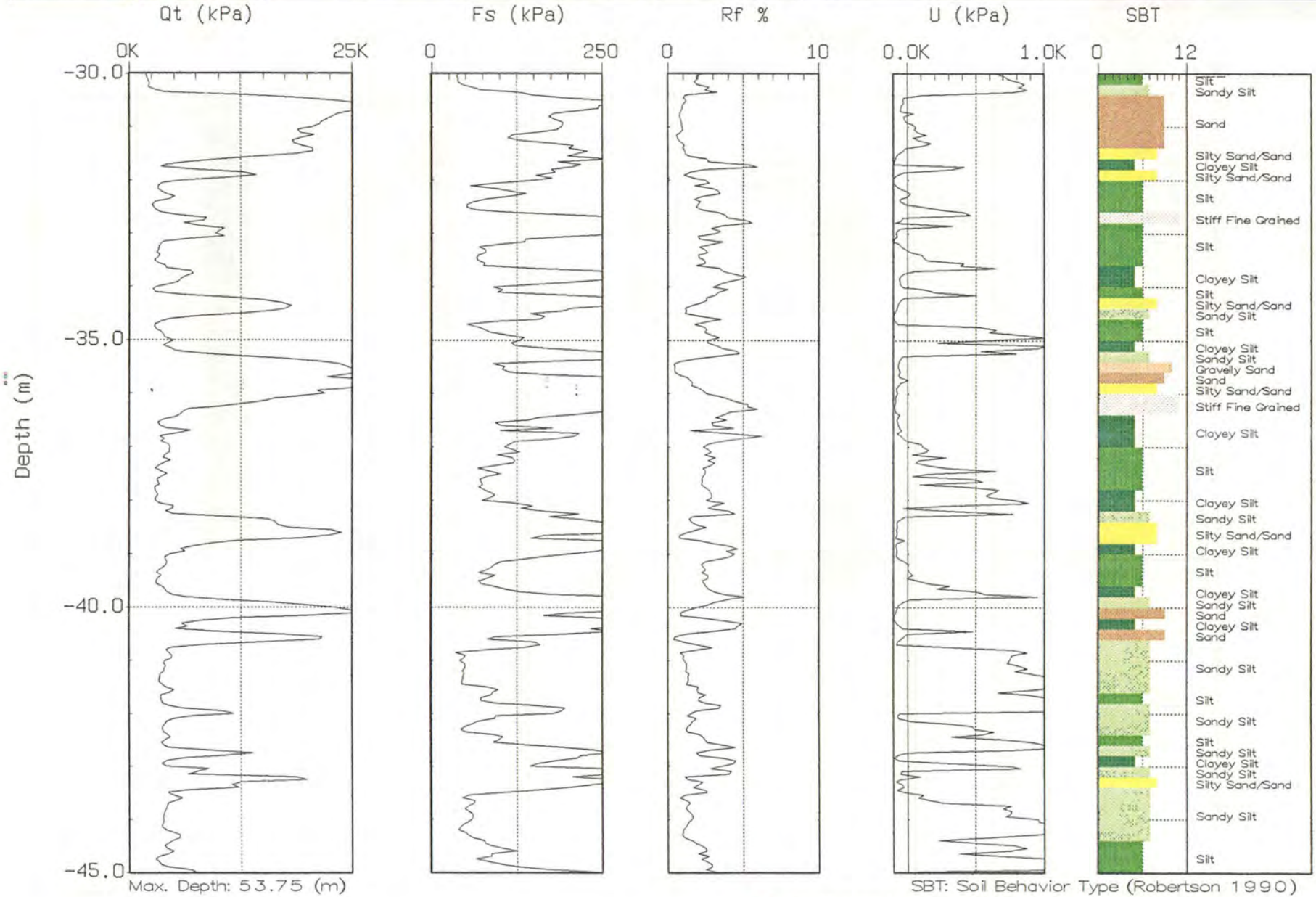
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-131

Legacy Parkway

Site: SC-13-307
Station: 6013+292.924 23.04 RT
Elevation: 1285.026

Cone: 20 TON A 058
Date: 01:14:00 08:34



Max. Depth: 53.75 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

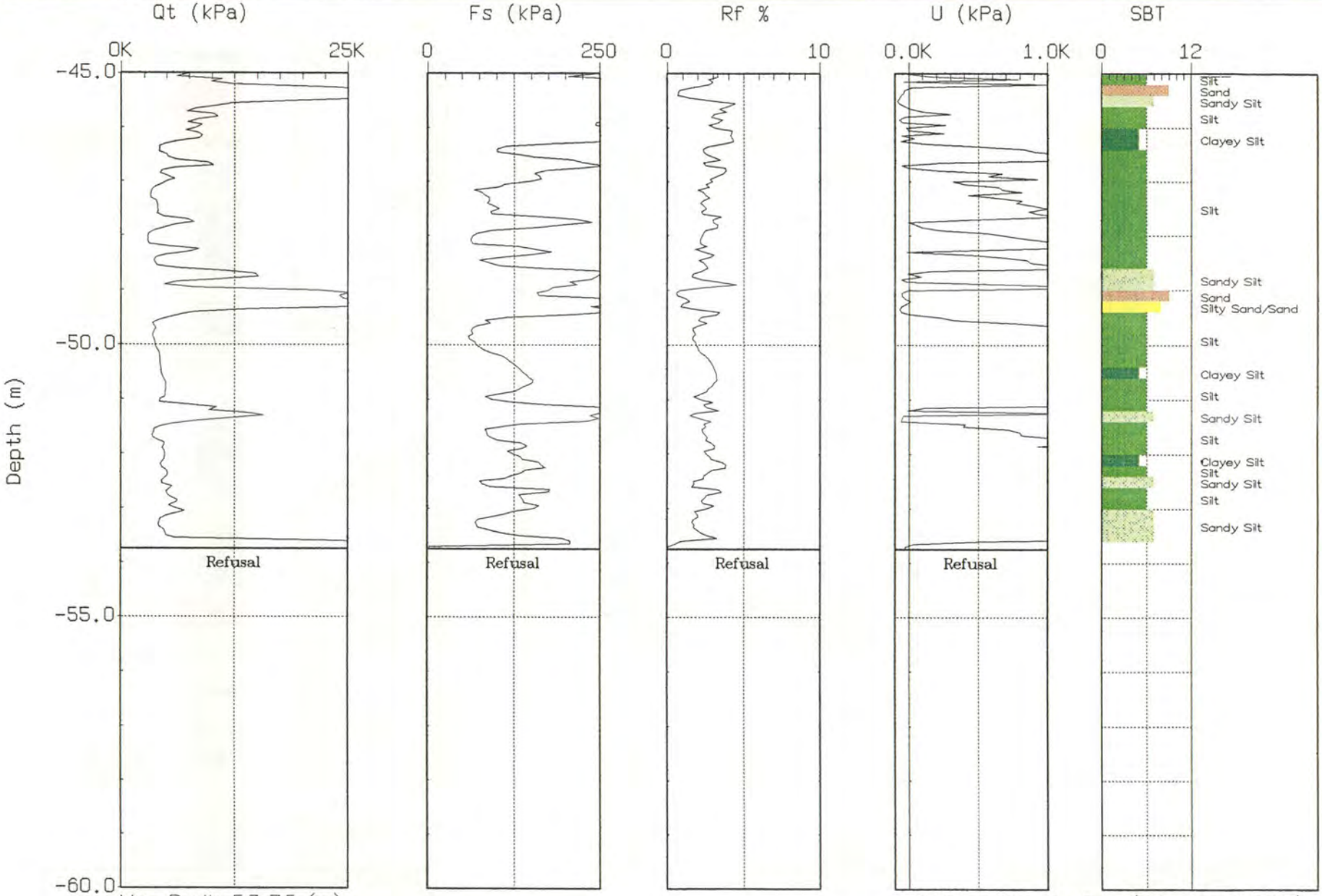
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-132

Legacy Parkway

Site: SC-13-307
Station: 6013+292.924 23.04 RT
Elevation: 1285.026

Cone: 20 TON A 058
Date: 01:14:00 08:34



Max. Depth: 53.75 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-13-308
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	FILL: Silty SAND - medium dense, moist, yellowish-brown				SPT	610			5 5 5 6	20							
		5	1		P	584						15.6	26				pH WSS R C SG
			2														
	Elastic SILT - stiff, wet, gray to reddish-yellow						MH	A-7-5									
		10	3		SPT	610			2 3 4 3	11							
			4														
		15	5		P	559											
1280																	
	- very soft	20	6		SPT	610			0 0 1 2	2							
			7														
		25	8		P	0											
					P	610					9	12.8	42	56	24	97	
		30	9		SPT	610			0 0 0 0	0							
1275			10														
	- with sand lenses	35	11		P	508											
		40	12		SPT	610			0 0 0 2	0							
			13														
		45	14		P	584											
1270			15														
	Silty SAND - medium dense, wet, blackish-gray	50			SPT	610	SM	A-2-4	4 4 19 14	27							
			16														
		55	17														
			18														
	Sandy Lean CLAY - stiff, wet, gray, fine-grained sands	60			P	610	CL	A-6				16.2	23				C SG
		65	19														

Legend: ● SPT $(N_1)_{60}$; ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-308**

Sheet 1 of 4

Logged by:	J. Rajek
Date Start:	1/9/00
Date Finish:	1/12/00
Station:	6013+313.168 14.02 RT
Line:	D MAINLINE
Coordinates (m):	N 116,561.569 E 19,169.000
Elevation (m):	1285.134
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0039B1.GPJ 8/30/00

Boring: SB-13-308
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265	Sandy Lean CLAY - stiff, wet, gray, fine-grained sands (continued)																
	Lean CLAY - medium stiff, wet, gray	70	21		SPT	610	CL	A-6	0 3 3 5	● 6							
			22														
	Silty SAND - wet, gray	75	23				SM	A-2-4									
			24														
		80			P	0											
1260			25		P	584											
		85	26														
			27														
	- medium dense	90			SPT	610			5 9 11 19	● 15							
	Lean CLAY - very stiff, wet, gray		28				CL	A-6									
		95	29														
1255			30														
	- with sand	100	31		P	610											
		105	32														
			33														
	Silty SAND - medium dense, wet, gray, fine to coarse-grained	110	34		SPT	610	SM	A-2-4	7 7 8 15	● 11							
1250		115	35														
			36														
	Sandy Lean CLAY - wet, gray	120	37		P	610	CL	A-6									
		125	38														
			39														
		130			SPT					● 10							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-308**

Sheet **2** of **4**

Logged by:	J. Rajek
Date Start:	1/9/00
Date Finish:	1/12/00
Station:	6013+313.168 14.02 RT
Line:	D MAINLINE
Coordinates (m):	N 116,561.569 E 19,169.000
Elevation (m):	1285.134
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

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SAMPLE TYPE

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-13-308
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	Sandy Lean CLAY - stiff, wet, gray (continued)					610			6 9 6 8								
		135	41														
			42														
	Silty SAND - wet, gray	140	43		P	610	SM	A-2-4									SV
		145	44														
1240			45														
	- medium dense	150	46		SPT	610			12 22 22 50	●26							
		155	47		SPT	610			12 12 15 18	●15							
			48														
		160	49														
1235			50														
	Lean CLAY - stiff, wet, gray	165			P	610	CL	A-6			44	12.0	46			93	
	Silty SAND - medium dense, wet, gray, fine-grained		51		SPT	610	SM	A-2-4	8 12 14 19	●13							
	Lean CLAY - stiff, wet, gray						CL	A-6									
		170	52														
			53														
		175			SPT	610			7 8 14 21	●11							
			54														
1230		180	55														
			56														
		185			SPT	610			12 19 22 39	●20							
	Silty SAND - medium dense, wet, gray		57				SM	A-2-4									
		190	58		SPT	610			12 17 17 22	●16							
			59														
	Lean CLAY - very stiff, wet, gray	195			SPT	610	CL	A-6	22 34 30 34	●30							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-308**

Sheet **3** of **4**

Logged by:	J. Rajek
Date Start:	1/9/00
Date Finish:	1/12/00
Station:	6013+313.168 14.02 RT
Line:	D MAINLINE
Coordinates (m):	N 116,561.569 E 19,169.000
Elevation (m):	1285.134
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 8/30/00

Boring: SB-13-308
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	Lean CLAY - very stiff, wet, gray (continued)																
		200	61		SPT	610			21 22 28 38	●23							
			62														
		205	63														
		210	64														
1220			65														
		215	66														
		220	67														
			68														
		225	69														
1215		230	70														
			71														
		235	72														
		240	73														
			74														
		245	75														
1210			76														
		250	77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-13-308**

Sheet 4 of 4

Logged by:	J. Rajek
Date Start:	1/9/00
Date Finish:	1/12/00
Station:	6013+313.168 14.02 RT
Line:	D MAINLINE
Coordinates (m):	N 116,561.569 E 19,169.000
Elevation (m):	1285.134
Total Depth Drilled (m):	61.6
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B1.GPJ 8/30/00

Boring: SB-14-309
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	FILL: Poorly Graded SAND with silt and gravel - cobbles and chunks of asphalt below grade	5	1		SPT	0			13 9 3 2	17							
			2		MC	0			7 7 10 10	17							
	Silty CLAY - stiff, wet, olive-brown to brown, mottled rust color, inorganics	10	3		MC	356	CL	A-6	7 7 9 9	12							pH WSS R
		15	4	P	P	508					43	14.4	31	43	19		C SG
1280	- medium stiff, gray	20	5		SPT	610			2 2 3 4	5							
		25	6	P	P	610					81						
	- occasional seams of very fine-grained sand	30	7		SPT	559			3 4 3 2	6							
1275		35	8	P	P	610					20 48	10.7	56				
	- soft	40	9		SPT	610			2 2 2 4	4							
		45	10	P	P	610					38						
1270	- stiff	50	11		SPT	533			3 4 5 6	23							
		55	12														
	- sand layer Poorly Graded SAND with clay and gravel - wet, gray, coarse-grained	60	13	P	P		SP-SC	A-2-7			29						
		65	14														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-309**

Sheet 1 of 4

Logged by:	M. Bostrom
Date Start:	1/6/00
Date Finish:	1/12/00
Station:	6013+229.665 16.35 LT
Line:	D MAINLINE
Coordinates (m):	N 116,515.743 E 19,093.134
Elevation (m):	1285.723
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-14-309
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND with clay and gravel - wet, gray, coarse-grained (continued)																
1265	Lean CLAY - medium stiff, wet, olive-gray	70	21		SPT	610	CL	A-6	4 4 5 8	6							
		75	22														
			23														
	- stiff	80	24		SPT	610	ML	A-4	4 10 14 10	15							
	SILT - very stiff, wet, gray, fine-grained, with 50 mm coarse-grained silty sand layer		25														
1260		85	26														
		90	27		SH	711					77	16.7	23			77	C TR SG
			28														
		95	29														
			30														
1255	Lean CLAY - stiff, wet, gray, with frequent seams of very fine-grained sands	100	31		SPT	610	CL	A-6	4 5 7 7	7							
	Poorly Graded SAND - medium to coarse-grained, with frequent clay layers	105	32				SP	A-3									
		110	33		SPT	610			4 8 11 12	10							
		115	34														
1250			35														
	Silty CLAY - stiff, moist, olive-gray, frequent silt layers	120	36		SPT	610	CL-ML	A-7-6	8 14 16 15	15							
	Lean CLAY - stiff, moist, olive-gray, some coarse-grained sand layers	125	37				CL	A-6									
		130	38		P	457											
			39														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-309**

Sheet **2** of **4**

Logged by:	M. Bostrom
Date Start:	1/6/00
Date Finish:	1/12/00
Station:	6013+229.665 16.35 LT
Line:	D MAINLINE
Coordinates (m):	N 116,515.743 E 19,093.134
Elevation (m):	1285.723
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-14-309
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	Lean CLAY - stiff, moist, olive-gray, some coarse-grained sand layers (continued)										*48*						
		135	41														
			42														
	- trace visible mica flakes and medium to coarse-grained sand	140	43		SPT				7 15 16 23	15							
		145	44														
			45														
1240		150	46		P	254											
		155	47														
			48														
	- very stiff	160	49		SPT	51			10 24 31 28	23							
		165	50														
1235			51														
	- hard, dark olive-gray, frequent silt layers	170	52		SPT	406			12 36 42 40	32							
	- very stiff, some very fine sand	175	53		SPT	610			10 21 28 30	19							
			54														
		180	55		SPT				12 20 47 50/125mm								
1230			56														
		185	57		SPT	559			10 19 23 31	18							
	- hard	190	58		MC	254			12 80/100mm 15 96								
	Poorly Graded GRAVEL - very dense, wet, black to white, clasts from fine-grained sand to coarse-grained gravels- subrounded to angular	195	59		MC	203	GP	A-3	15 89 50/								

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-309**

Sheet 3 of 4

Logged by:	M. Bostrom
Date Start:	1/6/00
Date Finish:	1/12/00
Station:	6013+229.665 16.35 LT
Line:	D MAINLINE
Coordinates (m):	N 116,515.743 E 19,093.134
Elevation (m):	1285.723
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-14-309
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0–25–50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	Poorly Graded GRAVEL - very dense, wet, black to white, clasts from fine-grained sand to coarse-grained gravels- subrounded to angular (continued) - frequent layers of clay and silt	200	61		MC	508			100mm 18 28 60								
			62														
		205	63														
		210	64														
			65														
1220		215	66														
		220	67														
			68														
		225	69														
		230	70														
1215			71														
		235	72														
		240	73														
			74														
		245	75														
1210		250	76														
			77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-309**

Sheet 4 of 4

Logged by:	M. Bostrom
Date Start:	1/6/00
Date Finish:	1/12/00
Station:	6013+229.665 16.35 LT
Line:	D MAINLINE
Coordinates (m):	N 116,515.743 E 19,093.134
Elevation (m):	1285.723
Total Depth Drilled (m):	61.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

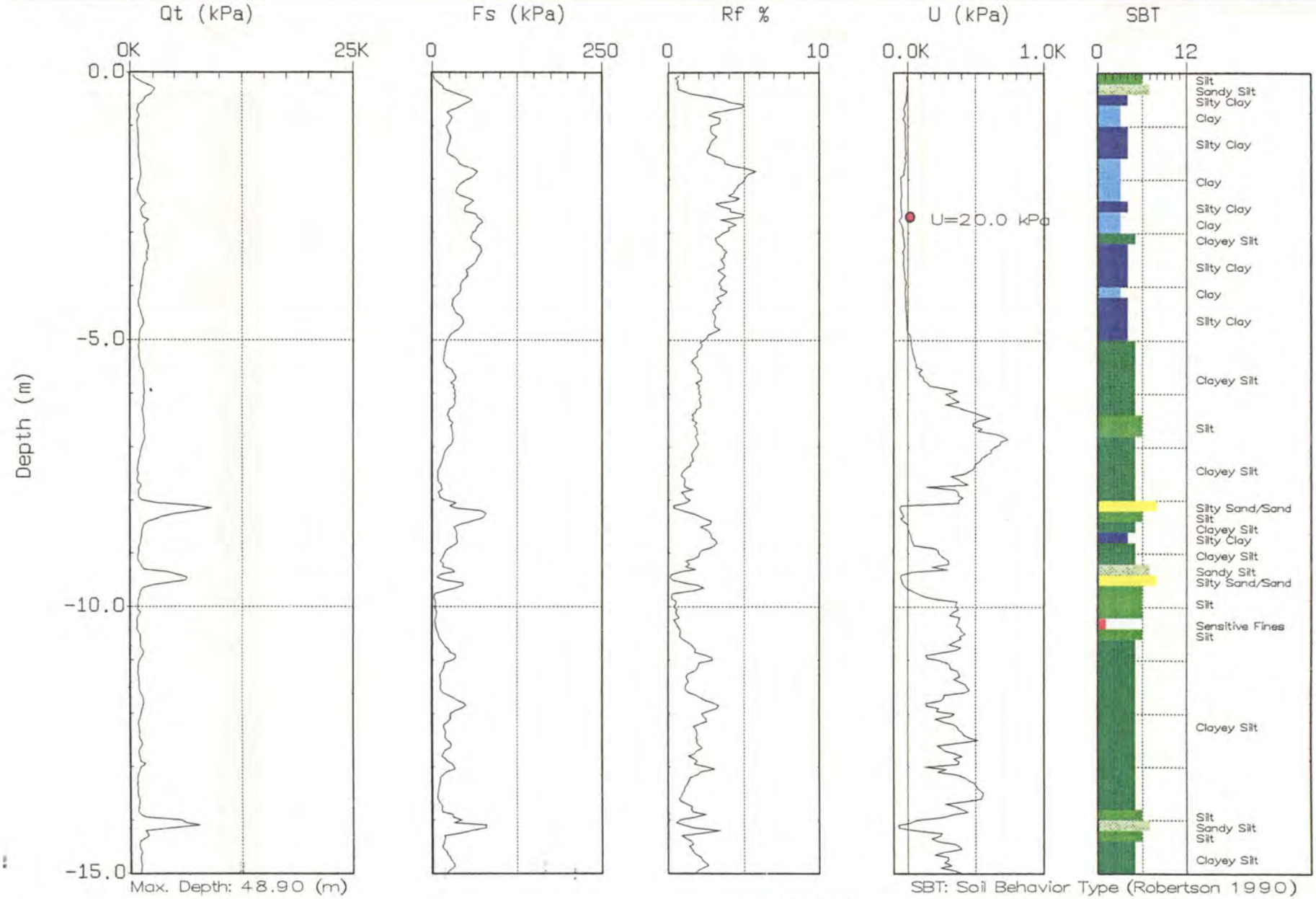
BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway

Site: SC-14-310
Station: 6013+262.480 19.25 LT
Elevation: 1285.020

Cone: 20 TON A 058
Date: 01:18:00 13:28



Max. Depth: 48.90 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

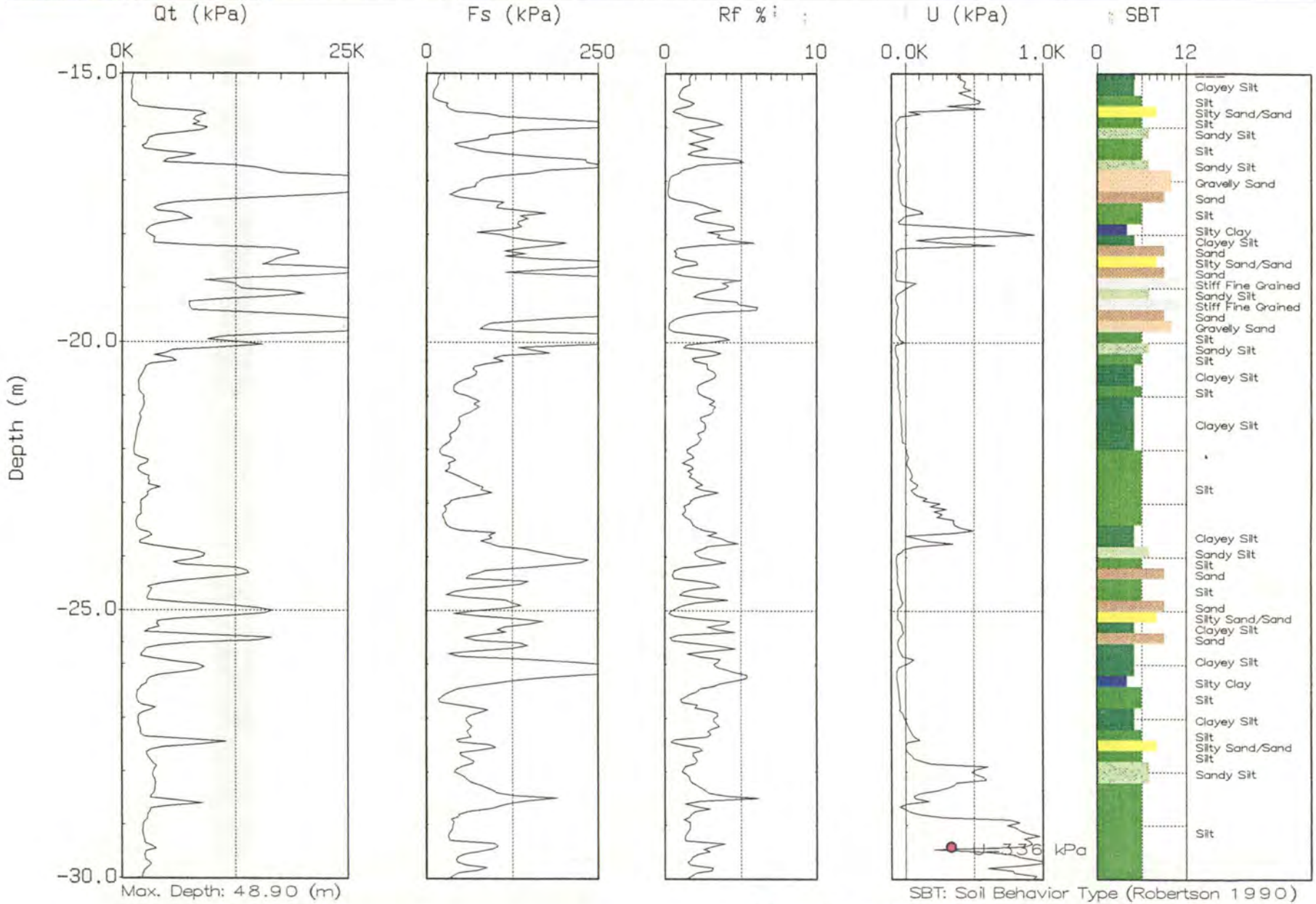
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-142

Legacy Parkway

Site: SC-14-310
Station: 6013+262.480 19.25 LT
Elevation: 1285.020

Cone: 20 TON A 058
Date: 01:18:00 13:28



Max. Depth: 48.90 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

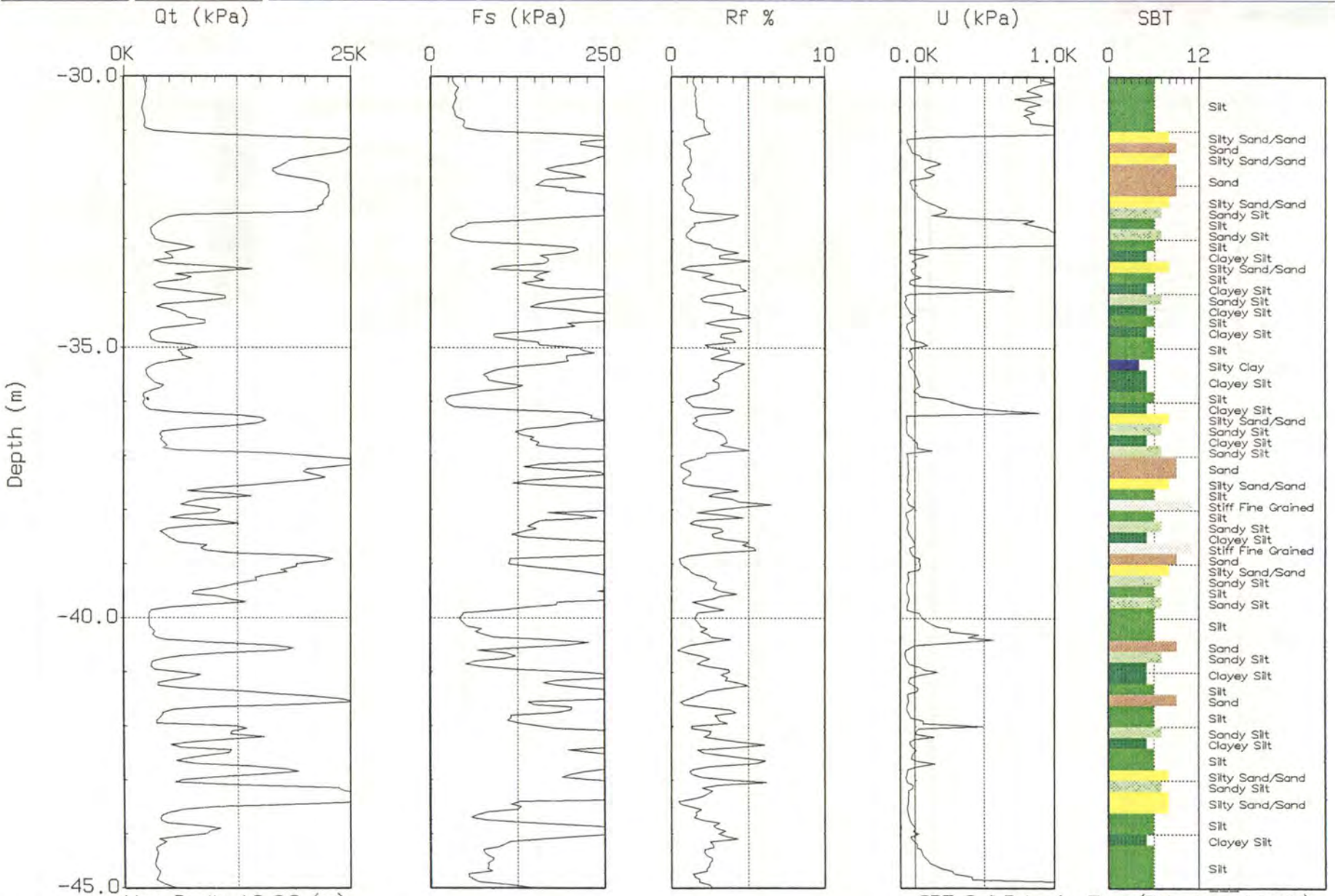
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-143

Legacy Parkway

Site: SC-14-310
Station: 6013+262.480 19.25 LT
Elevation: 1285.020

Cone: 20 TON A 058
Date: 01:18:00 13:28



Max. Depth: 48.90 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

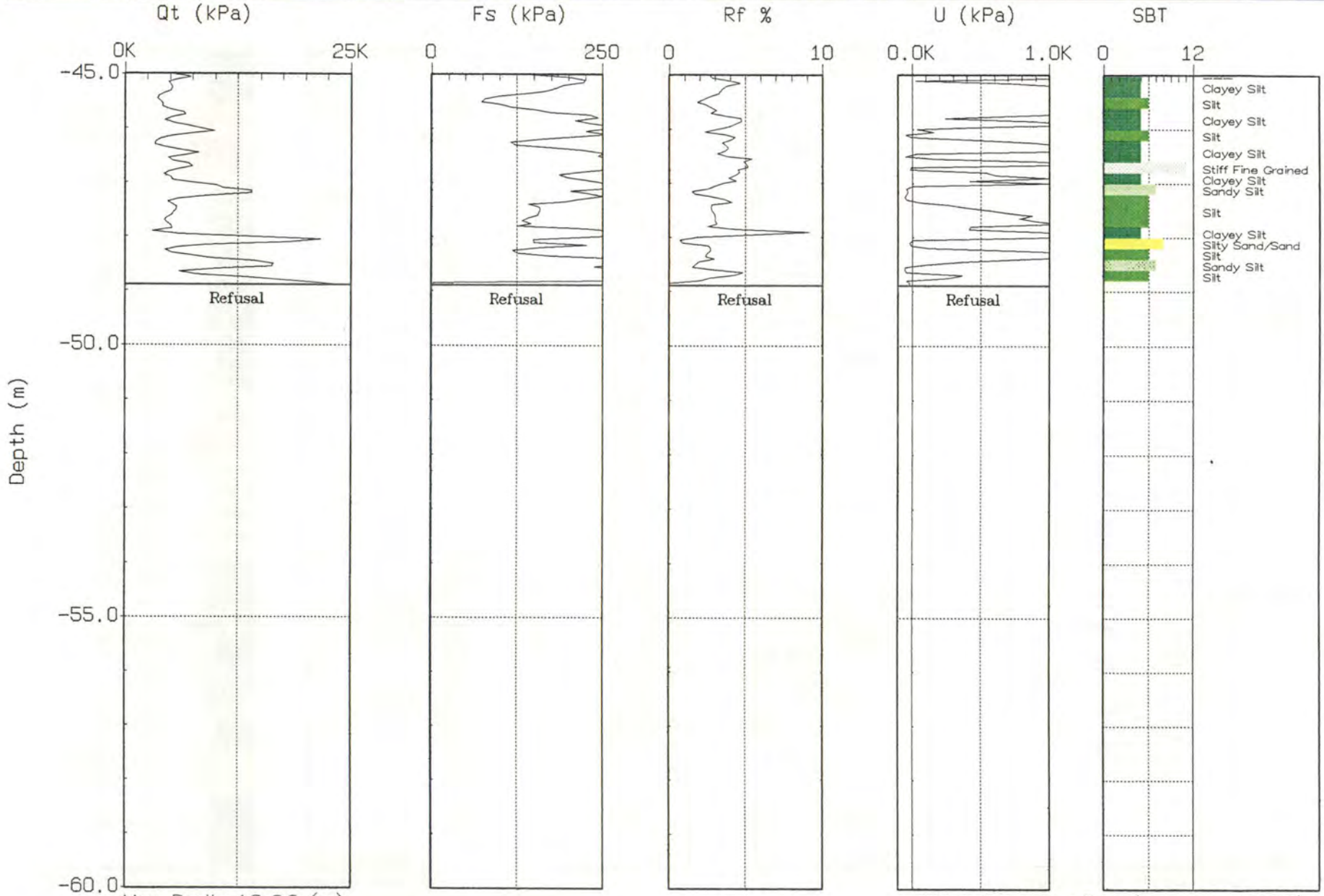
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-144

Legacy Parkway

Site: SC-14-310
Station: 6013+262.480 19.25 LT
Elevation: 1285.020

Cone: 20 TON A 058
Date: 01:18:00 13:28



Max. Depth: 48.90 (m)
Depth Inc.: 0.050 (m)

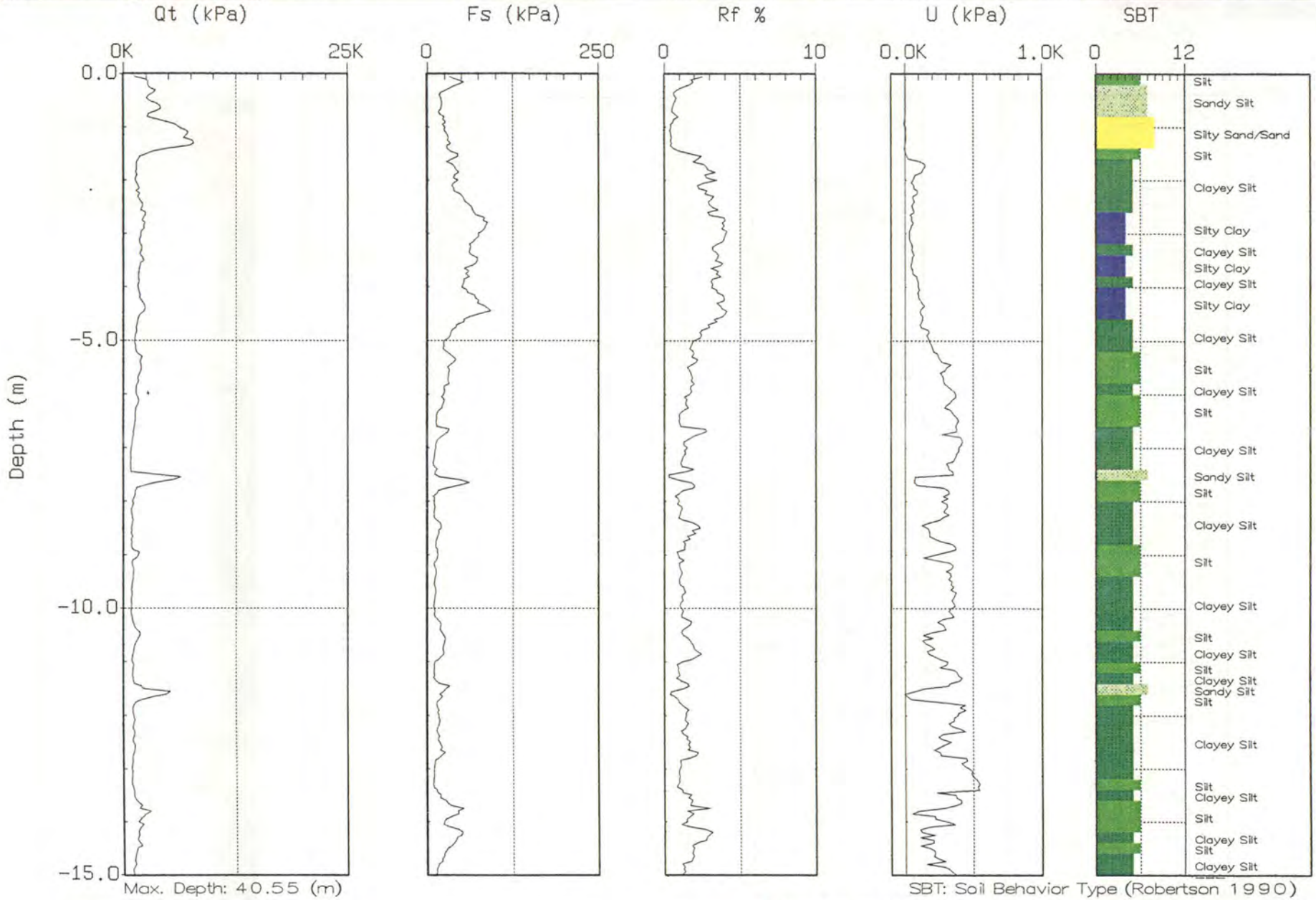
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-14-311
Station: 6013+310.311 17.20 LT
Elevation: 1284.876

Cone: 20 TON A 058
Date: 01:17:00 11:16



Max. Depth: 40.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

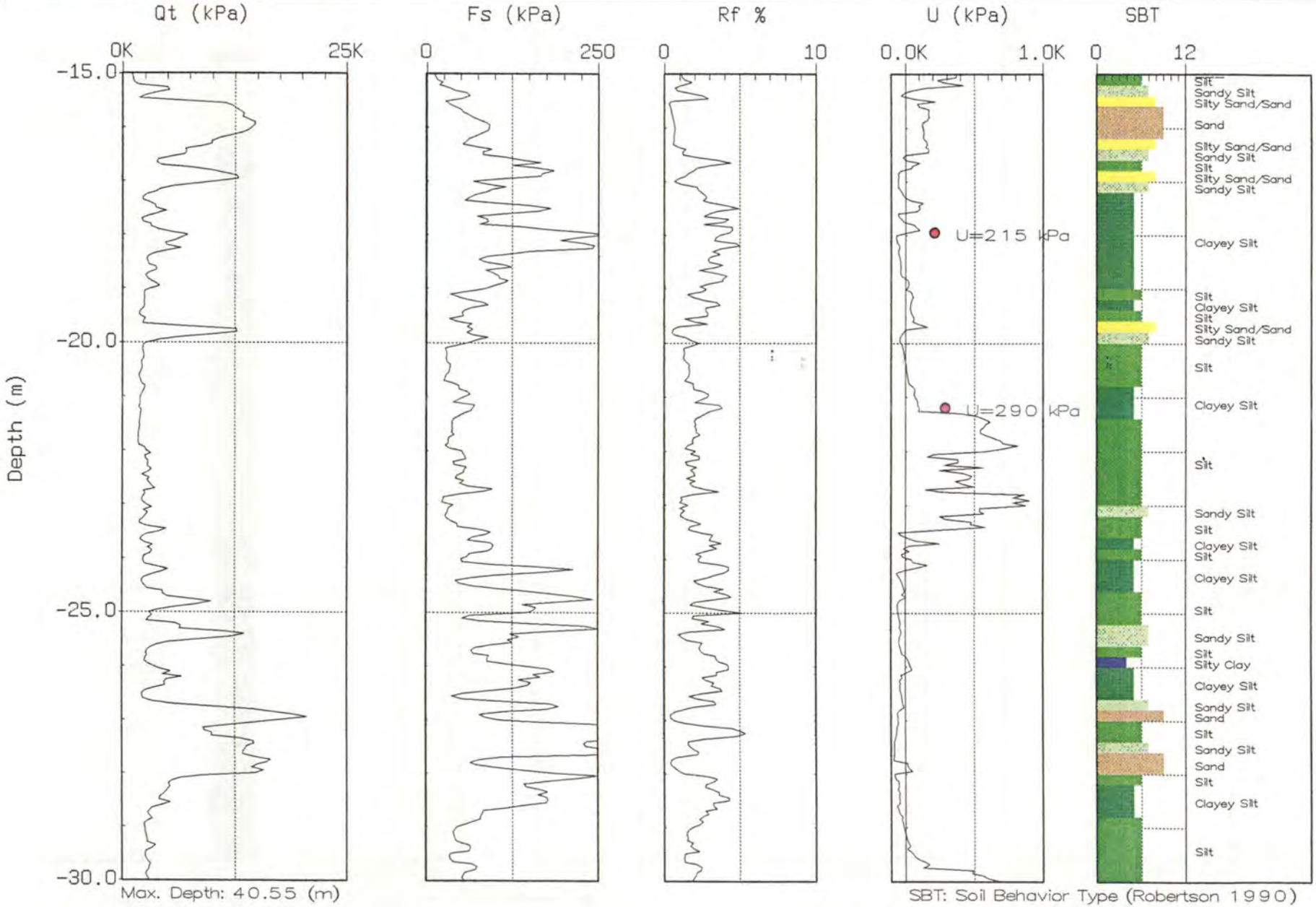
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-146

Legacy Parkway

Site: SC-14-311
Station: 6013+310.311 17.20 LT
Elevation: 1284.876

Cone: 20 TON A 058
Date: 01:17:00 11:16



Max. Depth: 40.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

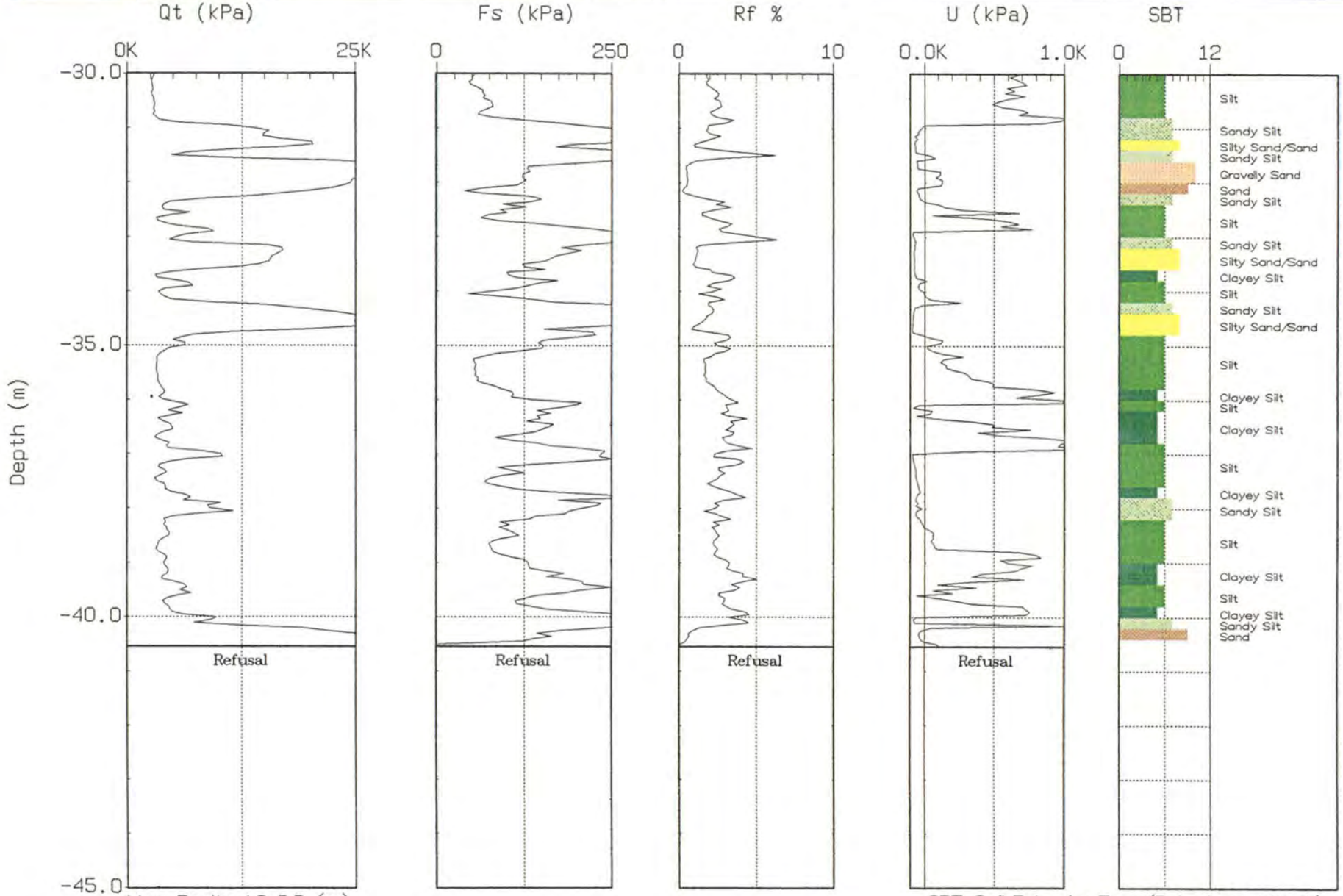
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-147

Legacy Parkway

Site: SC-14-311
Station: 6013+310.311 17.20 LT
Elevation: 1284.876

Cone: 20 TON A 058
Date: 01:17:00 11:16



Max. Depth: 40.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

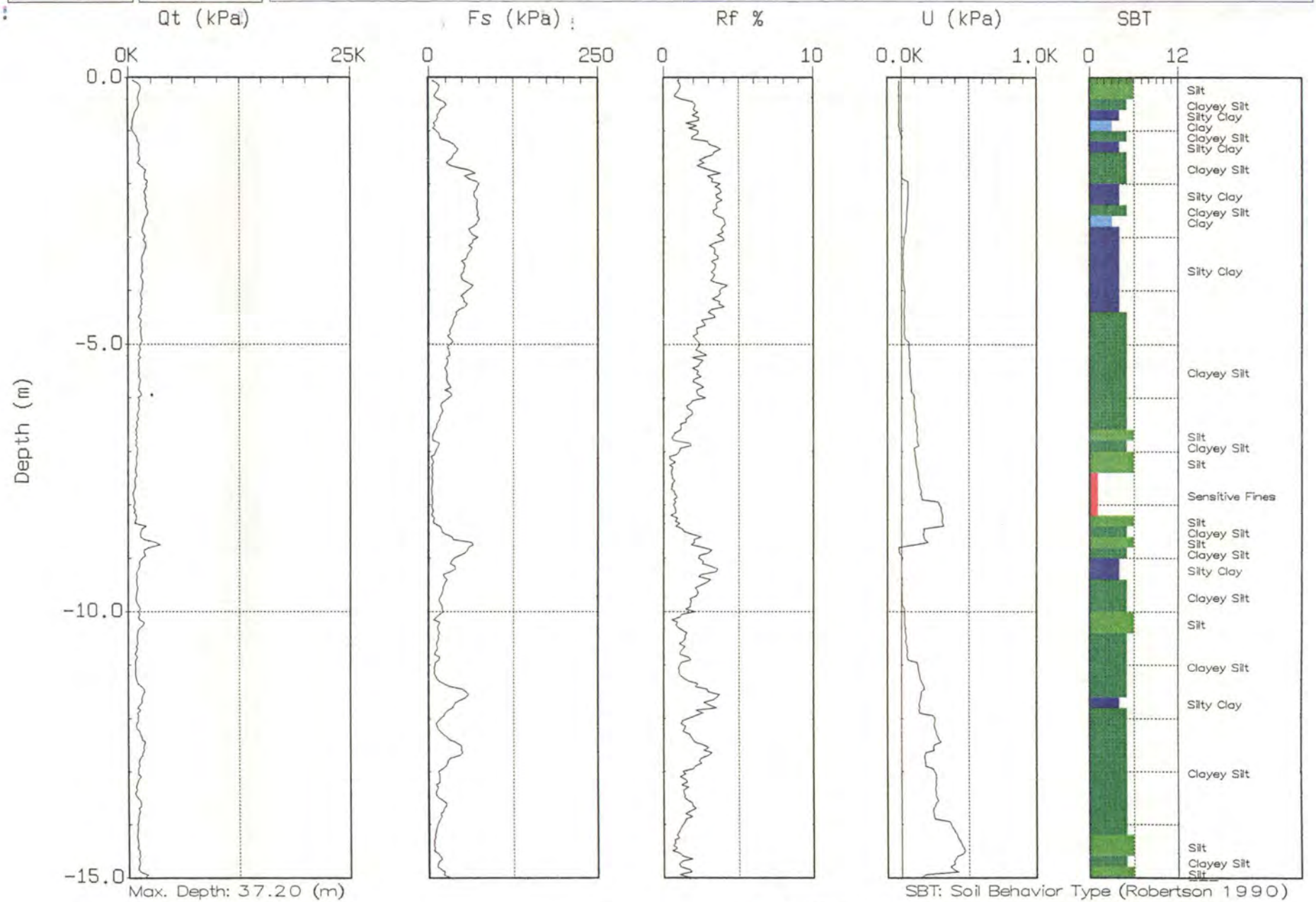
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-148

Legacy Parkway

Site: SC-14-312
Station: 6013+341.048 72.05 LT
Elevation: 1285.930

Cone: 20 TON A 070
Date: 05:01:00 21:43



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

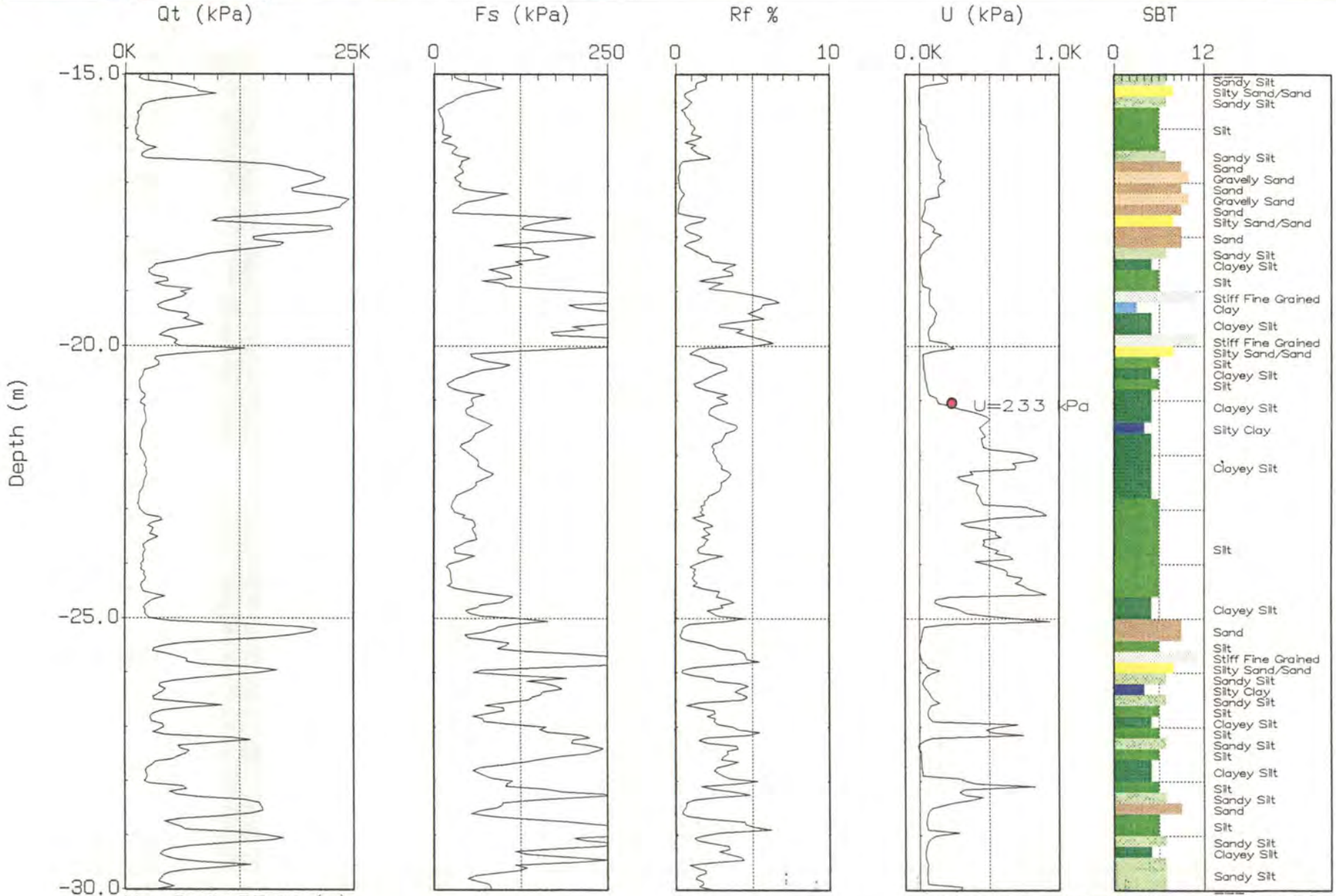
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-149

Legacy Parkway

Site: SC-14-312
Station: 6013+341.048 72.05 LT
Elevation: 1285.930

Cone: 20 TON A 070
Date: 05:01:00 21:43



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

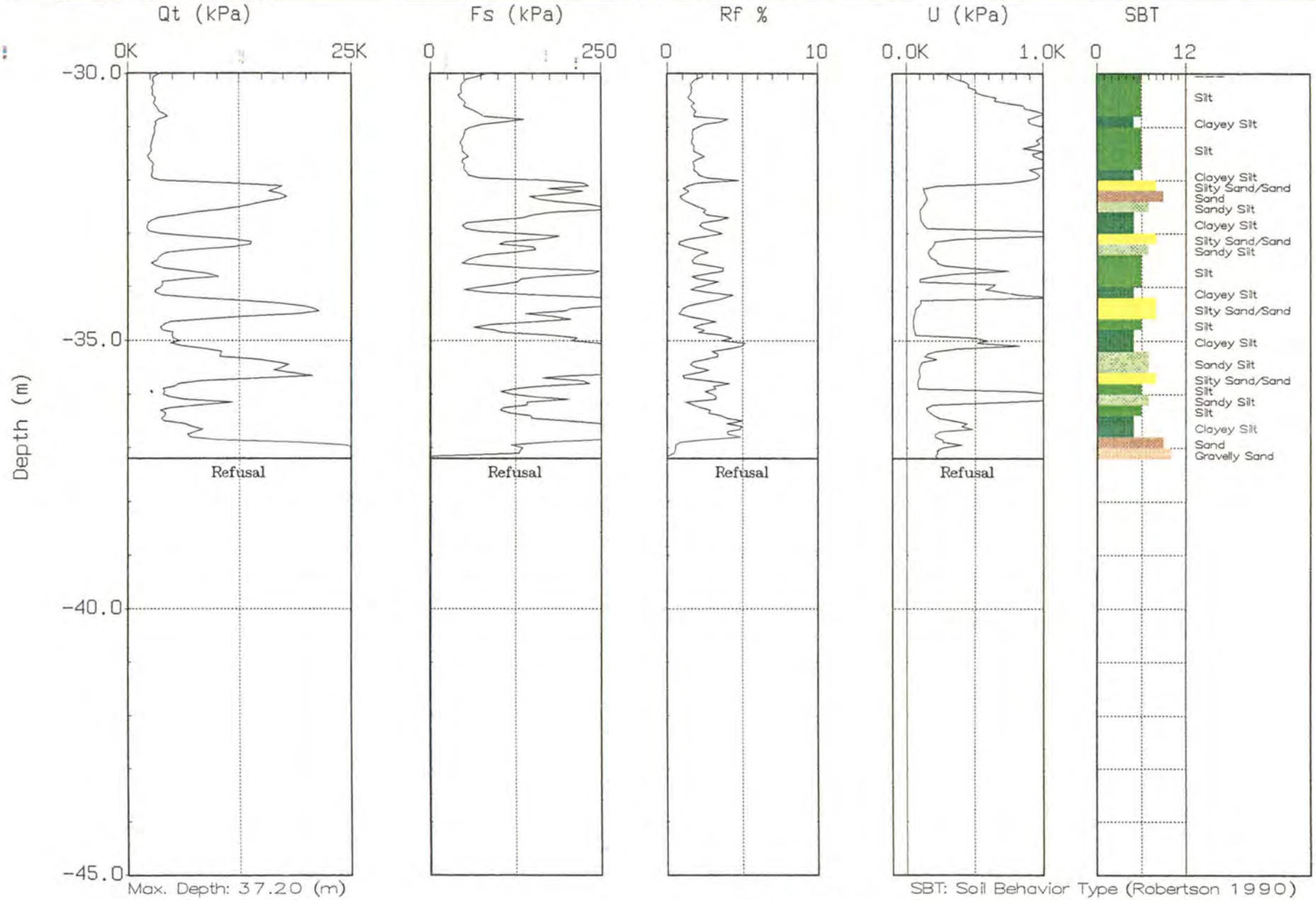
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-150

Legacy Parkway

Site: SC-14-312
Station: 6013+341.048 72.05 LT
Elevation: 1285.930

Cone: 20 TON A 070
Date: 05:01:00 21:43



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-151

Boring: SB-14-313
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	SILT - stiff, moist, dark brown, with organics and fine-grained sand				SPT	508	ML	A-4	4 4 3 5	11							
	Lean CLAY - moist, light gray		1				CL	A-6									
	- wet, with light brown mottling, trace silt	5	2		SH	610							26				pH WSS R
	- medium stiff, with sand seams	10	3		SPT	610			4 3 3 4	8							
			4														
	- light gray	15	5		SH	508											
1280			6														
	SILT - soft, wet, dark gray, with organics and trace of clay	20			SPT	610	ML	A-4	1 2 1 2	3							
			7														
	Elastic SILT - soft, wet, gray, with organics, trace of silt, occasional sand layers	25	8		SH	610	MH	A-7-5			33	10.4	61	69	33	100	
		30	9		SPT				5 9 6 3	15							
	SILT - stiff, wet, dark olive-gray, with a trace of sand		10				ML	A-4									
1275		35	11		SH	610											
	Silty SAND - wet, gray, with organic, fine-grained to medium-grained						SM	A-2-5									
	Lean CLAY - soft, wet, gray, sand seam	40	12		SPT	610	CL	A-6	1 2 1 2	3							
			13														
		45	14		SH	610						9.4	67				C SG
			15														
1270		50			SPT	610			2 2 4 8	5							
	Silty SAND - medium dense, wet, gray		16				SM	A-2-5									
	- dark gray	55	17		SPT	508			12 17 17 24	26							
		60	18		SPT	483			9 11 18 8	21							
			19														
		65								12							

Test Results *

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-313**

Sheet 1 of 4

Logged by:	S. Lewis
Date Start:	1/17/00
Date Finish:	1/20/00
Station:	6013+394.540 17.55 LT
Line:	D MAINLINE
Coordinates (m):	N 116,647.190 E 19,184.405
Elevation (m):	1285.358
Total Depth Drilled (m):	75.3
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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AASHTO = American Association of State Highway and Transportation Officials

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SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-14-313
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 (Greater than 50 Blows) ○ (0 – 25 – 50)	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265	Silty SAND - medium dense, wet, dark gray (continued)				SPT	508			10 9 9 9								
		70	21		SH	610					63	14.9	31			87	
	SILT - medium stiff, wet, olive-gray, with a trace of fine-grained sand		22				ML	A-4									
		75	23														
			24														
		80			SPT	457			3 4 4 6	●6							
1260			25														
		85	26														
	Lean CLAY - stiff, wet, gray		27				CL	A-6									
		90			SH	610						14.9	29				C
	SILT - medium stiff, wet, gray, with a trace of fine-grained sand		28				ML	A-4									SG
		95	29														
			30														
1255	Lean CLAY - medium stiff, wet, mottled light brown and light gray	100			SPT	610	CL	A-6	4 5 5 7	●6							
			31														
		105	32														
			33														
		110			SH	305											
	Silty SAND - wet, olive-gray, fine to medium-grained		34				SM	A-2-5									
		115	35		SPT	559	ML	A-4	9 16 16 12	●16							
1250	SILT - very stiff, wet, gray, with sand seams																
			36														
		120	37														
		125	38		SH	457											
	Silty SAND - wet, gray, fine to medium-grained						SM	A-2-5									
			39														
	SILT - medium stiff, wet, gray, with fine-grained sand	130			SPT		ML	A-4		●51							

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-313**

Sheet **2** of **4**

Logged by:	S. Lewis
Date Start:	1/17/00
Date Finish:	1/20/00
Station:	6013+394.540 17.55 LT
Line:	D MAINLINE
Coordinates (m):	N 116,647.190 E 19,184.405
Elevation (m):	1285.358
Total Depth Drilled (m):	75.3
Drill Contractor:	Layne Christensen
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Rig Type:	Mobile B-59
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Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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BAG = Bulk Sample

Boring: SB-14-313
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	Lean CLAY - medium stiff, wet, light olive-gray, with seams of gray silty sand	135	41		610	CL	A-6	7 5 7 14								
	SILT with sand - stiff, wet, olive-gray	140	42			ML	A-4									
			43	SH	610					66	17.3	20			55	
	Silty SAND - medium dense, wet, gray, fine to medium-grained with shell fragments, mica flakes, trace of clay					SM	A-2-5									
	SILT - medium stiff, wet, gray, with sand lenses	145	44			ML	A-4									
				SPT	610			4 5 6 12	5							
1240		150	45													
			46													
		155	47													
	Silty SAND - medium dense, wet, dark gray, with shell fragments, mica flakes			SH	254	SM	A-2-5									
			48													
		160	49	SPT	533			5 7 14 17	9							
1235	- with silt lenses	165	50	SPT				10 17 15 14	13							
			51													
		170	52													
	SILT - wet, light gray, with occasional fine-grained sand					ML	A-4									
		175	53													
			54	SH	559						16.3	24	36	5	76	C SG
		180	55													
1230	Silty SAND - loose, wet, olive-gray, fine-grained, with mica flakes		56			SM	A-2-5									
		185		SPT	584			5 6 12 18	8							
			57													
	SILT - very stiff, wet, gray	190	58	SPT	610	ML	A-4	5 6 10 10	6							
			59													
		195														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-313**

Sheet 3 of 4

Logged by:	S. Lewis
Date Start:	1/17/00
Date Finish:	1/20/00
Station:	6013+394.540 17.55 LT
Line:	D MAINLINE
Coordinates (m):	N 116,647.190 E 19,184.405
Elevation (m):	1285.358
Total Depth Drilled (m):	75.3
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

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Coordinates are NAD '83

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BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-14-313
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0–25–50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	SILT - very stiff, wet, gray (continued)																
	- stiff, with gravel	200	61		MC	610			17 16 15 14	12							
	- with sand		62														
		205	63														
		210	64		SPT	610			10 13 16 19	14							
			65														
1220		215	66														
	Lean CLAY - very stiff, wet, gray						CL	A-6									
		220	67		MC	610			10 17 23 20	18							
			68														
		225	69														
	SILT - very stiff, wet, dark olive-gray, with sand lenses						ML	A-4									
1215		230	70		SPT	584			13 15 23 50/125mm	20							
			71														
	- hard	235	72		SPT	559			15 45 24 24	37							
		240	73		SPT	508			4 12 40 50/100mm	29							
	- very stiff		74														
		245	75		SPT	610			6 12 18 24	17							
1210																	
		250	76														
			77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-14-313**

Sheet **4** of **4**

Logged by:	S. Lewis
Date Start:	1/17/00
Date Finish:	1/20/00
Station:	6013+394.540 17.55 LT
Line:	D MAINLINE
Coordinates (m):	N 116,647.190 E 19,184.405
Elevation (m):	1285.358
Total Depth Drilled (m):	75.3
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 8/30/00

Boring: SB-15-266
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	FILL: Poorly Graded SAND with gravel - very dense, moist, light brown		1		SPT	254			36 50							
	Lean CLAY - stiff, moist, dark gray, trace roots	5	2		SPT	305	CL	A-7-6	2 3 4							pH WSS R
		10	3		P	610				78	16.0	26	44	25	92	
	Silty SAND - light brown, wet, fine-grained		4				SM	A-2-4								
	Fat CLAY - stiff, wet, mottled gray and brown, occasional lenses of fine-grained silty sand	15	5		SPT	381	CH	A-7-6	2 3 3							
1280	- olive-gray	20	6		P	610					14.3	33				C SG
			7													
	- medium stiff, dark gray, soft	25	8		SPT	457			0 1 2							
		30	9		P	305							51	24		
1275		35	10													
			11		SPT	457			1 2 2							
		40	12		P	610										
			13													
		45	14		SPT	457			0 2 2							
1270		50	15		P	610										
		55	16													
			17													
		60	18		SPT	457			0 4 7							
	- stiff, frequent seams of silty sand		19													
		65														

Test Results *

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-266**

Sheet 1 of 4

Logged by:	A. Waldman
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6013+775.425 10.05 LT
Line:	D MAINLINE
Coordinates (m):	N 117,007.801 E 19,282.855
Elevation (m):	1285.577
Total Depth Drilled (m):	67.5
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-15-266
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Fat CLAY - stiff, wet, dark gray (continued)																
1265			21														
	Well Graded SAND with silt - dense, wet, gray	70			SPT	457	SW-SM	A-1-6	0 13 17	●32							SV
			22														
		75	23														
			24														
	Elastic SILT - medium stiff, moist, olive-gray	80			P	610	MH	A-7-5			41	13.3	35	58	27	98	
			25														
1260		85	26														
			27														
	Lean CLAY - medium stiff, wet, olive-gray, silty sand seams	90			SPT	254	CL	A-6	0 2 3	●5							
			28														
		95	29														
			30														
1255	- very soft	100			SPT	305			0 0 0	●0							
			31														
		105	32														
			33														
		110			P	0											
			34														
	- gray	115	35		P	457											
1250			36														
	Poorly Graded SAND with silt - medium dense, wet, gray	120			SPT	330	SP-SM	A-3	6 11 17	●23							
			37														
		125	38		P	0											
			39														
		130			SPT					●17							

UTDOT Z0039B1.GPJ 6/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-266**

Sheet 2 of 4

Logged by:	A. Waldman
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6013+775.425 10.05 LT
Line:	D MAINLINE
Coordinates (m):	N 117,007.801 E 19,282.855
Elevation (m):	1285.577
Total Depth Drilled (m):	67.5
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

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BAG = Bulk Sample

Boring: SB-15-266
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Fat CLAY - very stiff, wet, gray																
1245																	
		135	41														
			42														
		140	43		P	P	610										
			44														
	- stiff, lenses of silty sand	145	45														
1240		150	46		SPT	SPT	610			11 10 11	●15						
			47														
		155	48														
	- increasing silt	160	49		P	P	610					66	15.6	31		98	C SG
			50														
1235		165	51														
	Sandy Lean CLAY - wet, gray, some fine-grained gravel	170	52		SPT	SPT	457	CL	A-6	3 5 10	●10						
		175	53														
			54														
	Silty SAND - wet, gray	180	55		P	P	610	SM	A-2-4								
1230			56														
		185	57														
	Sandy Lean CLAY - stiff, wet, gray	190	58		SPT	SPT	152	CL	A-6	6 12 13	●14						
		195	59														

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-266**

Sheet 3 of 4

Logged by:	A. Waldman
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6013+775.425 10.05 LT
Line:	D MAINLINE
Coordinates (m):	N 117,007.801 E 19,282.855
Elevation (m):	1285.577
Total Depth Drilled (m):	67.5
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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BAG = Bulk Sample

Boring: SB-15-266
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	Sandy Lean CLAY - stiff, wet, gray (continued)																
	Silty SAND - medium dense, wet, gray	200	61		P	152	SM	A-2-4									
			62														
		205			SPT	305			6 9 15	●13							
			63														
		210	64		SPT	457	CL	A-6	0 8 16	●13							
	Lean CLAY - stiff, wet, olive-gray		65														
1220		215	66														
		220	67		P	356						15.6	24				C SG
			68														
		225	69														
		230	70														
1215			71														
		235	72														
		240	73														
			74														
		245	75														
1210			76														
		250	77														
		255	78														
		260	79														

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-266**

Sheet 4 of 4

Logged by:	A. Waldman
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6013+775.425 10.05 LT
Line:	D MAINLINE
Coordinates (m):	N 117,007.801 E 19,282.855
Elevation (m):	1285.577
Total Depth Drilled (m):	67.5
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

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Coordinates are NAD '83

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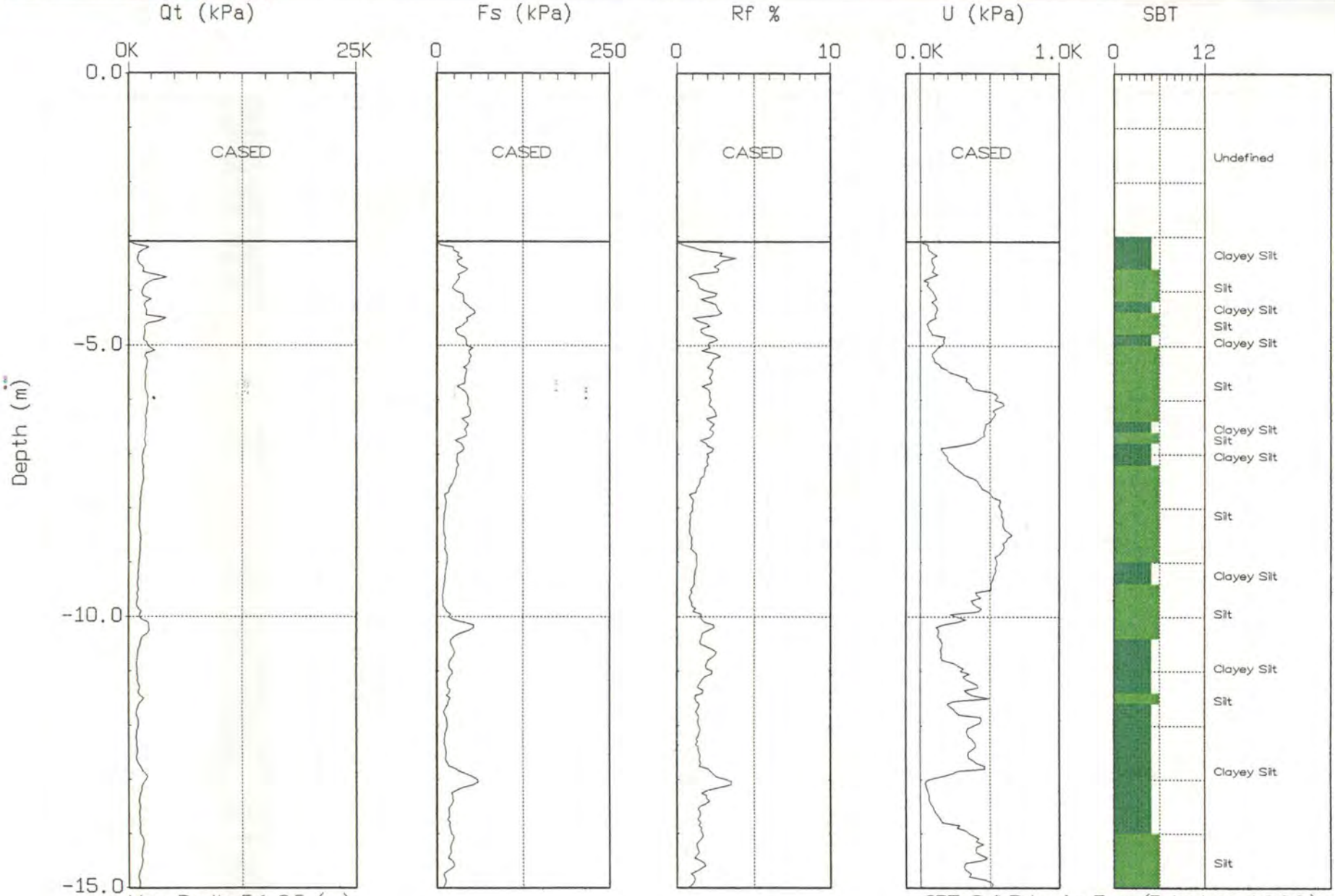
SH = Shelby Tube, 76.2mm OD, pushed

B BAG = Bulk Sample

Legacy Parkway

Site: SC-15-266
Station: 6013+776.788 14.55 LT
Elevation: 1285.514

Cone: 20 TON A 058
Date: 01:13:00 08:21



Max. Depth: 51.85 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

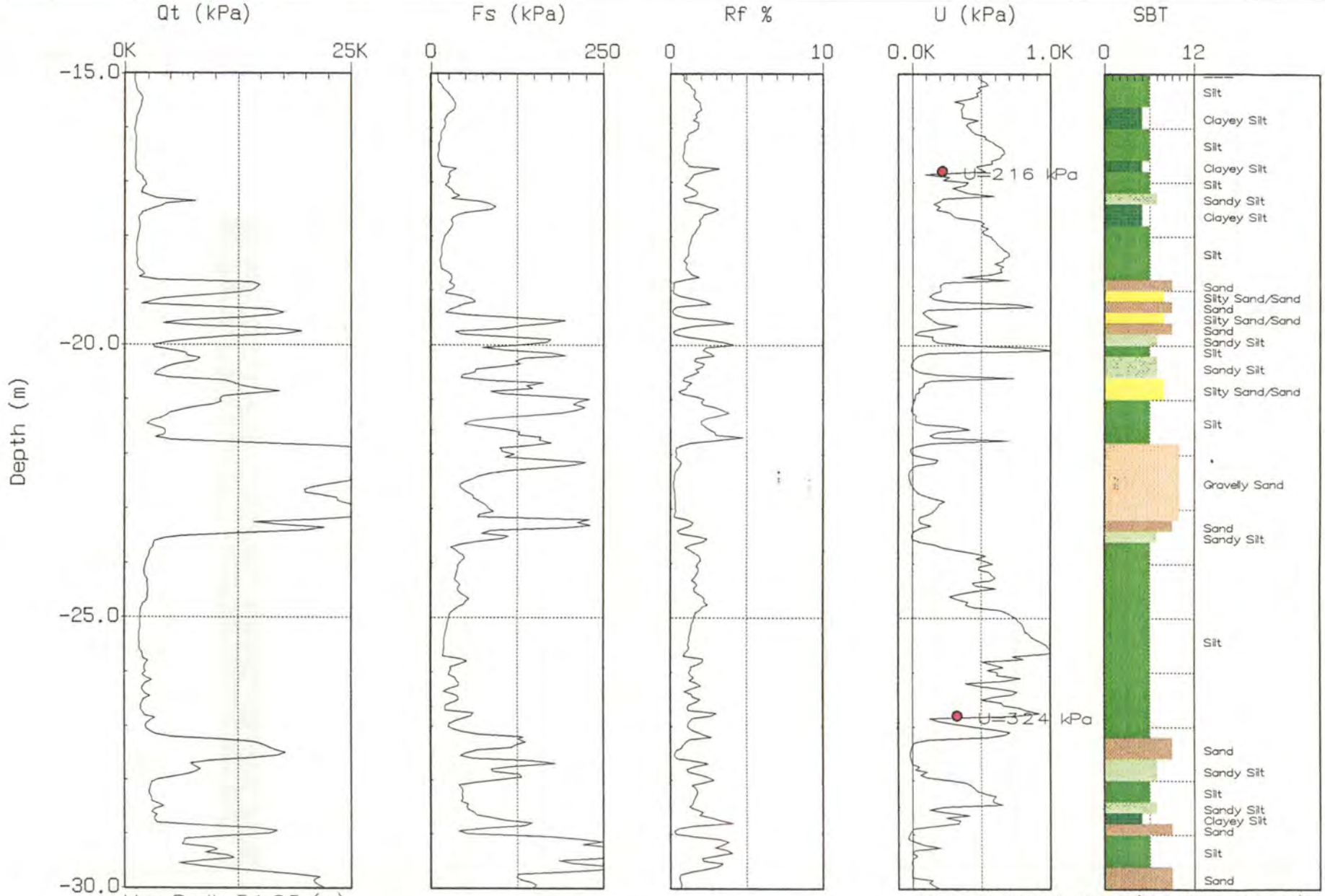
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-160

Legacy Parkway

Site: SC-15-266
Station: 6013+776.788 14.55 LT
Elevation: 1285.514

Cone: 20 TON A 058
Date: 01:13:00 08:21



Max. Depth: 51.85 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

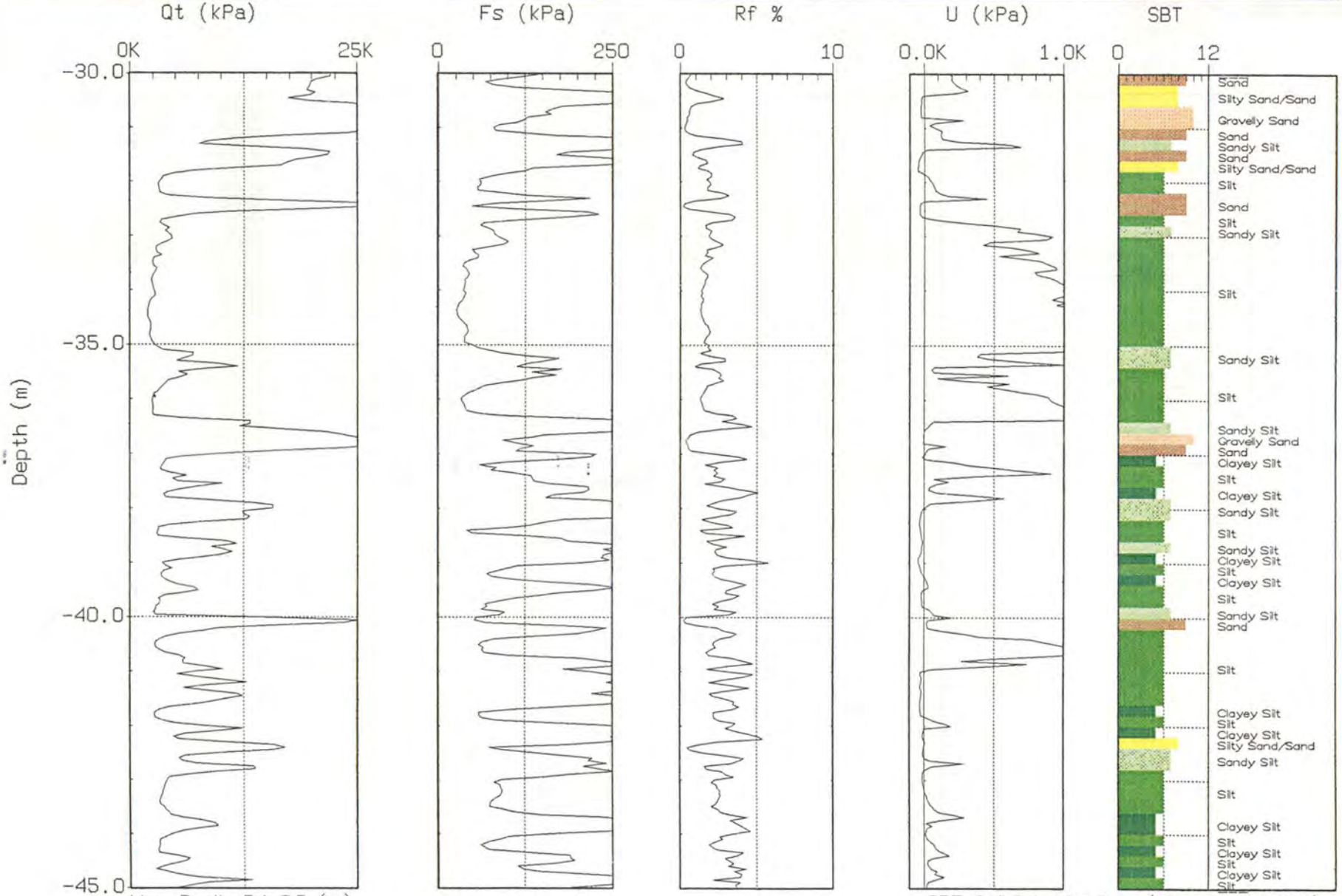
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-161

Legacy Parkway

Site: SC-15-266
Station: 6013+776.788 14.55 LT
Elevation: 1285.514

Cone: 20 TON A 058
Date: 01:13:00 08:21



Max. Depth: 51.85 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

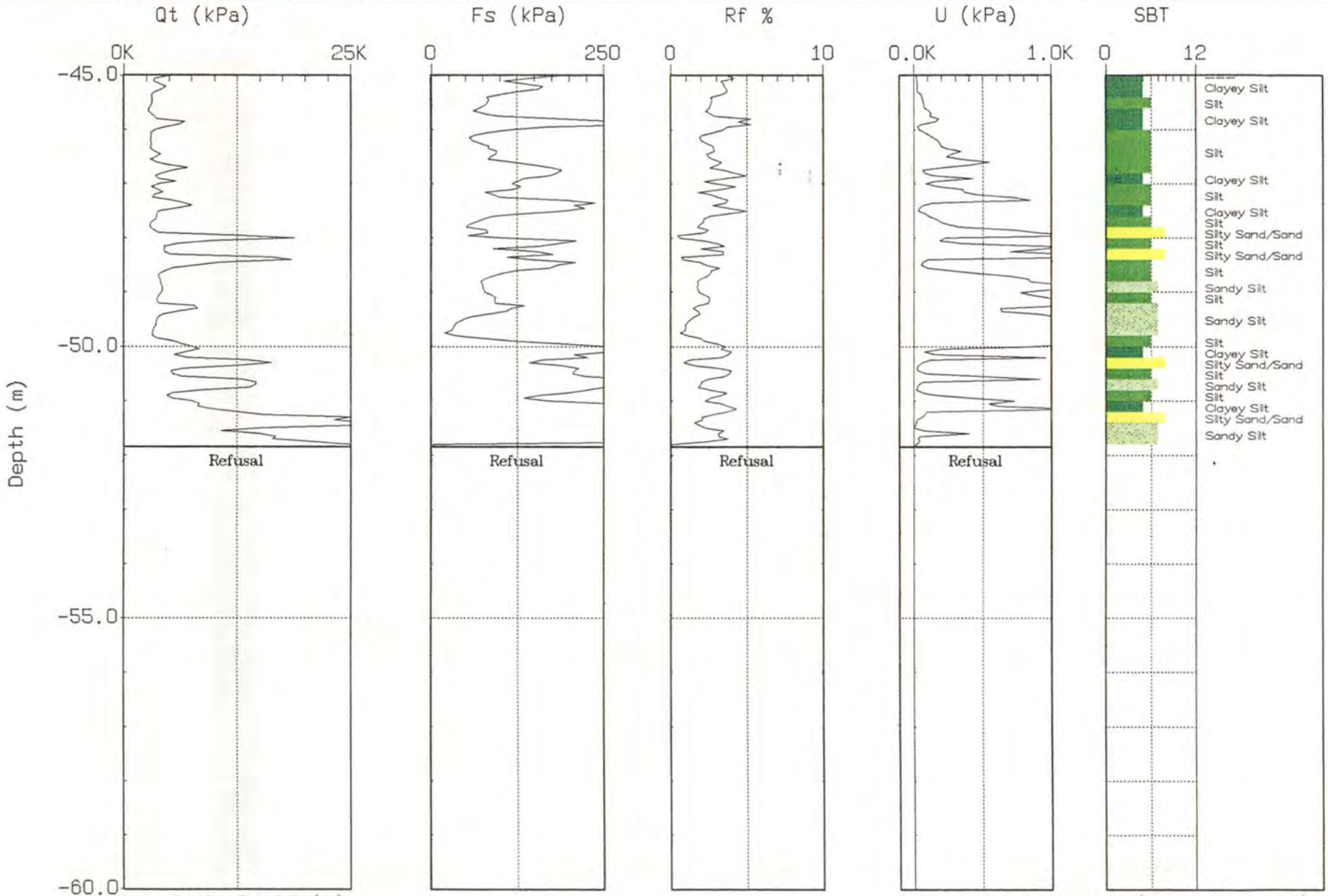
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-162

Legacy Parkway

Site: SC-15-266
Station: 6013+776.788 14.55 LT
Elevation: 1285.514

Cone: 20 TON A 058
Date: 01:13:00 08:21



Max. Depth: 51.85 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-15-267
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Sandy GRAVEL - dense, moist, with concrete																
1285			1		SPT	254			7 15 5 6	●31							
	Lean CLAY - very stiff, wet, black, with roots	5	2				CL	A-6									
	- gray	10	3		MC	51			9 7 10 10	●18							
	- brown	15	4	P	P	152					*57*						pH WSS R
1280		20	5		SH						84 *48*	15.0	30	41	20	98	C TR SG
		25	7		SPT	305			1 1 0 1	●1							
	Fat CLAY - soft, wet, black	30	8		SH	610	CH	A-7-6			*29*						
1275	Lean CLAY - soft, wet, gray, some fine-grained sand partings	35	10		SPT	610	CL	A-6	2 2 2 3	●4							
	- sand seam	40	11		SH	508					*48*						
	- very soft	45	13		SPT	610			1 1 1 4	●2							
	Poorly Graded SAND - dense, wet, gray	50	14		SH	508	SP	A-3			*43*						
1270		55	16														
	Fat CLAY - soft, very moist to wet, dark gray, with some sand stringers	60	17		SPT	610	CH	A-7-6	1 2 2 3	●4							
		65	19														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-267**

Sheet **1** of **4**

Logged by:	M. Ivers
Date Start:	1/14/00
Date Finish:	1/19/00
Station:	6013+826.409 15.73 LT
Line:	D MAINLINE
Coordinates (m):	N 117,059.038 E 19,285.373
Elevation (m):	1285.608
Total Depth Drilled (m):	60.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-15-267
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Fat CLAY - soft, very moist to wet, dark gray, with some sand stringers (continued)																
1265	Poorly Graded SAND - wet, gray, predominantly fine-grained with some medium and coarse-grained	70	21		SH	0	SP	A-3									
			22		MC				6 47 75								
	Fat CLAY - very stiff, wet, gray, frequent silty sand layers	75	23		SPT	610	CH	A-7-6	4 6 13 25	13							
	SILT - stiff, wet, gray, some clay, trace sand		24				ML	A-4									
	Fat CLAY - medium stiff, mottled gray	80	25		SPT	610	CH	A-7-6	2 4 4 6	6							
1260		85	26														
			27														
	- occasional silt layers	90	28		SH	457					44 *48*	15.6	28	32	8	80	C SG
		95	29														
			30														
1255	- stiff	100	31		SPT	305			3 6 8 13	9							
	Poorly Graded SAND with silt - medium dense, wet, gray, fine-grained						SP-SM	A-3									
	Fat CLAY - very stiff, wet, gray	105	32		SPT		CH	A-7-6	8 14 20 25	20							
			33														
	- stiff, trace of silt	110	34		SPT				5 7 9 10	9							
		115	35														
1250			36		SH	0											
	Poorly Graded SAND	120	37		MC	610	SP	A-3	14 17 22 23	18							
		125	38		SPT	610			15 13 22 28	19							
	Silty SAND - medium dense, wet, olive-gray		39				SM	A-2-4									
		130			SPT					25							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-267**

Sheet **2** of **4**

Logged by:	M. Ivers
Date Start:	1/14/00
Date Finish:	1/19/00
Station:	6013+826.409 15.73 LT
Line:	D MAINLINE
Coordinates (m):	N 117,059.038 E 19,285.373
Elevation (m):	1285.608
Total Depth Drilled (m):	60.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 8/30/00

Boring: SB-15-267
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	Poorly Graded SAND - medium dense, wet, olive-gray, very fine-grained to medium-grained, occasional clay layers	135	41		610	SP	A-3	6 22 24 26								
		140	42													
			43	SPT	610			11 19 22 24	● 21							
		145	44													
			45													
1240	Lean CLAY - dense, wet, gray	150	46	SH	610	CL	A-6			*24*						
		155	47													
	- olive-gray		48	SH	559					50 *48*	14.4	32			99	
		160	49													
1235		165	50													
			51													
	Sandy Lean CLAY - very stiff, moist, olive-gray, layers and seams of fine to coarse-grained sand, some individual clasts of quartz up to 3 mm embedded in clay	170	52	SPT	610	CL	A-6	19 22 27 33	● 23							
		175	53													
			54													
1230	Clayey SAND - dense, wet, gray	180	55	SH	457	SC	A-2-6			*48*						
			56													
	Lean CLAY - stiff, moist, olive-gray, some black peat	185	57	SPT	610	CL	A-6	9 13 18 19	● 14							
	- very stiff - occasional poorly graded sand layers	190	58	SPT	610			6 8 50 31	● 26							
			59													
	- stiff	195		SPT	610			8 10 15 15	● 10							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-267**

Sheet **3** of **4**

Logged by:	M. Ivers
Date Start:	1/14/00
Date Finish:	1/19/00
Station:	6013+826.409 15.73 LT
Line:	D MAINLINE
Coordinates (m):	N 117,059.038 E 19,285.373
Elevation (m):	1285.608
Total Depth Drilled (m):	60.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0338B1.GPJ 8/30/00

Boring: SB-15-267
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225		200	61														
			62														
		205	63														
		210	64														
			65														
1220		215	66														
		220	67														
			68														
		225	69														
		230	70														
1215			71														
		235	72														
		240	73														
			74														
		245	75														
1210		250	76														
			77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-15-267**

Sheet 4 of 4

Logged by:	M. Ivers
Date Start:	1/14/00
Date Finish:	1/19/00
Station:	6013+826.409 15.73 LT
Line:	D MAINLINE
Coordinates (m):	N 117,059.038 E 19,285.373
Elevation (m):	1285.608
Total Depth Drilled (m):	60.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	Mobile B-80
Drilling Method:	Mud Rotary
Hammer Type:	Rope and Cathead
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

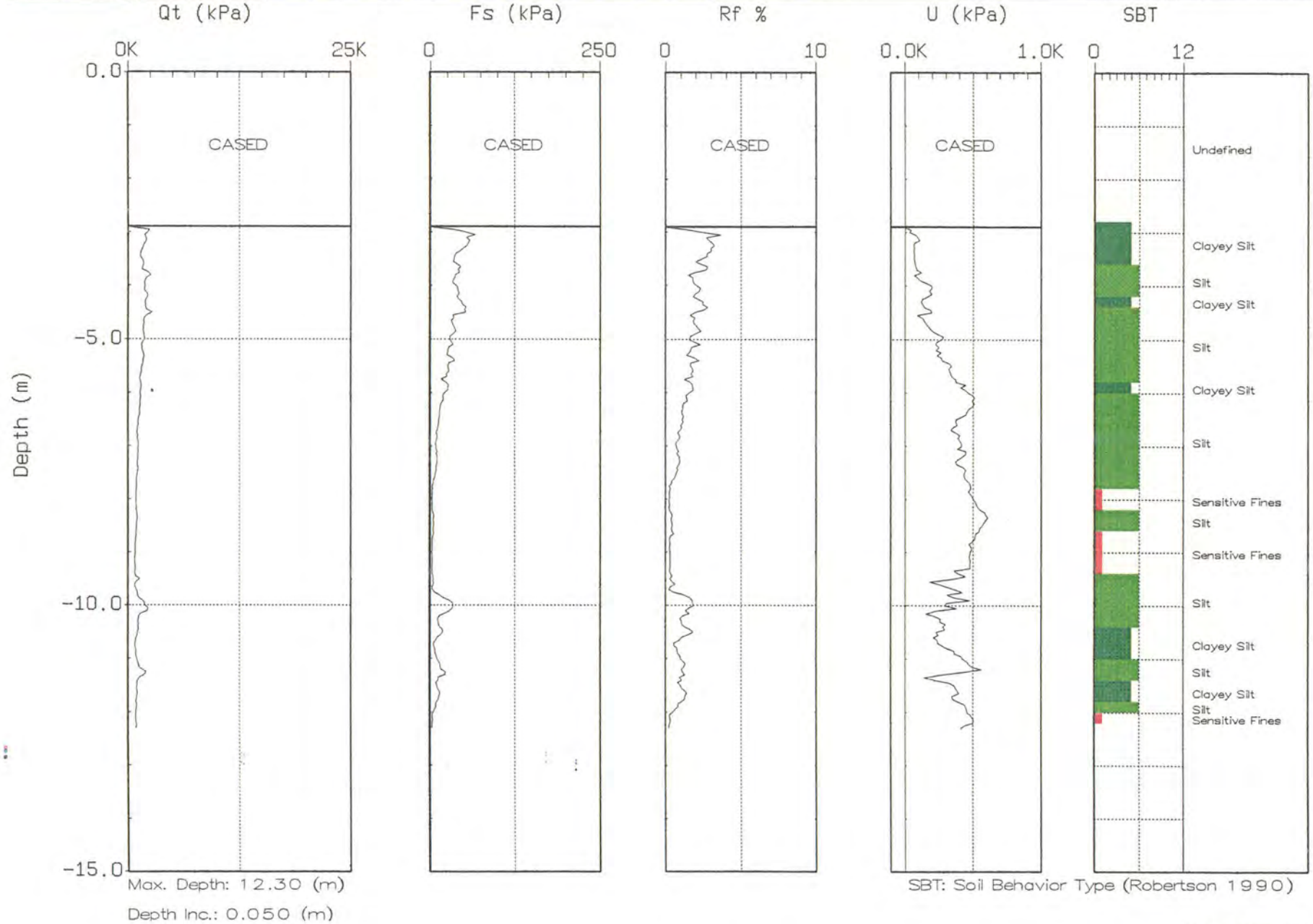
BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway

Site: SC-15-267
Station: 6013+828.702 14.07 LT
Elevation: 1285.545

Cone: 20 TON A 058
Date: 01:10:00 14:07



Max. Depth: 12.30 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

PLATE B-168

Boring: SB-1504-359
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	CLAY with gravel and sand - hard, brown, fine-grained gravel, with occasional silty sand layers up to 200 mm				SPT	533	CL	A-6	4 9 10 4	32							
	- moist to wet, dark brown, sand and gravel absent		1														
	- stiff, brown	5	2		P	610					44 *48*	15.9	28	39	22	97	C SG
	- frequent silt seams and occasional 25 mm silt layers	10	3		SPT	610			3 4 5 5	13							
			4														
	- grades to light gray and brown mottled rust colored	15	5		P	381					*57*						
1280																	
	- soft, no obvious silt seams of layers, gray mottled black	20	6		SPT	610			2 1 2 2	4							
			7														
		25	8		P	305					*48*						
	- medium stiff, wet, gray, frequent silt seams	30	9		SPT	457			3 2 3 3	5							
1275			10														
		35	11		P	610											
	- soft	40	12		SPT	610		A-7-6	2 1 2 2	3				45	22		
			13														
	- stiff	45	14		P	559					67						
1270	- frequent seams and occasional 15 to 100 mm layers of silty sand, medium-grained sands	50	15		SPT	610			9 4 7 8	10							
			16														
		55	17														
		60	18		P	610											
	SILT		19				ML	A-4									
		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-1504-359**

Sheet 1 of 4

Logged by:	M. Bostrom
Date Start:	5/11/00
Date Finish:	5/14/00
Station:	6013+625.601 15.30 LT
Line:	D MAINLINE
Coordinates (m):	N 116,860.727 E 19,253.802
Elevation (m):	1285.387
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-1504-359
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265																
	Silty SAND - medium dense, wet, gray, medium to coarse-grained	70	21		SPT	610	SM	A-2-5	4 17 17 29							SV
		75	22													
			23													
			24													
	Silty CLAY - medium stiff, wet, gray	80			P	610	CL-ML	A-6		37	14.8	30	34	16	96	C
	SILT - medium stiff, wet, gray		25				ML	A-4		29						TR SG
1260		85	26													
			27													
	Silty CLAY - medium stiff, wet, gray, with some fine to medium-grained sands incorporated into clay and occasional 75 mm silty sand layer	90			SPT	610	CL-ML	A-6	8 5 6 6							
			28													
		95	29													
			30													
1255		100			P	610				48						
			31													
		105	32													
	Poorly Graded SAND - gray, fine-grained						SP	A-3								
			33													
	- grades to loose, fine-grained sand, heaving occurred	110														
			34													
		115	35		SPT	610	SP-SM	A-3	2 4 12 15							
1250	Poorly Graded SAND with silt - loose, wet, gray, fine to coarse-grained, subangular to subrounded sand															
			36													
		120			P	610				43						
			37													
		125	38													
			39													
	- medium dense, grades to fine-grained sand, micaceous	130			SPT	610			10 18 28 25							

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-1504-359**

Sheet 2 of 4

Logged by:	M. Bostrom
Date Start:	5/11/00
Date Finish:	5/14/00
Station:	6013+625.601 15.30 LT
Line:	D MAINLINE
Coordinates (m):	N 116,860.727 E 19,253.802
Elevation (m):	1285.387
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 6/30/00

Boring: SB-1504-359
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	- grades from fine to coarse-grained sand																
		135	41														
			42														
	- occasional 5 mm clay lenses, medium dense	140			SPT	610			6 15 11 16	●14							
	Lean CLAY - stiff, wet, olive-gray		43				CL	A-6									
		145	44														
			45														
1240		150	46		P	559					48						
		155	47														
	Poorly Graded SAND - very loose, wet, gray, with trace silt and occasional very thin (25 mm) clay seams, fine to coarse-grained sand, micaceous, clay has moderate plasticity		48				SP	A-3									
		160	49		SPT	610			1 1 4 4	●3							
	- trace fine-grained gravel																
		165	50														
1235	Fat CLAY - wet, gray, micaceous						CH	A-4									
		170	51		P	508					67	14.8	27	51	24		
	Poorly Graded SAND - wet, gray, fine-grained, micaceous, occasional clay layers up to 200 mm		52				SP	A-3									
		175	53														
			54														
	- medium dense	180	55		SPT	610			6 12 25 17	●18							
1230																	
		185	56														
	Lean CLAY - wet, gray, medium plasticity		57				CL	A-6									
		190	58		P	432						14.7	34				C TR SG
			59														
		195															

UTDOT Z003SB1.GPJ 8/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-1504-359**

Sheet 3 of 4

Logged by:	M. Bostrom
Date Start:	5/11/00
Date Finish:	5/14/00
Station:	6013+625.601 15.30 LT
Line:	D MAINLINE
Coordinates (m):	N 116,860.727 E 19,253.802
Elevation (m):	1285.387
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-1504-359
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225																	
	- very stiff, wet, gray, plastic, 25 mm clayey sand lense -silty sand layer 75 mm thick	200	61		SPT				9 16 22 56	17							
			62														
		205	63														
		210	64														
			65														
1220		215	66														
		220	67														
			68														
		225	69														
		230	70														
1215			71														
		235	72														
		240	73														
			74														
		245	75														
1210			76														
		250	77														
		255	78														
		260	79														

UTDOT Z003SB1.GPJ 8/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-1504-359**

Sheet **4** of **4**

Logged by:	M. Bostrom
Date Start:	5/11/00
Date Finish:	5/14/00
Station:	6013+625.601 15.30 LT
Line:	D MAINLINE
Coordinates (m):	N 116,860.727 E 19,253.802
Elevation (m):	1285.387
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

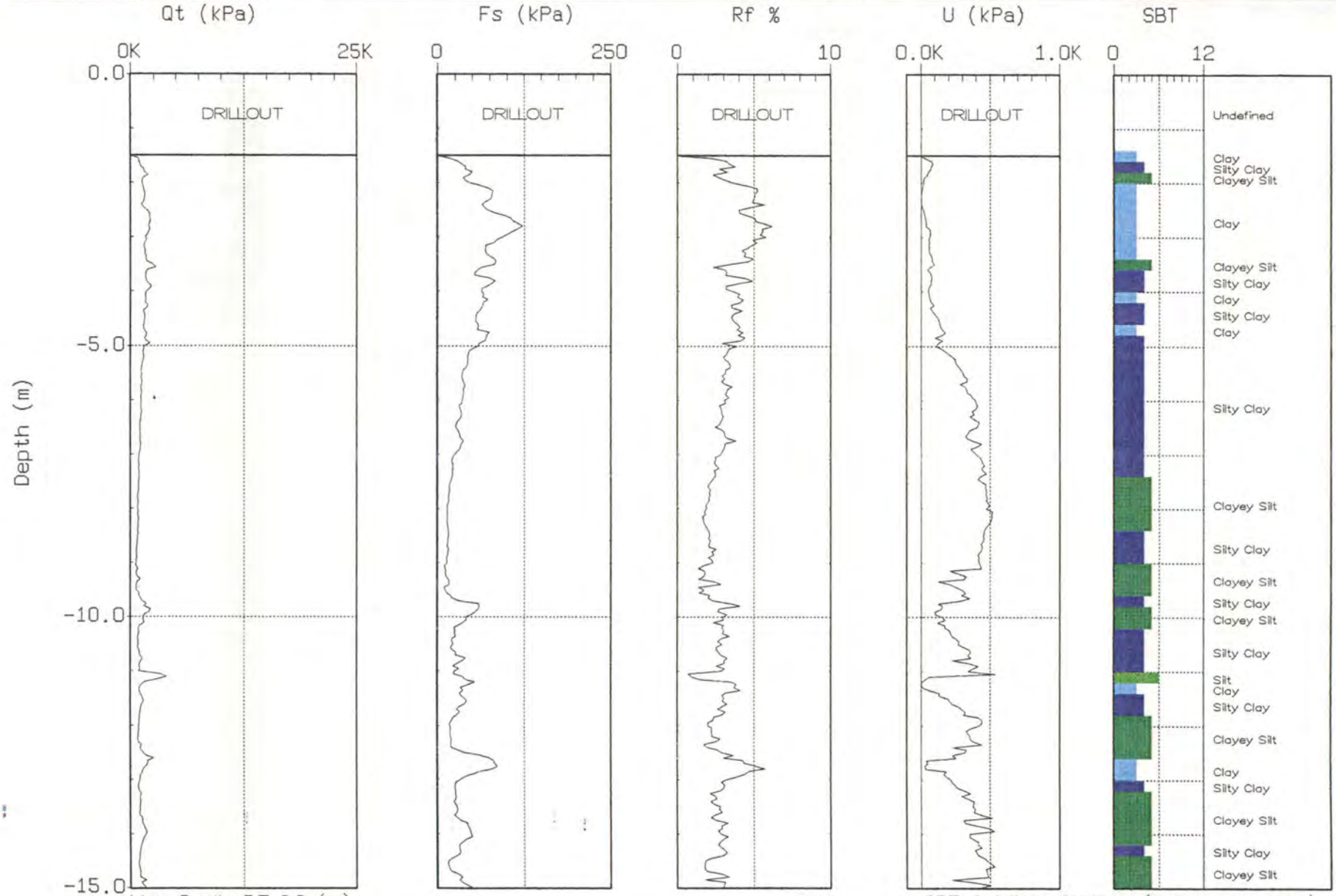
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-15-361
Station: 6013+844.850 14.50 LT
Elevation: 1285.053

Cone: 20 TON A 070
Date: 05:10:00 10:07



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

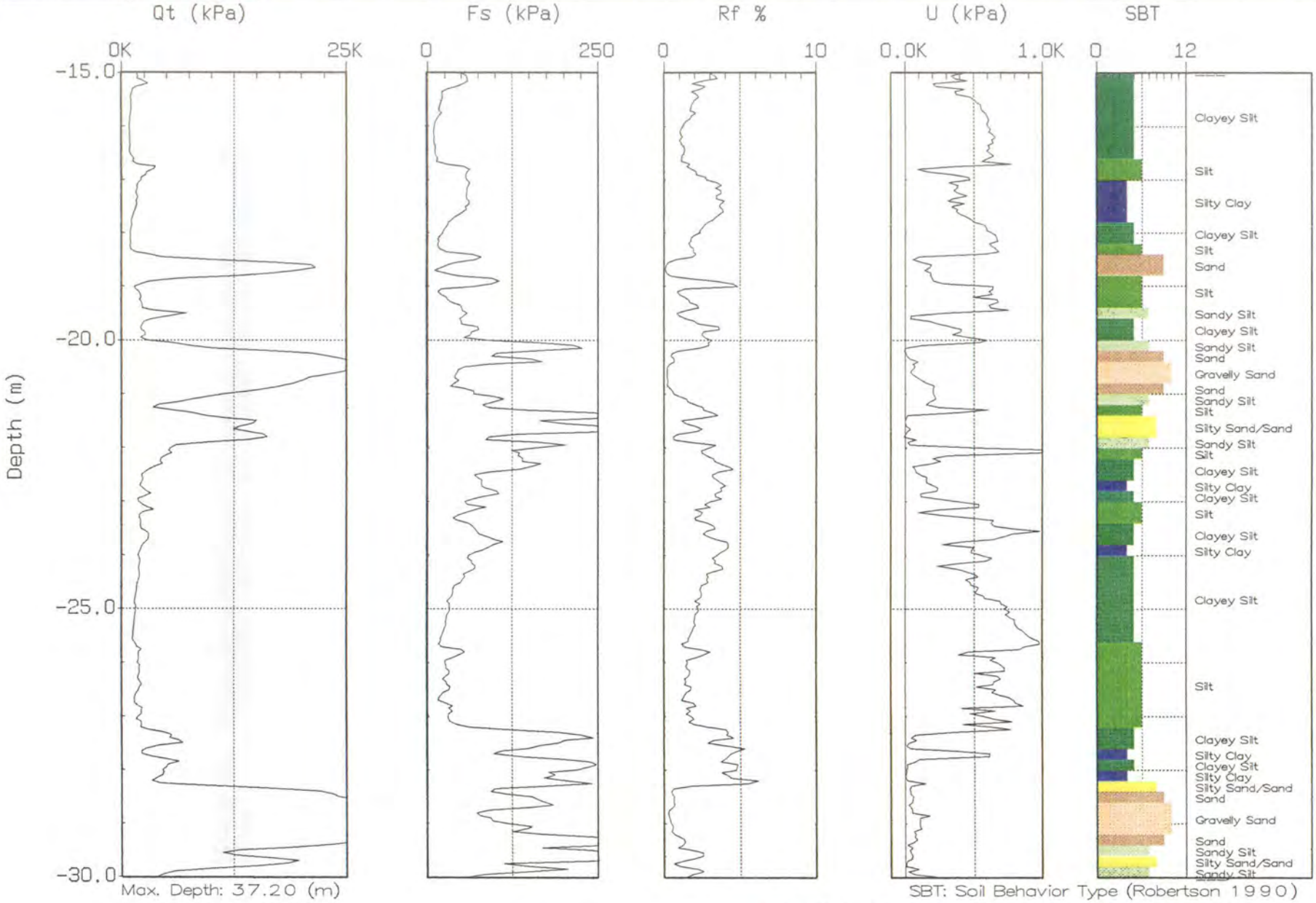
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-15-361
Station: 6013+844.850 14.50 LT
Elevation: 1285.053

Cone: 20 TON A 070
Date: 05:10:00 10:07



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

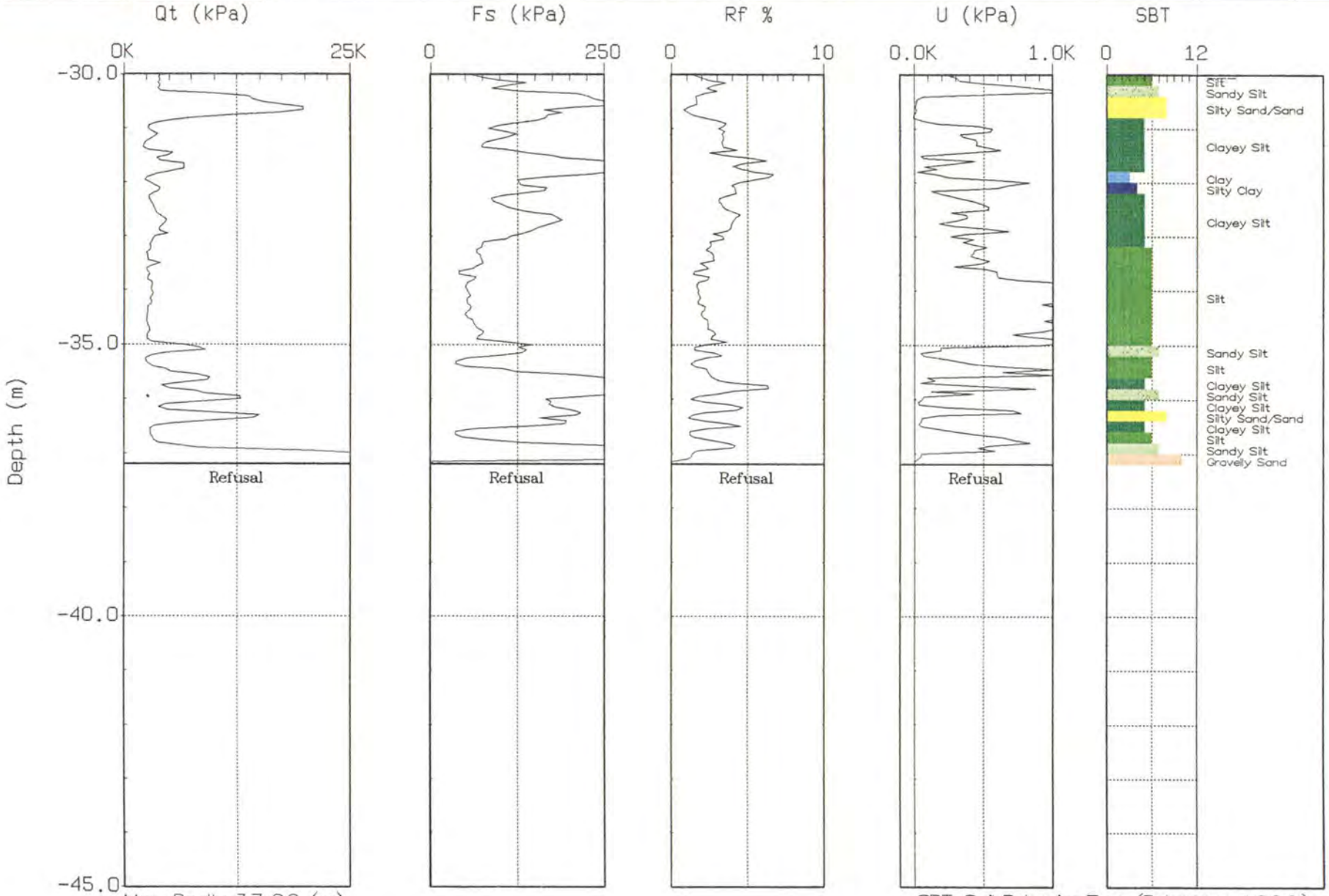
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-174

Legacy Parkway

Site: SC-15-361
Station: 6013+844.850 14.50 LT
Elevation: 1285.053

Cone: 20 TON A 070
Date: 05:10:00 10:07



Max. Depth: 37.20 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-16-268
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded GRAVEL - very dense, moist, brown, gravel/sand/silt mixture				SPT	610			16 12 19 26								
1285	Lean CLAY - stiff, wet, gray-brown		1				CL	A-6									
		5	2		P	610					*29*	14.7	29				pH WSS R C SG
	- stiff, wet, yellowish-brown with layers of silty sand to 75 mm	10	3		SPT	610			6 4 6 8	●15							
		15	4														
			5		P	610					*38*						
1280	- gray	20	6		SPT	610			3 4 3 4	●10							
		25	7														
			8		P	610					*43*						
	- very soft	30	9		SPT	610			0 0 0 1	●0							
1275		35	10														
			11		P	610					*62*	11.6	49				C SG
	- olive-gray, with some layers of silt to 3 mm	40	12		SPT	610			0 0 0 3	●0							
		45	13														
			14		P	584					23 *38*						
1270		50	15		SPT	610			0 0 0 0	●0							
		55	16														
			17														
	- with some sand	60	18		P	508											
	Silty SAND - fine-grained, with silt in bottom 50 mm		19				SM	A-2-5									
		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-268**

Sheet 1 of 4

Logged by:	J. Rajek
Date Start:	1/4/00
Date Finish:	1/8/00
Station:	6013+763.715 14.55 RT
Line:	D MAINLINE
Coordinates (m):	N 116,992.320 E 19,305.276
Elevation (m):	1285.910
Total Depth Drilled (m):	61.0
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-16-268
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - fine-grained (continued)																
1265			21														
	- medium dense, gray	70			SPT	610			0 10 11 15	19							SV
			22														
		75	23														
			24														
		80			P	0											
			25														
1260		85	26		SH	0											
			27														
	- medium dense, light gray, fine to coarse-grained, with silt	90			MC	406			16 18 19	25							
			28														
		95	29														
			30														
1255		100	31		SPT	610			0 0 0 0	0							
		105	32														
			33														
	Lean CLAY - medium stiff, wet, gray	110	34		SPT	610	CL	A-6	4 5 6 6	8							
	Silty SAND - wet, gray, fine-grained	115	35				SM	A-2-5									
1250			36														
		120	37		SPT	0			0 0 0 0	0							
		125	38														
			39														
		130			SPT					0							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-268**

Sheet **2** of **4**

Logged by:	J. Rajek
Date Start:	1/4/00
Date Finish:	1/8/00
Station:	6013+763.715 14.55 RT
Line:	D MAINLINE
Coordinates (m):	N 116,992.320 E 19,305.276
Elevation (m):	1285.910
Total Depth Drilled (m):	61.0
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

B BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-16-268
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - wet, gray, fine-grained (continued)					610			0 0 0 0								
1245		135	41														
			42														
	Lean CLAY - very stiff, moist, gray						CL	A-6									
		140	43		MC	610			15 15 15 20	●16							
	Silty SAND - medium dense, wet, gray		44				SM	A-2-5									
		145	45														
1240		150	46		MC	610			12 25 26 29	●26							
			47														
	- medium dense, wet, gray	155			SPT	610			3 4 16 14	●12							
	Lean CLAY - stiff, wet, gray		48				CL	A-6									
		160	49														
	Silty SAND - wet, gray						SM	A-2-5									
			50														
1235		165			SH	610											
			51														
		170	52														
			53														
	- medium dense	175			SPT				14 16 19 20	●20							
	Lean CLAY - very stiff, wet, gray		54				CL	A-6									
		180	55														
1230			56														
		185	57		P	0											
	- stiff	190	58		MC	610			7 10 11 16	●10							
			59														
		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-268**

Sheet **3** of **4**

Logged by:	J. Rajek
Date Start:	1/4/00
Date Finish:	1/8/00
Station:	6013+763.715 14.55 RT
Line:	D MAINLINE
Coordinates (m):	N 116,992.320 E 19,305.276
Elevation (m):	1285.910
Total Depth Drilled (m):	61.0
Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-16-268
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	- stiff, with sand	200	61		SPT	610			14 16 13 19	●16							
			62														
		205	63														
		210	64														
			65														
1220		215	66														
		220	67														
			68														
		225	69														
		230	70														
1215			71														
		235	72														
		240	73														
			74														
		245	75														
1210		250	76														
			77														
		255	78														
		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-268**

Sheet 4 of 4

Logged by:	J. Rajek
Date Start:	1/4/00
Date Finish:	1/8/00
Station:	6013+763.715 14.55 RT
Line:	D MAINLINE
Coordinates (m):	N 116,992.320 E 19,305.276
Elevation (m):	1285.910
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Drill Contractor:	Haztech Drilling
Driller:	C. Peterson
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Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

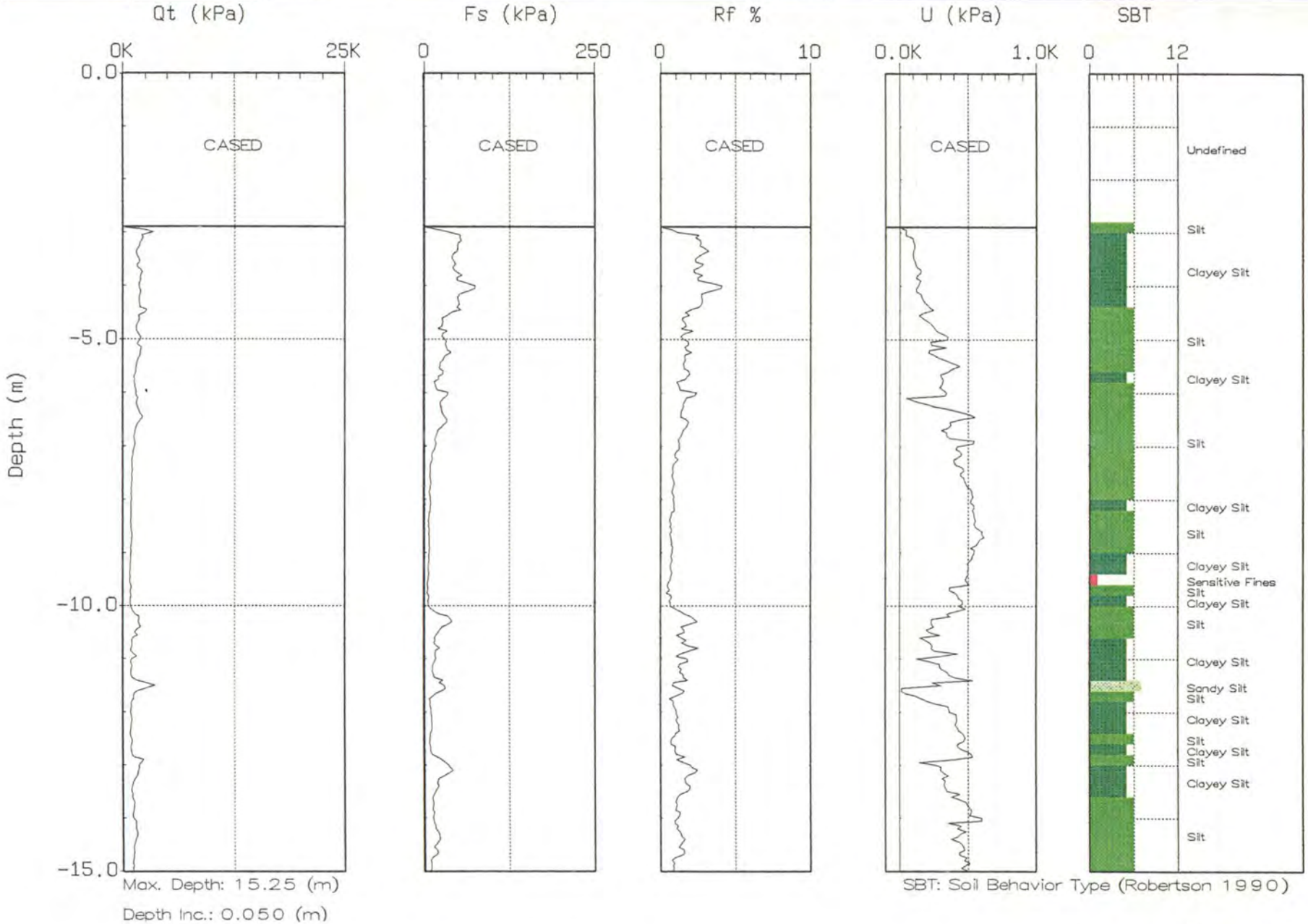
BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway

Site: SC-16-269
Station: 6013+814.559 14.96 RT
Elevation: 1276.815

Cone: 20 TON A 058
Date: 01:10:00 11:15



Max. Depth: 15.25 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

PLATE B-180

Legacy Parkway

Site: SC-16-269
Station: 6013+814.559 14.96 RT
Elevation: 1276.815

Cone: 20 TON A 058
Date: 01:10:00 11:15

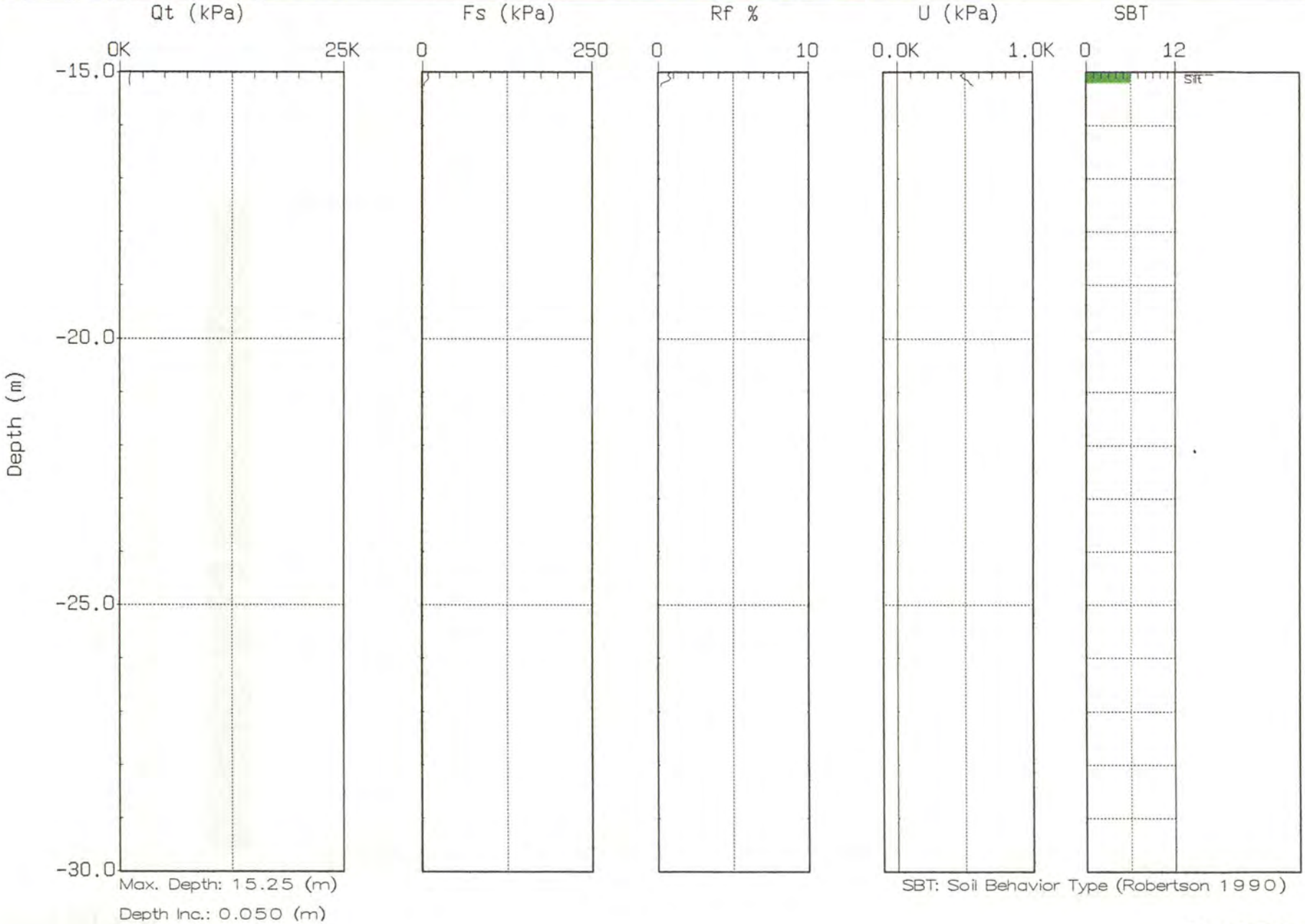
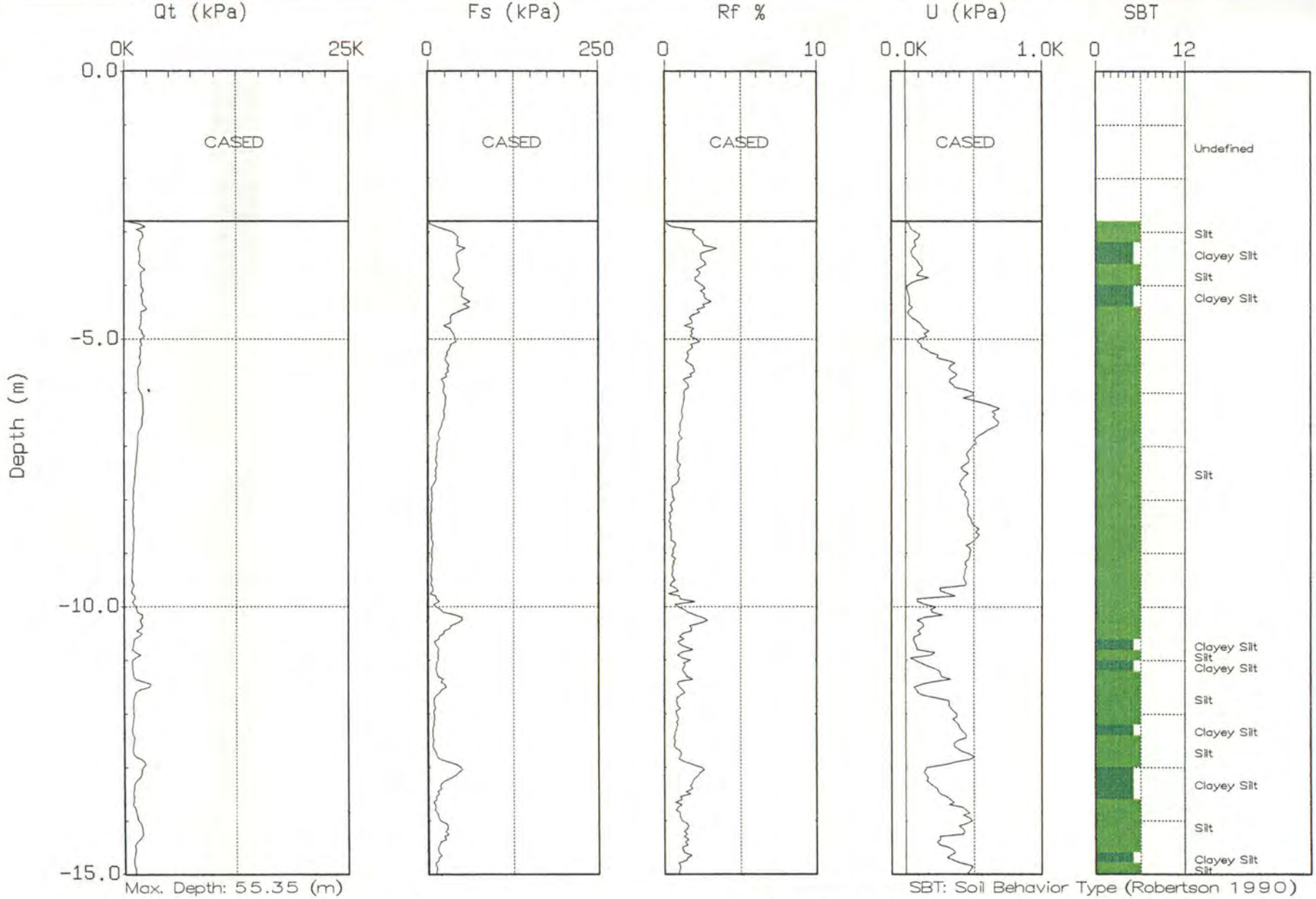


PLATE B-181

Legacy Parkway

Site: SC-16-269A
Station: 6013+814.559 14.96 RT
Elevation: 1276.820

Cone: 20 TON A 058
Date: 01:12:00 07:50



Max. Depth: 55.35 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

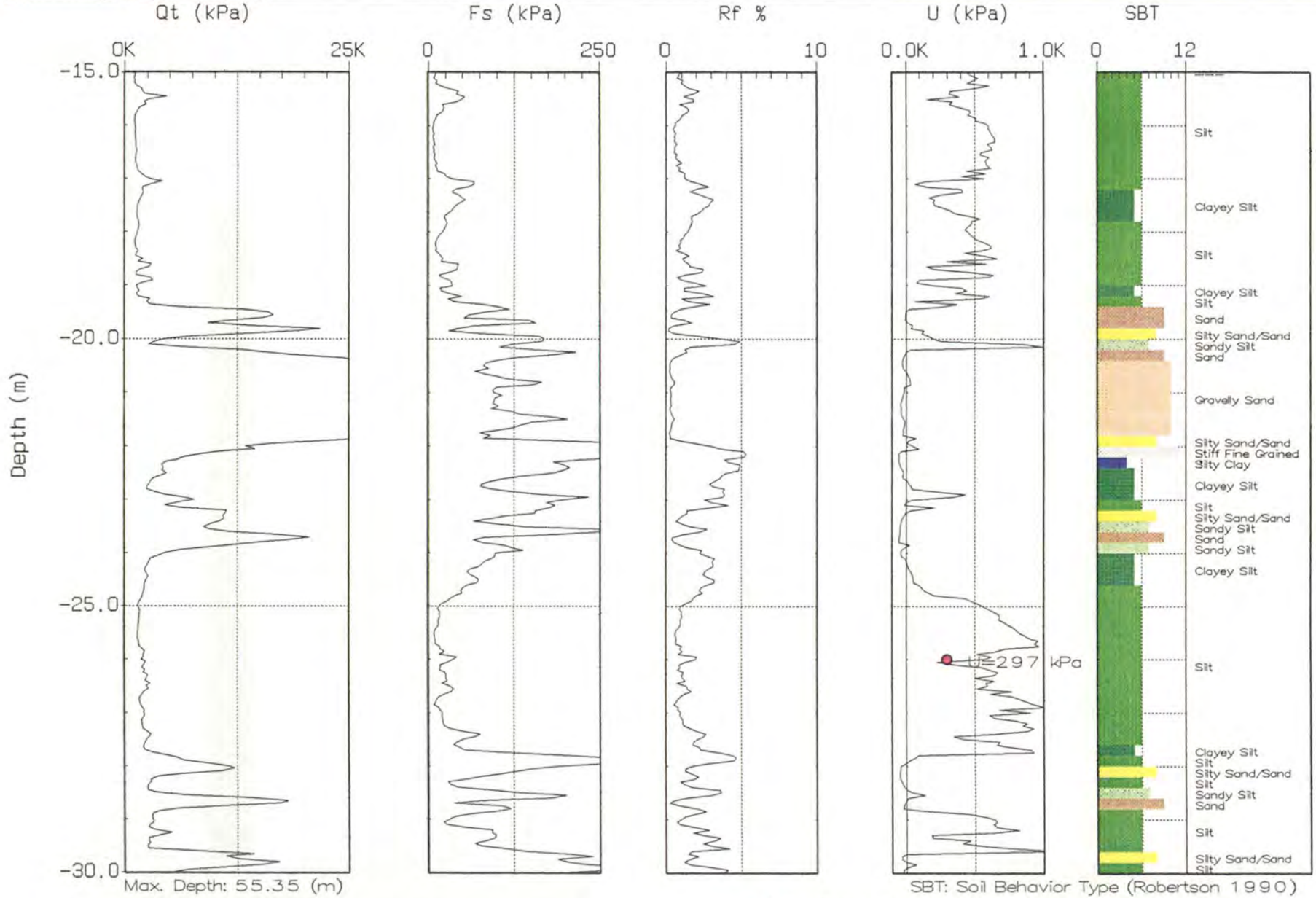
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-182

Legacy Parkway

Site: SC-16-269A
Station: 6013+814.559 14.96 RT
Elevation: 1276.820

Cone: 20 TON A 058
Date: 01:12:00 07:50



Max. Depth: 55.35 (m)
Depth Inc.: 0.050 (m)

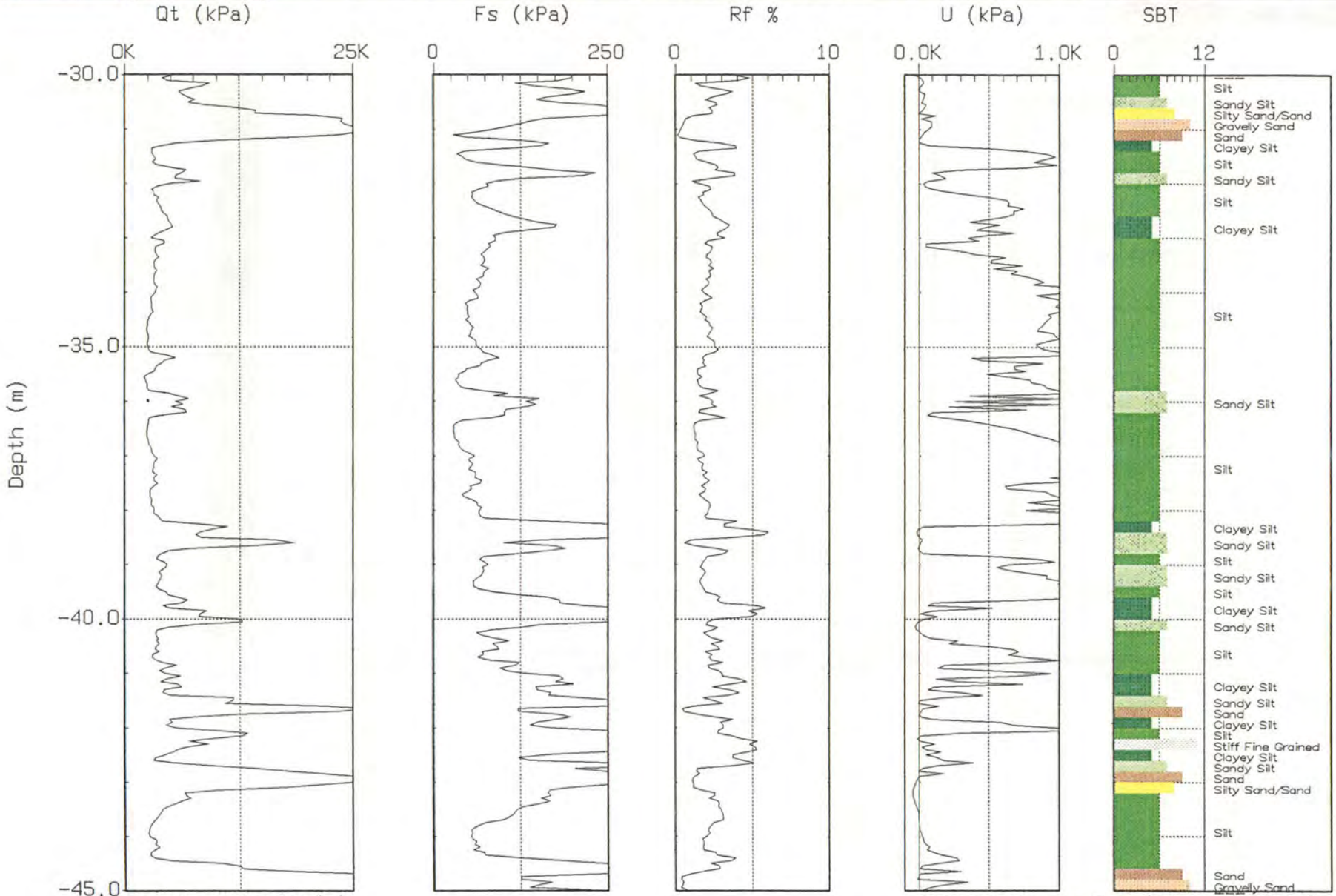
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-16-269A
Station: 6013+814.559 14.96 RT
Elevation: 1276.820

Cone: 20 TON A 058
Date: 01:12:00 07:50



Max. Depth: 55.35 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

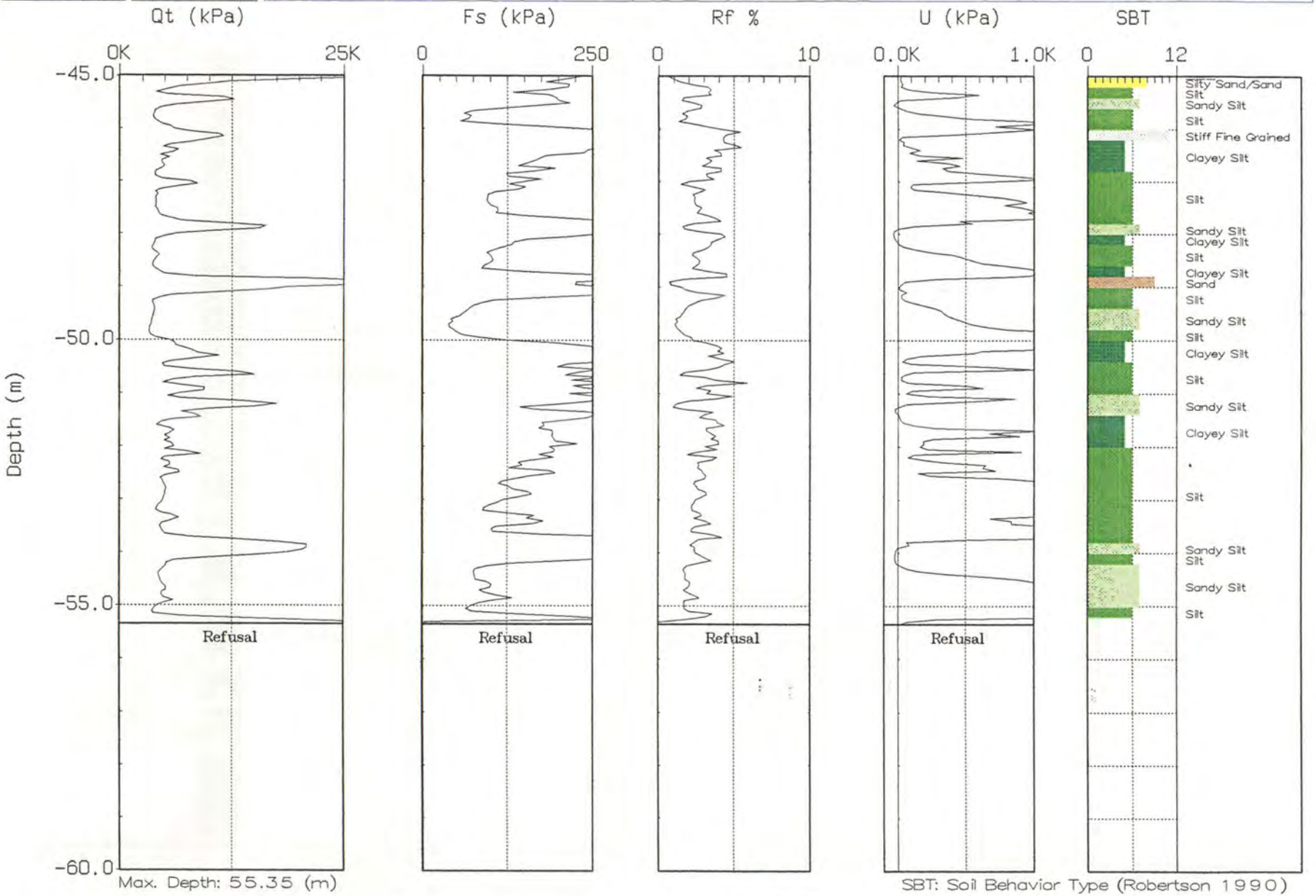
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-184

Legacy Parkway

Site: SC-16-269A
Station: 6013+814.559 14.96 RT
Elevation: 1276.820

Cone: 20 TON A 058
Date: 01:12:00 07:50



Max. Depth: 55.35 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

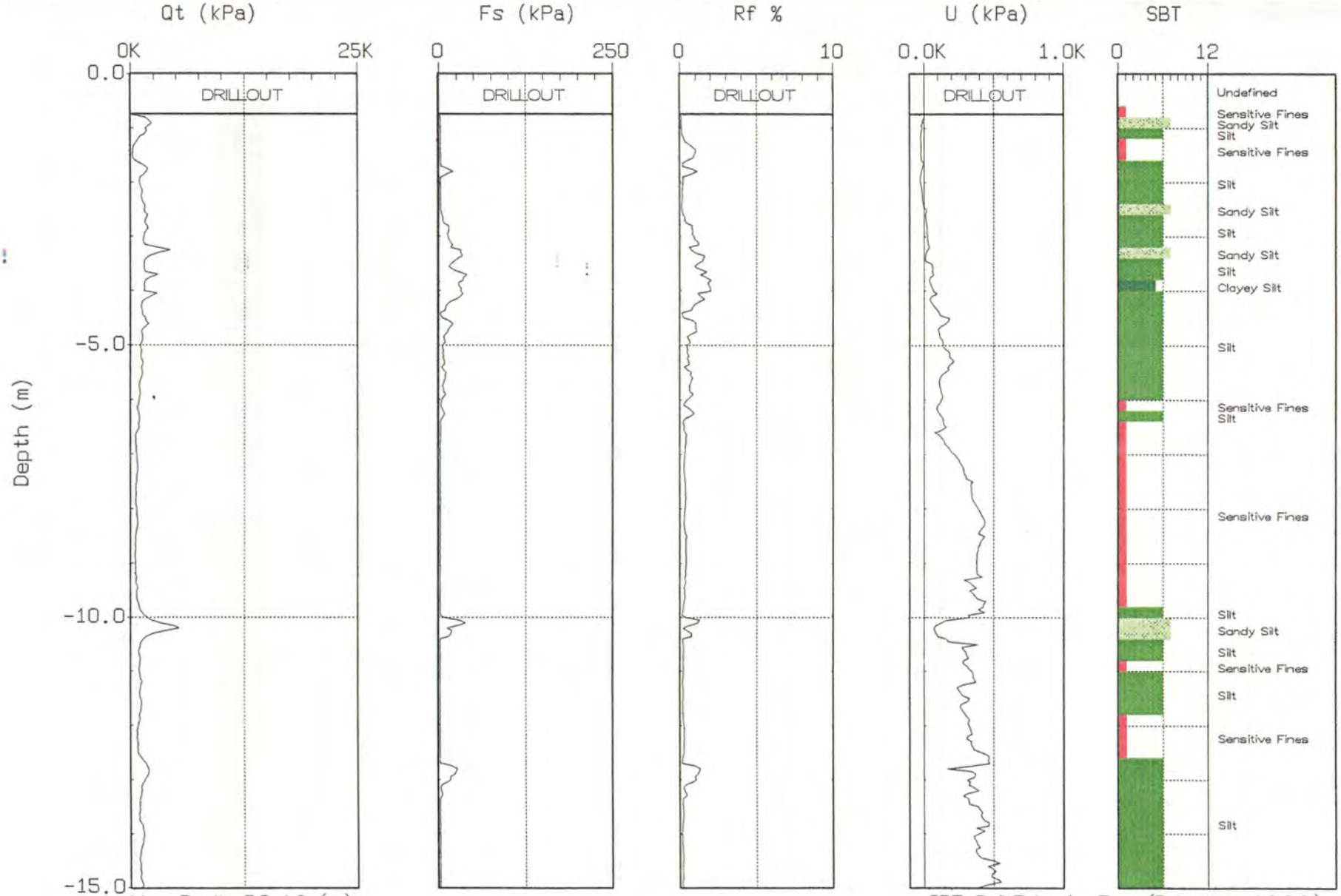
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-185

Legacy Parkway

Site: SC-1604-360
Station: 6013+666.567 14.50 RT
Elevation: 1285.048

Cone: 20 TON A 070
Date: 05:10:00 12:59



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

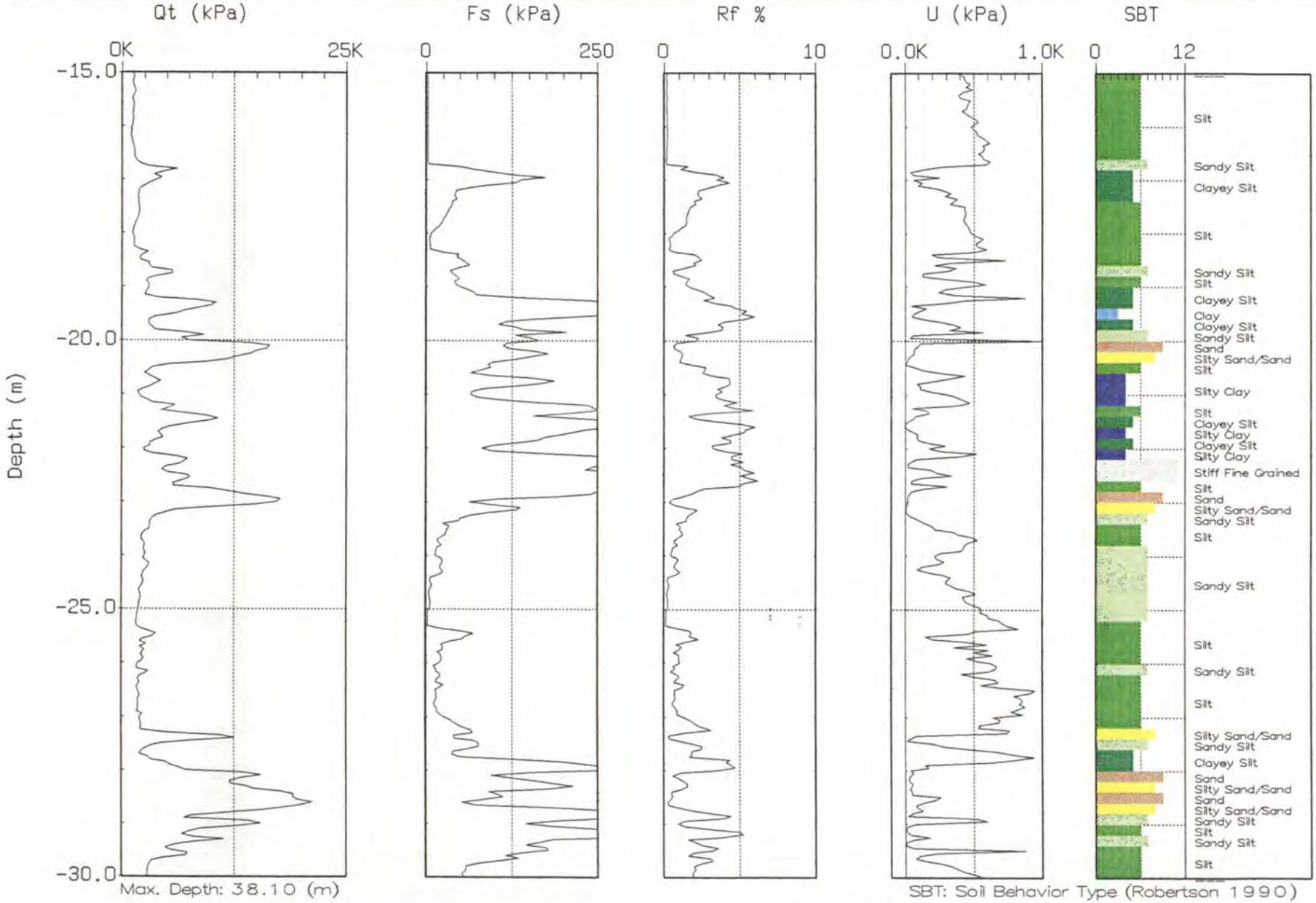
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-186

Legacy Parkway

Site: SC-1604-360
Station: 6013+666.567 14.50 RT
Elevation: 1285.048

Cone: 20 TON A 070
Date: 05:10:00 12:59



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

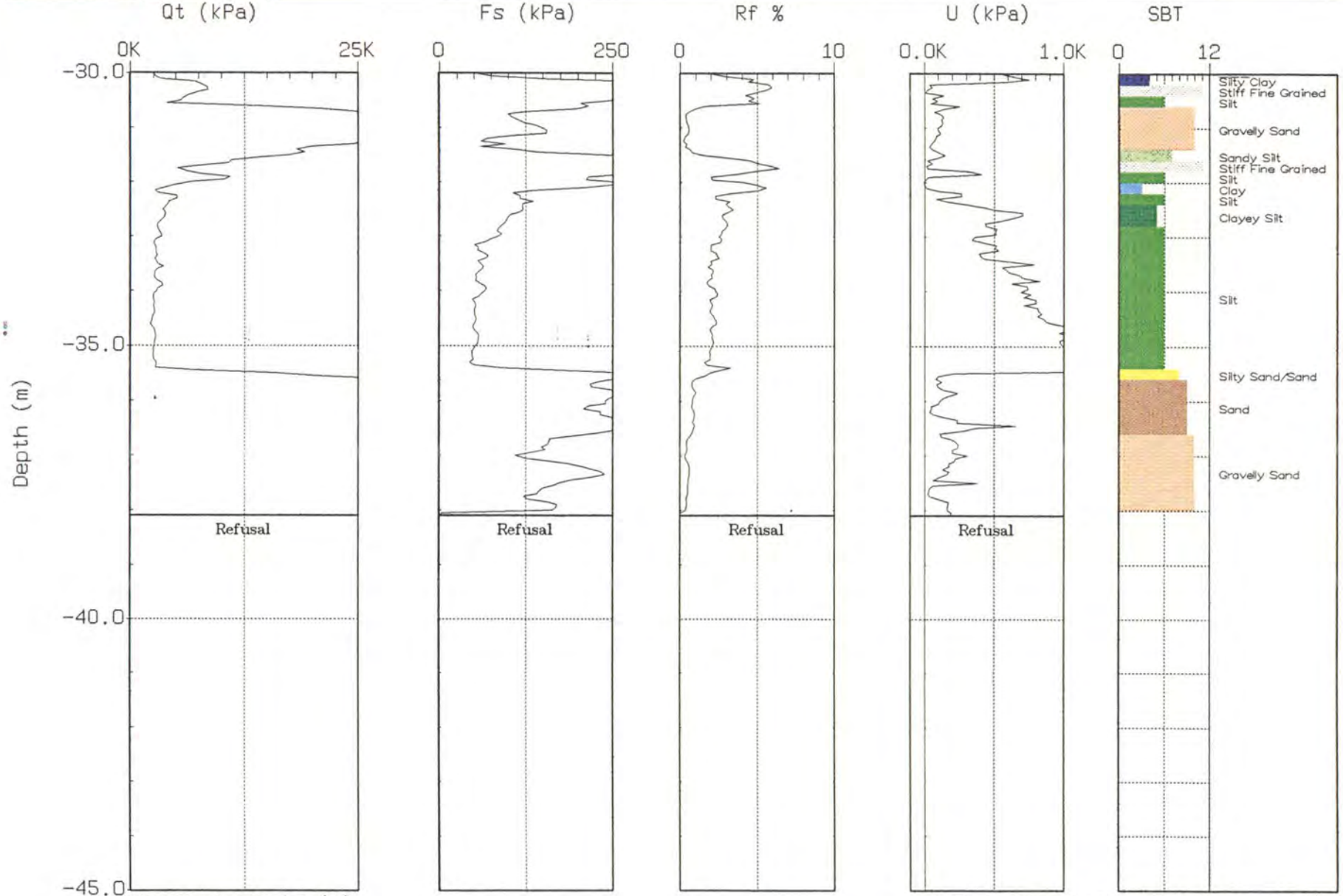
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-187

Legacy Parkway

Site: SC-1604-360
Station: 6013+666.567 14.50 RT
Elevation: 1285.048

Cone: 20 TON A 070
Date: 05:10:00 12:59



Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-16-362
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	Clayey SAND - hard, moist, brown, medium-grained sand, with subrounded to subangular coarse-grained sand and fine-grained gravel, appears to be synthetic rock, possibly concrete or grout mix with trace fine-grained gravels		1		SPT	457			5 27 18 31								
	Poorly Graded SAND - wet, brown, medium to coarse-grained, grains are angular to subangular	5	2		P	457	SP	A-3									
	SILT - wet, olive-gray to gray-brown, with some thin roots (native material)						ML	A-4									
	- no recovery, gravels	10	3														
	Lean CLAY - medium stiff, wet, brown, trace fine to coarse-grained gravel				MC	457	CL	A-6	4 4 4 5	●8							
	Silty CLAY - medium stiff, wet, mottled rust-colored, clay is red, silt is gray micaceous, thin "hairlike" roots , silt seams appear distorted		4				CL-ML	A-5									
	Lean CLAY - medium stiff, wet, reddish-brown, mottled gray and rust-colored	15			P	508	CL	A-7-6			*43*						
1280			5														
	- grades to grayish-brown	20	6		SPT	610			3 3 3 5	●8							
			7														
	- grades to black	25	8		P	610					65 *43*	11.8	48	50	23	98	C SG
	- very soft, thinly interbedded dark gray clays with some grayish-brown coloring, frequent seams of micaceous silt	30	9		SPT	610			1 0 0 0	●1							
1275			10														
	- stiff, gray	35	11		P	610					*48*						
	- soft, with frequent silt seams	40	12		SPT	610			0 0 3 5	●3							
			13														
	- medium stiff	45	14		P	610					*38*						
1270	- soft, gray with frequent fine-grained sand seams - grayish-brown, mottled black, with frequent silt seams	50	15		SPT	610			3 2 1 1	●3							
		55	16														
			17														
		60	18		P	610						14.0	30				SV
	Silty SAND - wet, gray, medium to coarse-grained - artesian conditions encountered in sand layer		19				SM	A-2-5									
		65															

UTDOT Z003SB1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-362**

Sheet 1 of 4

Logged by:	M. Bostrom
Date Start:	5/15/00
Date Finish:	5/16/00
Station:	6013+745.798 14.50 RT
Line:	D MAINLINE
Coordinates (m):	N 116,974.640 E 19,302.370
Elevation (m):	1285.219
Total Depth Drilled (m):	61.4
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-16-362
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265																
	Poorly Graded SAND with silt - dense, wet, gray	70	21		SPT	559	SP-SM		22 30 28 32							
	SILT - hard		22				ML	A-4								
		75	23													
			24													
	Silty CLAY - stiff, wet, gray	80			P	610	CL-ML	A-6		*67*						
1260			25													
		85	26													
			27													
	SILT - stiff, wet, gray, with some medium to coarse-grained sands, incorporated into the silt, frequent seams and occasional 75 mm layers of fine to medium-grained silty sand, some "hairlike" loots throughout	90			SPT	610	ML	A-4	4 6 7 14							
			28													
		95	29													
			30													
1255	Silty CLAY - stiff, wet, gray	100	31		P	508	CL-ML	A-6		105 86	14.8	31			85	C SG
		105	32													
			33													
	- medium stiff, olive to grayish-brown, with grayish-brown silt seams	110			SPT				3 3 5 7							
	Lean CLAY - medium stiff, wet, olive-brown, mottled black, pieces of "roots" on organic plant material throughout		34				CL	A-6								
1250		115	35													
			36													
	SILT with sand - wet, gray, with coarse-grained sands	120	37		P	508	ML	A-4								
		125	38													
			39													
		130			SPT	610			18 38 40 57							

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-362**

Sheet **2** of **4**

Logged by:	M. Bostrom
Date Start:	5/15/00
Date Finish:	5/16/00
Station:	6013+745.798 14.50 RT
Line:	D MAINLINE
Coordinates (m):	N 116,974.640 E 19,302.370
Elevation (m):	1285.219
Total Depth Drilled (m):	61.4
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 8/30/00

Boring: SB-16-362
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	- hard, layers of micaceous of fine-grained sand																
		135	41														
			42														
	Silty CLAY - stiff, wet, gray, with trace coarse-grained sands	140	43		P	610	CL-ML	A-6			77						
		145	44														
			45														
1240	SILT - very stiff, wet, gray, with frequent seams of micaceous silts to very fine-grained sand or seams of medium-grained sands	150	46		SPT	610	ML	A-4	5 9 25 60	●18							
		155	47														
			48														
		160	49		P	559											
			50														
1235	Lean CLAY with sand - hard, wet, gray	165	51				CL	A-6									
	- very stiff, occasional 25 mm seams of clayey sand - fine to coarse-grained sand, subrounded to subangular	170	52		SPT	610			8 15 19 21	●18							
			53														
	Sandy SILT - wet, gray, no plasticity, with fine-grained sand	175	54				ML	A-4									
1230		180	55		P	457					29					34	
			56														
	Lean CLAY - stiff, wet, gray	185	57				CL	A-6									
	- 150 mm gray silt seams, silt is dilatant	190	58		SPT	610			10 12 15 17	●13							
			59														
		195															

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-362**

Sheet **3** of **4**

Logged by:	M. Bostrom
Date Start:	5/15/00
Date Finish:	5/16/00
Station:	6013+745.798 14.50 RT
Line:	D MAINLINE
Coordinates (m):	N 116,974.640 E 19,302.370
Elevation (m):	1285.219
Total Depth Drilled (m):	61.4
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-16-362
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0–25–50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225																	
	- 200 mm sand layer	200	61		P	457					57						C TR SG
			62														
		205	63														
		210	64														
1220			65														
		215	66														
		220	67														
			68														
		225	69														
1215		230	70														
			71														
		235	72														
		240	73														
			74														
		245	75														
1210			76														
		250	77														
		255	78														
		260	79														

UTDOT Z033B1.GPJ 5/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-16-362**

Sheet 4 of 4

Logged by:	M. Bostrom
Date Start:	5/15/00
Date Finish:	5/16/00
Station:	6013+745.798 14.50 RT
Line:	D MAINLINE
Coordinates (m):	N 116,974.640 E 19,302.370
Elevation (m):	1285.219
Total Depth Drilled (m):	61.4
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

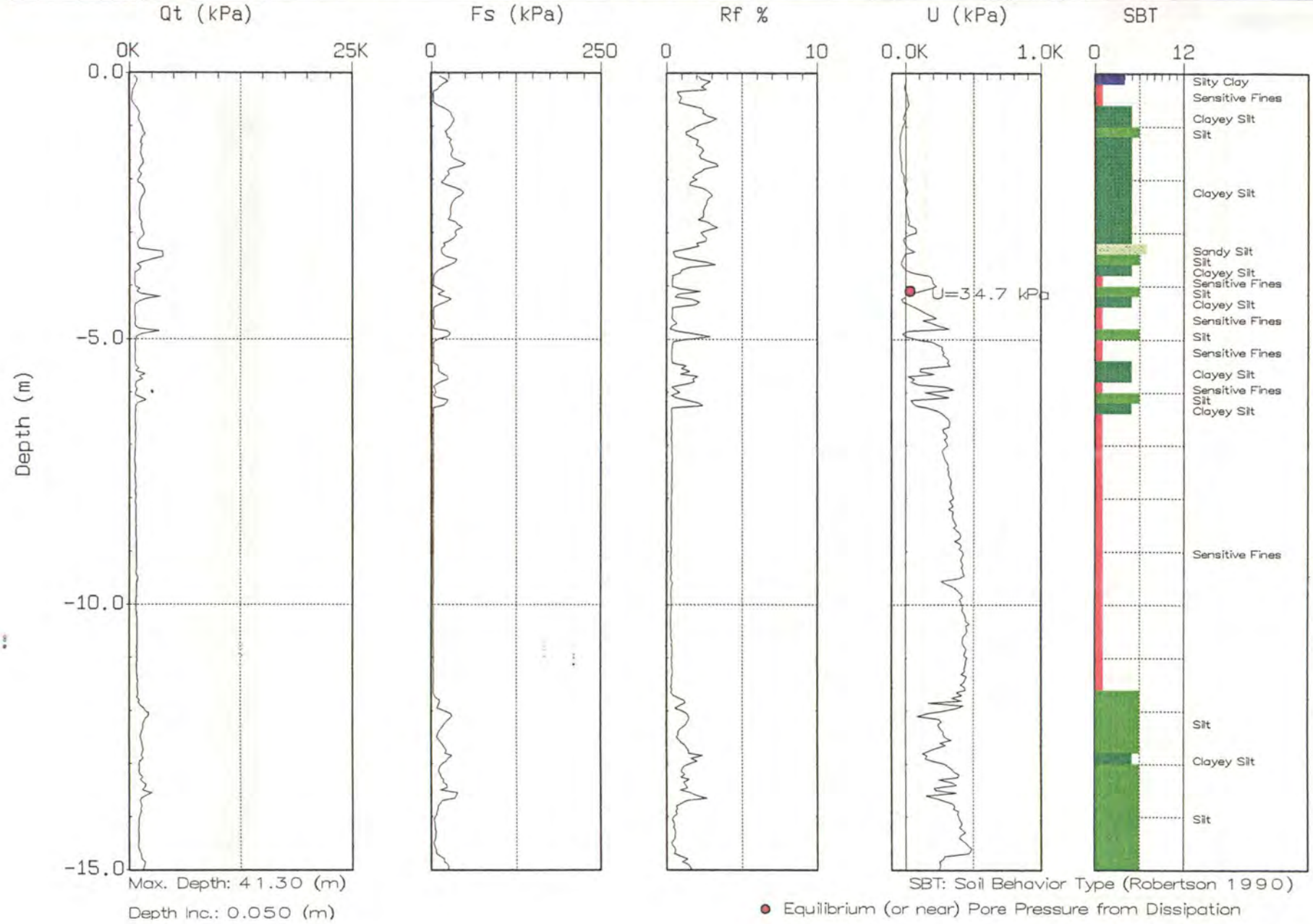
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-17-270
Station: 6014+574.642 16.25 RT
Elevation: 1284.002

Cone: 20 TON A 058
Date: 01:20:00 08:50



Max. Depth: 41.30 (m)
Depth Inc.: 0.050 (m)

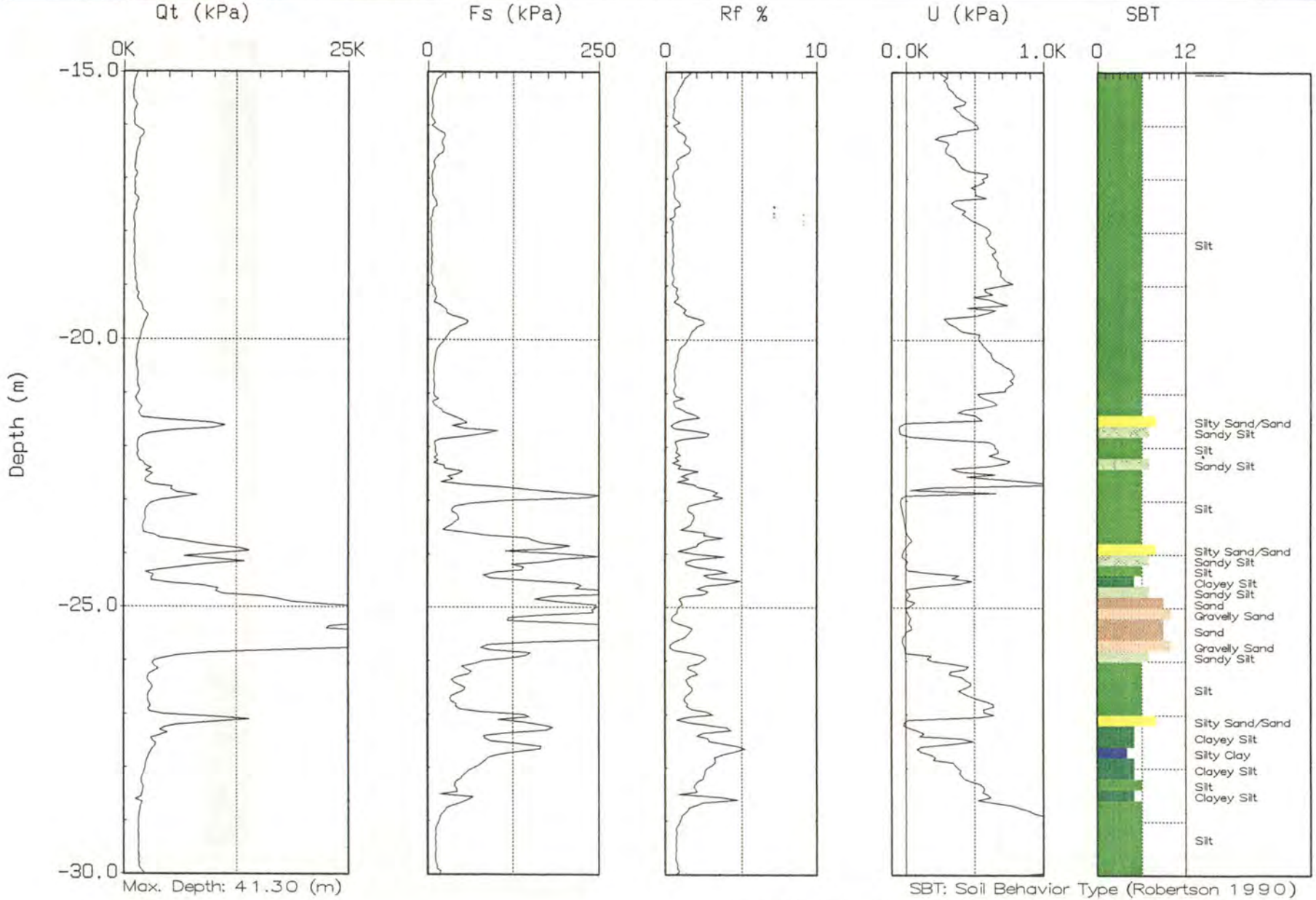
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-17-270
Station: 6014+574.642 16.25 RT
Elevation: 1284.002

Cone: 20 TON A 058
Date: 01:20:00 08:50



Max. Depth: 41.30 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

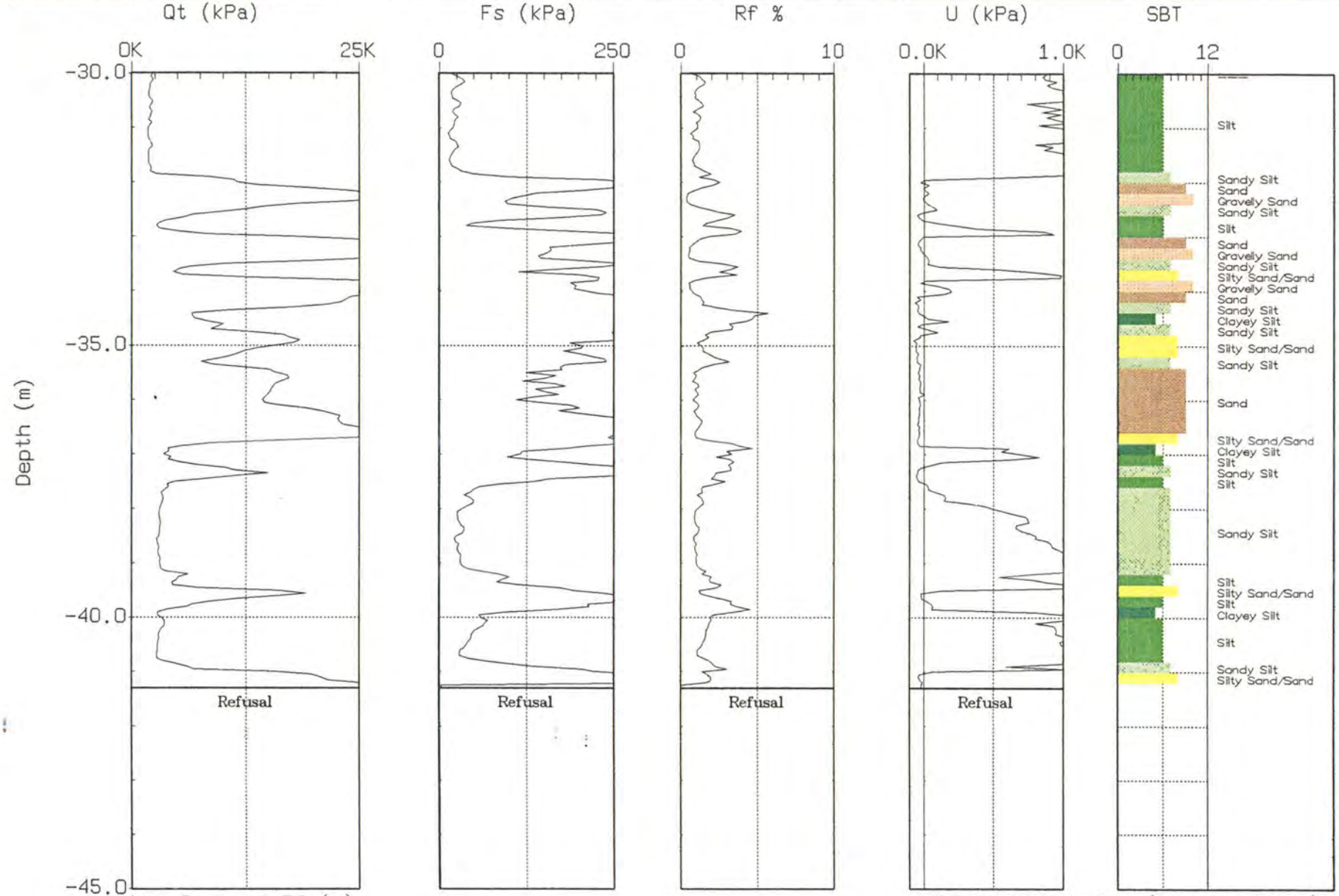
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-194

Legacy Parkway

Site: SC-17-270
Station: 6014+574.642 16.25 RT
Elevation: 1284.002

Cone: 20 TON A 058
Date: 01:20:00 08:50



Max. Depth: 41.30 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-195

Boring: SB-17-271
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - moist, light brown						CL	A-6									
	- stiff	5	1		SPT	610			2 3 4 5	11							pH WSS R
		10	2		SH	610					77						
	Clayey SAND - moist, gray, fine-grained sand		3				SC	A-2-6									
1280	- loose	15	4		SPT	610			2 3 2 2	7							
		20	5		SH	610					14 38	12.3	42				H
	- very loose, wet, very fine-grained sand	25	6		SPT	610			0 0 0 2	0							
	Silty SAND - wet, dark gray	30	7		SH	0	SM	A-2-5									
1275		35	8		SPT	610			3 1 1 1	2							
	Sandy Lean CLAY - very soft, wet, dark gray	40	9		SH	432	CL	A-6			34	10.6	56	47	18		C SG
	- medium stiff	45	10		SPT	610			0 1 5 4	6							
1270		50	11		SH	610					48						
		55	12														
		60	13		SPT	610			4 2 2 3	4							
1265		65	14														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-17-271**

Sheet 1 of 4

Logged by:	R. Yates
Date Start:	1/15/00
Date Finish:	1/21/00
Station:	6014+637.289 19.57 RT
Line:	D MAINLINE
Coordinates (m):	N 117,779.928 E 19,607.163
Elevation (m):	1284.807
Total Depth Drilled (m):	71.6
Drill Contractor:	Haztech Drilling
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B1.GPJ 5/30/00

Boring: SB-17-271
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0–25–50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy Lean CLAY - medium stiff, wet, dark gray (continued)	70	21		SH	610					44 *62*	12.0	48			98	
		75	22														
			23														
			24														
	Silty CLAY - very stiff, wet, gray, some fine-grained sand	80			SPT	610	CL-ML	A-6	8 16 15 25	●22							
1260			25														
	- artesian water to 27 meters	85	26														
			27														
		90			SH	610					*57*	14.1	33				C SG
			28														
		95	29														
1255			30														
		100			SPT	610			0 3 5 4	●5							
	Lean CLAY - medium stiff, wet, gray		31				CL	A-6									
		105	32														
			33														
	- gas observed	110			SH	457											
			34														
1250		115	35														
			36														
	Silty SAND - medium dense, wet, gray, no traces of gravel, fine-grained	120			SPT		SM	A-2-5	15 6 22 28	●16							
			37														
	Lean CLAY - stiff, wet, gray	125	38		SPT	610	CL	A-6	5 9 14 21	●13							
			39														
1245		130															

UTDOT Z003SB1.GPJ 6/30/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-17-271**

Sheet **2** of **4**

Logged by:	R. Yates
Date Start:	1/15/00
Date Finish:	1/21/00
Station:	6014+637.289 19.57 RT
Line:	D MAINLINE
Coordinates (m):	N 117,779.928 E 19,607.163
Elevation (m):	1284.807
Total Depth Drilled (m):	71.6
Drill Contractor:	Haztech Drilling
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-17-271
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - wet, gray						SM	A-2-5									
	Lean CLAY - medium stiff, wet, gray, occasional silty sand layers	135	41		SPT	610	CL	A-6	4 3 5 7	●5							
			42														
		140	43														
		145	44		SH	610					67	14.2	32				C SG
1240			45														
		150	46														
	Silty SAND - loose, wet, gray	155	47		SPT	610	SM	A-2-5	3 5 10 12	●8							
	Sandy Lean CLAY - wet, gray		48				CL	A-6									
		160	49														
1235		165	50		SH	610					102 77	8.5	76	124	43		
			51														
		170	52														
	- stiff	175	53		SPT	610			7 8 15 28	●11							
			54														
1230		180	55														
		185	56		SH	0											
			57														
	- very stiff	190	58		SPT	457			10 22 28 14	●23							
			59														
1225		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-17-271**

Sheet **3** of **4**

Logged by:	R. Yates
Date Start:	1/15/00
Date Finish:	1/21/00
Station:	6014+637.289 19.57 RT
Line:	D MAINLINE
Coordinates (m):	N 117,779.928 E 19,607.163
Elevation (m):	1284.807
Total Depth Drilled (m):	71.6
Drill Contractor:	Haztech Drilling
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B1.GPJ 5/30/00

Boring: SB-17-271
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 / SPT (N1)60 (Greater than 50 Blows)	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
		200	61		SPT	610			0 12 28 45	17							
			62														
		205	63														
	- medium stiff, traces of invertebrate paleo (shells)	210	64		SPT	610			6 7 10 17	7							
1220			65														
		215	66				SM	A-2-5									
	Silty SAND - medium dense, gray, occasional clay layers	220	67		BAG	356											
			68														
		225	69		SPT	559			7 19 44 50/100mm	28							
1215		230	70		SPT	610			15 12 15 18	11							
			71														
		235	72		SH	508											
		240	73														
			74														
1210		245	75														
		250	76														
			77														
		255	78														
		260	79														
1205																	

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-17-271**

Sheet 4 of 4

Logged by:	R. Yates
Date Start:	1/15/00
Date Finish:	1/21/00
Station:	6014+637.289 19.57 RT
Line:	D MAINLINE
Coordinates (m):	N 117,779.928 E 19,607.163
Elevation (m):	1284.807
Total Depth Drilled (m):	71.6
Drill Contractor:	Haztech Drilling
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB1.GPJ 5/30/00

Boring: SB-18-272
Sheet 1 of 5

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	FILL: Silty SAND - dense, moist, mottled light gray to very gray, fine to medium-grained with gravel				SPT	483			13 25 48 20								
▽	- with gravel	5	1		SH	457											
	Lean CLAY - soft, wet, light gray		2				CL	A-6									
	- with sand seams	10	3		MC	610			1 1 2 2	●3							
			4														
		15	5		SH	610						12.3	44	32	13	97	pH WSS R C TR SG
1280	- very soft, with frequent seams of dark green-gray silt	20	6		SPT	610			1 1 1 3	●2							
			7														
		25	8		SH	610					9	11.0	57			97	
		30	9		SPT	610			1 1 0 1	●1							
			10														
1275		35	11		SH	584								40	18		C SG
			12														
	- with frequent silty sand layers, 50 mm thick	40			SPT	610			1 0 1 0	●1							
			13														
		45	14		SH	610						12.8	40	39 41 40	13 18 23		C SG
	Silty SAND - loose, wet, dark gray						SM	A-2-4									
	SILT - wet, soft, greenish gray	50	15				ML	A-4									
1270					SPT	584			1 2 2 6	●4							
			16														
		55	17														
			18														
		60			SH	610					41	13.9	33				
	Silty SAND, loose, wet, green-gray, fine-grained		19				SM	A-2-4									
	Lean CLAY - very soft, wet, light gray, frequent silt and sand seams	65					CL	A-6									

UTDOT Z003SB2B.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-18-272**

Sheet **1** of **5**

Logged by:	S. Lewis
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6014+611.633 19.41 LT
Line:	D MAINLINE
Coordinates (m):	N 117,784.919 E 19,560.763
Elevation (m):	1285.392
Total Depth Drilled (m):	92.0
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-18-272
Sheet 2 of 5

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 / SPT (N1)60 (Greater than 50 Blows)	Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265	Lean CLAY, continued	70	21														
			22		SPT	610			1 1 1 1	2							
		75	23														
	Silty SAND - medium dense, wet, gray, fine-grained with trace clay, mica flakes		24				SM	A-2-4									
		80			SH	508						12.9	40			99	C SG
	Lean CLAY - medium stiff, wet, light gray, frequent sand seams and layers		25				CL	A-6									
1260																	
	Silty SAND - loose, wet, greenish gray, with mica flakes, frequent thin silt seams	85	26				SM	A-2-4									
			27														
		90	28		SPT	610			3 5 7 9	7							
		95	29														
	Silty Lean CLAY - soft to medium stiff, wet, light gray, with frequent seams of dark gray sand						CL	A-6									
			30														
1255		100	31		SH	610					78	11.8	46			100	
		105	32														
	Silty SAND - medium dense, wet, dark gray, fine-grained, with mica flakes, trace clay		33				SM	A-2-4									
		110			SPT	610			2 10 20 26	13							
	Poorly Graded SAND - medium dense, wet, light gray, subangular, fine to medium-grained		34				SP	A-3									
		115	35														
1250			36														
	Lean CLAY - soft, wet, light gray	120	37		SH	406	CL	A-6				18.0	19	47	22		
		125	38														
			39														
		130			SPT					4							

Test Results *

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Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-18-272**

Sheet **2** of **5**

Logged by:	S. Lewis
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6014+611.633 19.41 LT
Line:	D MAINLINE
Coordinates (m):	N 117,784.919 E 19,560.763
Elevation (m):	1285.392
Total Depth Drilled (m):	92.0
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-18-272
Sheet 3 of 5

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1245	Lean CLAY, continued					457			4 4 5								
		135	41														
			42														
	- with frequent silt layers	140	43		SH	584					88	16.0	26				
		145	44														
			45														
1240	- medium stiff, with occasional thin sand seams	150	46		SPT	457			4 6 14	●7							
		155	47														
			48														
	- with sand	160	49		SH	432						14.3	32	40	18		C TR SG
1235		165	50														
			51														
	- soft	170	52		SPT	457			5 5 7	●4							
		175	53														
	Silty SAND - loose, wet, light gray, fine to medium-grained, subangular		54				SM	A-2-4									
		180	55		SH	610											
1230	Lean CLAY - soft, wet, light gray, occasional fine-grained sand						CL	A-6									
		185	56														
			57														
	- frequent organic silt layers	190	58		SPT	457			5 5 7	●3							
		195	59														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-18-272**

Sheet **3** of **5**

Logged by:	S. Lewis
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6014+611.633 19.41 LT
Line:	D MAINLINE
Coordinates (m):	N 117,784.919 E 19,560.763
Elevation (m):	1285.392
Total Depth Drilled (m):	92.0
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Boring: SB-18-272
Sheet 4 of 5

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1225	Lean CLAY, continued	200	61												
	Poorly graded SAND with silt - loose, wet, light gray, fine-grained		62	SPT	0	SP-SM	A-3	7 8 13							
		205	63												
	Lean CLAY, very stiff, wet, light gray, frequent silt and sand seams and layers					CL	A-6								
	- with sand, lacustrine shells	210	64	SH	610					14.0	34				C TR SG
			65												
1220		215	66												
	Silty SAND - very dense, wet, light gray, fine-grained	220	67	SPT	279	SM	A-2-4	20 50/125mm							
			68												
		225	69												
1215		230	70												
			71												
		235	72												
	Lean CLAY - very stiff, wet, dark green-gray, with fine to medium-grained sand					CL	A-6								
		240	73												
	Silty SAND - loose, wet, dark green-gray			SPT	25	SM	A-2-4	5 7 15							
			74												
		245	75												
1210	Lean CLAY - very stiff, wet, light gray, with trace brown mottling, occasional sand					CL	A-6								
		250	76	SPT	457			19 32 44							
			77												
	- stiff	255	78	SPT	457			17 20 20							
			79												
		260		SPT	457			8 13 13							

Graphic Log

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

0 25 50

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-18-272**

Sheet **4** of **5**

Logged by:	S. Lewis
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6014+611.633 19.41 LT
Line:	D MAINLINE
Coordinates (m):	N 117,784.919 E 19,560.763
Elevation (m):	1285.392
Total Depth Drilled (m):	92.0
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 5/31/00

Boring: SB-18-272
Sheet 5 of 5

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1205	- Lean CLAY, continued, medium stiff	265	81														
			82														
		270	83		MC	610			7 9 15 23	4							
		275	84														
	Silty SAND - loose, wet, dark green-gray, frequent silt layers, shell fragments		85				SM	A-2-4									
1200		280	86		SH	559											SV
		285	87														
			88														
		290	89		SPT	457			11 32 50/ 100mm								
		295	90		SPT	457			9 10 15	5							
1195			91														
		300	92		MC	610			9 15 39 50 / 25 mm	9							
		305	93														
			94														
		310	95														
1190		315	96														
			97														
		320	98														
		325	99														

UTDOT Z0035B2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-18-272**

Sheet **5** of **5**

Logged by:	S. Lewis
Date Start:	1/4/00
Date Finish:	1/11/00
Station:	6014+611.633 19.41 LT
Line:	D MAINLINE
Coordinates (m):	N 117,784.919 E 19,560.763
Elevation (m):	1285.392
Total Depth Drilled (m):	92.0
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

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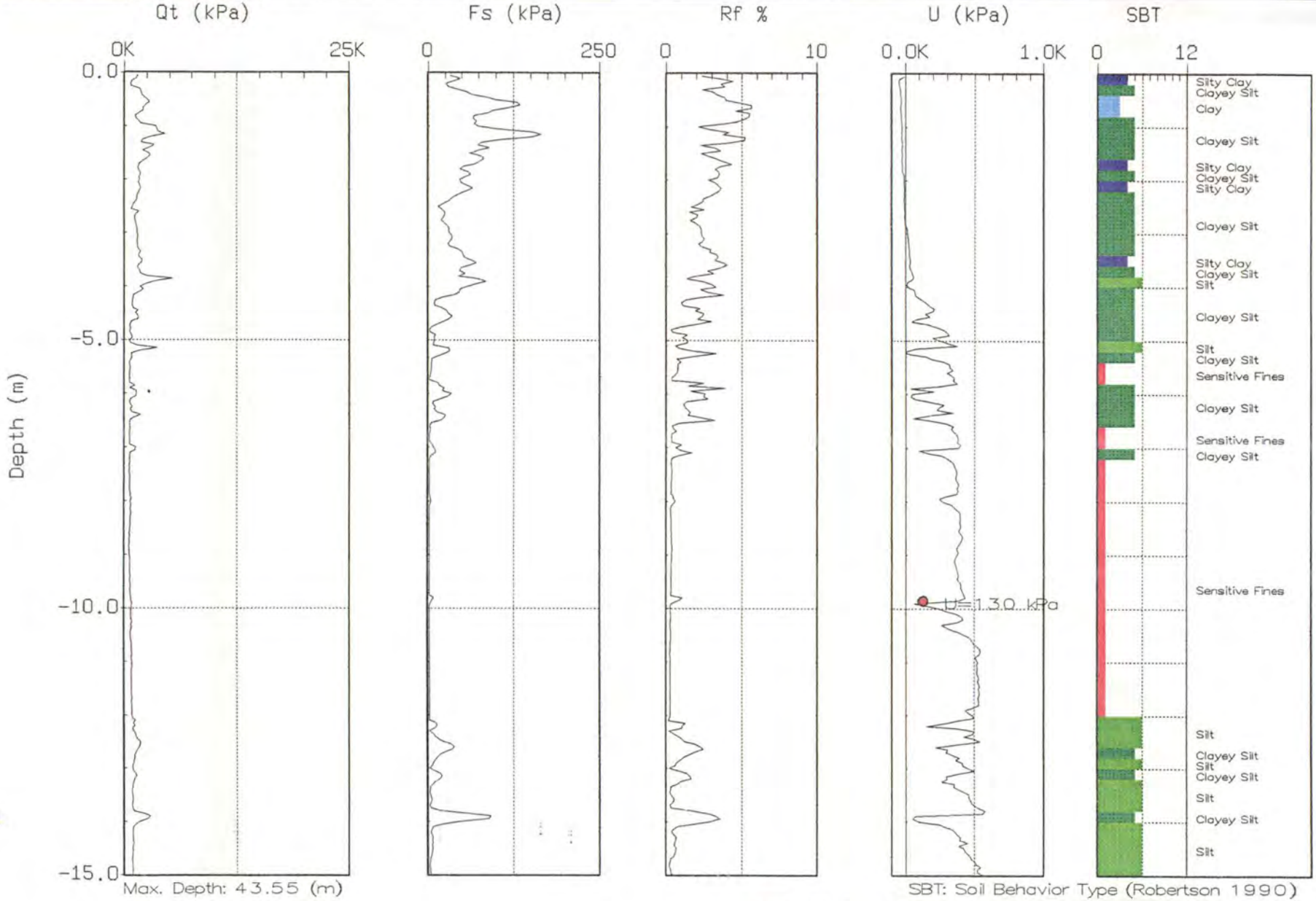
Legacy Parkway

Site: SC-18-273
Station: 6014+676.059 16.52 LT
Elevation: 1284.529

Cone: 20 TON A 058
Date: 01:20:00 13:55



Max. Depth: 43.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

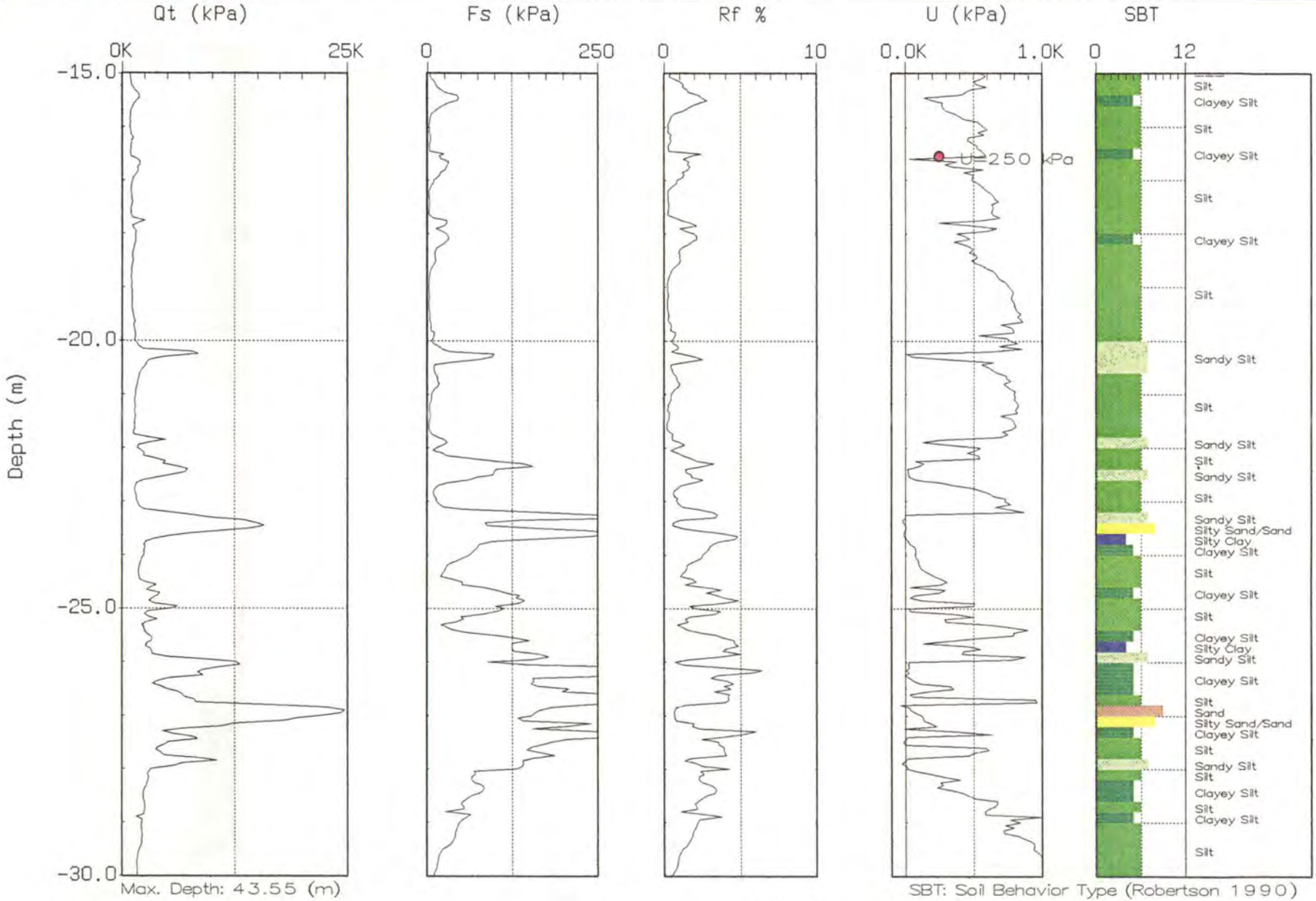
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-206

Legacy Parkway

Site: SC-18-273
Station: 6014+676.059 16.52 LT
Elevation: 1284.529

Cone: 20 TON A 058
Date: 01:20:00 13:55



Max. Depth: 43.55 (m)
Depth Inc.: 0.050 (m)

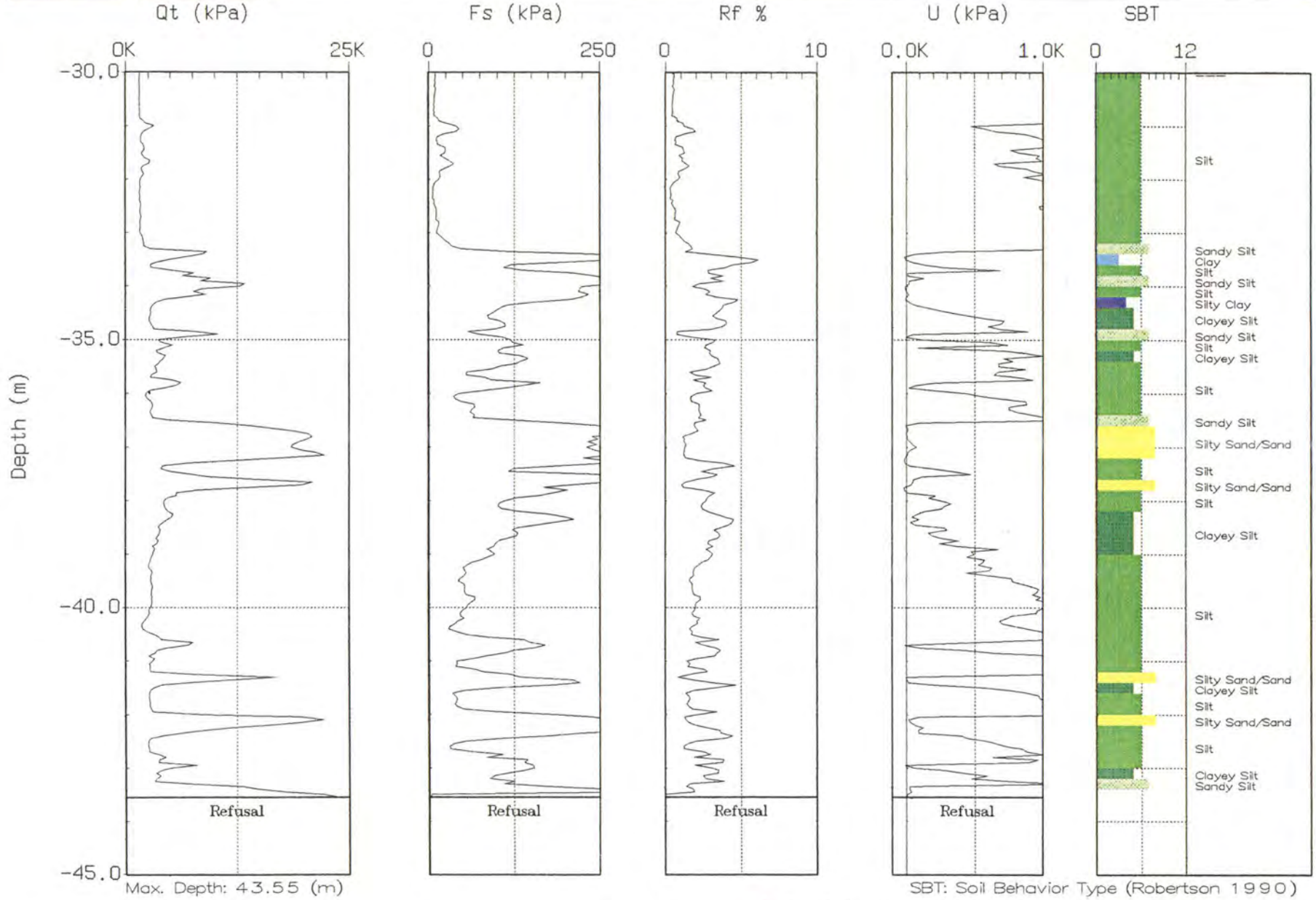
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-18-273
Station: 6014+676.059 16.52 LT
Elevation: 1284.529

Cone: 20 TON A 058
Date: 01:20:00 13:55



Max. Depth: 43.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-19-274
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: SAND and Sandy GRAVEL - very dense, moist, brown		1													
		5	2		SPT	0			50/100mm							
		10	3		MC	610			18 24 45 50							
1295			4													
		15	5		SPT	0			50/ 75mm							
		20	6		SPT	559			24 30 36 36							
			7													
		25	8		MC	25			50/125mm							
1290	Lean CLAY - stiff, moist, brown, with gray and wet silt	30	9		MC	152	CL	A-6	6 7 10 10							
			10													
	Silty SAND - loose to medium dense, wet, black, frequent clay and silt seams and layers	35	11		SPT	508	SM	A-2-5	4 4 4 2							
		40	12		P	406				43						
			13													
1285	Lean CLAY - soft, wet, brown to gray, occasional silt and silty SAND seams - SAND layer, medium grained	45	14		SPT	533	CL	A-6	0 2 4 5							
		50	15		P	610				45 *48*	14.9	29	36	12	94	C SG
			16													
	- very soft, some fine-grained sand seams	55	17		SPT	610			0 0 3 3							
		60	18		P	508										
1280			19													
		65														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-274**

Sheet 1 of 3

Logged by:	M. Ivers
Date Start:	2/3/00
Date Finish:	2/7/00
Station:	50+645.384 0.04 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.818 E 19,846.262
Elevation (m):	1299.158
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 6/31/00

Boring: SB-19-274
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 / SPT (N1)60 (Greater than 50 Blows)	Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- Lean CLAY, continued; soft, olive gray, mottled brown - interbedded with SILT and SAND layers 10 to 20 mm thick				SPT	559			1 2 4 8								
		70	21		P						*43*						
			22														
		75	23		SPT	610			0 1 1 1	0							
	- very soft, olive gray		24														
1275		80	25														
		85	26		P	457					47 *53*	17.1	19	68	38	49	C SG
	Clayey SAND - loose to medium dense, wet, black						SC	A-2-7									
			27														
		90	28														
1270		95	29		SPT	610			1 1 3 4	1							
	Lean CLAY - very soft, black mottled gray						CL	A-6									
		100	30														
			31														
		105	32		P	279											TV
	Poorly Graded SAND - medium dense, wet, gray, medium to coarse-grained sand, frequent GRAVEL layers						SP	A-3			*38*						
			33														
		110															
1265	Poorly Graded GRAVEL with sand - medium dense, wet, gray, clasts up to 20 mm		34				GP	A-2-4									
		115	35		SPT	356			10 23 33 44	26							
	Poorly Graded SAND - loose, wet, gray to black, medium-grained						SP	A-3									
			36														
		120	37		SPT	406			11 20 20 31	16							
	- medium dense, frequent lean CLAY layers 10 to 75 mm thick																
		125	38		SPT	559			8 10 12 17	9							
	- loose, interbedded gravel layers, olive to dark gray																
1260			39														
		130			SPT												

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-274**

Sheet **2** of **3**

Logged by:	M. Ivers
Date Start:	2/3/00
Date Finish:	2/7/00
Station:	50+645.384 0.04 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.818 E 19,846.262
Elevation (m):	1299.158
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0039B2B.GPJ 6/31/00

Boring. SB-19-274
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- GRAVEL layer, very dense, clasts up to 20 mm thick					330			39 44 50/100mm								
		135	41														
			42														
		140	43														
1255		145	44														
			45														
		150	46														
			47														
		155	48														
1250		160	49														
		165	50														
			51														
		170	52														
		175	53														
1245			54														
		180	55														
		185	56														
			57														
		190	58														
1240		195	59														

UTDOT Z003SB2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-274**

Sheet **3** of **3**

Logged by:	M. Ivers
Date Start:	2/3/00
Date Finish:	2/7/00
Station:	50+645.384 0.04 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.818 E 19,846.262
Elevation (m):	1299.158
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SC-19-275
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Well-Graded SAND with silt and gravel - moist, brown																
1300			1														
	- very dense	5	2		SPT	305			15 16 19								
		10	3		SPT	356			15 18 21								
			4														
	- medium dense, gravel decreasing to approximately less than 10%	15	5		SPT	254			10 10 10	26							
1295																	
	- dense	20	6		SPT	305			10 14 16	35							SV
			7														
	- poorly graded gravel, black	25	8		SPT	279			12 11 15	28							
		30	9		SPT	381	CL	A-6	12 6 5	11							
	Lean CLAY - stiff, moist, black		10														
1290		35	11														
		40	12														
			13														
		45	14														
		50	15														
1285			16														
		55	17														
			18														
		60	19														
		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SC-19-275**

Sheet **1** of **1**

Logged by:	M. Ivers
Date Start:	1/31/00
Date Finish:	1/31/00
Station:	50+676.025 2.45 LT
Line:	GLOVERS LANE
Coordinates (m):	N 121,731.185 E 19,876.913
Elevation (m):	1300.661
Total Depth Drilled (m):	9.6
Drill Contractor:	Haz-tech
Driller:	R. Knott
Rig Type:	CME-850
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

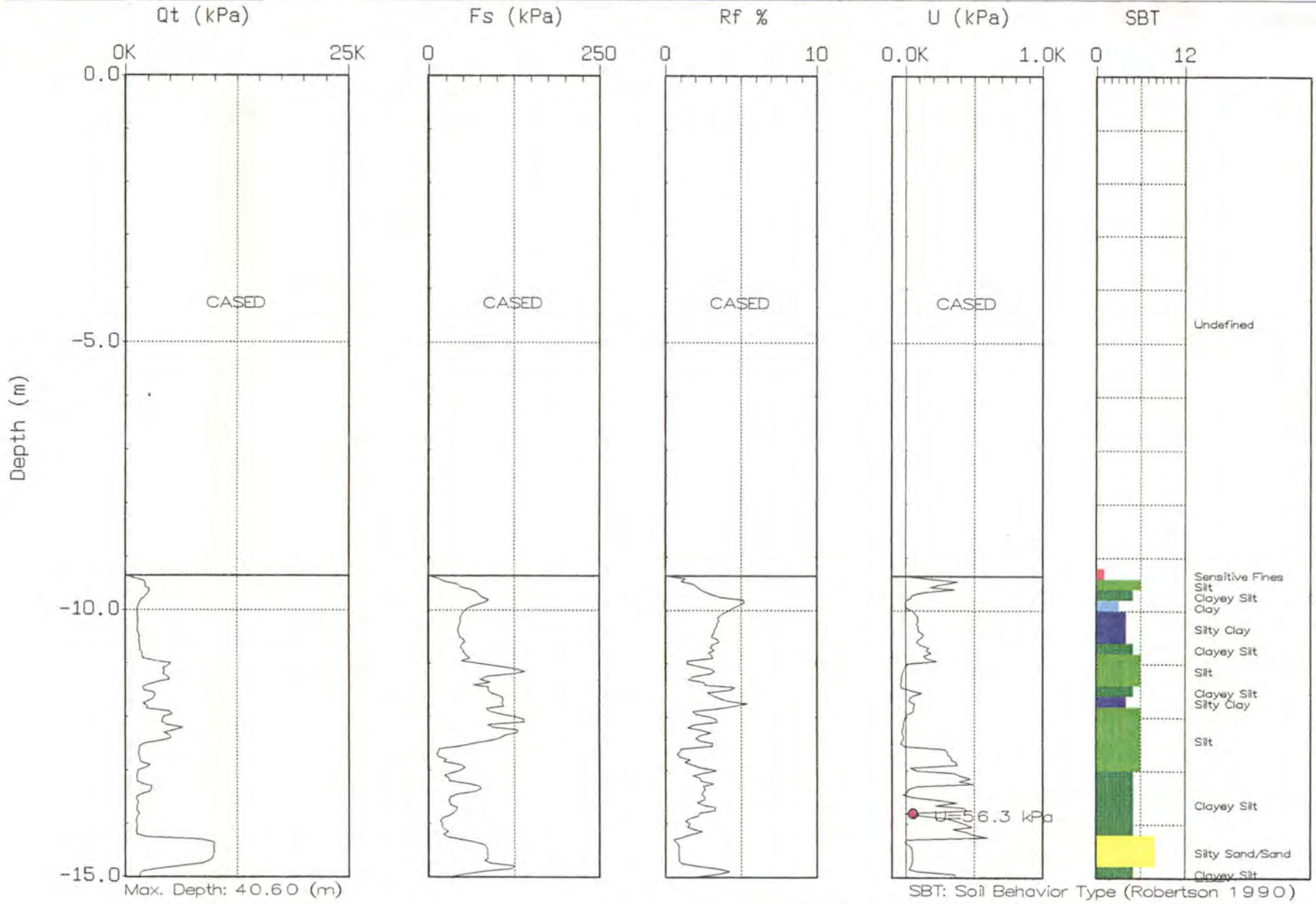
BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway

Site: SC-19-275
Station: 50+676.025 2.45 LT
Elevation: 1300.597

Cone: 20 TON A 070
Date: 02:02:00 08:38



Max. Depth: 40.60 (m)
Depth Inc.: 0.050 (m)

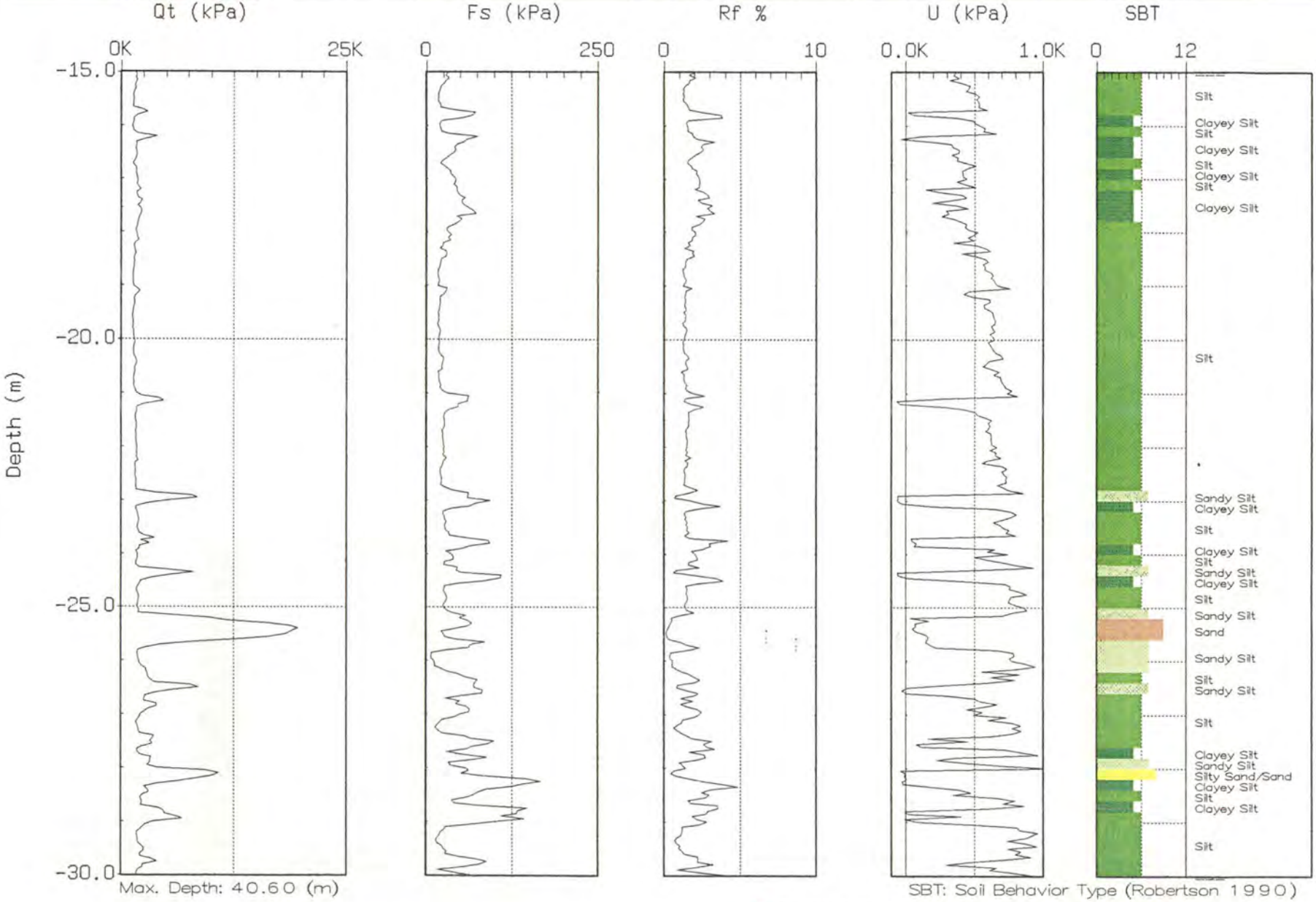
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-19-275
Station: 50+676.025 2.45 LT
Elevation: 1300.597

Cone: 20 TON A 070
Date: 02:02:00 08:38



Max. Depth: 40.60 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

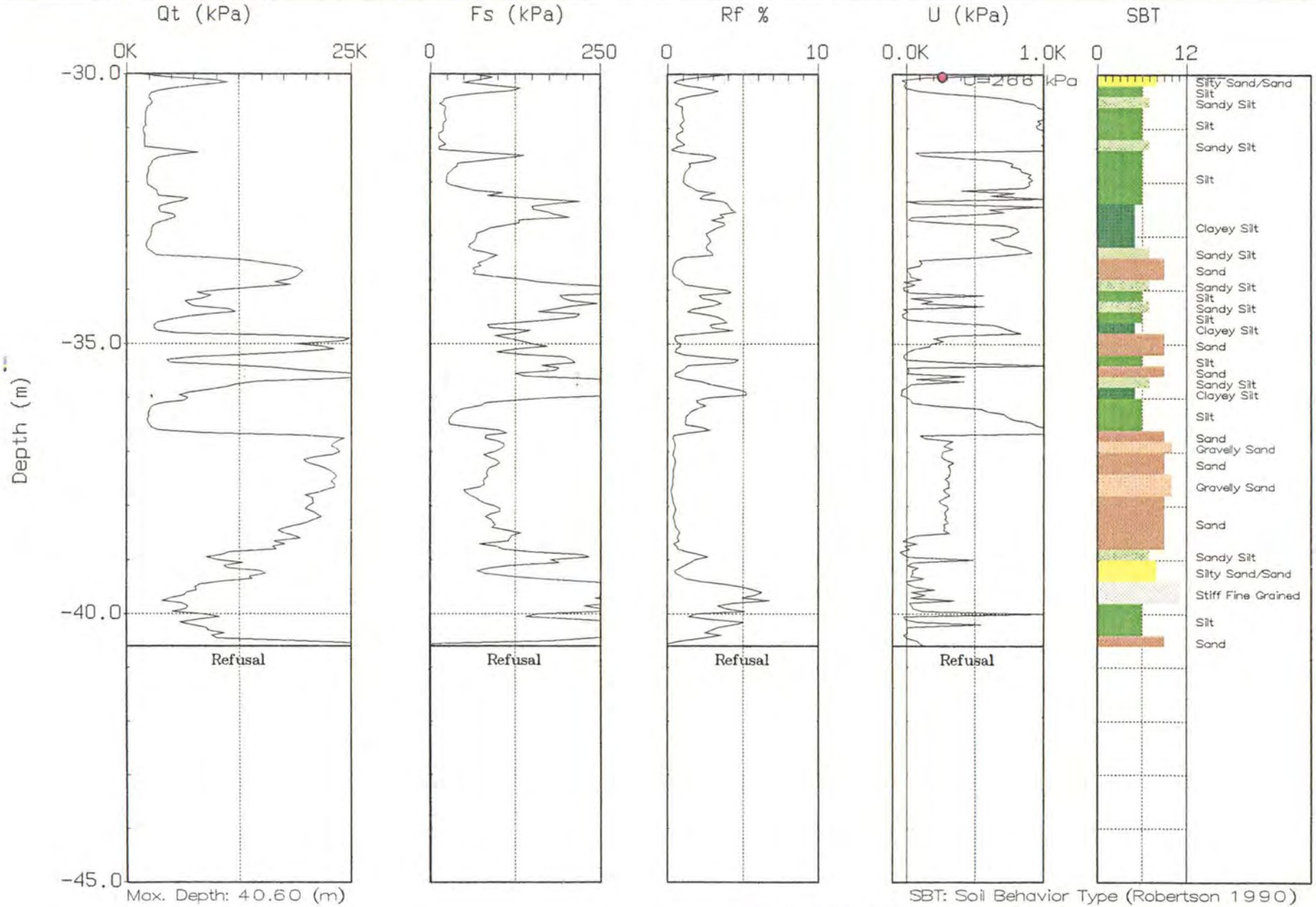
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-213

Legacy Parkway

Site: SC-19-275
Station: 50+676.025 2.45 LT
Elevation: 1300.597

Cone: 20 TON A 070
Date: 02:02:00 08:38



Max. Depth: 40.60 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-214

Boring: SB-19-276
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	ASPHALT - 6"																
	FILL: Poorly Graded SAND and GRAVEL - very dense, moist, brown occasional clay layers 50 mm thick		1														
1300		5	2		MC	305			14 22 27								pH WSS R
		10	3		SPT	406			4 20 35 32								
			4														
	- cobbles	15	5		MC	0			50/100mm								
		20	6		SPT	229			20 27 18 16	40							
1295			7														
		25	8		MC	152			8 42 50/75 mm								
		30	9		MC	127			6 10 10 6	12							
			10														
		35	11		MC	152			5 6 8 10	9							
1290	Poorly Graded SAND - interbedded with frequent clay layers 3 to 50 mm thick	40	12		SPT	508	SP	A-1-b	2 5 5 7	6							
			13														
	Lean CLAY - medium stiff, wet, gray	45	14		SH	610	CL	A-6			*48*						
	Poorly Graded SAND - medium dense, wet, dark gray	50	15		SPT	610	SP	A-3	8 9 10 6	12							
			16														
1285	Lean CLAY - soft, wet, gray-brown, with fine-grained sand seams	55	17		SPT	610	CL	A-6	3 3 3 4	4							
		60	18		SH	610					75 *48*	17.1	25	35	11	91	C SG
			19														
		65								4							

UTDOT Z003S82B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-276**

Sheet **1** of **3**

Logged by:	M. Ivers
Date Start:	2/1/00
Date Finish:	2/2/00
Station:	50+705.923 0.19 LT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.795 E 19,906.801
Elevation (m):	1302.071
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-19-276
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 / SPT (N1)60 (Greater than 50 Blows)	Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- Lean CLAY, continued; few sand seams				SPT	610			2 3 4 5								
			21														
		70															
1280			22		SH	610					*53*						
		75	23		SPT	610			0 0 2 6	1							
			24														
		80			SH	610					63 *62*	14.6	30	36	15		C TR SG
	-medium stiff		25														
		85	26														
			27														
1275	- GRAVEL Layer 300 mm thick, with sand	90			SPT	381			14 14 2 3	9							
	Lean CLAY with sand - soft, wet, gray-black		28				CL	A-6									
		95	29														
			30														
		100			SH	356											
	GRAVEL - dense, wet, gray, fine-grained, with coarse-grained sand		31				GP	A-2-4			*29*						
1270	Lean CLAY - medium stiff, wet, dark olive gray, with trace of coarse-grained sand	105	32				CL	A-6									
			33														
		110			SPT				5 4 9 7	7							
	Silty SAND with gravel - medium dense, moist, dark olive gray		34				SM	A-2-5									
		115	35														
			36														
	- Lean CLAY layer 25 mm thick, with interbedded gravel clasts	120			SPT	356			3 22 29 10	26							
1265	- 40% gravel with clast up to 20 mm		37														
	Lean CLAY layer 75 mm thick																
	- Poorly Graded SAND layer, fine to medium-grained, very homogeneous	125	38		SPT				18 22 26 29	24							
			39														
		130			SPT					16							

UTDOT Z003SB2B.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-276**

Sheet **2** of **3**

Logged by:	M. Ivers
Date Start:	2/1/00
Date Finish:	2/2/00
Station:	50+705.923 0.19 LT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.795 E 19,906.801
Elevation (m):	1302.071
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-19-276
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
						356			17 19 14 22								
1260		135	41														
			42														
		140	43														
		145	44														
			45														
		150	46														
1255		155	47														
			48														
		160	49														
		165	50														
			51														
1250		170	52														
		175	53														
			54														
		180	55														
		185	56														
1245			57														
		190	58														
		195	59														

UTDOT Z0035B2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-276**

Sheet 3 of 3

Logged by:	M. Ivers
Date Start:	2/1/00
Date Finish:	2/2/00
Station:	50+705.923 0.19 LT
Line:	GLOVERS LANE
Coordinates (m):	N 121,728.795 E 19,906.801
Elevation (m):	1302.071
Total Depth Drilled (m):	40.2
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

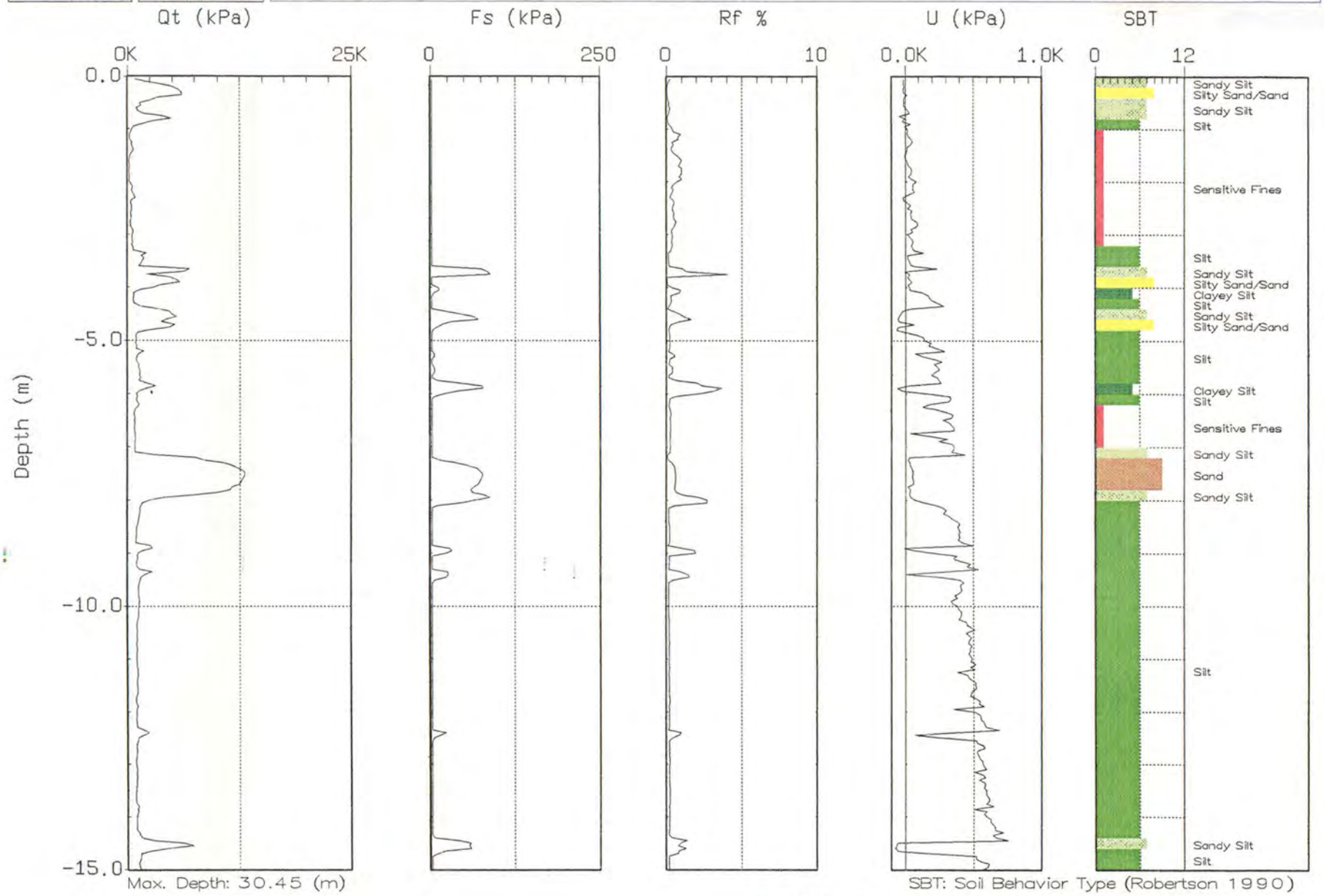
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-19-277
Station: 50+734.701 0.00 LT
Elevation: 1290.960

Cone: 20 TON A 070
Date: 01:31:00 14:01



Max. Depth: 30.45 (m)
Depth Inc.: 0.050 (m)

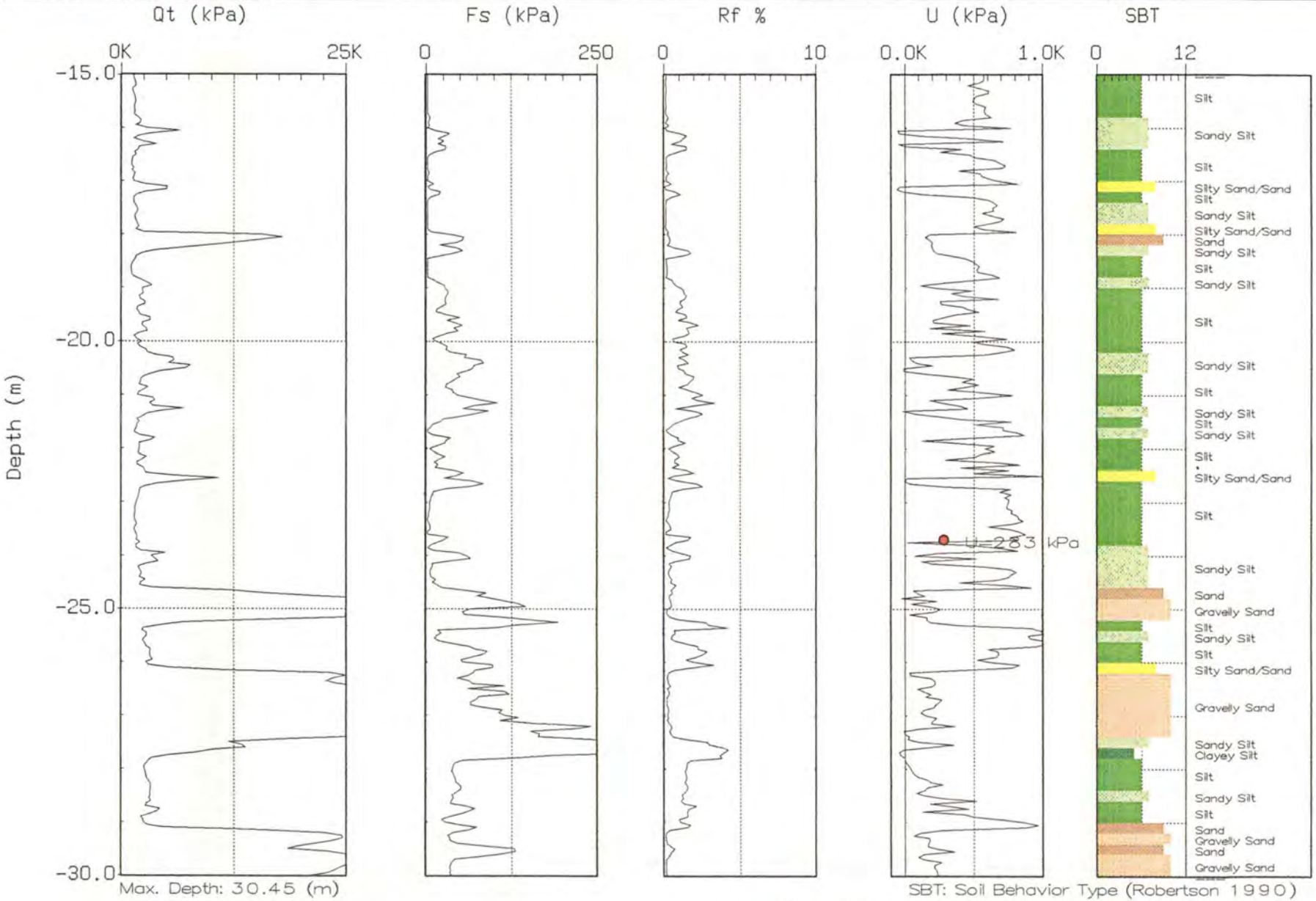
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-19-277
Station: 50+734.701 0.00 LT
Elevation: 1290.960

Cone: 20 TON A 070
Date: 01:31:00 14:01



Max. Depth: 30.45 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

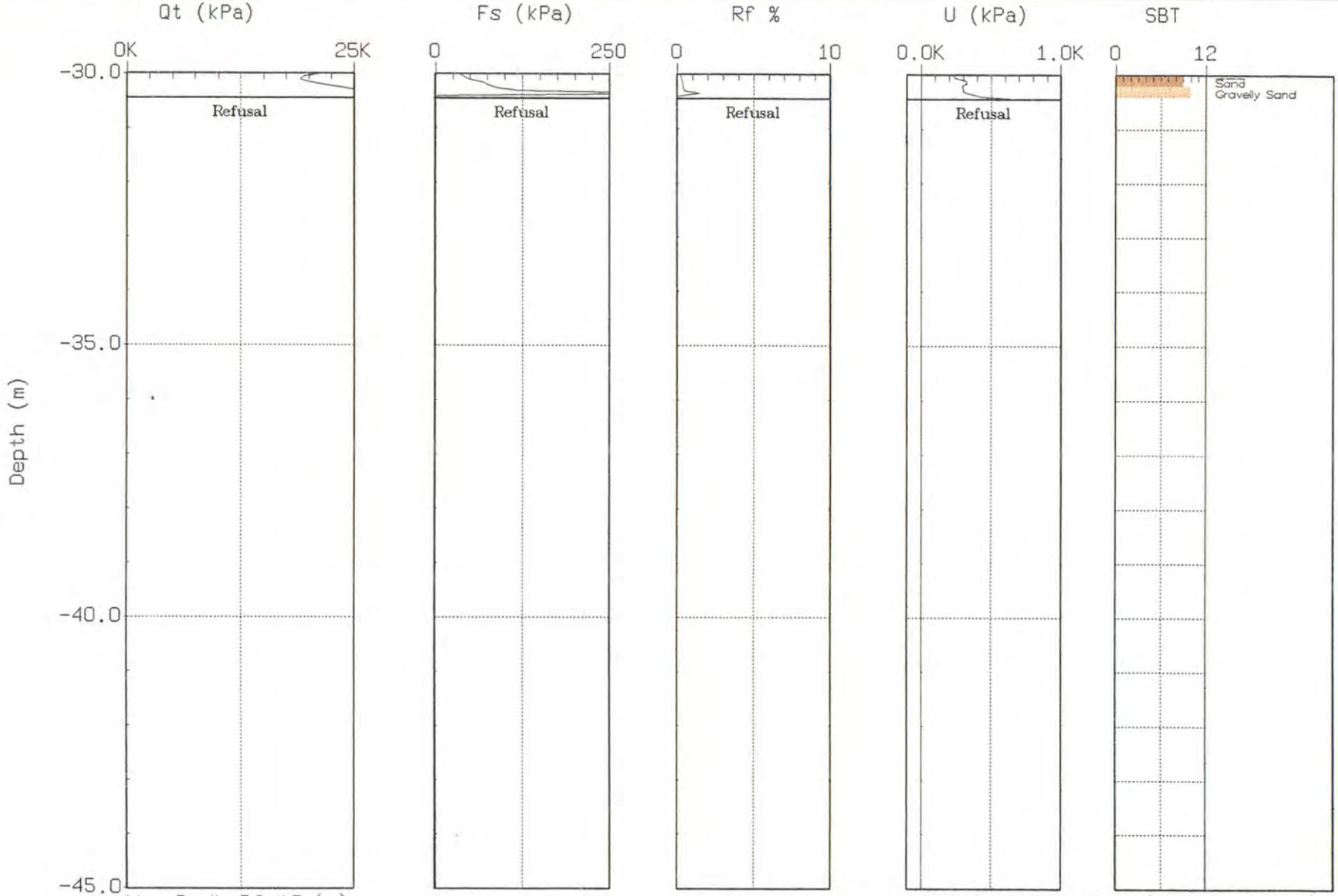
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-219

Legacy Parkway

Site: SC-19-277
Station: 50+734.701 0.00 LT
Elevation: 1290.960

Cone: 20 TON A 070
Date: 01:31:00 14:01



Max. Depth: 30.45 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

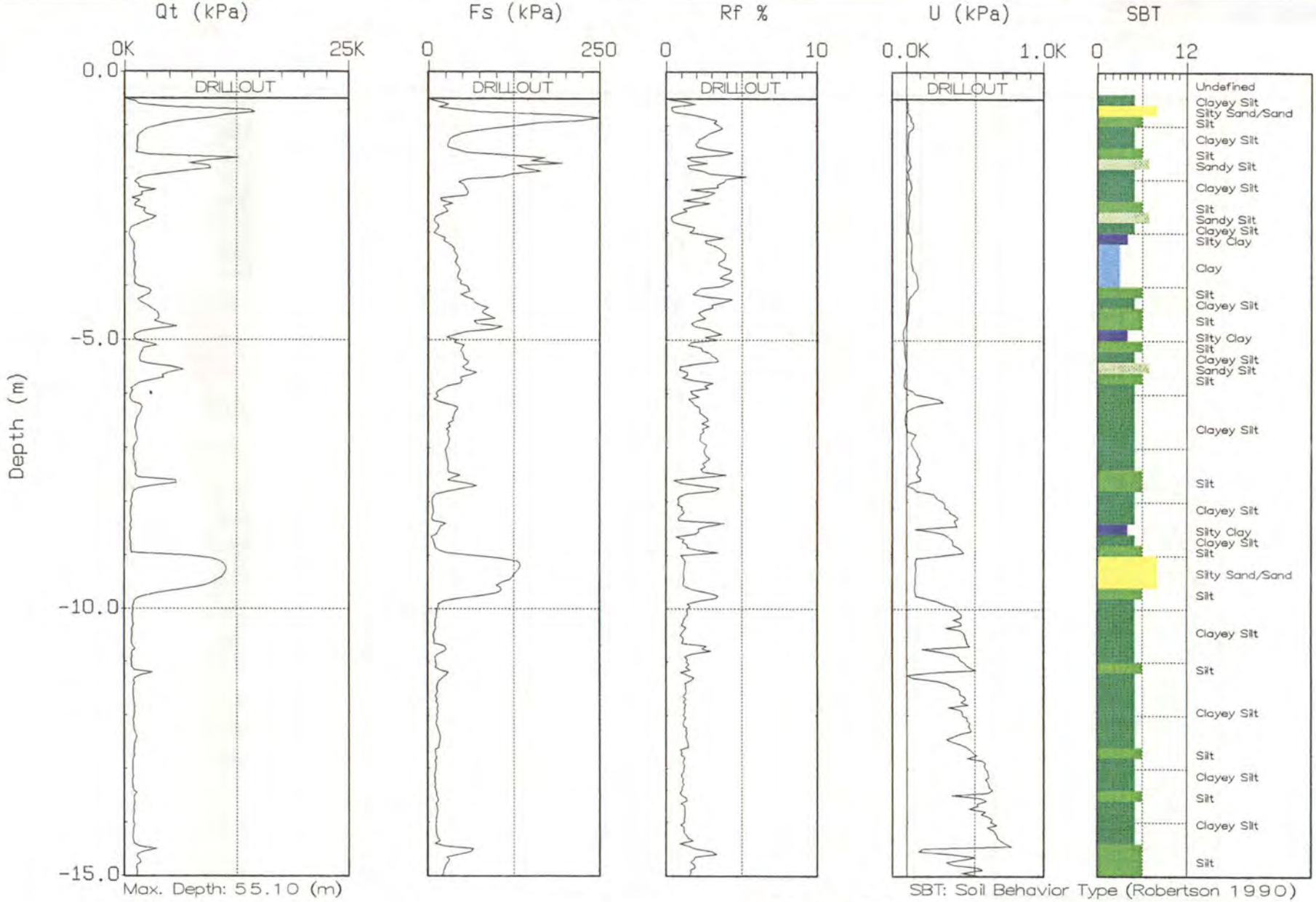
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-220

Legacy Parkway

Site: SC-19-278
Station: 50+775.871 5.71 RT
Elevation: 1291.890

Cone: 20 TON A 092
Date: 02:14:00 11:39



Max. Depth: 55.10 (m)
Depth Inc.: 0.050 (m)

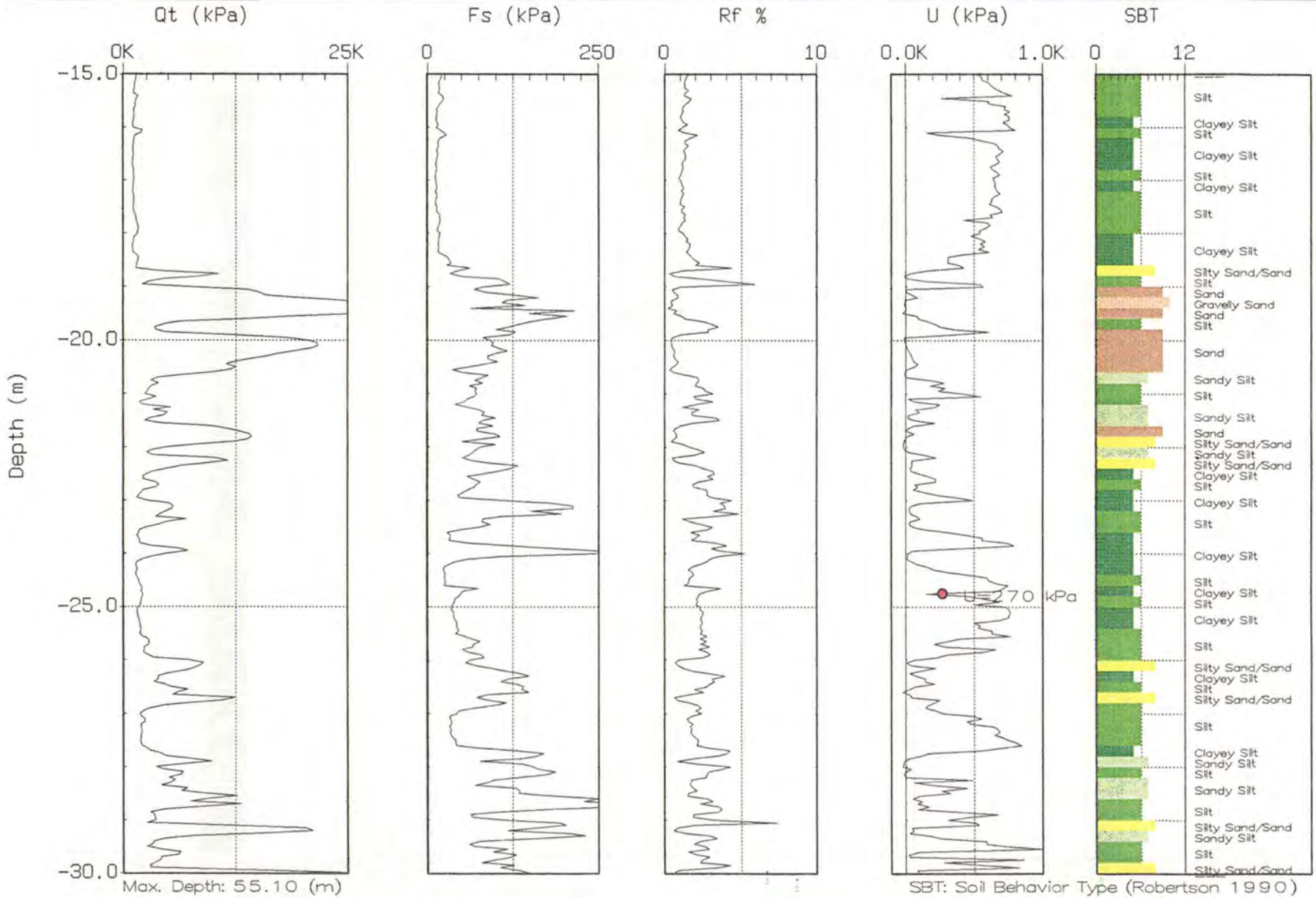
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-19-278
Station: 50+775.871 5.71 RT
Elevation: 1291.890

Cone: 20 TON A 092
Date: 02:14:00 11:39



Max. Depth: 55.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

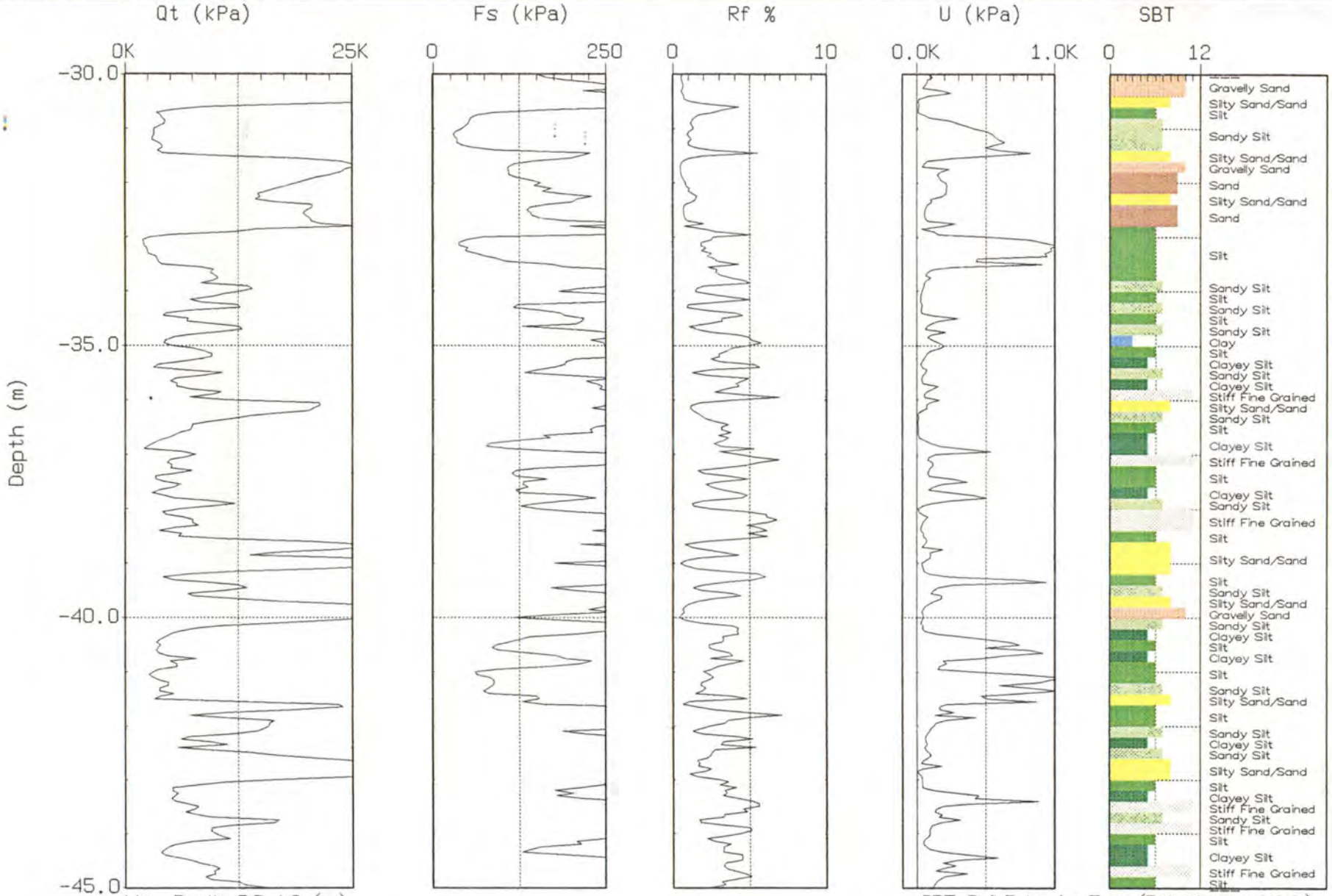
PLATE B-222

CONETEC

Legacy Parkway

Site: SC-19-278
Station: 50+775.871 5.71 RT
Elevation: 1291.890

Cone: 20 TON A 092
Date: 02:14:00 11:39



Max. Depth: 55.10 (m)
Depth Inc.: 0.050 (m)

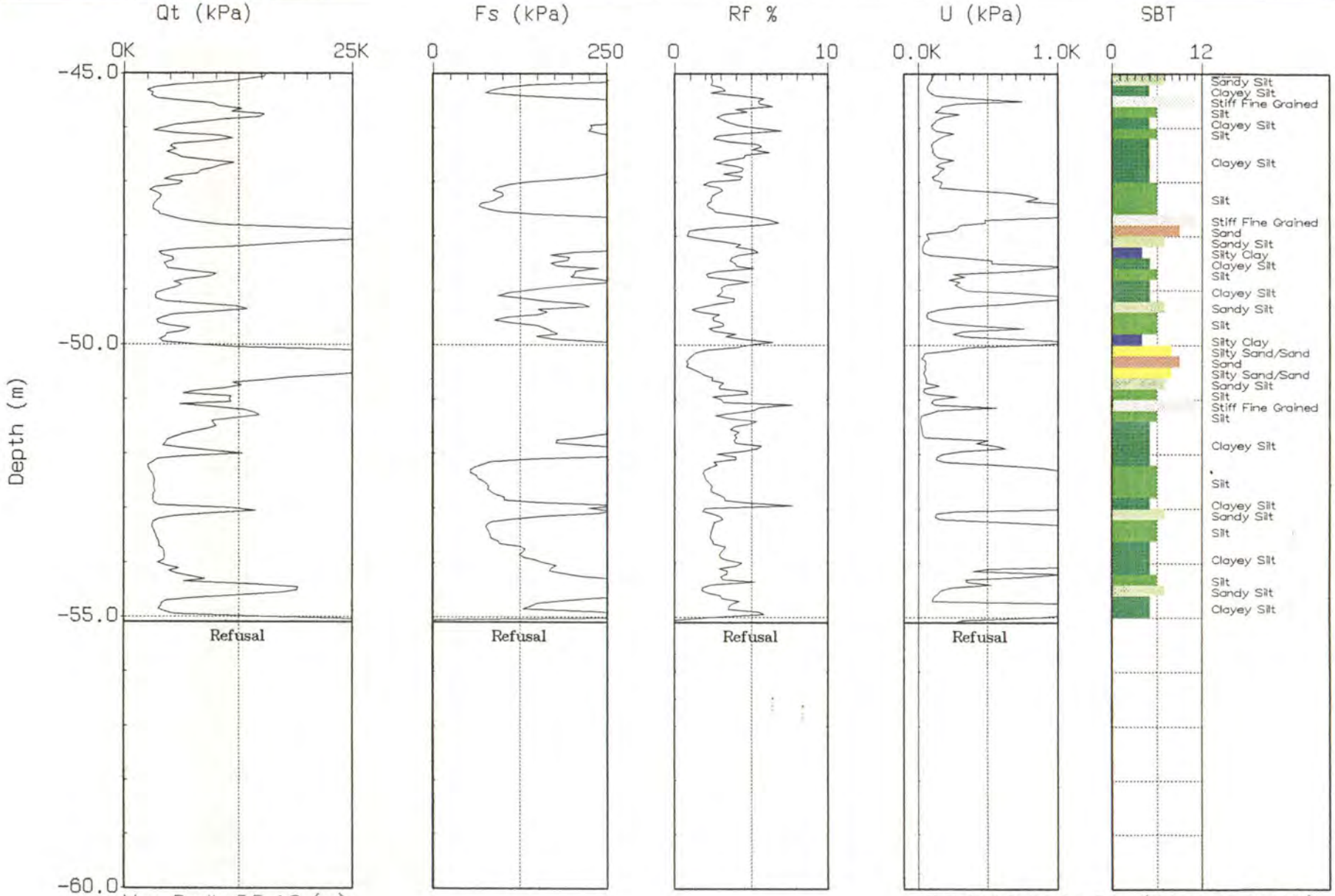
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-19-278
Station: 50+775.871 5.71 RT
Elevation: 1291.890

Cone: 20 TON A 092
Date: 02:14:00 11:39



Max. Depth: 55.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-224

Boring: SB-19-279
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / (N1)60 ○ (Greater than 50 Blows)	Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: SAND and GRAVEL - medium dense, moist, brownish tan to black, with re-milled asphalt rubble		1														
1290	Lean CLAY - soft to medium stiff, moist, black, with organics	5	2		P	559	CL	A-6			46	13.8	31	43	17		C SG
	Poorly Graded SAND - medium dense, moist, gray to black - with GRAVEL	10	3		SPT	305	SP	A-3	4 9 5	●28							
			4														
	- becomes wet - Lean CLAY layer, with organics	15	5		SPT	254			1 2 4	●12							
	Lean CLAY, medium stiff, wet, brown						CL	A-6									
	- sand lense	20	6		SPT	0	CL	A-6	4 1 2	●6							
1285	Lean CLAY - medium stiff, wet, brown		7		P	610					30 38	14.4	34	38	13	95	DS
	- Poorly graded SAND layer, loose, wet, gray	25	8		P	610					43	14.0	34				C SG
	Poorly Graded SAND with silt- dense, wet, gray, fine-grained	30	9		SPT	381	SP-SM	A-1-b	7 9 8	●34						11	
	Lean CLAY - medium stiff, wet, brown, with silt		10				CL	A-6									
		35	11		P	610					44 53	14.8	31	40	19		
1280	- occasional sand seams	40	12		SPT	457			1 2 2	●8							
			13														
		45	14		P	610					38						
			15														
	- soft	50			SPT	25			1 1 1	●4							
			16														
1275		55	17														
			18														
		60			P	610					48	14.7	30				C SG
	Poorly Graded SAND - dense, wet, gray, fine to coarse-grained with fine-grained gravel and trace of clay		19				SP	A-1-b									
		65								●38							

UTDOT Z003SB2B.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-279**

Sheet **1** of **3**

Logged by:	C. Wieden
Date Start:	3/3/00
Date Finish:	3/5/00
Station:	50+775.871 5.71 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,722.593 E 19,976.723
Elevation (m):	1291.953
Total Depth Drilled (m):	43.1
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

B BAG = Bulk Sample

Boring: SB-19-279
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	-Poorly graded SAND, continued				SPT				11 9 10								
	Sandy Lean CLAY - stiff, wet, gray, with frequent clayey sand layers 75 to 100 mm thick	70	21				CL	A-6									
1270			22		P	508					57						
	- occasional sand layers, 75 mm thick	75	23														
			24														
		80			SPT				4 3 4	●12							
			25														
		85	26														
1265			27														
	Silty SAND with gravel - dense, wet, gray, with occasional sandy clay layers 75 mm thick, frequent silt seams	90	28		P / SPT	152	SM	A-2-5	2 13 9	●34							
	Lean CLAY, stiff, wet, gray	95	29		SPT		CL	A-6	17 10 10	●30							
			30														
	Silty SAND with GRAVEL - very dense, wet, gray	100	31		P	610	SM	A-2-4								6	
1260		105	32		SPT				25 33 34								
			33														
	- Lean CLAY layer, very stiff, wet, olive gray, with silt and sand	110	34		SPT				13 9 12	●25							
	- Sandy CLAY/Silty SAND layer 300 mm thick																
	- Sandy CLAY layer 300 mm thick, stiff, wet, olive gray	115	35		SPT				7 28 50								
			36														
	- dense	120															
1255			37		SPT				17 21 19	●42							SV
	- gravel layer																
	- medium dense	125	38		SPT				10 13 15	●28							
			39														
		130			SPT												

UTDOT Z003SB28.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-279**

Sheet **2** of **3**

Logged by:	C. Wieden
Date Start:	3/3/00
Date Finish:	3/5/00
Station:	50+775.871 5.71 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,722.593 E 19,976.723
Elevation (m):	1291.953
Total Depth Drilled (m):	43.1
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-19-279
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- very dense								40 50/100mm								
		135	41		SPT				16 14 23	●34							
1250			42														
	- Lean CLAY layer 600 mm thick, stiff, wet, gray, with silt	140	43		SPT				6 16 16	●30							
	- medium dense																
		145	44														
			45														
		150	46														
1245			47														
		155	48														
		160	49														
		165	50														
			51														
1240		170	52														
		175	53														
			54														
		180	55														
			56														
1235		185	57														
		190	58														
			59														
		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-279**

Sheet **3** of **3**

Logged by:	C. Wieden
Date Start:	3/3/00
Date Finish:	3/5/00
Station:	50+775.871 5.71 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,722.593 E 19,976.723
Elevation (m):	1291.953
Total Depth Drilled (m):	43.1
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

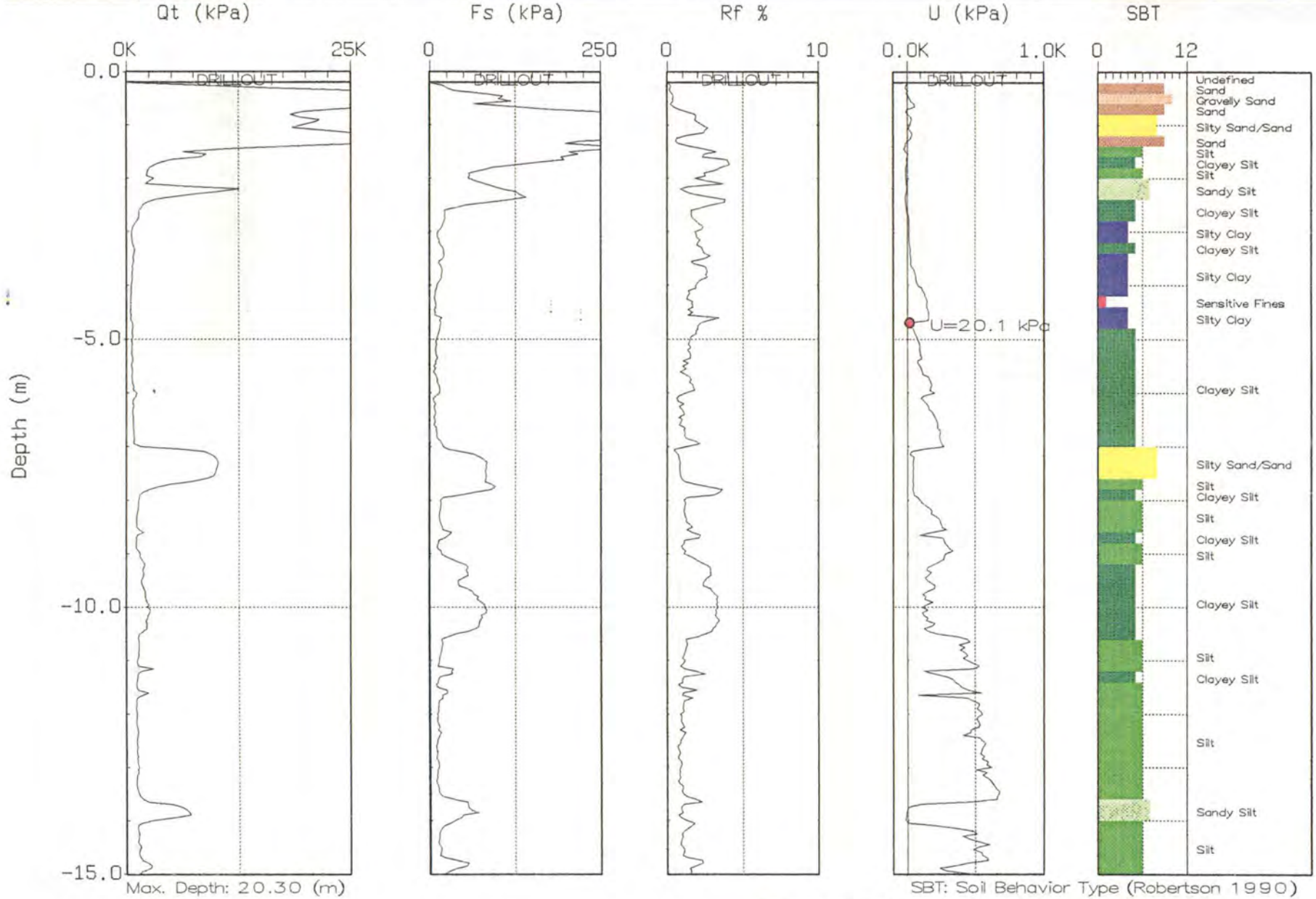
BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Legacy Parkway

Site: SC-19-280
Station: 50+809.297 1.40 RT
Elevation: 1292.810

Cone: 20 TON A 070
Date: 03:02:00 10:15



Max. Depth: 20.30 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

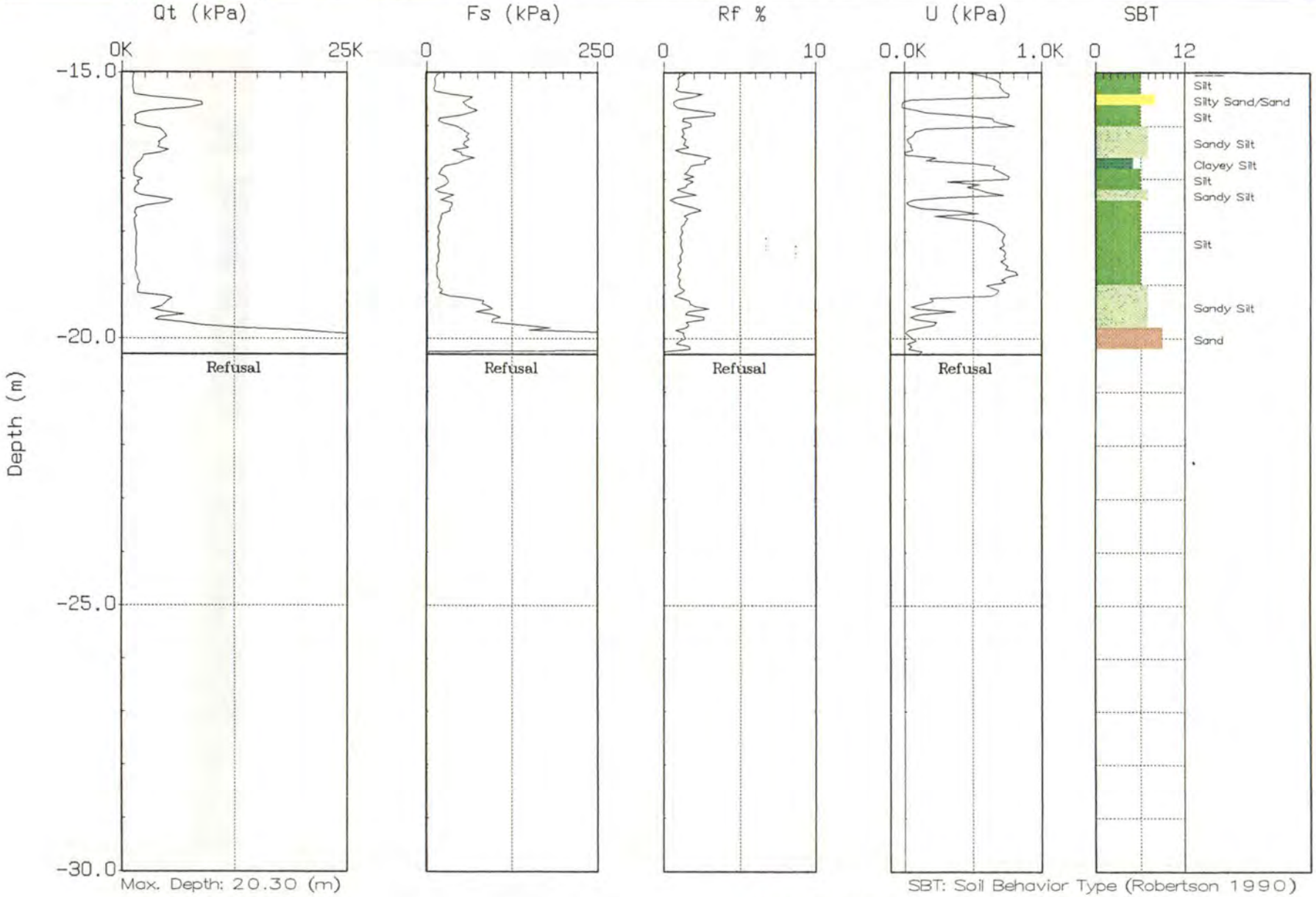
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-228

Legacy Parkway

Site: SC-19-280
Station: 50+809.297 1.40 RT
Elevation: 1292.810

Cone: 20 TON A 070
Date: 03:02:00 10:15



Max. Depth: 20.30 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-229

Boring: SB-19-281
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 ○ (Greater than 50 Blows) 0 25 50	Su, kPa (torvane in italics)	Dry Density, kN/m3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: SAND and GRAVEL - medium dense to dense, moist, brownish gray		1														
	Lean CLAY - soft, very moist, black, with organics	5	2		SPT	457	CL	A-6	9 3 1	8							
1290		10	3		P	508					43						
	SILT - stiff, wet, dark gray, with fine-grained sand		4				ML	A-4									
		15	5		SPT	203			3 5 4	14							
		20	6		P	610											
	Silty SAND - medium dense, wet, brown, with silt		7				SM	A-2-5			38						
1285	Elastic SILT - medium stiff, wet, gray	25	8		SPT		MH	A-7-5	0 2 2	6							
	- very soft	30	9		P	610					30 48	15.4	31			96	C SG
			10														
		35	11		SPT				0 0 0	0							
1280		40	12		P	508					48						
			13														
		45	14		SPT				0 2 2	4							
		50	15		P	0											
			16		P	610					46 29	11.8	50	50	16	96	C SG
1275	Poorly Graded SAND with silt - dense, wet, fine-grained	55	17				SP-SM	A-1-b									
		60	18		SPT	457			6 12 17	31							
		65	19							10							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-281**

Sheet **1** of **3**

Logged by:	C. Wieden
Date Start:	2/2/00
Date Finish:	2/5/00
Station:	50+840.936 7.44 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,720.587 E 20,041.780
Elevation (m):	1291.983
Total Depth Drilled (m):	44.7
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 5/31/00

Boring: SB-19-281
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- Poorly Graded SAND with silt, continued; medium dense, wet, gray, fine to medium-grained, with some gravel				SPT	457			6 7 9	*48*						
	SILT - stiff, moist, gray , frequent sand and clay seams and layers	70	21		SPT	457	ML	A-4	3 7 7							
1270			22													
		75	23													
	- no visible sand or clay layers		24													
		80	25		P	610				*34*						
		85	26													
1265	Silty SAND - dense, wet, gray, frequent silt seams and layers, trace gravel	90	27		SPT	457	SM	A-2-5	7 14 14							
	SILT - very stiff, moist, gray, with trace of sand and occasional lean clay seams	95	28		SPT	457	ML	A-4	5 8 11							
	Silty SAND with GRAVEL - dense, wet, olive gray	100	29		SPT	254	SM	A-2-5	19 23 19							
1260	SILT - stiff, wet, interbedded with frequent silty sand layers	105	30		SPT	305	ML	A-4	9 7 10							
	Silty SAND with gravel - medium dense, very moist to wet, olive gray, with occasional silt and clay seams and layers	110	31		SPT	356	SM	A-2-5	11 10 9							
	- very dense	115	32		SPT	254			21 33 36							
1255	- medium dense	120	33		SPT	102			19 15 20							
		125	34		SPT				18 32 25							
	SILT - stiff, wet, olive gray, frequent clay layers up to 300 mm thick,	130	35		SPT		ML	A-4								

Legend: ● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-281**

Sheet **2** of **3**

Logged by:	C. Wieden
Date Start:	2/2/00
Date Finish:	2/5/00
Station:	50+840.936 7.44 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,720.587 E 20,041.780
Elevation (m):	1291.983
Total Depth Drilled (m):	44.7
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Boring: SB-19-281
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	some fine-grained gravel					457	SM	A-2-4	4 10 10								
	Silty SAND - medium dense, wet, olive gray, frequent silt and clay layers, some gravel	135	41		SPT	305			10 8 13	15							
1250	- GRAVEL with cobbles		42														
	Lean CLAY layer	140			SPT	457			53 11 12	16							
			43														
		145	44		SPT				5 16 15	21							
			45														
		150	46														
1245		155	47														
			48														
		160	49														
		165	50														
			51														
1240		170	52														
		175	53														
			54														
		180	55														
			56														
		185															
1235			57														
		190	58														
			59														
		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-19-281**

Sheet 3 of 3

Logged by:	C. Wieden
Date Start:	2/2/00
Date Finish:	2/5/00
Station:	50+840.936 7.44 RT
Line:	GLOVERS LANE
Coordinates (m):	N 121,720.587 E 20,041.780
Elevation (m):	1291.983
Total Depth Drilled (m):	44.7
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z03SB2B.GPJ 5/31/00

Boring: SB-21-282
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_{Lr} kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1300	FILL: Poorly Graded GRAVEL with sand - medium dense, wet, gray to brown, frequent clay layers 150 mm thick																
		5	1		MC	152			5 8 15 19	24							
		10	2		SPT	254			7 9 10 13	23							
		15	3		MC	152			7 12 21 24	27							
1295		20	4		SPT	305			12 8 7 6	13							
	Fat CLAY - soft, wet, brown	25	5		SH	610	CH	A-7-6			35 *29*	13.6	38	54	26	97	C SG
	Poorly Graded SAND with gravel - medium dense, wet, olive-gray, maximum clast 40 mm in size	30	6		SPT	356	SP	A-3	8 7 8 6	11							
1290		35	7		MC	25			12 13 10 10	22							
	Lean CLAY- medium stiff, wet, gray, interbedded, with very fine-grained sands	40	8		SPT	356	CL	A-6	4 5 4 4	6							
		45	9		SH	381					*24*						
1285	- frequent black sand seams with organic odor	50	10		SPT	610			6 5 4 6	7							
	- medium stiff, moist, gray, with clayey fine-grained sand	55	11		SH	610					51 *38*	15.7	27	35	13	96	C SG
	- frequent sand layers 6 mm	60	12		SPT	610			5 5 6 7	7							
	Poorly Graded GRAVEL with sand - very dense, wet, gray, with 50%	65	13				GP	A-2-4									

UTDOT Z003SB2B.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-21-282**

Sheet **1** of **2**

Logged by:	M. Ivers
Date Start:	2/14/00
Date Finish:	2/14/00
Station:	0+648.656 3.03 LT
Line:	STATE ST.
Coordinates (m):	N 123,444.419 E 19,302.374
Elevation (m):	1300.654
Total Depth Drilled (m):	28.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-21-282
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ (Greater than 50 Blows) ○ (0–25–50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	fine to coarse-grained gravel (maximum clast 25 mm), with 50% medium to coarse-grained sand				SPT	610			17 48 41 39								
1280		70	21														
	- loose, trace of wet sand in tip		22		SPT	0			6 5 3 6	●5							
	- dense	75	23		SPT	406			11 38 30 30	●43							
		80	24														
			25		SPT	381			10 19 50/ 125mm								
1275	- very dense	85	26		SPT	152			19 47 44 32								
			27														
	- medium dense	90	28		SPT	610			20 18 15 17	●20							
		95	29														
			30														
1270		100	31														
		105	32														
			33														
		110	34														
		115	35														
1265			36														
		120	37														
		125	38														
			39														
		130															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-21-282**

Sheet **2** of **2**

Logged by:	M. Ivers
Date Start:	2/14/00
Date Finish:	2/14/00
Station:	0+648.656 3.03 LT
Line:	STATE ST.
Coordinates (m):	N 123,444.419 E 19,302.374
Elevation (m):	1300.654
Total Depth Drilled (m):	28.0
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 6/31/00

Boring: SC-21-283
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Sandy Lean Clay - hard, moist, dark brown, with fine-grained gravel				SPT	610			8 8 15 18								
	FILL: Silty SAND - very dense, moist, black to dark brown, coarse-grained, poorly sorted, occasional 0.3 m thick clay layers		1														
		5	2		SPT	610			15 16 14 15								
1300		10	3		SPT	610			5 15 15 12	50							
			4														
	- dense, brown	15	5		SPT	610	-		5 13 9 11	36							
	- very dense, concrete in end of sampler	20	6		MC	254			50/100mm								
			7														
1295	- dark brown	25	8		SPT	508			15 17 25 20								
	Lean CLAY - medium stiff, moist to wet, dark brown to black, with faint petroleum odor in bottom 3" of sample	30	9		SPT	457	CL	A-7-5	1 2 3 2	7			39	63	29	84	
			10														
		35	11														
		40	12														
1290			13														
		45	14														
		50	15														
			16														
		55	17														
1285			18														
		60	19														
		65															

Test Results *

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SC-21-283**

Sheet **1** of **1**

Logged by:	M. Bostrom
Date Start:	2/15/00
Date Finish:	2/15/00
Station:	0+687.382 1.75 LT
Line:	STATE ST.
Coordinates (m):	N 123,442.842 E 19,341.089
Elevation (m):	1302.737
Total Depth Drilled (m):	9.8
Drill Contractor:	RC Exploration
Driller:	N. Young
Rig Type:	Diedrich D-120 Truck
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

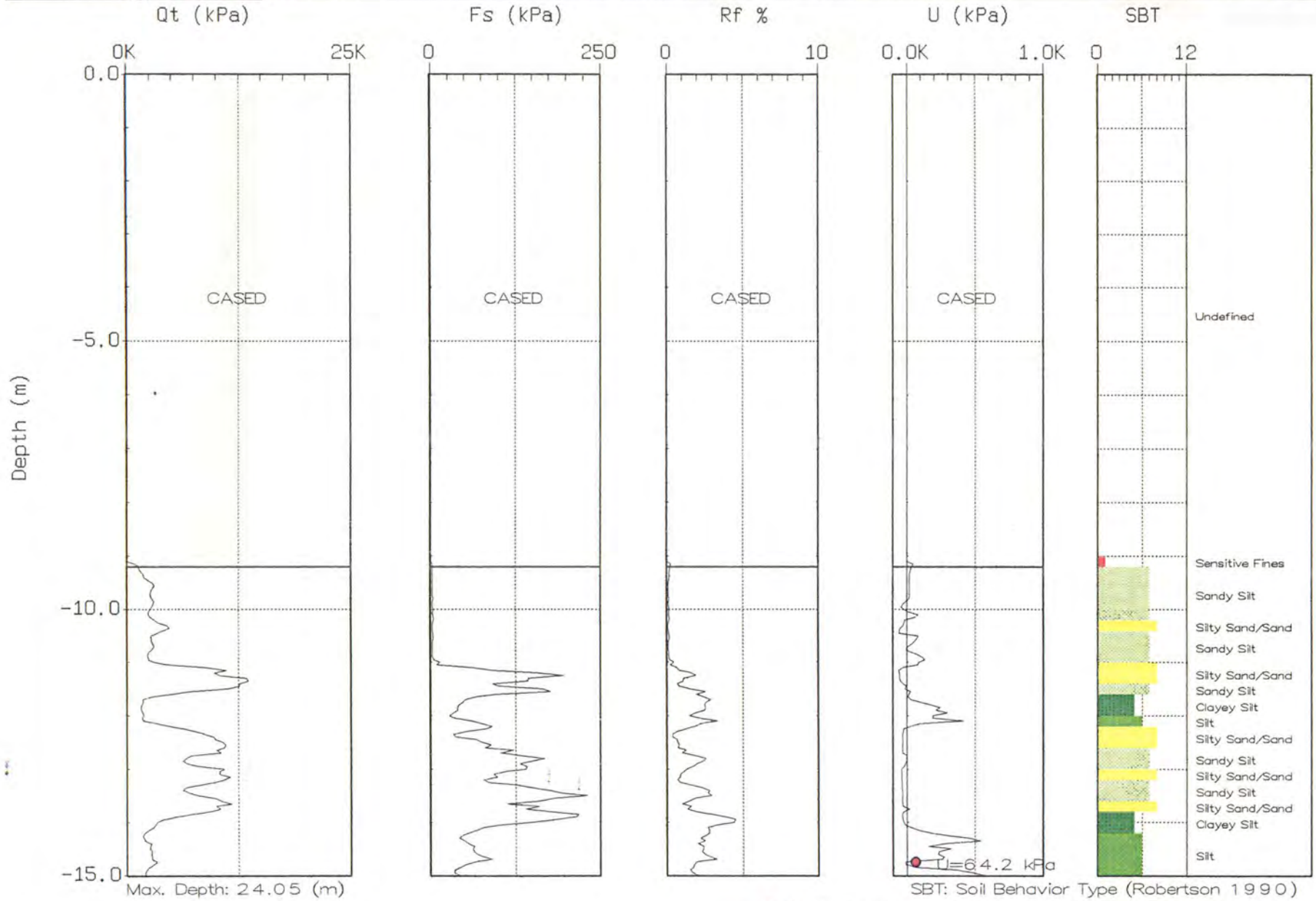
BAG = Bulk Sample

UTDOT Z0035B2A.GPJ 5/31/00

Legacy Parkway

Site: SC-21-283
Station: 0+687.382 1.75 LT
Elevation: 1302.674

Cone: 20 TON A 092
Date: 02:16:00 08:47



Max. Depth: 24.05 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

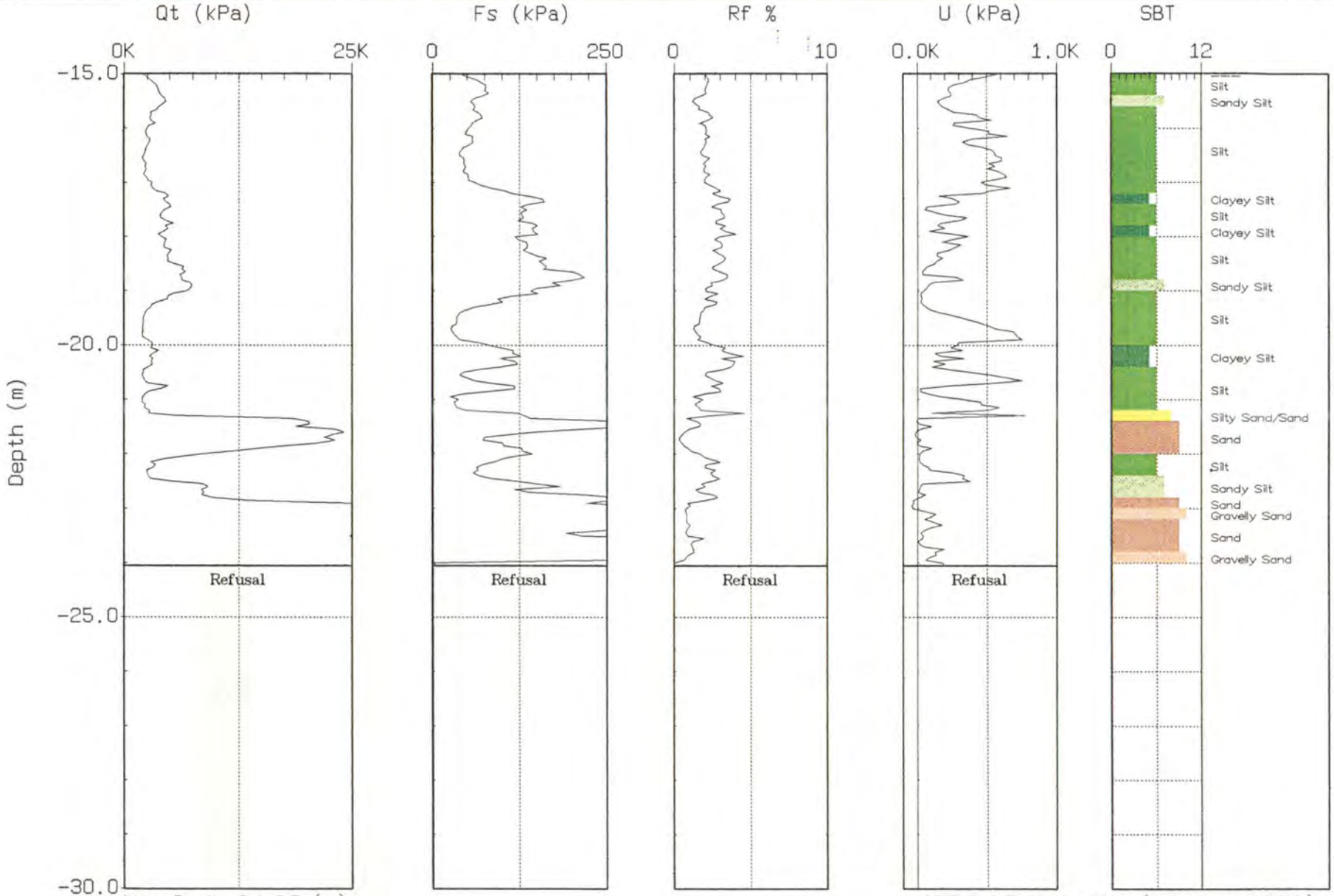
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-236

Legacy Parkway

Site: SC-21-283
Station: 0+687.382 1.75 LT
Elevation: 1302.674

Cone: 20 TON A 092
Date: 02:16:00 08:47



Max. Depth: 24.05 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-237

Boring: SB-21-284
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1305	ASPHALT CONCRETE - 50 mm thick FILL: Silty SAND and GRAVEL, medium dense, moist, brown				SPT	610			8 8 8 8	16							
		5	1														
			2		SPT	457			4 6 8 12	30							
	- very dense	10	3		SPT	610			22 24 19 11								
			4														
		15	5		SPT	559			5 8 9 12	23							
1300																	
		20	6		SPT	559			3 9 12 12	25							
			7														
		25	8		MC	508			19 25 21 43	50							
		30	9		SPT	559			19 28 27 38								
	ASPHALT CONCRETE - 75 mm thick FILL: Silty SAND - very dense, slightly moist, light brown, some coarse-grained gravel		10														
1295		35	11		SPT	610	CL SM	A-6 A-2-5	18 24 28 20	48							
	Lean CLAY layer, medium stiff, wet, brown Silty SAND - dense, wet, light brown to brown, occasional gravel up to 75 mm in size		12														
	Lean CLAY - medium stiff, wet, dark brown, with frequent sand and silt seams and layers	40			SPT	610	CL	A-6	3 3 5 6	8							
			13														
		45	14		SPT	610			2 2 3 5	5							
1290	- medium stiff	50	15		SPT	610			3 4 7 11	9							
			16														
		55	17														
			18														
		60	19		SPT	610			2 2 6 6	7							
		65															

UTDOT Z003SB2B.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-21-284**

Sheet **1** of **2**

Logged by:	M. Bostrom
Date Start:	2/14/00
Date Finish:	2/16/00
Station:	0+740.395 3.19 LT
Line:	STATE ST.
Coordinates (m):	N 123,443.868 E 19,394.112
Elevation (m):	1305.365
Total Depth Drilled (m):	29.6
Drill Contractor:	RC Exploration
Driller:	N. Young
Rig Type:	Diedrich D-120 Truck
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-21-284
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 25 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	Lean CLAY, continued																
		70	21		P	457					32 *48*	16.9	22	30	8	85	C TR SG
		75	22														
		80	23														
			24		SPT	610	SM	A-2-4	6 16 20 10	●27							
1280	Silty SAND with GRAVEL - medium dense, wet, gray, frequent silt and clay seams and layers	85	25														
	- very dense		26		SPT	610			21 47 66	○							
		90	27														
	- dense		28		SPT	559			15 24 27 21	●37							
	-medium dense	95	29		SPT	610			19 14 24 27	●27							
1275		100	30														
		105	31														
		110	32														
1270		115	33														
		120	34														
		125	35														
		130	36														
			37														
			38														
			39														

Test Results *

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-21-284**

Sheet **2** of **2**

Logged by:	M. Bostrom
Date Start:	2/14/00
Date Finish:	2/16/00
Station:	0+740.395 3.19 LT
Line:	STATE ST.
Coordinates (m):	N 123,443.868 E 19,394.112
Elevation (m):	1305.365
Total Depth Drilled (m):	29.6
Drill Contractor:	RC Exploration
Driller:	N. Young
Rig Type:	Diedrich D-120 Truck
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 5/31/00

Boring: SB-22-285
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded SAND with gravel - dense, moist, gray																
1305		5	1		SPT	152			7 650/75mm								
		10	2		MC	356			7 10 7 10	●15							
		15	3		SPT	51			50/ 75mm								
1300		20	4		SPT	610			6 8 9 10	●15							
		25	5		MC	330			5 10 30 23	●27							
		30	6		SPT	279			8 17 19 19	●30							
1295		35	7		MC	457			18 19 30 27	●31							
	Lean CLAY - stiff, wet, dark brown to black	40	8		SPT	305	CL	A-6	5 5 6 6	●9							
	Sandy Lean CLAY - medium stiff, wet, gray, with fine-grained gravel	45	9	P	P		CL	A-6			45 *43*	15.5	28	42	19	58	C SG
	- with some fine-grained gravel	50	10		SPT				3 3 4 5	●5							
1290		55	11	P	P	0											
		60	12		SPT	508			8 6 8 7	●9							
		65	13	P													

UTDOT Z003SB2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-22-285**

Sheet **1** of **2**

Logged by:	M. Ivers
Date Start:	2/15/00
Date Finish:	2/17/00
Station:	0+773.642 3.26 LT
Line:	STATE ST.
Coordinates (m):	N 123,443.685 E 19,427.358
Elevation (m):	1306.607
Total Depth Drilled (m):	39.3
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-22-285
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy Lean CLAY - medium stiff, wet, gray (continued)				P	0											
					MC	0											
		70	21		MC	0											
1285			22														
		75	23		P	76	SP	A-2-4									
	Poorly Graded SAND - medium dense, wet, gray																
	Lean CLAY - stiff, wet, brown to gray, with occasional large clast of gravel		24				CL	A-6									
		80			MC	610			8 10 21 23								
			25														
	Poorly Graded SAND - dense, wet, gray	85	26		SPT	406	SP	A-2-4	10 14 19 24	●20							
1280			27														
	Poorly Graded GRAVEL - very dense, wet, gray, with approximately 30% medium to coarse-grained	90	28		SPT	305	GP	A-1-a	29 50 50/100mm								
	Poorly Graded SAND with gravel - very dense, wet, gray, medium to coarse-grained, with 20% fine to coarse-grained gravel	95	29		SPT	356	SP	A-2-4	15 20 38 39	●34							
			30														
	- dense, moist, gray, with approximately 10% fine-grained gravel, medium to coarse-grained sand	100	31		SPT				18 23 12 13	●20							
	SILT - stiff, moist, gray, with 0 to 20% fine-grained gravel						ML	A-4									
1275	Lean CLAY - stiff, wet, gray, grading to brown and moist	105	32		SPT	610	CL	A-6	6 7 6 9	●7							
		110	33														
			34														
	Poorly Graded GRAVEL with sand - very dense, wet, gray, with approximately 40% medium to coarse-grained sand	115	35		SPT		GP	A-1-a	16 50 50/100mm								
			36														
1270		120	37		SPT	610	ML	A-4	15 27 13 11	●21							
	Sandy SILT - very stiff, wet, gray																
		125	38		P	127											
	- grades to gravelly clay, very stiff, wet, gray		39		MC				15 10 11 45	●9							
	Poorly Graded SAND with gravel						SP	A-2-4									
		130															

UTDOT Z003SB2B.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-22-285**

Sheet **2** of **2**

Logged by:	M. Ivers
Date Start:	2/15/00
Date Finish:	2/17/00
Station:	0+773.642 3.26 LT
Line:	STATE ST.
Coordinates (m):	N 123,443.685 E 19,427.358
Elevation (m):	1306.607
Total Depth Drilled (m):	39.3
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

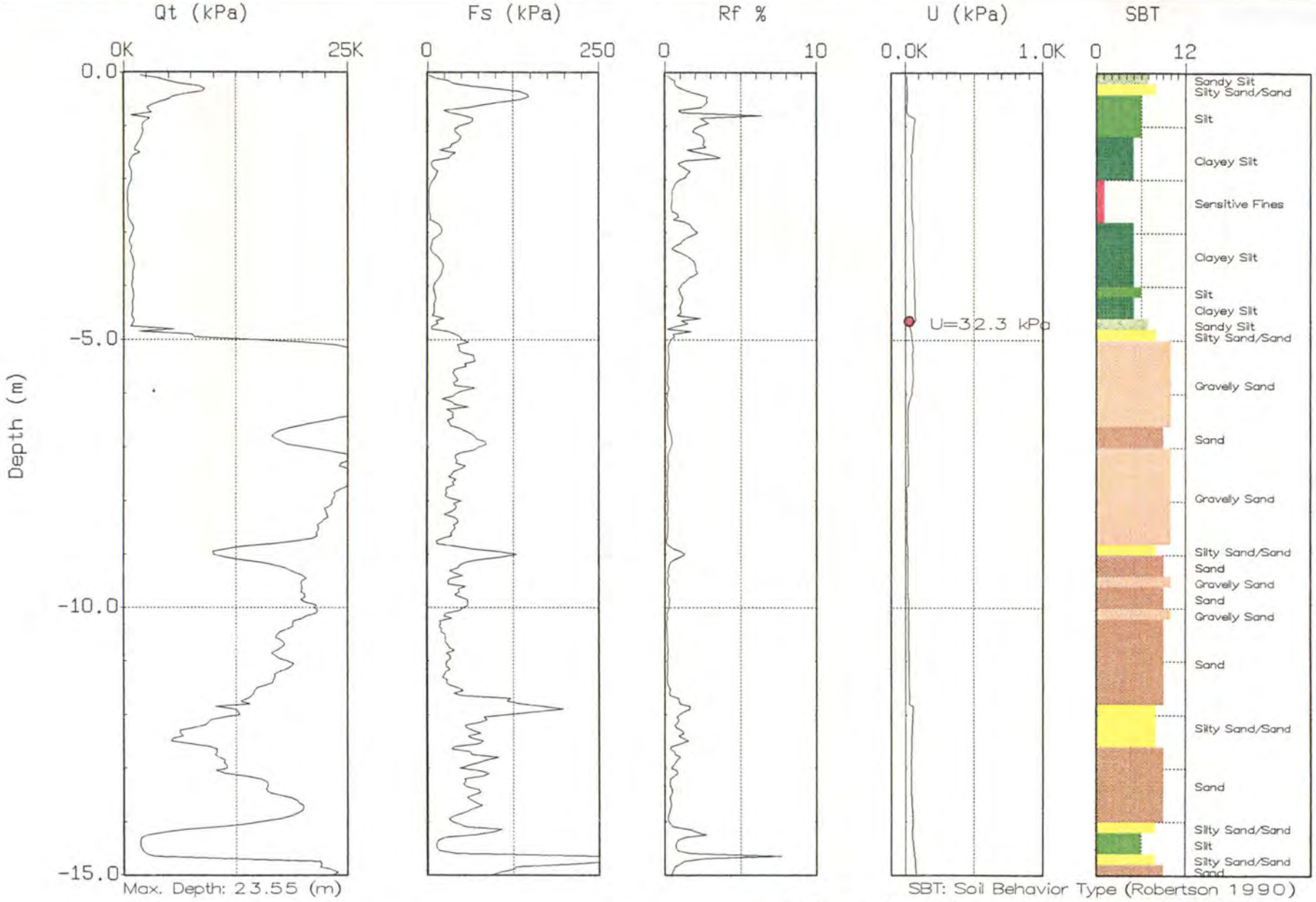
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-22-286
Station: 0+815.552 0.00 LT
Elevation: 1295.750

Cone: 20 TON A 092
Date: 02:15:00 15:39



Max. Depth: 23.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

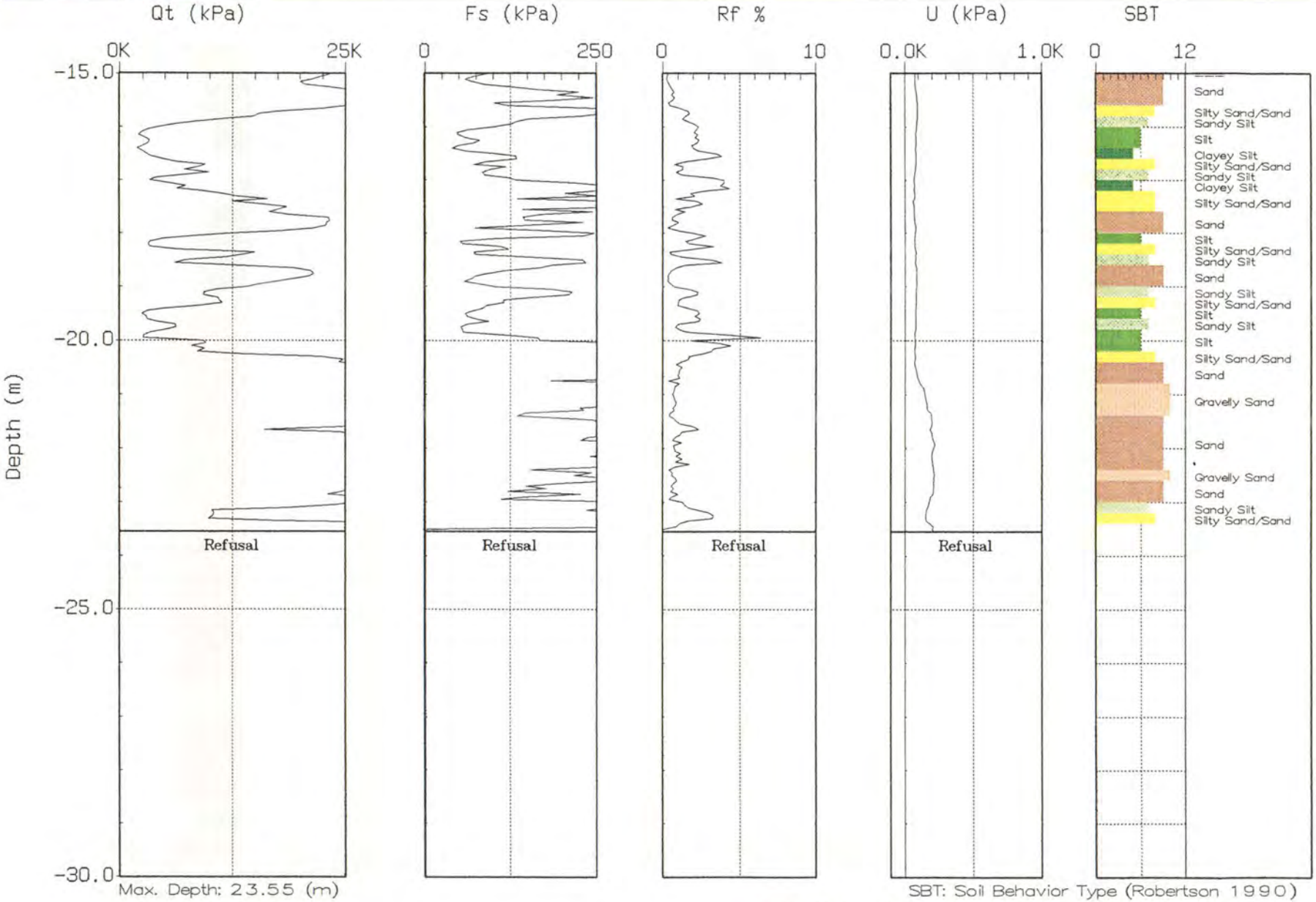
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-242

Legacy Parkway

Site: SC-22-286
Station: 0+815.552 0.00 LT
Elevation: 1295.750

Cone: 20 TON A 092
Date: 02:15:00 15:39



Max. Depth: 23.55 (m)
Depth Inc.: 0.050 (m)

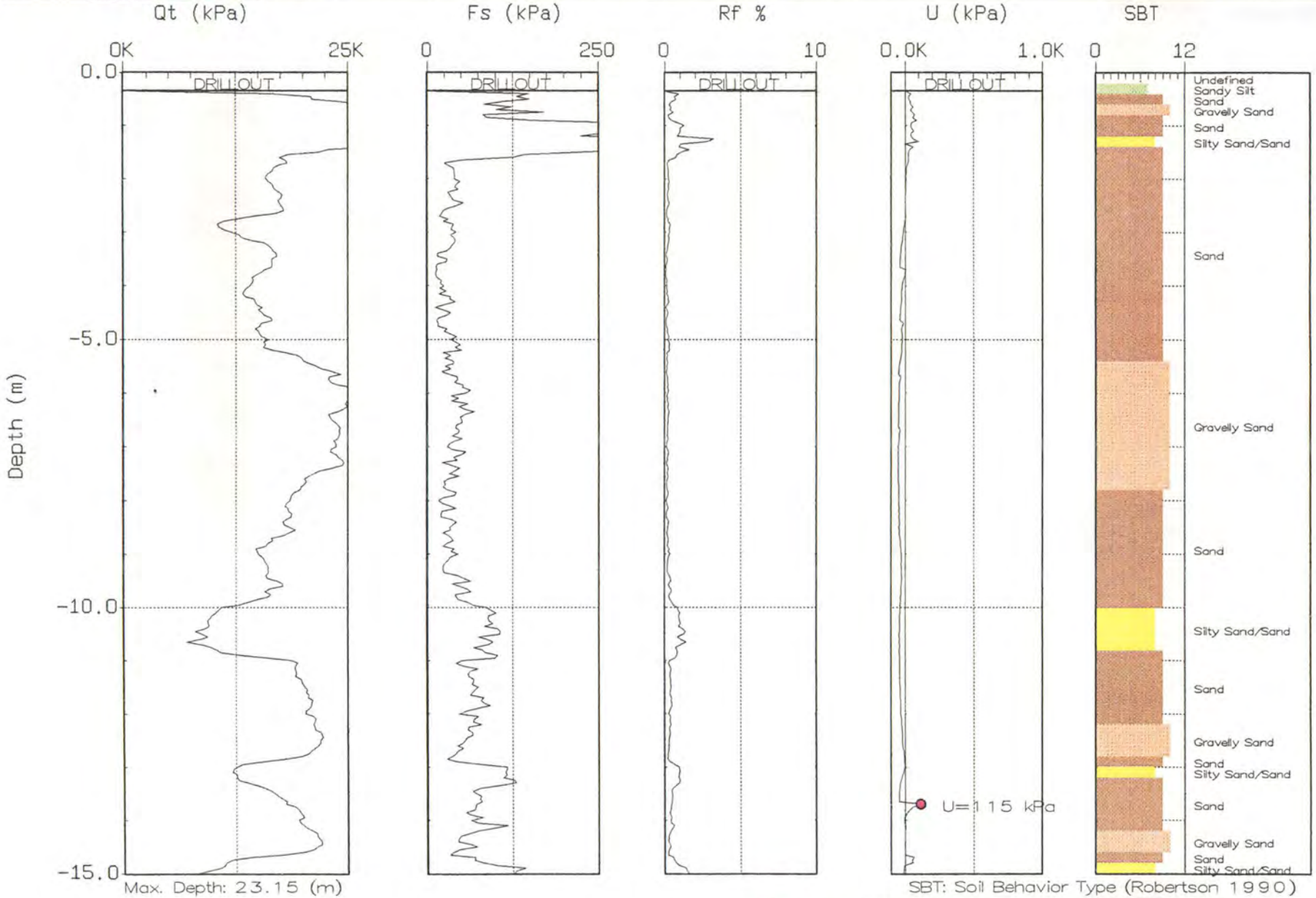
SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-22-287
Station: 0+854.444 2.22 RT
Elevation: 1296.540

Cone: 20 TON A 070
Date: 03:01:00 09:37



Max. Depth: 23.15 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

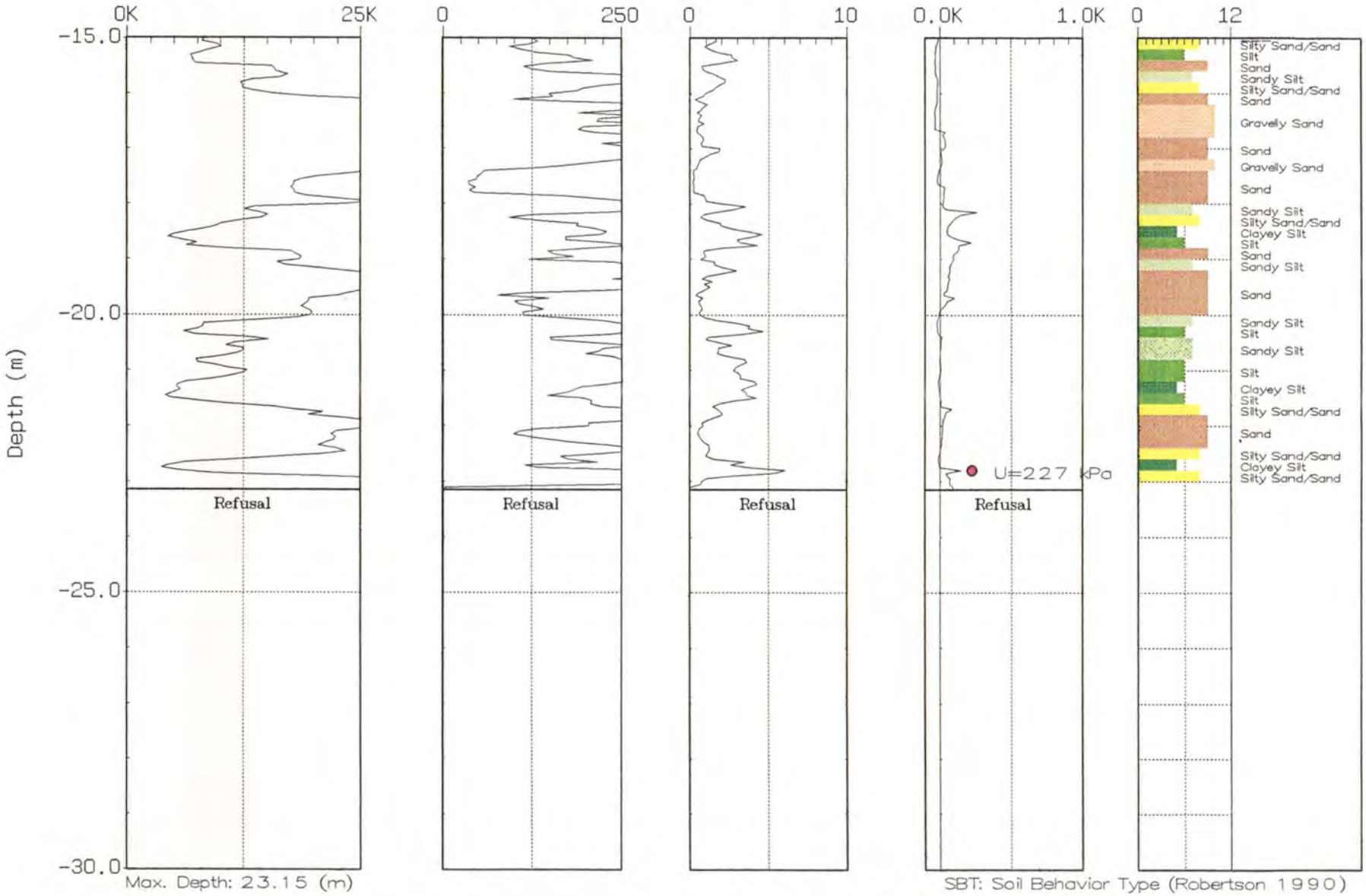
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-244

Legacy Parkway

Site: SC-22-287
Station: 0+854.444 2.22 RT
Elevation: 1296.540

Cone: 20 TON A 070
Date: 03:01:00 09:37



Max. Depth: 23.15 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-245

Boring: SB-22-288
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND with gravel - loose, moist, yellow-brown		1		GRAB											
		5	2		GRAB											
					SPT	610			5 3 2 4							pH WSS R
		10	3													
			4													
1300	SILT - stiff, wet, brown, with frequent seams of very fine-grained sands	15	5		SPT	559	ML	A-4	3 4 4 6							
		20	6		SPT	457			4 2 4 4							
			7													
		25	8		P	457					15.3	30	31	6		C TR SG
1295		30	9		SPT	559			2 3 3 9							
	Poorly Graded SAND - very dense, wet, gray, coarse-grained		10				SP	A-3								
		35	11		SPT	610			11 17 20 30							
		40	12		SPT	610			11 15 23 29							
			13													
		45	14		SPT	305			15 11 8 12							
1290			15													
	Silty SAND - dense, wet, gray, medium and coarse-grained sand - medium dense	50	16		SPT	457	SM	A-2-4	5 14 17 20							
		55	17													
			18													
	- dense	60	19		SPT	457			5 14 16 18							
1285		65														

Legend: ● SPT $(N_1)_{60}$; ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-22-288**

Sheet **1** of **2**

Logged by:	M. Bostrom
Date Start:	2/21/00
Date Finish:	2/21/00
Station:	0+918.648 12.68 RT
Line:	STATE ST.
Coordinates (m):	N 123,426.636 E 19,572.238
Elevation (m):	1304.555
Total Depth Drilled (m):	31.1
Drill Contractor:	RC Exploration
Driller:	N. Young
Rig Type:	Diedrich D-120
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 6/31/00

Boring: SB-22-288
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (*torvane in italics*)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- Silty SAND, continued															
	- gravelly	70	21		SPT	305			21 32 22 21							
	Silty GRAVEL - very dense, wet, gray		22				GM	A-2-4								
	Silty SAND - medium dense, wet, gray	75	23		SPT	610	SM	A-2-4	3 10 15 16							
	SILT - very stiff, wet, dark brown, with some medium-grained sands and organic materials		24				ML	A-4								
1280	Silty SAND - very dense, wet, gray, medium to coarse-grained sand	80	25		SPT	610	SM	A-2-4	20 26 26 31							
	SILT - hard, wet, green to bluish-gray, with fine-grained sand	85	26		SPT	610	ML	A-4	19 27 29 21							
			27													
	Poorly Graded SAND - very dense, wet, gray	90	28		SPT	610	SP	A-3	20 25 25 25							
1275		95	29		SPT	559			20 25 43 47							
			30													
		100	31		SPT	559			47 53 57 57							
		105	32													
			33													
		110	34													
1270		115	35													
			36													
		120	37													
		125	38													
			39													
1265		130														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-22-288**

Sheet **2** of **2**

Logged by:	M. Bostrom
Date Start:	2/21/00
Date Finish:	2/21/00
Station:	0+918.648 12.68 RT
Line:	STATE ST.
Coordinates (m):	N 123,426.636 E 19,572.238
Elevation (m):	1304.555
Total Depth Drilled (m):	31.1
Drill Contractor:	RC Exploration
Driller:	N. Young
Rig Type:	Diedrich D-120
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Boring: SB-23-289
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy SILT with gravel - very stiff, moist, brown, micaceous				SPT	406	ML	A-4	3 5 7 7	● 24							
	Lean CLAY - very stiff, wet, gray mottled orange and brown, with trace of mica	5	1 2		MC	457	CL	A-6	5 5 5 8	● 18			28	44	15		
	Sandy SILT - stiff, wet, gray and brown	10	3 4		SPT	406	ML	A-4	3 4 4 5	● 14							
1290	Silty GRAVEL with sand - dense, wet, gray	15	5		MC	457	GM	A-2-4	10 10 18 20	● 45							
		20	6 7		SPT	305			8 8 18 11	● 36							
	Poorly Graded SAND with silt - very dense, wet, gray	25	8		MC	508	SP-SM	A-2-4	24 54 49 37	○							
1285		30	9 10		SPT	610			13 26 48 50	○							SV
	Clayey SAND with gravel - medium dense, wet, gray	35	11		MC	356	SC	A-2-6	12 8 18 34	● 24							
	Poorly Graded SAND with gravel - very dense, wet, gray	40	12 13		SPT	356	SP	A-3	9 54 58 39	○							
1280		45	14 15		MC	610			15 57 50/ 90mm	○							
		50	16		SPT	457			17 23 35 37	○							
		55	17 18														
	Sandy SILT - hard, wet, gray	60	19		MC	457	ML	A-4	9 17 41 34	● 41							
		65															

Test Results *

UTDOT Z0039B28.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-23-289**

Sheet 1 of 2

Logged by:	M. Hislop
Date Start:	2/28/00
Date Finish:	2/29/00
Station:	60+436.602 0.52 LT
Line:	I-15 SB TO LP SB
Coordinates (m):	N 123,977.638 E 19,114.208
Elevation (m):	1295.083
Total Depth Drilled (m):	26.5
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-23-289
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty GRAVEL - very dense, wet, gray						GM	A-2-4									
		70	21		SPT	457			15 50 54 45								
			22														
		75	23		SPT	305			13 28 75/ 125mm								
			24														
	- with sand	80			MC	406			17 68 50/ 100mm								
1270			25														
		85	26		SPT	330			24 75/ 100mm								
			27														
		90															
			28														
		95	29														
1265			30														
		100															
			31														
		105	32														
			33														
		110															
			34														
1260		115	35														
			36														
		120															
			37														
		125	38														
			39														
		130															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-23-289**

Sheet **2** of **2**

Logged by:	M. Hislop
Date Start:	2/28/00
Date Finish:	2/29/00
Station:	60+436.602 0.52 LT
Line:	I-15 SB TO LP SB
Coordinates (m):	N 123,977.638 E 19,114.208
Elevation (m):	1295.083
Total Depth Drilled (m):	26.5
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

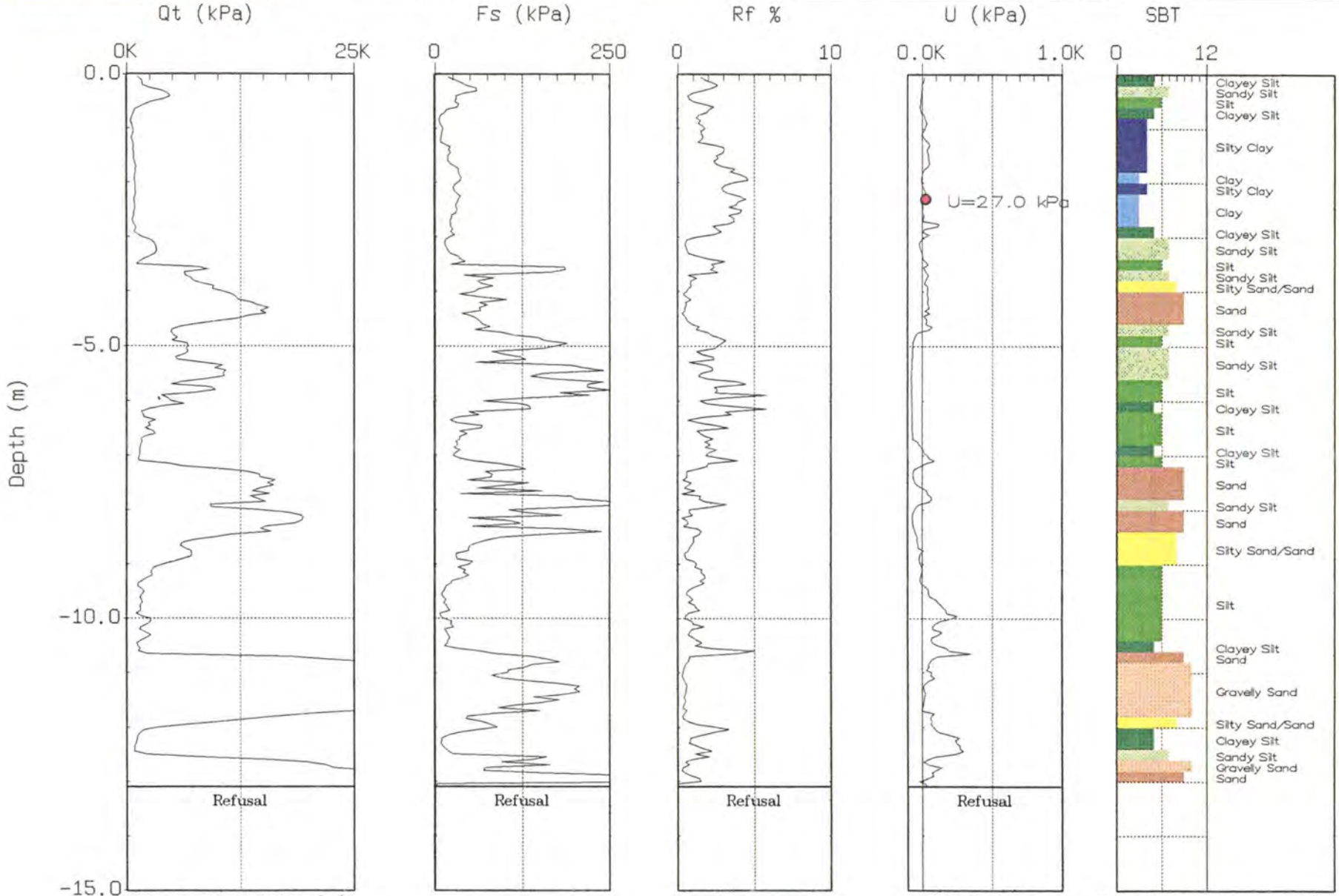
BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 5/31/00

Legacy Parkway

Site: SC-23-290A
Station: 60+480.966 5.61 LT
Elevation: 1295.394

Cone: 20 TON A 058
Date: 02:22:00 14:59



Max. Depth: 13.10 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

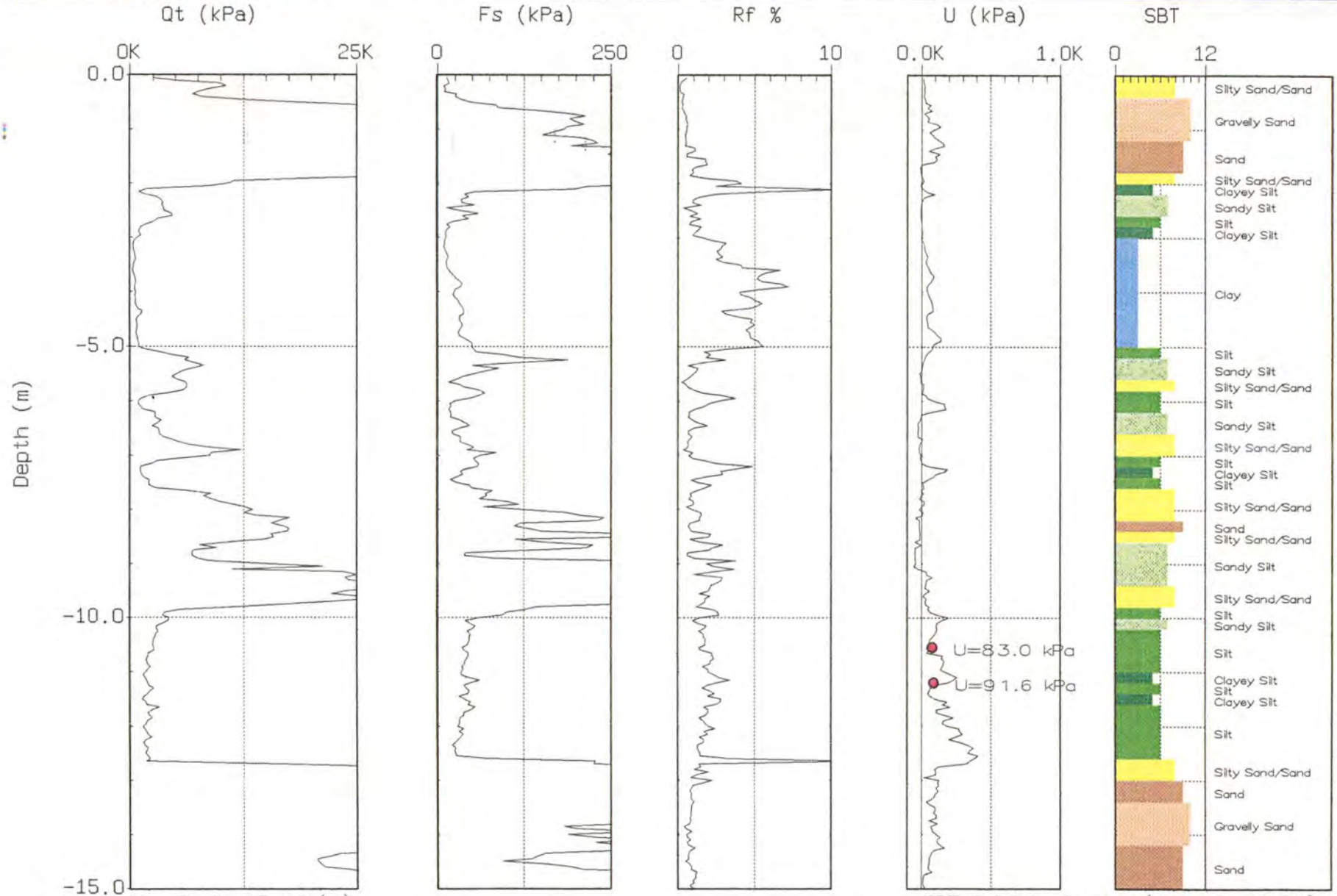
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-250

Legacy Parkway

Site: SC-23-290B
Station: 60+551.904 6.21 RT
Elevation: 1297.876

Cone: 20 TON A 092
Date: 02:10:00 11:33



Max. Depth: 15.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

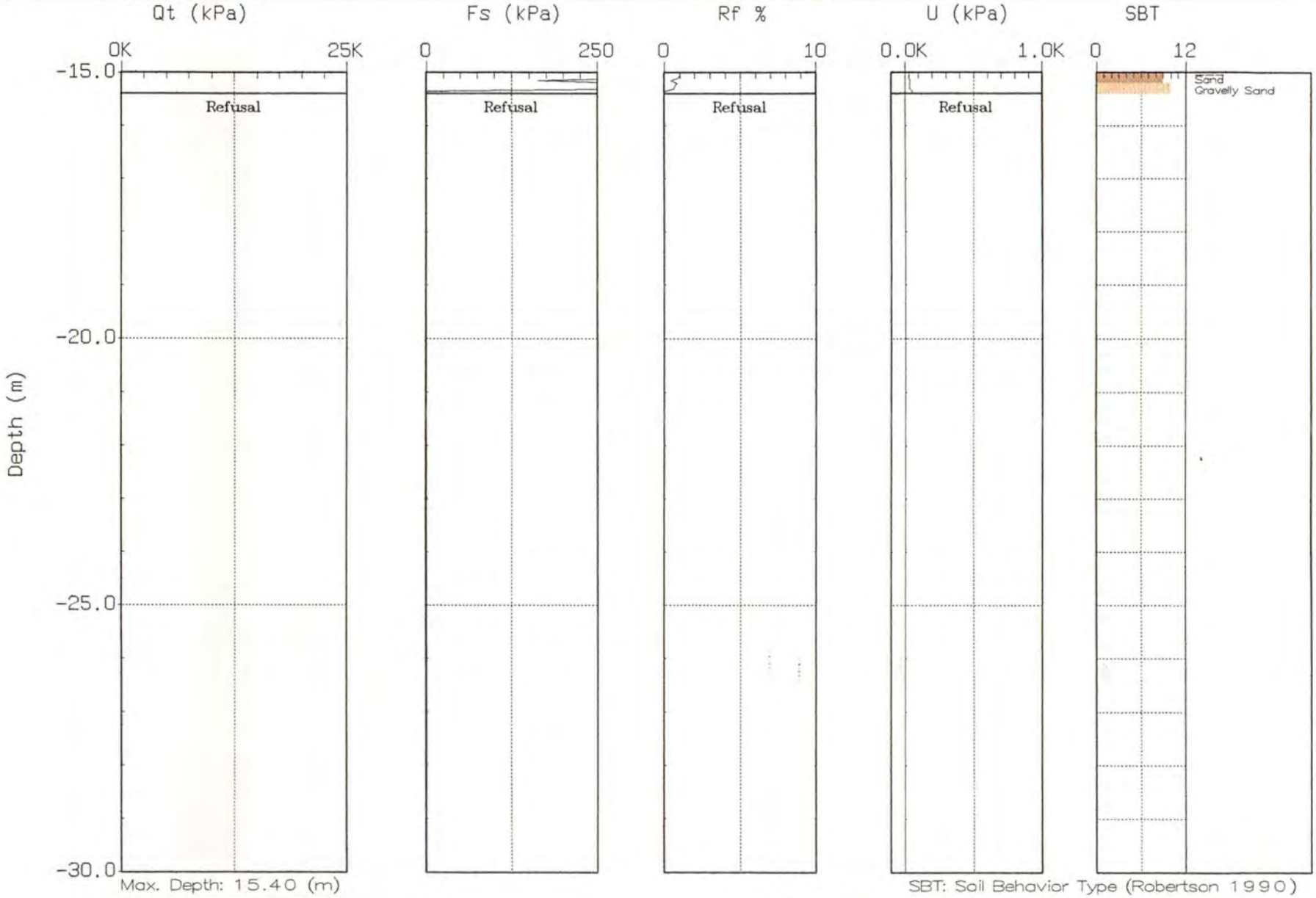
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-251

Legacy Parkway

Site: SC-23-290B
Station: 60+551.904 6.21 RT
Elevation: 1297.876

Cone: 20 TON A 092
Date: 02:10:00 11:33



Max. Depth: 15.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-252

Boring: SB-23-290C
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded GRAVEL with sand - medium dense, gray, with occasional clayey seam, fine to coarse-grained				SPT	457			9 8 9 14	23							
1295		5	1														
		10	2		SH	0											
		15	3		SH	0											
			4														
			5		SPT	127			15 11 13 8	24							
	SILT - stiff, wet, brown						ML	A-4									
		20	6		SPT	330			19 6 5 7	11							
1290		25	7														
			8														
		30	9		SH	762					38	14.7	34	32	8	95	C TR SG
			10														
	- soft, some fine-grained sand, laminae (micaceous)	35	11		SPT	610			0 0 4 6	3							
	Lean CLAY - stiff, moist to wet, grayish brown, with frequent fine-grained sand, laminae (micaceous)		12				CL	A-6									
1285		40			SH	508					53	15.1	30			93	C SG
			13														
	Silty GRAVEL - dense, wet, dary gray	45	14		SPT	25	GP	A-1-a	10 8 9 21	13							
			15														
	- very dense	50			SPT	25			18 50/ 100mm								
			16														
		55	17		SPT	254			8 27 34 28	41							
1280			18														
		60			SPT	0			50/125mm								
			19														
		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-23-290C**

Sheet **1** of **1**

Logged by:	A. Waldman
Date Start:	2/9/00
Date Finish:	2/14/00
Station:	60+599.449 4.87 LT
Line:	I-15 SB TO LP SB
Coordinates (m):	N 124,132.337 E 19,070.781
Elevation (m):	1297.427
Total Depth Drilled (m):	18.4
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 5/31/00

Boring: SB-24-255
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1295	SILT - very stiff, wet, dark brown				SPT	559	ML	A-4	5 5 5 5	●20							
		5	1														
			2		SH	610					43 *43*	14.7	32			93	pH WSS R C
		10	3		SPT	610			2 5 1 2	●8						17	TR SG
	- medium stiff		4														
		15	5														
1290	Silty SAND - loose, wet, gray, with seams of clay, clay seams are reddish-brown				MC	457	SM	A-2-4	2 3 4 5	●8							
		20	6		SPT	610	CL	A-6	3 4 5 6	●12							
	Silty CLAY - stiff, wet, reddish-brown, with occasional seams of fine-grained sand		7														
		25	8		MC	610	SM	A-2-4	5 11 10 12	●21							
	Silty SAND - medium dense, wet, gray, with clay seams, clay seams are red-brown	30	9		SPT				4 2 4 8	●7							
1285			10														
		35	11		MC	457			3 3 14 24	●16							
		40	12		SPT	508			14 16 27 36	●46							
			13														
		45	14		MC	229			37 39 29 13	○							
1280		50	15		SPT	610			3 8 11 9	●19							
			16														
		55	17														
			18		MC	203			9 18 27 24	●35							
	SILT interbedded with Silty SAND - hard, wet, greenish gray	60	19				ML	A-4									
		65															

Test Results *

UTDOT Z003SB2B.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-24-255**

Sheet 1 of 2

Logged by:	M. Bostrom
Date Start:	3/16/00
Date Finish:	3/17/00
Station:	20+512.743 20.84 LT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 123,943.153 E 19,142.978
Elevation (m):	1295.236
Total Depth Drilled (m):	38.7
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-24-255
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1275	Silty CLAY - stiff, wet, reddish-brown, with occasional seams of fine-grained sand (continued)																
		70	21		SPT	610			4 7 12 10	16							
			22														
		75	23														
			24														
		80			MC	102			50/100mm								
1270			25														
		85	26														
			27														
	Silty SAND with gravel - medium dense, wet, greenish gray	90			SPT	305	SM	A-2-4	40 54 50/ 125mm								
			28														
	Sandy Lean CLAY - very stiff, wet, dark brown, contains frequent seams of silt and silty sand and layers	95	29		SPT	457	CL	A-4	17 7 11 14	13							
1265			30														
		100			MC	152			25 50/ 75mm								
			31														
		105	32		SPT	559			21 15 17 22	23							
			33														
		110															
			34														
1260		115	35		MC	356			21 39 60/ 125mm								
			36														
		120			SPT	457			13 17 23 29	28							
			37														
		125	38		SPT	406			24 26 19 20	30							
			39														
		130															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-24-255**

Sheet **2** of **2**

Logged by:	M. Bostrom
Date Start:	3/16/00
Date Finish:	3/17/00
Station:	20+512.743 20.84 LT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 123,943.153 E 19,142.978
Elevation (m):	1295.236
Total Depth Drilled (m):	38.7
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

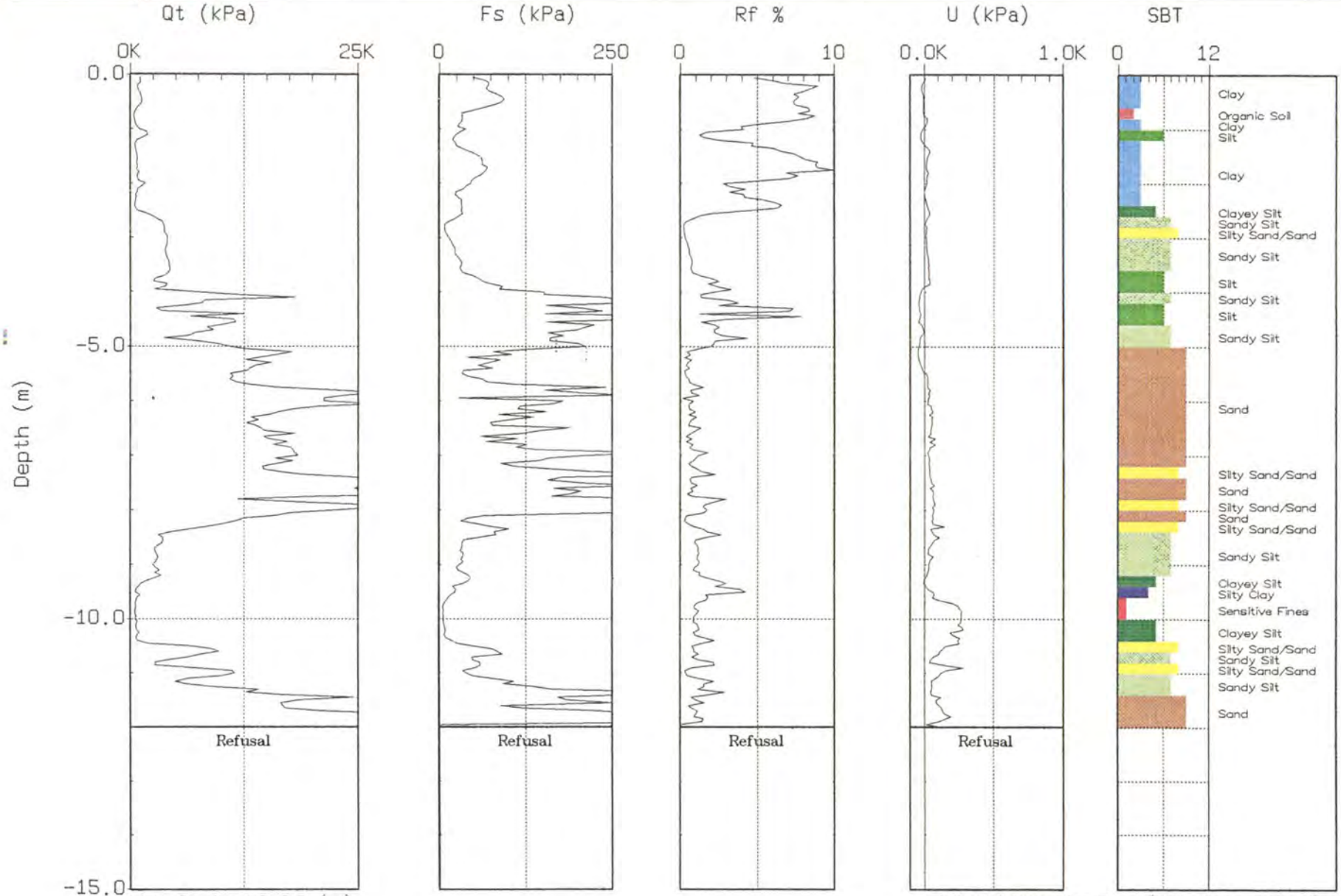
BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Legacy Parkway

Site: SC-24-256
Station: 20+554.154 10.26 LT
Elevation: 1295.320

Cone: 20 TON A 092
Date: 02:22:00 11:04



Max. Depth: 12.00 (m)
Depth Inc.: 0.050 (m)

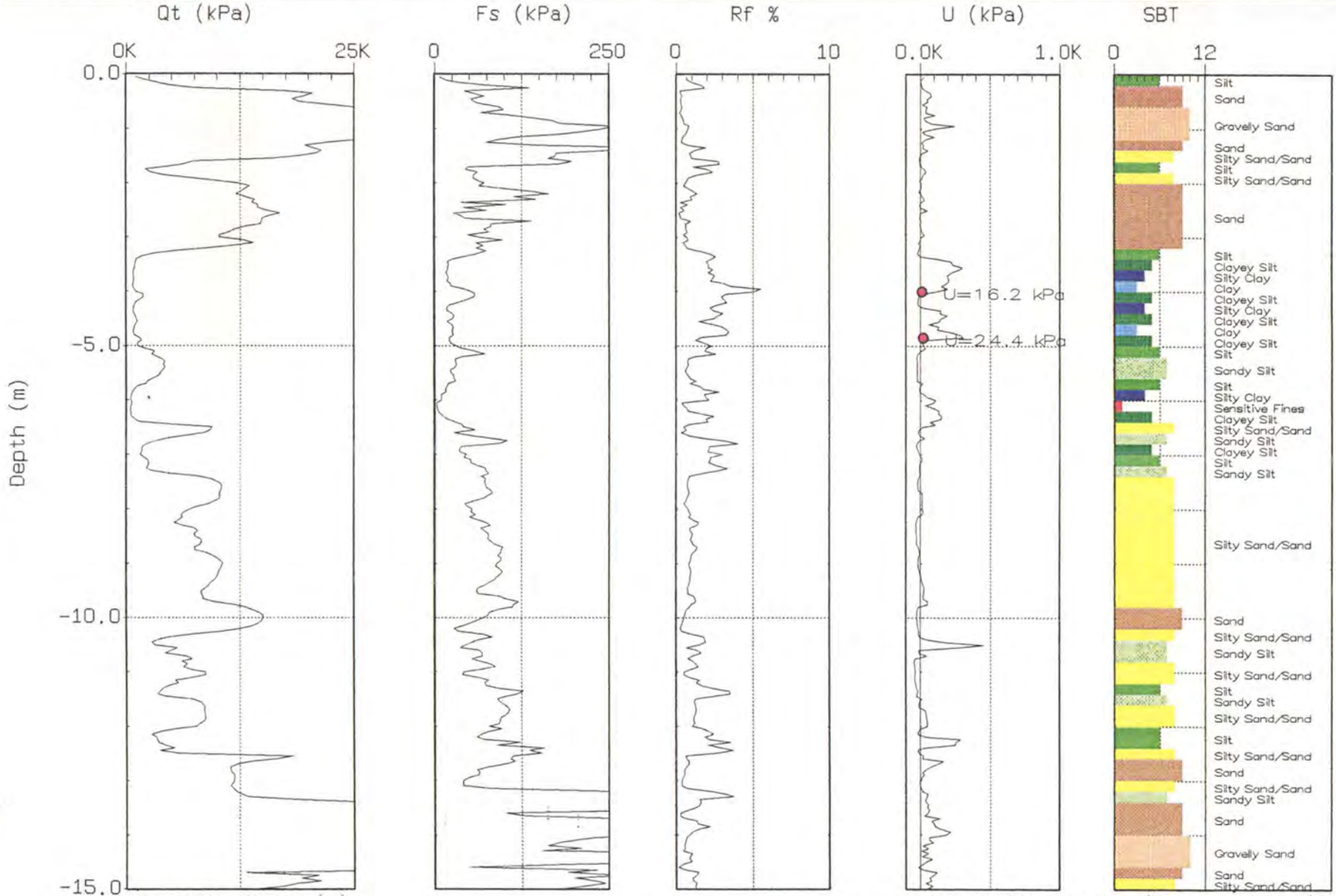
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-256

Legacy Parkway

Site: SC-24-257
Station: 20+623.800 11.20 RT
Elevation: 1297.923

Cone: 20 TON A 092
Date: 02:10:00 14:15



Max. Depth: 20.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

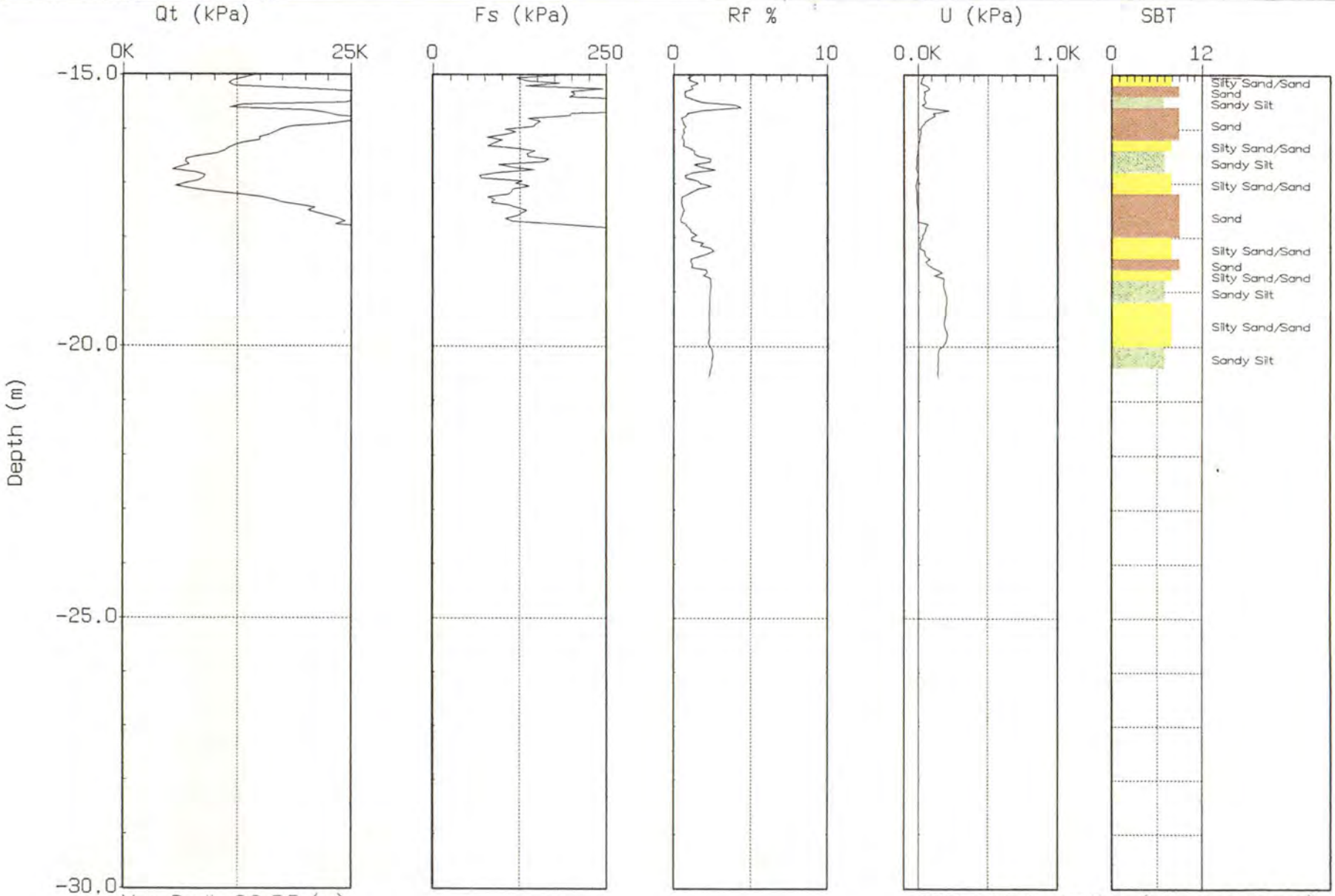
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-257

Legacy Parkway

Site: SC-24-257
Station: 20+623.800 11.20 RT
Elevation: 1297.923

Cone: 20 TON A 092
Date: 02:10:00 14:15



Max. Depth: 20.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-258

Boring: SB-24-258
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - medium dense, moist, dark brown, with trace gravel				SPT	610	SM	A-2-4	4 6 7 6	26							
	SILT with sand - medium stiff, moist, dark brown	5	1		SPT	610	ML	A-4	1 2 1 2	5							pH WSS R
1295	Lean CLAY - soft, moist, yellow-brown	10	2		P	508	CL	A-6			39 *53*	15.7	30			82	C SG
	Poorly Graded SAND with silt - medium dense, moist, gray, with trace gravel	15	3		SPT	457	SP-SM	A-2-4	4 6 4 3	13							
	SILT with sand - soft, moist, dark brown, with fine-grained sand, with trace and organic soil	20	4		SPT	381	ML	A-4	0 1 2 2	4							
1290	Poorly Graded SAND with silt - dense, wet, gray, with trace fine-grained gravel	25	5		SPT	381	SP-SM	A-2-4	13 24 16	40							
	Lean CLAY with sand - medium stiff, moist, yellow-brown	30	6		SPT	102	CL	A-6	5 4 3 4	7							
	- medium stiff, moist, yellow-brown	35	7		P	610					10 *38*	15.8	27			5	C TR SG
	Silty SAND - loose, moist, gray	40	8		SPT	508	SM	A-2-4	4 5 2 3	7							
1285	SILT with sand - medium stiff, moist, gray, with fine-grained sand						ML	A-4									
	Poorly Graded GRAVEL with sand - very dense, wet, gray, with trace fines	45	9		SPT	381	GP	A-1-a	18 45 24								
	Poorly Graded SAND with silt - very dense, moist, gray	50	10		SPT	457	SP-SM	A-2-4	10 30 50/140mm								
	- silt lense 100 mm thick	55	11		SPT	457			5 15 35 35	42							
1280	- with gravel	60	12		SPT	356			20 30 19	39							
		65	13														

UTDOT Z033B2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-24-258**

Sheet **1** of **2**

Logged by:	J. Rajek
Date Start:	2/10/00
Date Finish:	2/10/00
Station:	20+666.464 1.21 RT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 129,099.054 E 19,118.949
Elevation (m):	1297.705
Total Depth Drilled (m):	24.4
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-24-258
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 ○ (Greater than 50 Blows) 0–25–50	Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND with silt - very dense, moist, gray (continued)																
	Poorly Graded SAND with silt - dense, wet, gray	70	21		SPT	457	SP-SM	A-2-4	9 18 14	●25							
1275	- with gravel	75	22		SPT	457			17 18 11	○							
	Silty SAND - medium dense, moist, gray, fine-grained sand		23				SM	A-2-4									
	- with gravel	80	24		SPT	610			13 30 13 29	●31							
		85	25														
1270		90	26														
		95	27														
		100	28														
		105	29														
1265		110	30														
		115	31														
		120	32														
1260		125	33														
		130	34														
			35														
			36														
			37														
			38														
			39														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-24-258**

Sheet **2** of **2**

Logged by:	J. Rajek
Date Start:	2/10/00
Date Finish:	2/10/00
Station:	20+666.464 1.21 RT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 129,099.054 E 19,118.949
Elevation (m):	1297.705
Total Depth Drilled (m):	24.4
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Boring: SB-25-334
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - soft, moist, dark brown, with fine to coarse-grained sand				SPT	508	ML	A-4	2 2 3 2	10							
	Lean CLAY - soft, wet, dark brown, with fine to coarse-grained sand		1				CL	A-7-6									
1295		5	2		SPT	610			1 1 2 2	5							pH WSS R
	- yellow-brown	10	3		P	584					17 *38*	12.8	41	42	16		C SG
			4														
		15	5		SPT	610			1 2 2 1	6							
		20	6		P	0											
1290			7		P	610					*48*						
		25	8		SPT	610			1 2 1 1	4							
		30	9		P	508		A-6			54 *48*	15.2	28	35	13	97	C TR SG
			10														
	- medium stiff	35	11		SPT	508			0 4 7 5	13							
1285	Silty SAND - medium dense, wet, gray, with trace gravel		12				SM	A-2-4									
	Silty GRAVEL with sand - dense, wet, gray	40	13		SPT	406	GM	A-2-4	10 20 16	40							
		45	14		SPT	254			10 22 11	34							
		50	15		SPT	381			16 33 35								
	- very dense		16														
1280		55	17														
		60	18		SPT				5 20 20	36							
		65	19														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-25-334**

Sheet **1** of **2**

Logged by:	J. Rajek
Date Start:	2/8/00
Date Finish:	2/8/00
Station:	20+723.909 2.88 LT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 124,153.922 E 19,101.451
Elevation (m):	1296.737
Total Depth Drilled (m):	21.9
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 8/31/00

Boring: SB-25-334
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty GRAVEL with sand - very dense, wet, gray (continued)																
		70	21		SPT	381			14 23 50/ 100mm								
1275			22														
		75	23														
			24														
		80	25														
		85	26														
1270			27														
		90	28														
		95	29														
			30														
		100	31														
1265		105	32														
			33														
		110	34														
		115	35														
			36														
1260		120	37														
		125	38														
			39														
		130															

UTDOT Z003SB2B.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-25-334**

Sheet 2 of 2

Logged by:	J. Rajek
Date Start:	2/8/00
Date Finish:	2/8/00
Station:	20+723.909 2.88 LT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 124,153.922 E 19,101.451
Elevation (m):	1296.737
Total Depth Drilled (m):	21.9
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

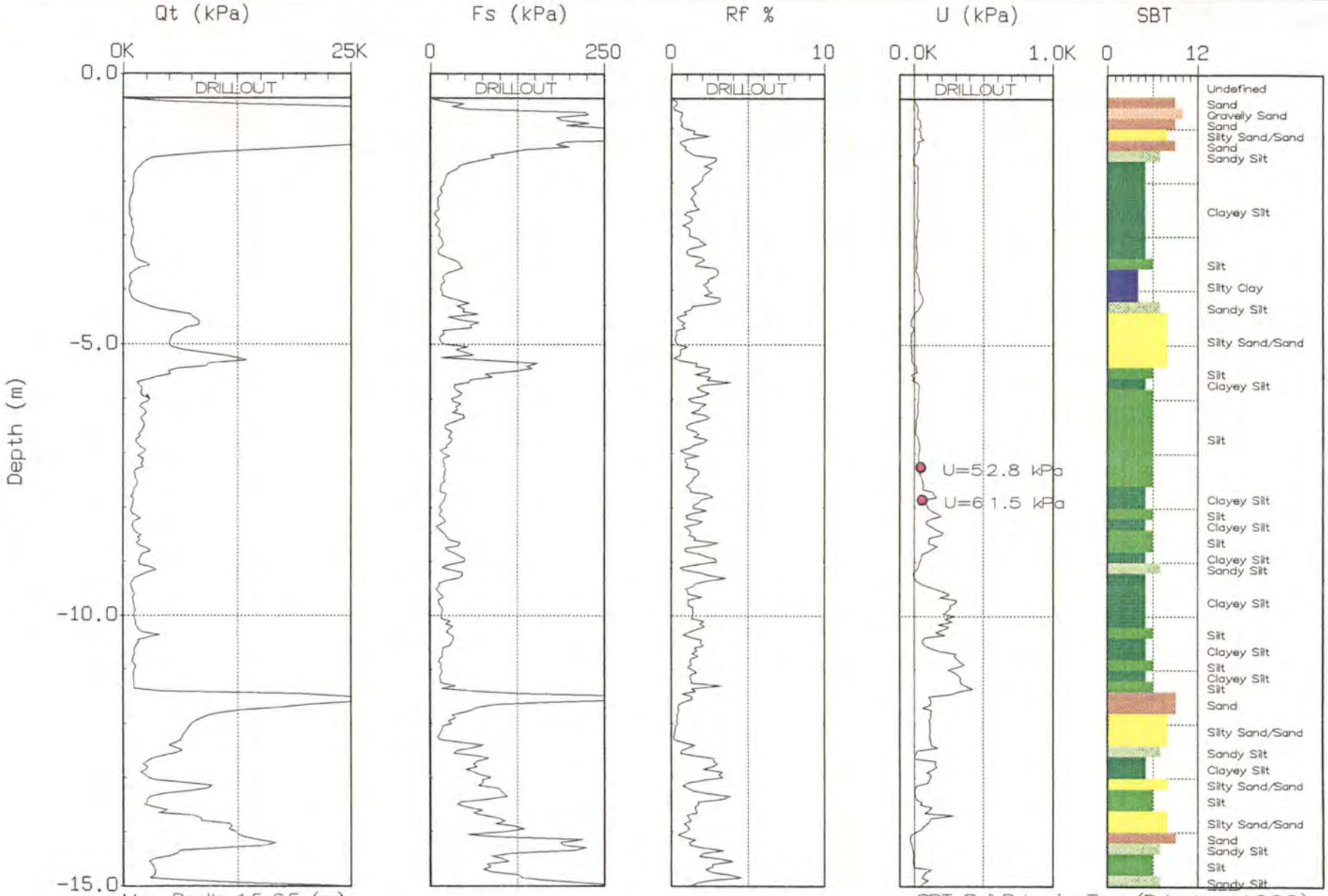
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-25-335
Station: 20+791.718 1.98 RT
Elevation: 1297.649

Cone: 20 TON A 070
Date: 02:29:00 09:41



Max. Depth: 15.65 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

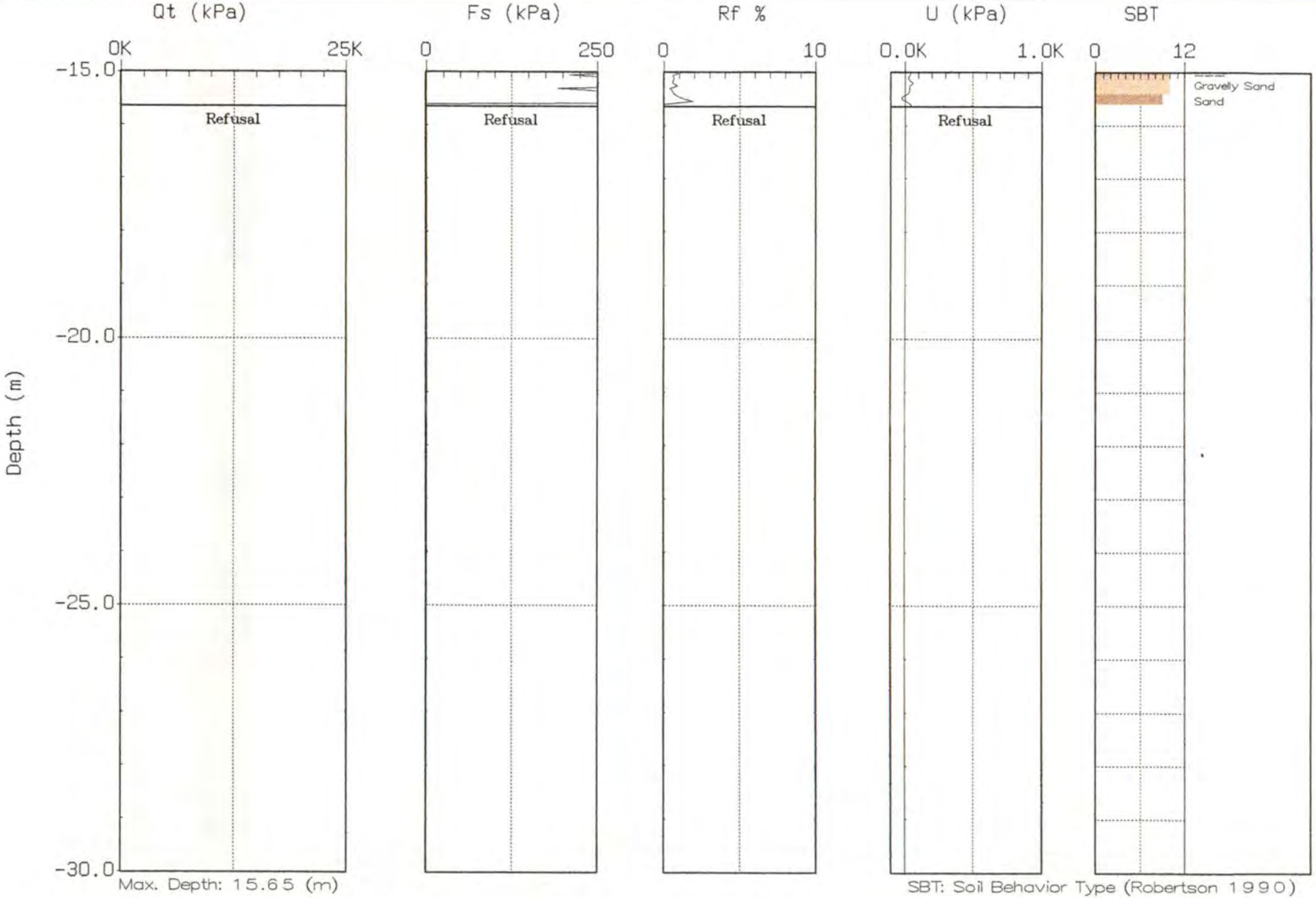
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-263

Legacy Parkway

Site: SC-25-335
Station: 20+791.718 1.98 RT
Elevation: 1297.649

Cone: 20 TON A 070
Date: 02:29:00 09:41



Max. Depth: 15.65 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-264

Boring: SB-25-336
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - very soft, wet to moist, brown, with trace of coarse-grained sand						ML	A-4									
1295		5	1		SPT	0			2 1 1 2	●2							
		10	2		SH	508					38						pH WSS R
		15	3		SPT				3 3 4 5	●9							SV
	- stiff, olive gray	20	4		SH	559					39 34	15.3	28			87	C SG
1290	Silty SAND - medium dense, wet, gray	25	5		SPT	610	SM	A-2-4	1 3 1 4	●4							
	Lean CLAY - stiff, wet, brown mottled with gray, some sand seams	30	6		SH	610	CL	A-6									
		35	7		SPT				3 4 5 17	●9							
1285	Poorly Graded SAND - medium dense, wet, black	40	8		SPT	610	SP	A-3	5 6 6 11	●12							
	- gravel layer	45	9		SPT	508			5 11 22 20	●30							
	- very dense	50	10		SPT	381			33 48 50/75mm	○							
1280		55	11		SPT	51			50/100mm	○							
		60	12														
		65	13														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-25-336**

Sheet **1** of **1**

Logged by:	M. Ivers
Date Start:	2/8/00
Date Finish:	2/9/00
Station:	20+862.412 6.42 RT
Line:	LP NB to I-15 NB (US 89)
Coordinates (m):	N 124,287.360 E 19,062.514
Elevation (m):	1297.153
Total Depth Drilled (m):	17.4
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2B.GPJ 6/31/00

Boring: SB-26-337
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: SAND and GRAVEL - loose, moist, brownish-tan																
1295		5	1		SH	457											pH WSS R
		10	2		SPT	457			2 1 3	●7							
	Lean CLAY - soft, wet, brownish-gray, with silt	15	4				CL	A-6									
			5		SH	559					38						
		20	6		SPT	457			2 2 2	●6							
1290		25	7														
			8		SH	610					34 57	15.5	29	40	18		C TR SG
		30	9		SPT				0 1 2	●4							
			10														
	Poorly Graded SAND - medium dense, wet, gray, fine-grained - with gravel	35	11		SPT	610	SP	A-3	1 8 14	●28							
1285	- dense	40	12		SPT	279			19 17 16	●40							
		45	13														
			14		SPT				10 20 21	●47							
		50	15		SPT	305			19 38 22	○							
			16														
1280		55	17		SPT	305			28 34 28	○							
	Silty SAND - very dense, wet, gray		18				SM	A-2-4									
	- with gravel and cobbles	60			SPT	152			25 50/75mm	○							
			19														
		65								●26							

UTDOT Z003SB2B.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-26-337**

Sheet **1** of **2**

Logged by:	C. Wieden
Date Start:	2/10/00
Date Finish:	2/10/00
Station:	12+605.204 1.91 LT
Line:	US 89 SB to I-15 SB
Coordinates (m):	N 124,130.372 E 19,139.171
Elevation (m):	1297.073
Total Depth Drilled (m):	24.8
Drill Contractor:	Layne Christensen
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-26-337
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- Silty SAND, continued				SPT	229			17 16 14								
	CLAY - stiff, wet, gray, with silt	70	21		SPT		CL	A-6	5 4 22	● 24							
1275	Silty SAND with gravel - medium dense, wet, gray		22				SM	A-2-4									
	- brown, with some organics	75	23		SPT				7 12 10	● 20							
			24														
		80	25		SPT	51			20 10 9	● 16							
		85	26														
1270			27														
		90	28														
		95	29														
			30														
		100	31														
1265		105	32														
			33														
		110	34														
		115	35														
			36														
1260		120	37														
		125	38														
			39														
		130															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-26-337**

Sheet **2** of **2**

Logged by:	C. Wieden
Date Start:	2/10/00
Date Finish:	2/10/00
Station:	12+605.204 1.91 LT
Line:	US 89 SB to I-15 SB
Coordinates (m):	N 124,130.372 E 19,139.171
Elevation (m):	1297.073
Total Depth Drilled (m):	24.8
Drill Contractor:	Layne Christensen
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

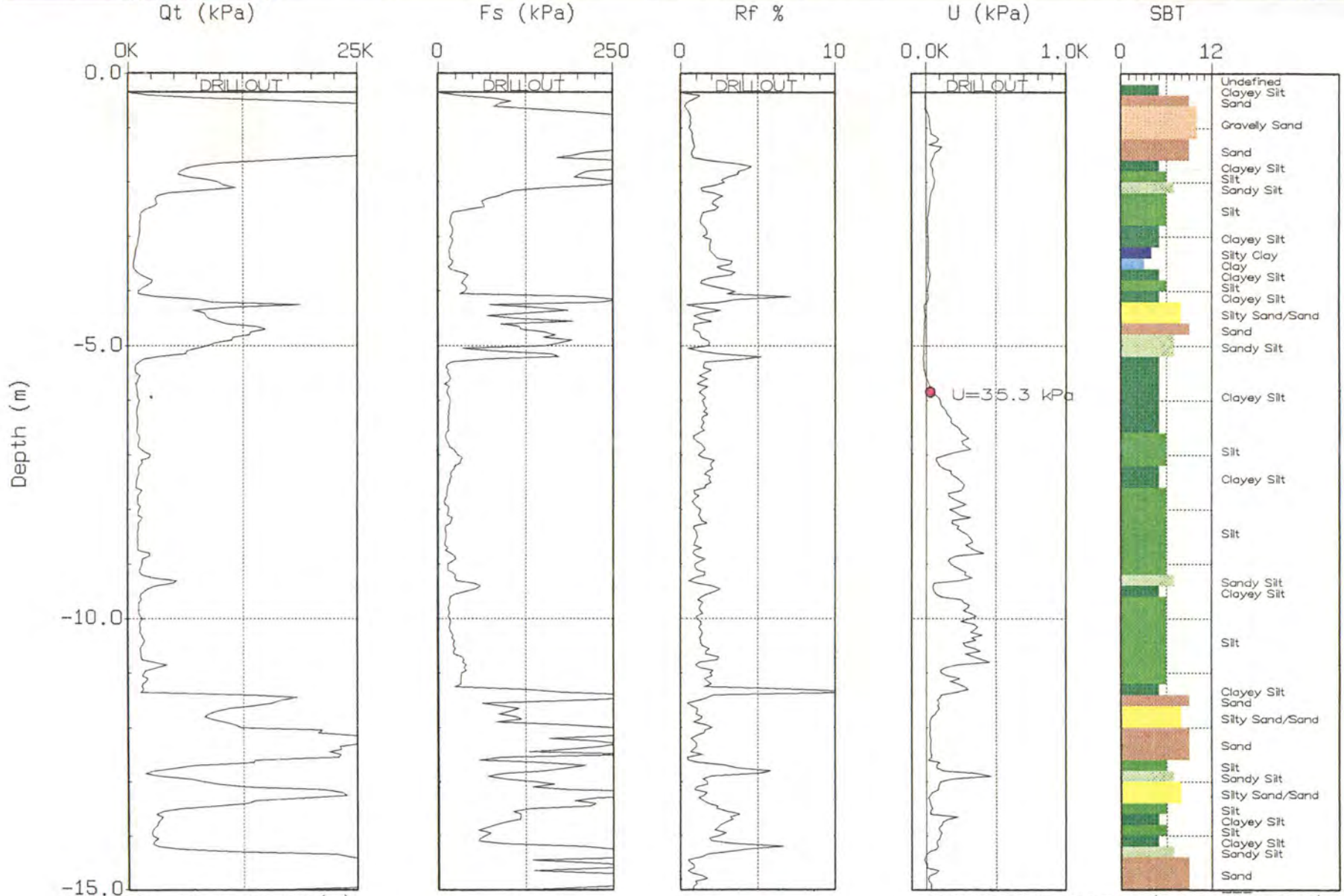
UTDOT Z003SB2B.GPJ 5/31/00

CONETEC

Legacy Parkway

Site: SC-26-338
Station: 12+670.717 4.98 LT
Elevation: 1297.766

Cone: 20 TON A 070
Date: 02:29:00 11:04



Max. Depth: 16.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

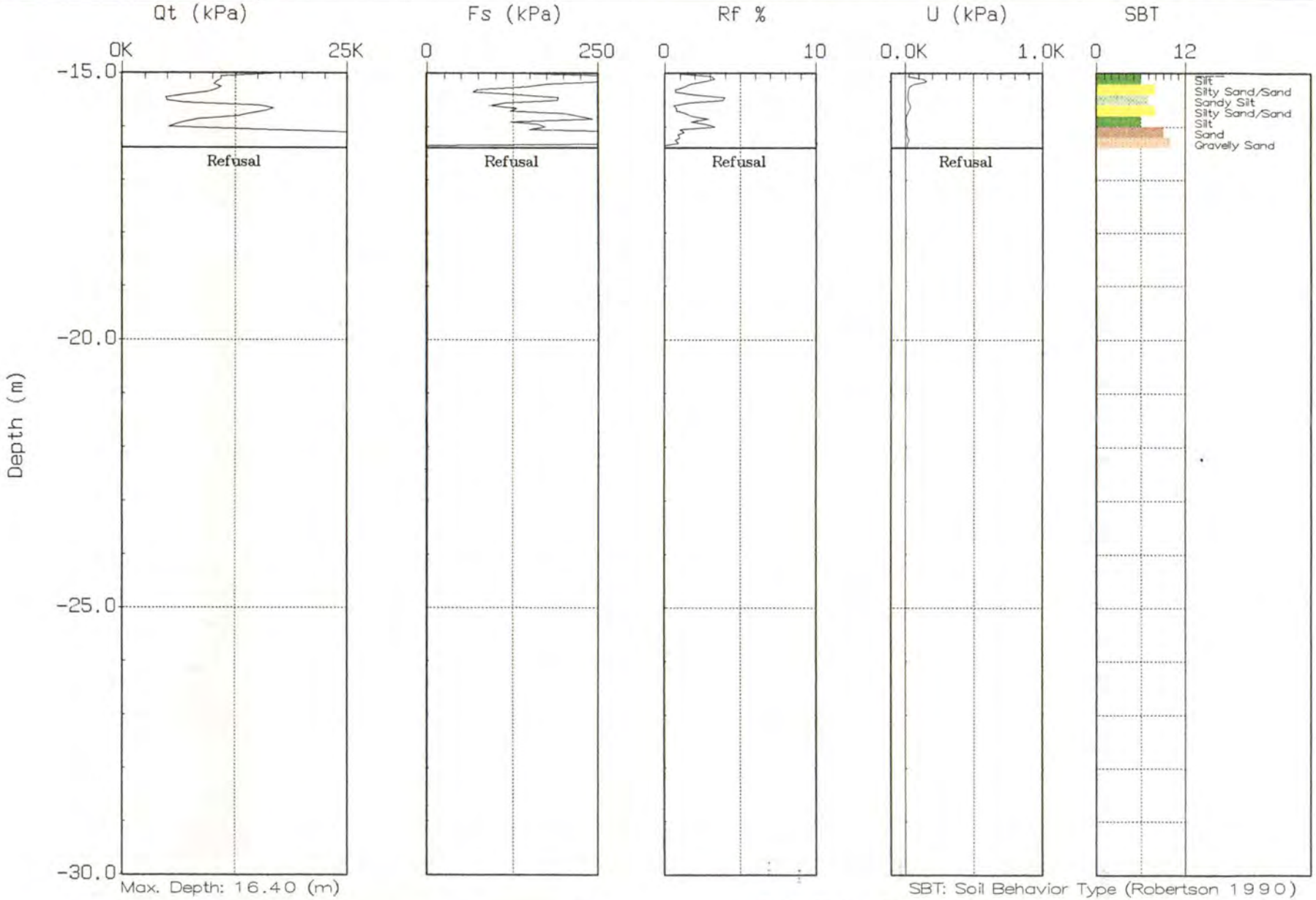
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-268

Legacy Parkway

Site: SC-26-338
Station: 12+670.717 4.98 LT
Elevation: 1297.766

Cone: 20 TON A 070
Date: 02:29:00 11:04



Max. Depth: 16.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Boring: SB-26-339
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: SILT with cobbles and boulders - wet, brown		1														
	SILT - medium stiff, wet, brown, trace of fine gravel	5	2		SH	508	ML	A-7-6			*38*						
1295																	
	- stiff, banded gray, with rust and black, occasional sand seams	10	3		SPT	610			2 4 4 4	●10			33	45	17		
			4														
	- with fine-grained sand	15	5		SH	559					*29*	15.0	30			93	C SG
	- medium stiff, with interbedded brown clay, occasional black coarse-grained sand, with frequent fine-grained partings	20	6		SPT	610			3 2 4 5	●8							
			7														
1290		25	8		SH	508					33 *38*	15.4	29			92	
	- interbedded brown clay, occasional sand seams	30	9		SPT	610			0 3 2 3	●5							
			10														
		35	11		SH	559					50 *48*	16.5	25			96	
	- medium stiff, gray, with coarse-grained sand seams																
	Poorly Graded GRAVEL with sand - dense, wet, gray, 40% medium to coarse-grained sand, fine to coarse-grained gravel	40	12		SPT	508	GP	A-1-b	9 17 18 21	●35							
1285			13														
	Poorly Graded SAND with gravel - medium dense, wet, gray, with 10% fine-grained gravel, medium to coarse-grained sand	45	14		SPT	381	SP	A-3	34 13 16 20	●27							
			15														
	Poorly Graded GRAVEL - medium dense, wet, gray	50	16		SPT	305	GP	A-1-b	25 9 21 21	●26							
		55	17														
1280	Poorly Graded SAND with silt and gravel - medium dense, wet, occasional 50 mm layers of clay	60	18		SPT	356	SP-SM	A-1-b	5 10 17 6	●21							
		65	19														

UTDOT Z003SB2A.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-26-339**

Sheet **1** of **2**

Logged by:	M. Ivers
Date Start:	2/9/00
Date Finish:	2/9/00
Station:	12+741.455 16.33 LT
Line:	US 89 SB to I-15 SB
Coordinates (m):	N 124,261.994 E 19,097.767
Elevation (m):	1297.582
Total Depth Drilled (m):	29.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-26-339
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND with silt and gravel - medium dense, wet, occasional 50 mm layers of clay (continued)															
			21													
		70			SH	0										
			22													
1275																
		75	23		SPT	330			14 18 50/125mm							
	- dense, with gravel															
			24													
		80														
			25													
	- medium dense, frequent layers of clay and silt	85	26		SPT				7 22 11 8	●22						
			27													
1270		90														
			28													
		95	29		SPT				49 30 8 11	●7						
	- loose, clay layer 150 mm thick															
			30													
		100														
			31													
		105	32													
1265																
			33													
		110														
			34													
		115	35													
			36													
		120														
			37													
1260																
		125	38													
			39													
		130														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)
0 25 50

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-26-339**

Sheet **2** of **2**

Logged by:	M. Ivers
Date Start:	2/9/00
Date Finish:	2/9/00
Station:	12+741.455 16.33 LT
Line:	US 89 SB to I-15 SB
Coordinates (m):	N 124,261.994 E 19,097.767
Elevation (m):	1297.582
Total Depth Drilled (m):	29.6
Drill Contractor:	Layne Christensen
Driller:	S. Church
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-27-340
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND with gravel																
1295			1														
		5	2		SPT	152			5 2 2 3	●6							
		10	3		SPT	330			3 3 3 8	●8							
	SILT - medium stiff, moist to wet, grayish-brown, mottled orange						ML	A-4									
	Well Graded SAND with silt and gravel - loose, moist to wet, gray		4				SW-SM	A-1-b									
	- medium dense	15	5		MC	330			6 9 7 9	●16							
1290			6														
	- loose, wet, micaceous	20			SPT	457			2 3 3 4	●8							
			7														
	- medium dense	25	8		SPT				2 4 7 11	●13			23				SV
		30	9		MC	457			4 3 4 5	●7							
	Sandy SILT - medium stiff, wet, gray sand, light brown silt		10				ML	A-4									
1285	Silty SAND - wet, gray, with frequent layers of silt and clay	35	11		SH	610	SM	A-2-5									
		40	12		SPT	610			12 22 20 20	●46							
	Poorly Graded SAND with gravel - dense, wet, gray		13				SP-SM	A-1-b									
		45	14		MC	254			20 50/115mm	○							
			15														
		50			SPT	610			20 32 30 48	○							
1280	- very dense		16														
		55	17		SPT	457			25 48 50/125mm	○							
	- gravel increasing																
		60	18														
			19														
		65															

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-27-340**

Sheet **1** of **1**

Logged by:	M. Hislop
Date Start:	2/24/00
Date Finish:	2/25/00
Station:	70+686.974 0.76 RT
Line:	US 89 SB to LP SB
Coordinates (m):	N 123,852.107 E 19,215.247
Elevation (m):	1295.848
Total Depth Drilled (m):	17.4
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

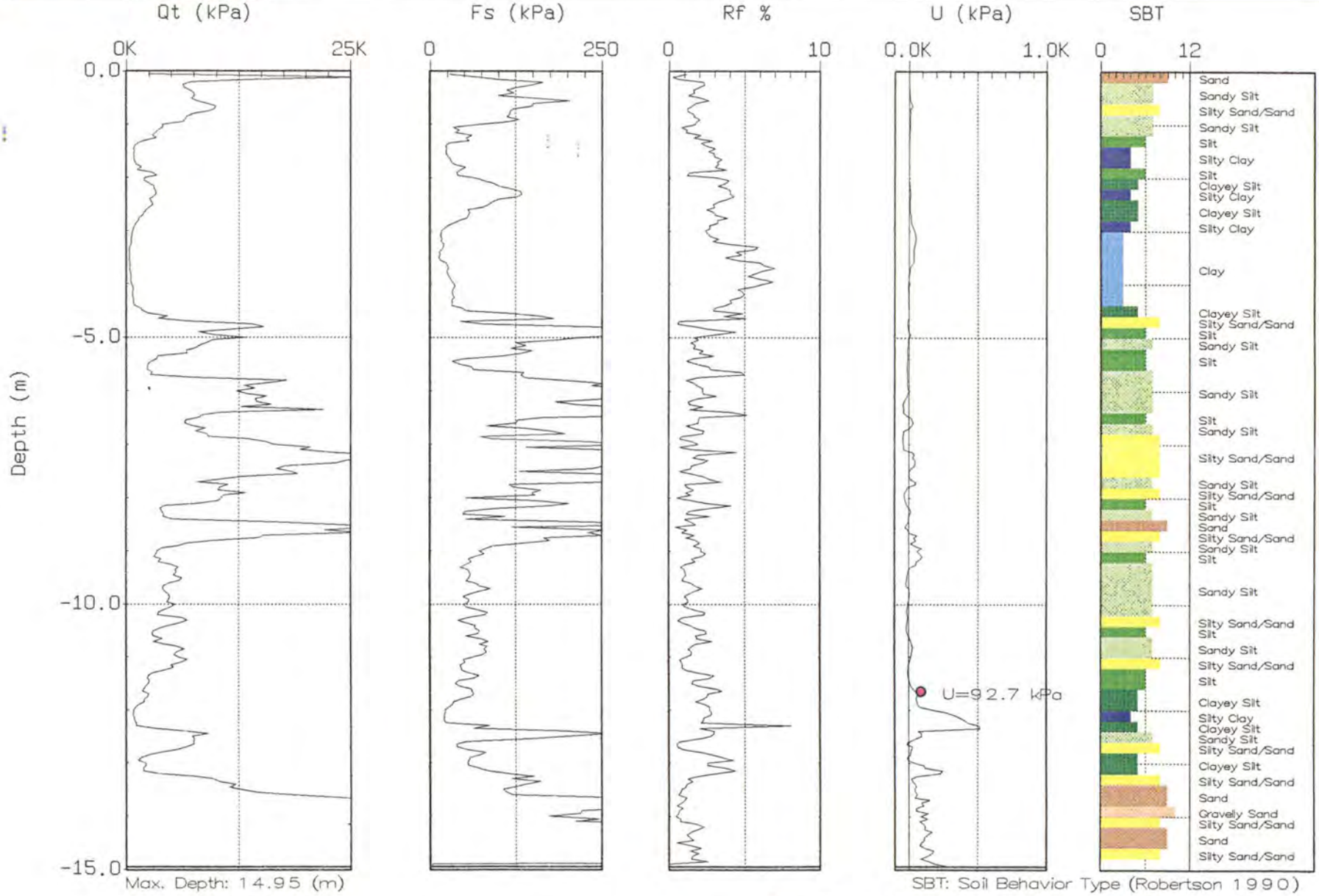
SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Legacy Parkway

Site: SC-27-341
Station: 70+750.382 0.47 RT
Elevation: 1297.574

Cone: 20 TON A 092
Date: 02:16:00 13:23



Max. Depth: 14.95 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

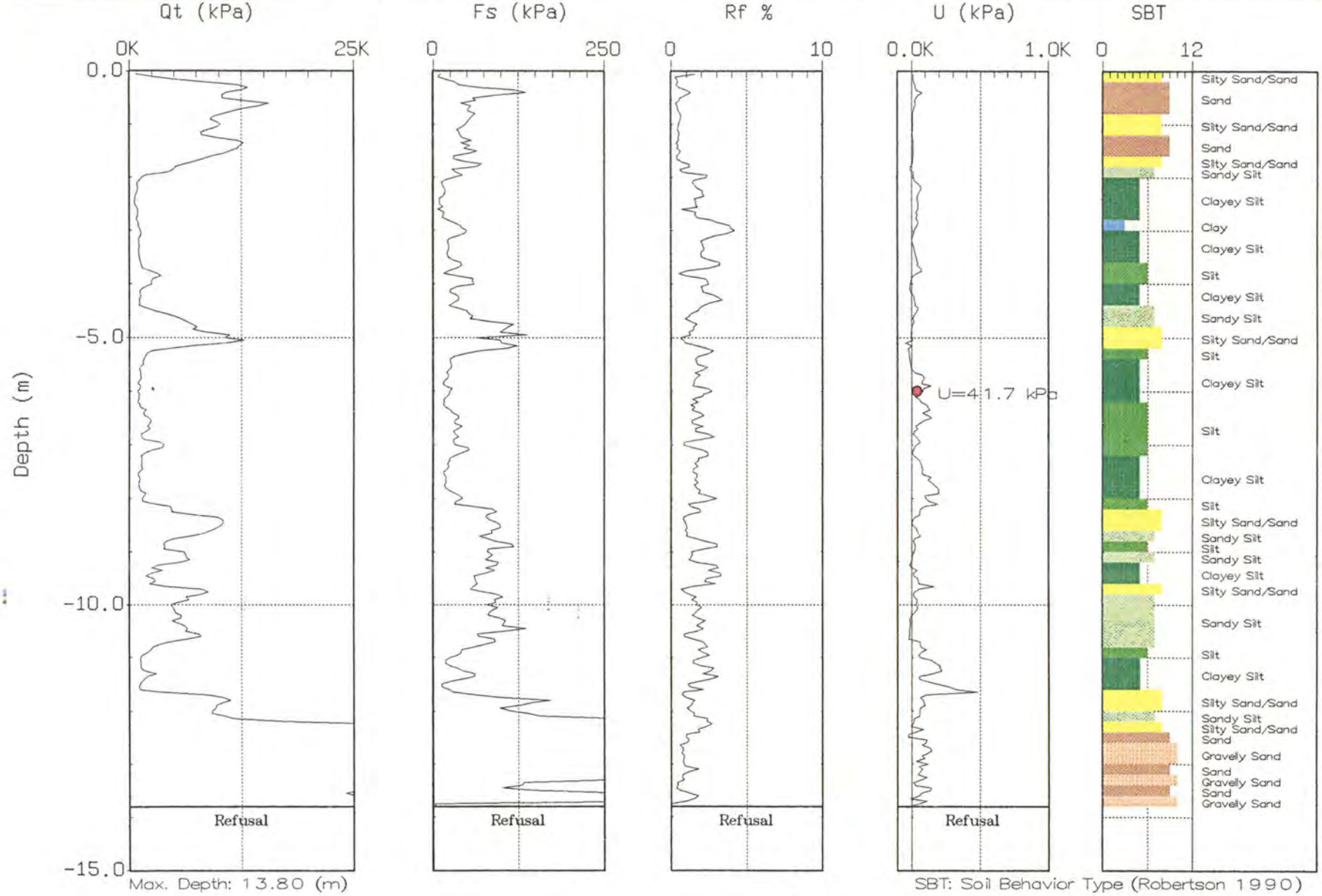
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-273

Legacy Parkway

Site: SC-27-342
Station: 70+835.805 14.36 LT
Elevation: 1297.770

Cone: 20 TON A 092
Date: 02:15:00 10:31



Max. Depth: 13.80 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

Legacy Parkway

Site: SC-27-343
Station: 70+880.983 13.03 RT
Elevation: 1297.174

Cone: 20 TON A 092
Date: 02:15:00 12:09

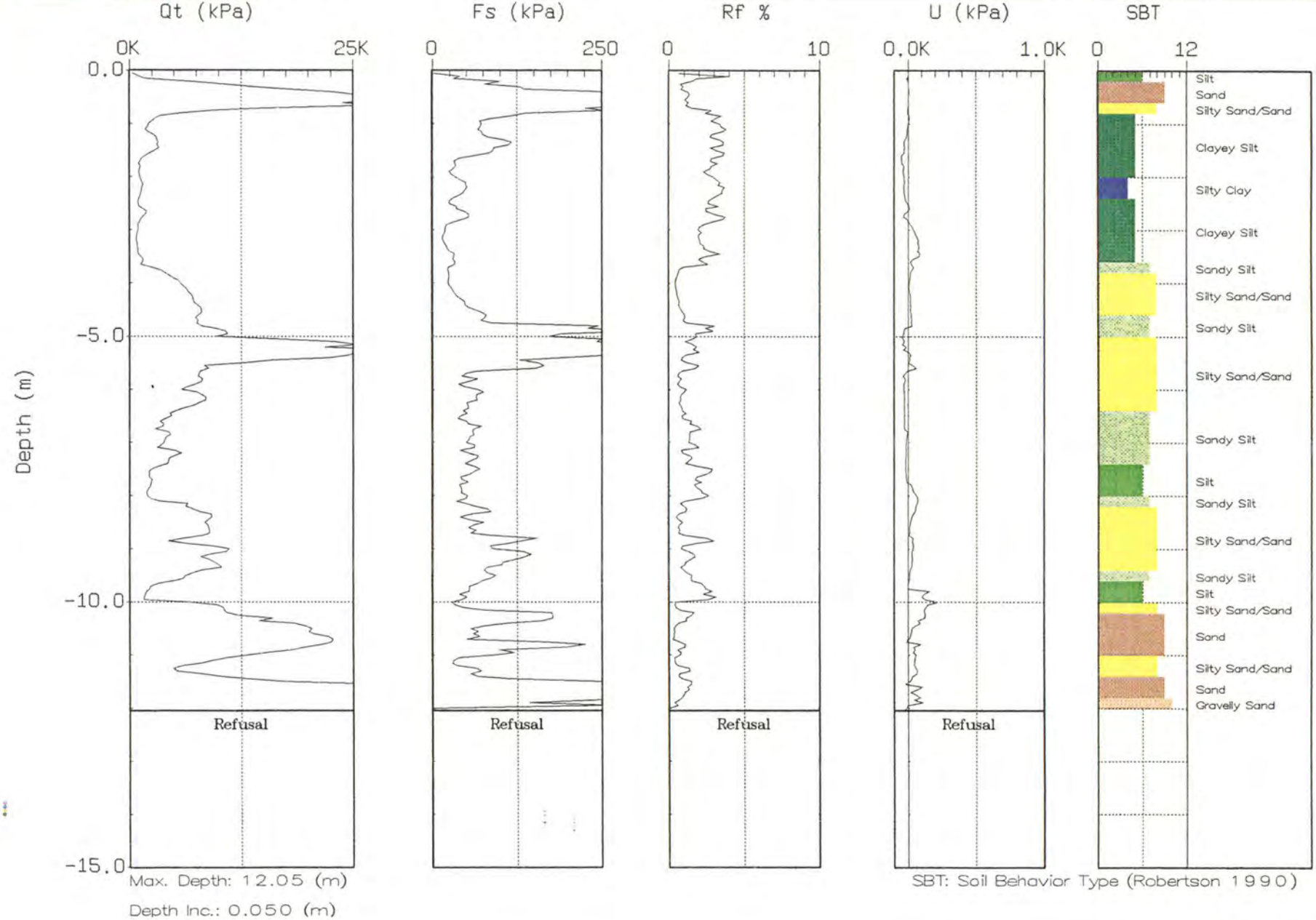
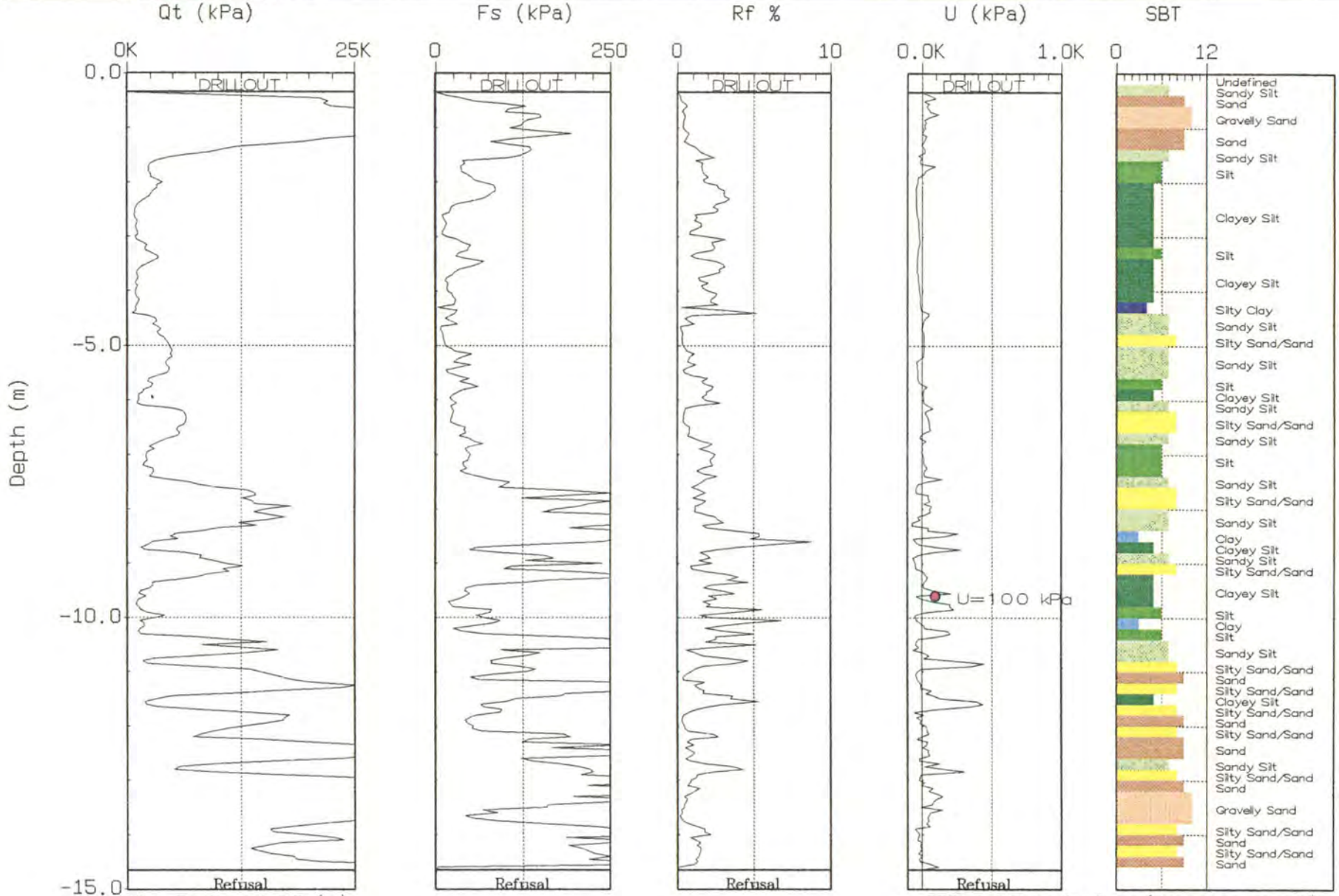


PLATE B-275

Legacy Parkway

Site: SC-27-344
Station: 70+944.734 0.00 LT
Elevation: 1296.850

Cone: 20 TON A 070
Date: 02:29:00 12:42



Max. Depth: 14.65 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-276

Boring: SB-27-345
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded SAND with gravel - moist to very moist, brownish-tan to gray		1														
	- medium dense	5	2		SPT	457			7 5 4	18							
	Lean CLAY with SAND - very moist, mottled brownish-tan and gray						CL	A-6									
1295	- medium stiff	10	3		SH	559					*43*						pH WSS R
			4														
	- light brown	15	5		SPT	229			1 1 2	5							
		20	6		SH	610					24 *34*	15.9	27	33	11	84	C TR SG
			7														
1290		25	8		SPT				0 2 2	6							
		30	9		SH	610					9 *29*	14.9	32			80	C SG
			10														
	Poorly Graded SAND - medium dense, wet, bluish-gray, fine-grained sand, with silt and organic layers	35	11		SPT		SP	A-3	6 6 9	20							
	- occasional gravel		12														
	- loose	40			SPT				8 5 3	10							
1285			13														
	- dense	45	14		SPT	25			16 20 21	47							
	SILT - stiff, wet, gray, with sand	50	15		SPT		ML	A-4	5 5 8	15							
	Poorly Graded SAND with gravel - very dense, wet, gray		16				SP	A-3									
		55	17		SPT				16 23 34								
1280		60	18		SPT				26 24 43								
			19														
		65								20							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-27-345**

Sheet **1** of **2**

Logged by:	C. Wieden
Date Start:	2/9/00
Date Finish:	2/9/00
Station:	71+011.211 0.83 RT
Line:	US 89 SB to LP SB
Coordinates (m):	N 124,175.305 E 19,195.454
Elevation (m):	1298.191
Total Depth Drilled (m):	24.8
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 5/31/00

Boring: SB-27-345
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- medium dense, occasional silt layers, fine-grained sand				SPT				8 10 16								
	Silty SAND - medium dense, wet, gray	70	21		SPT		SM	A-2-5	5 9 7	●15							
	SILT - stiff, wet, gray, with occasional sand and lean clay layers	75	22				ML	A-4									
1275			23		SPT				6 8 9	●15							
	Poorly Graded SAND with gravel - very dense, wet, olive to gray	80	24				SP	A-3									
			25		SPT				35 56 50/125mm		○						
		85	26														
		90	27														
1270			28														
		95	29														
		100	30														
			31														
		105	32														
1265		110	33														
			34														
		115	35														
		120	36														
			37														
1260		125	38														
		130	39														

UTDOT Z003SB2A.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-27-345**

Sheet **2** of **2**

Logged by:	C. Wieden
Date Start:	2/9/00
Date Finish:	2/9/00
Station:	71+011.211 0.83 RT
Line:	US 89 SB to LP SB
Coordinates (m):	N 124,175.305 E 19,195.454
Elevation (m):	1298.191
Total Depth Drilled (m):	24.8
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-28-346
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy Lean CLAY - stiff, wet, light brown, very fine-grained sand				SPT	457	CL	A-4	2 2 4 5	9							
	- light brown to brown, occasional silt layers	5	1		SPT				6 4 5 4	14							pH WSS R
		10	2		P	610					37 *38*	16.7	26	29	7		C TR SG
1290	- frequent layers of fine-grained sand 15 to 50 mm	15	3		SPT	457			5 4 5 7	13							
	Silty CLAY - stiff, wet, olive-brown to dark brown		4				CL-ML	A-6									
		20	5		P	610					*43*						
	SILT - wet, olive-brown		6				ML	A-4									
	- stiff	25	7		SPT	610			3 4 7 9	13							
1285		30	8		P	305					*38*	15.2	30				C SG
	Silty CLAY - medium stiff, wet, olive-brown to dark brown	35	9		SPT	610	CL-ML	A-6	3 3 4 6	7							
		40	10		P	254					108	17.0	23	32	12	99	
	Lean CLAY		11				CL	A-6									
1280	Silty SAND with gravel - very dense, wet, gray, gravel is subangular gnessis and quartzites	45	12		SPT	457	SM	A-2-4	15 43 29 21								
	- medium dense	50	13		SPT	406			15 13 15 20	24							
		55	14														
		60	15		SPT	254			9 24 24 25	38							
1275	- dense, grayish-brown to olive-gray, medium to coarse-grained sand, fine to coarse-grained gravel	65	16														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-28-346**

Sheet **1** of **2**

Logged by:	M. Bostrom
Date Start:	3/3/00
Date Finish:	3/3/00
Station:	4+859.468 3.67 RT
Line:	BURKE LANE
Coordinates (m):	N 124,322.805 E 18,698.933
Elevation (m):	1294.321
Total Depth Drilled (m):	26.5
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	Terramac
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 5/31/00

Boring: SB-28-346
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
		70	21														
			22		SPT	51			33 26 17 10	●32							
	- occasional layers of poorly graded sand - very dense	75	23		SPT	406			7 43 39 46	○							
1270		80	24														
	- dense		25		SPT	305			7 29 41 25	●48							
	- very dense	85	26		SPT	305			23 39 48 37	○							
		90	27														
			28														
1265		95	29														
		100	30														
			31														
		105	32														
		110	33														
1260			34														
		115	35														
		120	36														
			37														
		125	38														
1255		130	39														

UTDOT Z003SB2A.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-28-346**

Sheet **2** of **2**

Logged by:	M. Bostrom
Date Start:	3/3/00
Date Finish:	3/3/00
Station:	4+859.468 3.67 RT
Line:	BURKE LANE
Coordinates (m):	N 124,322.805 E 18,698.933
Elevation (m):	1294.321
Total Depth Drilled (m):	26.5
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	Terramac
Drilling Method:	Mud Rotary
Hammer Type:	Safety
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-28-347
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / SPT (N1)60 ○ (Greater than 50 Blows) (0 25 50)	Su, kPa (torvane in italics)	Dry Density, kN/m3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded SAND with silt and gravel - dense, moist, brown		1		SPT	610			3 13 10 13	46							
1295	SILT - medium stiff, moist, brown to yellowish-brown, with fine-grained sand	5	2		SPT	203	ML	A-4	6 2 1 2	6							pH WSS R
		10	3		SH	610					24						
			4														
	- frequent silt seams	15	5		SPT	610			2 2 2 2	6							
1290		20	6		P	610					56 38	15.4	28	33	9		C SG
			7														
	- medium stiff	25	8		SPT	610			2 3 4 5	10							
		30	9		P	508					38						
			10														
	- very stiff, gray to yellowish-brown	35	11		SPT				4 8 13 13	27							
1285			12														
	Lean CLAY - very stiff, moist, yellowish-brown	40			P	508	CL	A-6			58 53	15.2	27	35	12	98	C TR SG
			13														
		45	14		SPT	610			5 7 13 13	23							
	Poorly Graded SAND with silt - medium dense, moist, gray						SP-SM	A-3									
			15														
	- dense, wet, trace fine and trace gravel	50			SPT	610			15 23 21 20	48							
1280			16														
	SILT - stiff, wet, gray	55	17		SPT	305	ML	A-4	5 7 8	15							
			18														
	Silty SAND - very dense, wet, gray, fine to coarse-grained sand	60			SPT	610	SM	A-2-5	15 35 40 20								
			19														
		65															

UTDOT Z0039B2A.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-28-347**

Sheet **1** of **2**

Logged by:	J. Rajek
Date Start:	2/10/00
Date Finish:	2/11/00
Station:	4+934.261 1.02 RT
Line:	BURKE LANE
Coordinates (m):	N 124,380.313 E 18,746.828
Elevation (m):	1296.383
Total Depth Drilled (m):	26.5
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-28-347
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - very dense, wet, gray, fine to coarse-grained sand (continued) - trace gravel		21														
1275		70			SPT	457			10 15 13	●26							
	SILT - very stiff, wet, gray, with fine-grained sand		22				ML	A-4									
	Poorly Graded SAND with silt - dense, wet, gray	75	23		SPT	610	SP-SM	A-3	11 19 19 9	●34							
			24														
	Silty SAND with gravel - dense, wet, bluish-gray, fine to medium-grained sand	80	25		SPT	254	SM	A-2-4	22 15 30	●39							
1270		85	26		SPT	254			33 23 30	●44							
			27														
		90	28														
		95	29														
			30														
		100	31														
1265		105	32														
			33														
		110	34														
		115	35														
			36														
1260		120	37														
		125	38														
			39														
		130															

UTDOT Z0039B2A.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-28-347**

Sheet 2 of 2

Logged by:	J. Rajek
Date Start:	2/10/00
Date Finish:	2/11/00
Station:	4+934.261 1.02 RT
Line:	BURKE LANE
Coordinates (m):	N 124,380.313 E 18,746.828
Elevation (m):	1296.383
Total Depth Drilled (m):	26.5
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-29-348
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded GRAVEL with silt and sand - dense, moist, dark brown		1		SPT	457			5 10 13 16	46							
1295	SILT - stiff, moist, reddish-brown, with gravel to 15 mm	5	2		SPT	0	ML	A-4	2 3 3 4	10							
				P	P	584					*14*						pH WSS R
	- medium stiff	10	3		SPT	610			3 3 3 2	8							
	- gray	15	5	P	P	610					39 *29*	16.5	24			90	C TR SG
1290	- medium stiff, with fine-grained sand	20	6		SPT	381			3 3 3 4	8							
		25	8	P	P	610					*24*						
	- stiff	30	9		SPT	610			5 8 5 5	15							
1285		35	11	P	P	610					36 *29*	16.3	23			90	C SG
	- frequent seams of lean clay to 15 mm	40	12		SPT	508			4 4 5 6	9							
	Silty SAND - moist, gray, fine to coarse-grained sand	45	14	P	P	305	SM	A-2-5									
	Poorly Graded SAND with silt - medium dense, moist, gray, with gravel to 20 mm	50	15		SPT	610	SP-SM	A-3	10 15 15 13	28							
1280		55	17		SPT	381			7 12 18 18	27							
	- dense, gravel to 15 mm	60	19		SPT	406			12 27 30	50							
		65															

UTDOT Z003SB2A.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-29-348**

Sheet 1 of 1

Logged by:	J. Rajek
Date Start:	2/7/00
Date Finish:	2/7/00
Station:	4+961.767 0.38 LT
Line:	BURKE LANE
Coordinates (m):	N 124,401.740 E 18,764.131
Elevation (m):	1296.269
Total Depth Drilled (m):	18.9
Drill Contractor:	Haz-tech
Driller:	C. Peterson
Rig Type:	CME-75
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

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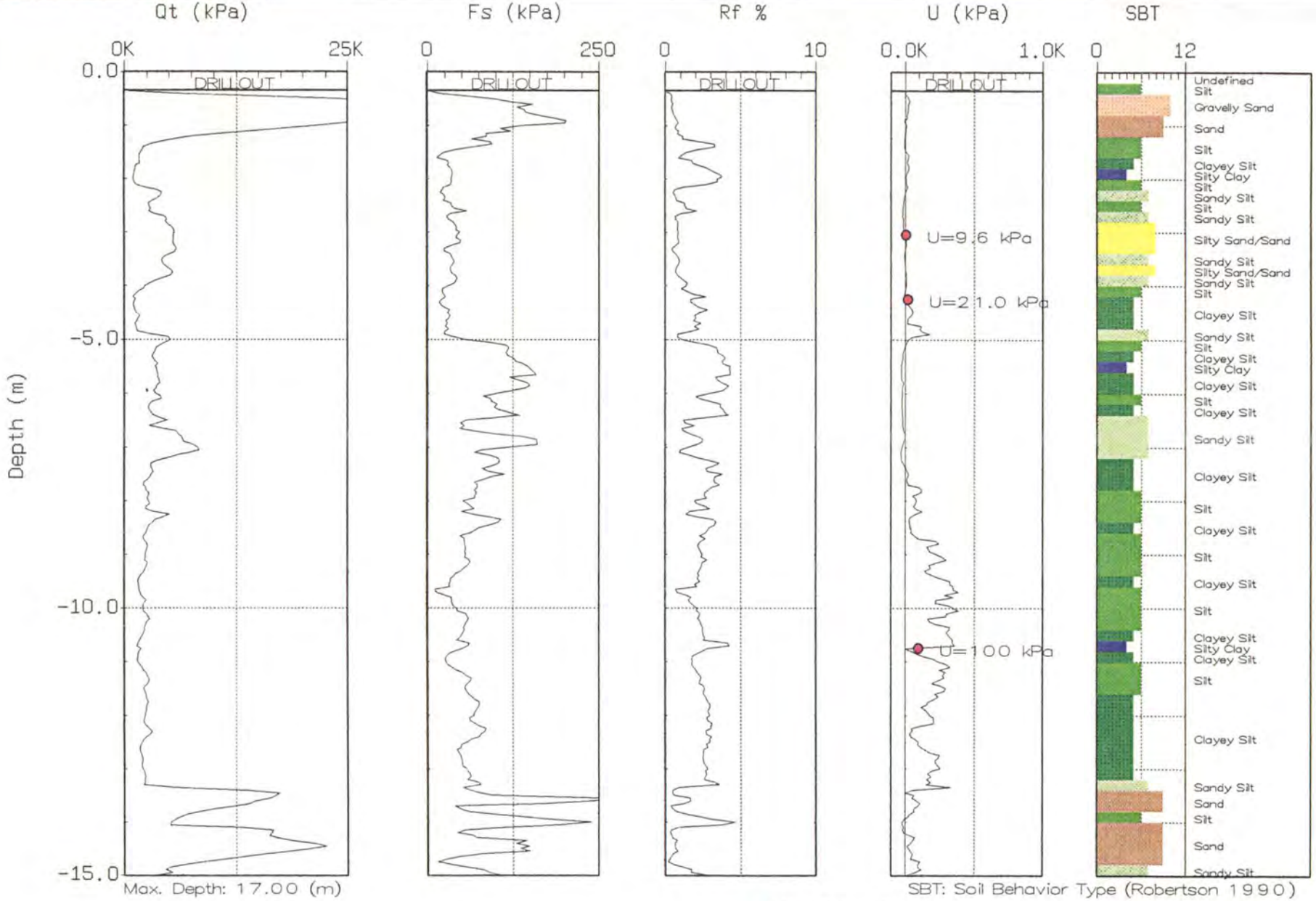
CONE EC

Legacy Parkway

Site: SC-29-349
Station: 5+000.045 0.01 LT
Elevation: 1296.024

Cone: 20 TON A 070
Date: 02:28:00 11:03



Max. Depth: 17.00 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

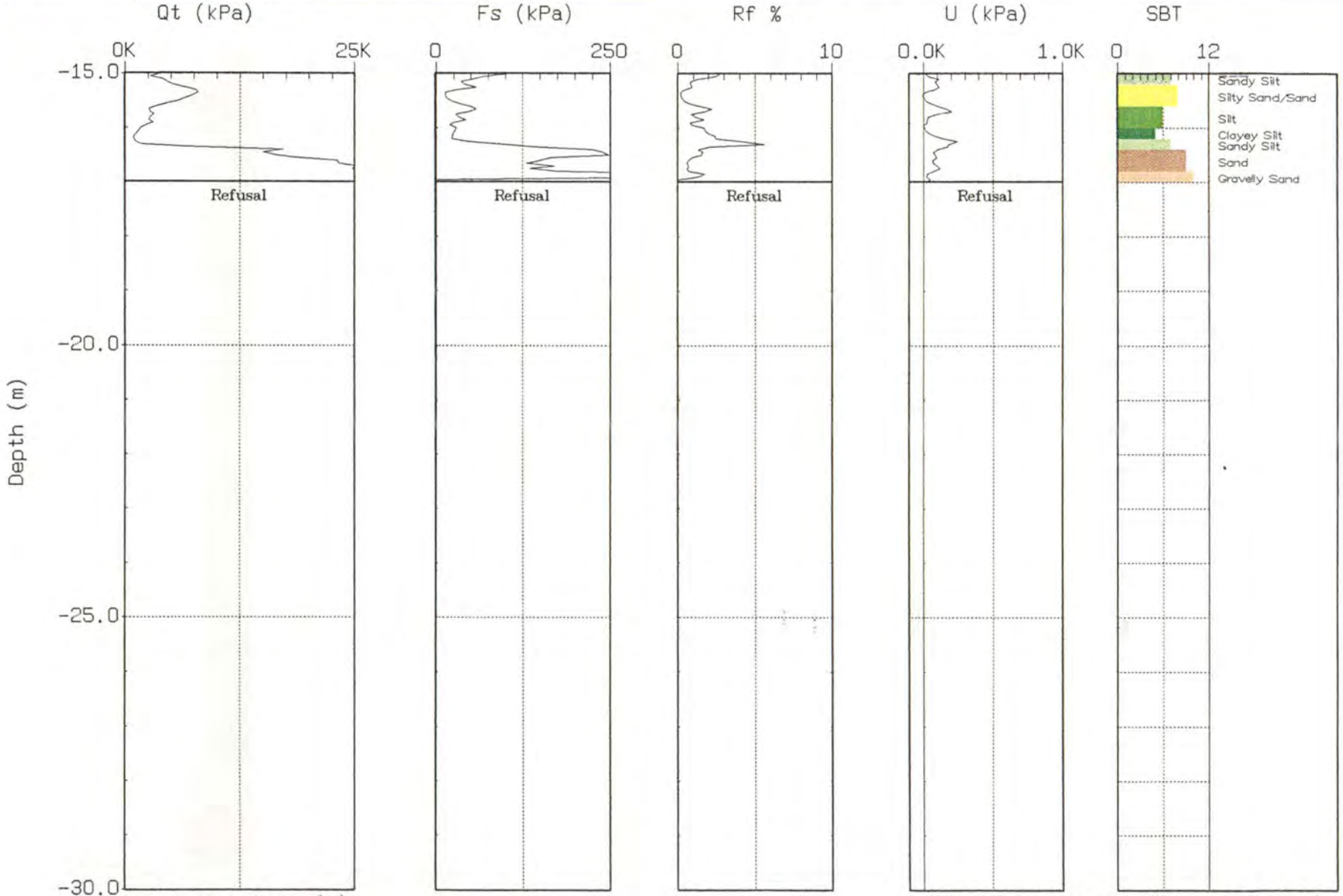
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-285

Legacy Parkway

Site: SC-29-349
Station: 5+000.045 0.01 LT
Elevation: 1296.024

Cone: 20 TON A 070
Date: 02:28:00 11:03



Max. Depth: 17.00 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-286

Boring: SB-29-350
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded SAND with gravel - moist, brownish-tan		1														
		5			SPT	457			8 8 11	●36							
	FILL: SILT - hard, moist, reddish brown to black		2														
	FILL: Poorly Graded SAND with silt - moist, black to brownish-tan																
	- very dense, slightly moist, brownish-tan	10	3		SPT	457			15 17 19								
			4														
1300		15	5		SPT	457			23 33 38								
		20	6		SPT	457			20 26 27								
	- fine to coarse-grained with some gravel		7														
		25	8		SPT	457			20 26 32								
		30	9		SPT				37 24 25								
1295	Poorly Graded SAND with silt - very dense, wet, gray, fine-grained		10				SP-SM	A-1-b									
		35	11		P	457					14						
	Sandy SILT - medium stiff, wet, gray, with trace of clay and fine-grained sand	40	12		SPT		ML	A-4	2 2 5	●7							
			13														
		45	14		P	0											
1290	Silty SAND - wet, gray, occasional gravel				P	254	SM	A-2-5			19	16.2	24			60	C SG
	SILT - very stiff, wet, brownish-gray, with sand seams 6 to 20 mm	50	15		SPT		ML	A-4	7 9 11	●18							
		55	16														
			17														
		60	18		P	0											
			19		P	203	SP-SM	A-1-b			53	15.9	24			92	C TR SG
1285	Poorly Graded SAND with silt - medium dense, wet, gray, fine-grained, with occasional silt seams	65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-29-350**

Sheet **1** of **3**

Logged by:	C. Wieden
Date Start:	2/11/00
Date Finish:	2/17/00
Station:	5+066.599 19.50 RT
Line:	BURKE LANE
Coordinates (m):	N 124,466.611 E 18,848.846
Elevation (m):	1304.756
Total Depth Drilled (m):	47.9
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 5/31/00

Boring: SB-29-350
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND with silt - medium dense, wet, gray, fine-grained, with occasional silt seams (continued)		21														
		70			SPT				8 10 9	● 15							
			22														
		75	23														
	Poorly Graded SAND with gravel - very dense, wet, gray, frequent clay and silt layers		24				SP	A-3									
1280		80			SPT	305			37 44 39		○						
			25														
	- dense	85	26		SPT	406			15 16 25	● 31							
			27														
	- medium dense	90			SPT	102			24 22 13	● 26							
			28														
1275		95	29		SPT	305			5 7 10	● 12							
			30														
		100	31														
		105	32		SPT	305			21 9 9	● 12							
			33														
	- very dense	110	34		SPT	203			47 50/125mm		○						
1270		115	35		SPT				12 14 24	● 25							
	- medium dense		36														
		120	37		SPT	457	ML	A-4	6 2 3	● 3							
	SILT - soft, wet, gray, with fine-grained sand and organics																
		125	38		SPT	254			2 3 1	● 3							
			39														
	Poorly Graded SAND with gravel - wet, gray	130			SPT		SP	A-3			○						
1265																	

UTDOT Z003SB2A.GPJ 8/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-29-350**

Sheet **2** of **3**

Logged by:	C. Wieden
Date Start:	2/11/00
Date Finish:	2/17/00
Station:	5+066.599 19.50 RT
Line:	BURKE LANE
Coordinates (m):	N 124,466.611 E 18,848.846
Elevation (m):	1304.756
Total Depth Drilled (m):	47.9
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-29-350
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 25 50)	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- very dense, olive-gray								31 35 50/100mm								
	Clayey SAND - medium dense, wet, gray, fine to coarse-grained	135	41		SPT	457	SC	A-2-6	10 15 11	● 16							
	Lean CLAY - wet, olive-gray, with sand seams		42				CL	A-6									
	- stiff	140	43		SPT				0 6 9	● 10							
	Clayey SAND - medium dense, wet, brown, with clay and some organics	145	44		SPT		SC	A-2-6	7 8 10	● 11							
1260	Poorly Graded SAND - medium dense, wet, tan to reddish-brown, with some gravel		45				SP	A-3									
		150	46		SPT	229			47 50/125mm		○						
	Lean CLAY - hard, wet, brownish-tan, with sand	155	47		P	0	CL	A-6									
			48														
		160	49														
1255		165	50														
			51														
		170	52														
			53														
		175	54														
1250		180	55														
			56														
		185	57														
		190	58														
			59														
1245		195															

Test Results *

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-29-350**

Sheet **3** of **3**

Logged by:	C. Wieden
Date Start:	2/11/00
Date Finish:	2/17/00
Station:	5+066.599 19.50 RT
Line:	BURKE LANE
Coordinates (m):	N 124,466.611 E 18,848.846
Elevation (m):	1304.756
Total Depth Drilled (m):	47.9
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-30-351
Sheet 1 of 1

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Poorly Graded SAND with gravel - moist, brown to gray		1														
	- very dense	5	2		SPT	254			10 17 13	○							
	SILT - wet, light brown						ML	A-4									
1295		10	3		P	610					*29*	14.9	26				C TR SG
			4														
		15	5		SPT				2 2 4	●9				NP	NP		SV
	Silty SAND - loose, wet, gray, fine-grained						SM	A-2-5									
	SILT - wet, brown						ML	A-4									
		20	6		P						*36*						
			7														
		25	8		SPT				3 3 3	●8						85	
1290	- medium stiff, light brown																
		30	9		P	610					19 29	18.2	23	24	NP	77	C SG
			10														
		35	11		SPT	457			8 9 26	●43							
	Poorly Graded GRAVEL with silt and sand - dense, wet, gray						GP-GM	A-2-4									
		40	12		SPT	279			17 18 21	●46							SV
	- black																
1285		45	14		SPT	254			12 10 18	●31							
			15														
	- very dense	50			SPT				24 20 34	○							
			16														
	- dense	55	17		SPT				19 24 23	●49							
	- occasional silty sand seams and layers		18														
1280	- medium dense	60			SPT				17 8 12	●20							
			19														
		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-30-351**

Sheet 1 of 1

Logged by:	C. Wieden
Date Start:	2/8/00
Date Finish:	2/8/00
Station:	5+299.649 9.45 LT
Line:	BURKE LANE
Coordinates (m):	N 124,631.325 E 19,011.152
Elevation (m):	1298.287
Total Depth Drilled (m):	18.7
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B2A.GPJ 6/31/00

Boring: SB-30-352
Sheet 1 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - moist, mottled gray to brownish tan						CL	A-6									
	- medium stiff	5	1		SPT	457			1 2 2	8							pH WSS R
1295	Silty SAND - wet, gray, fine to medium-grained	10	2				SM	A-2-5									
	- some gravel or cobbles		3		P	457					24						
	SILT - stiff, wet, brownish-gray, occasional sand layers 0.3 meters thick	15	4				ML	A-4									
			5		SPT	305			3 3 5	13							
	- brown	20	6		SPT	305			4 4 4	12							
1290	Silty SAND - wet, brown	25	7				SM	A-2-5									
			8		P	610					34	14.7	28				C TR SG
	- brown to gray	30	9		P	508					23	17.3	23			49	
	Poorly Graded SAND with silt - medium dense, wet, gray, fine to medium-grained, with some coarse-grained	35	10				SP-SM	A-1-b									
			11		SPT	152			8 9 8	21							SV
	- occasional gravel	40	12														
1285	- dense, with gravel, fine to coarse-grained sand and gravel		13		SPT	254			4 8 23	36							
		45	14		SPT	203			8 15 21	40							
	- dense, interbedded silt	50	15		SPT				18 12 5	18							
	- very dense	55	16		SPT	330			32 34 34	○							
1280	- dense, occasional gravel layers	60	18		SPT	152			19 26 24	48							
		65	19							36							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-30-352**

Sheet **1** of **2**

Logged by:	C. Wieden
Date Start:	2/6/00
Date Finish:	2/7/00
Station:	5+352.141 2.08 RT
Line:	BURKE LANE
Coordinates (m):	N 124,632.729 E 19,065.430
Elevation (m):	1297.435
Total Depth Drilled (m):	21.8
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 5/31/00

Boring: SB-30-352
Sheet 2 of 2

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND with silt - dense, wet, gray (continued)				SPT	229			14 17 21								
	- yellowish-brown	70	21		SPT	305			7 9 38	●42							
1275		75	22														
		80	23														
		85	24														
1270		90	25														
		95	26														
		100	27														
1265		105	28														
		110	29														
		115	30														
		120	31														
1260		125	32														
		130	33														
			34														
			35														
			36														
			37														
			38														
			39														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-30-352**

Sheet **2** of **2**

Logged by:	C. Wieden
Date Start:	2/6/00
Date Finish:	2/7/00
Station:	5+352.141 2.08 RT
Line:	BURKE LANE
Coordinates (m):	N 124,632.729 E 19,065.430
Elevation (m):	1297.435
Total Depth Drilled (m):	21.8
Drill Contractor:	Haz-tech
Driller:	M. Corn
Rig Type:	Longyear BK-81
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	NW
Boring Diameter:	121 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-31-353
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND with gravel - medium dense, moist, red-brown		1														
	Lean CLAY - hard, moist, light gray, with organics and staining	5	2		SPT	610	CL	A-6	12 14 20 23								pH WSS R
		10	3		SH	0											
1280		15	4		SPT	0			43 43 43 32								
		20	5		SPT	356			1 2 2 1	●6							
	Silty SAND - wet, gray	25	6		SH	508	SM	A-2-5			14						SV
	Sandy SILT - soft, wet, gray	30	7		SPT	610	ML	A-4	1 2 2 2	●4							
1275	- stiff	35	8		SPT	610			3 4 5 6	●11							
	Silty SAND - wet, gray	40	9		SH	508	SM	A-2-5			45 72	17.2	21			62	C SG
	Sandy SILT - hard, wet, gray	45	10		SPT	610	ML	A-4	7 11 22 28	●33							SV
	Poorly Graded SAND - dense, wet, gray		11				SP	A-3									
1270	SILT - very stiff, wet, gray	50	12		SPT	457	ML	A-4	8 10 15 19	●23							
		55	13														
		60	14		SPT				9 8 12 13	●17							
1265		65	15														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-353**

Sheet **1** of **3**

Logged by:	N. Miller
Date Start:	4/3/00
Date Finish:	4/8/00
Station:	99+835.873 14.26 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,305.881 E 17,747.055
Elevation (m):	1284.576
Total Depth Drilled (m):	52.4
Drill Contractor:	RC Exploration
Driller:	R. Ibarra
Rig Type:	Longyear BK-66
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-31-353
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows) 0–25–50	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - very stiff, wet, gray (continued)																
		70	21														
			22														
	- stiff, with frequent seams of medium-grained sand				SPT	457			5 6 8 11	●11							
	Silty CLAY - very stiff, wet, gray	75	23				CL-ML	A-6									
			24														
1260	SILT - medium stiff, wet, dark gray	80			SH	660	ML	A-4			27						
			25														
		85	26														
			27														
	- very stiff, gray mottled white, trace nautilus shell and shell fragments	90	28		SPT	508			10 16 22 12	●26						53	
		95	29														
1255			30														
	- medium stiff, bluish-green to gray	100	31		SH	610					103 67	12.8	38				C TR SG
	Lean CLAY - stiff, wet, dark brown, trace woody materials						CL	A-6									
		105	32														
			33														
	- medium stiff, gray	110	34		SPT	610			4 4 8 12	●8							
1250		115	35														
			36														
	- hard, mottled white, occasional seams of fine-grained sands	120	37		MC	559			16 34 47 52	50●				39	21		
		125	38														
			39														
1245		130			SPT					●15							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-353**

Sheet **2** of **3**

Logged by:	N. Miller
Date Start:	4/3/00
Date Finish:	4/8/00
Station:	99+835.873 14.26 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,305.881 E 17,747.055
Elevation (m):	1284.576
Total Depth Drilled (m):	52.4
Drill Contractor:	RC Exploration
Driller:	R. Ibarra
Rig Type:	Longyear BK-66
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 5/31/00

Boring: SB-31-353
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 25 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- stiff, gray with trace shell fragment - light brown to brown, mottled tan					610			6 10 15 18								
		135	41														
			42														
	SILT - very stiff, wet, gray	140	43		MC	610	ML	A-4	16 26 26 24	●24				23	4		
	Silty CLAY - very stiff, wet, gray						CL-ML	A-6									
		145	44														
1240			45														
	- occasional seams of medium-grained silty sands	150	46		SPT	457			7 15 18 24	●18							
	Silty CLAY - very stiff, wet, gray, intermixed with trace to some fine-grained sand						CL-ML	A-6									
			47														
		155	48														
	- hard, occasional 6 to 20 mm, brownish-gray clay layers and some dark green fine-grained sand seams	160	49		MC	457			24 32 48 47	●35							
1235			50														
	Silty SAND - wet, olive-gray, with fine-grained gravel, sand is fine to coarse-grained, gravel is subrounded and fine-grained (10% gravel)	165	51				SM	A-2-5									
		170	52		SPT	254			49 70/100mm	○							
			53														
		175	54														
1230		180	55														
			56														
		185	57														
		190	58														
			59														
1225		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-353**

Sheet 3 of 3

Logged by:	N. Miller
Date Start:	4/3/00
Date Finish:	4/8/00
Station:	99+835.873 14.26 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,305.881 E 17,747.055
Elevation (m):	1284.576
Total Depth Drilled (m):	52.4
Drill Contractor:	RC Exploration
Driller:	R. Ibarra
Rig Type:	Longyear BK-66
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	203 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

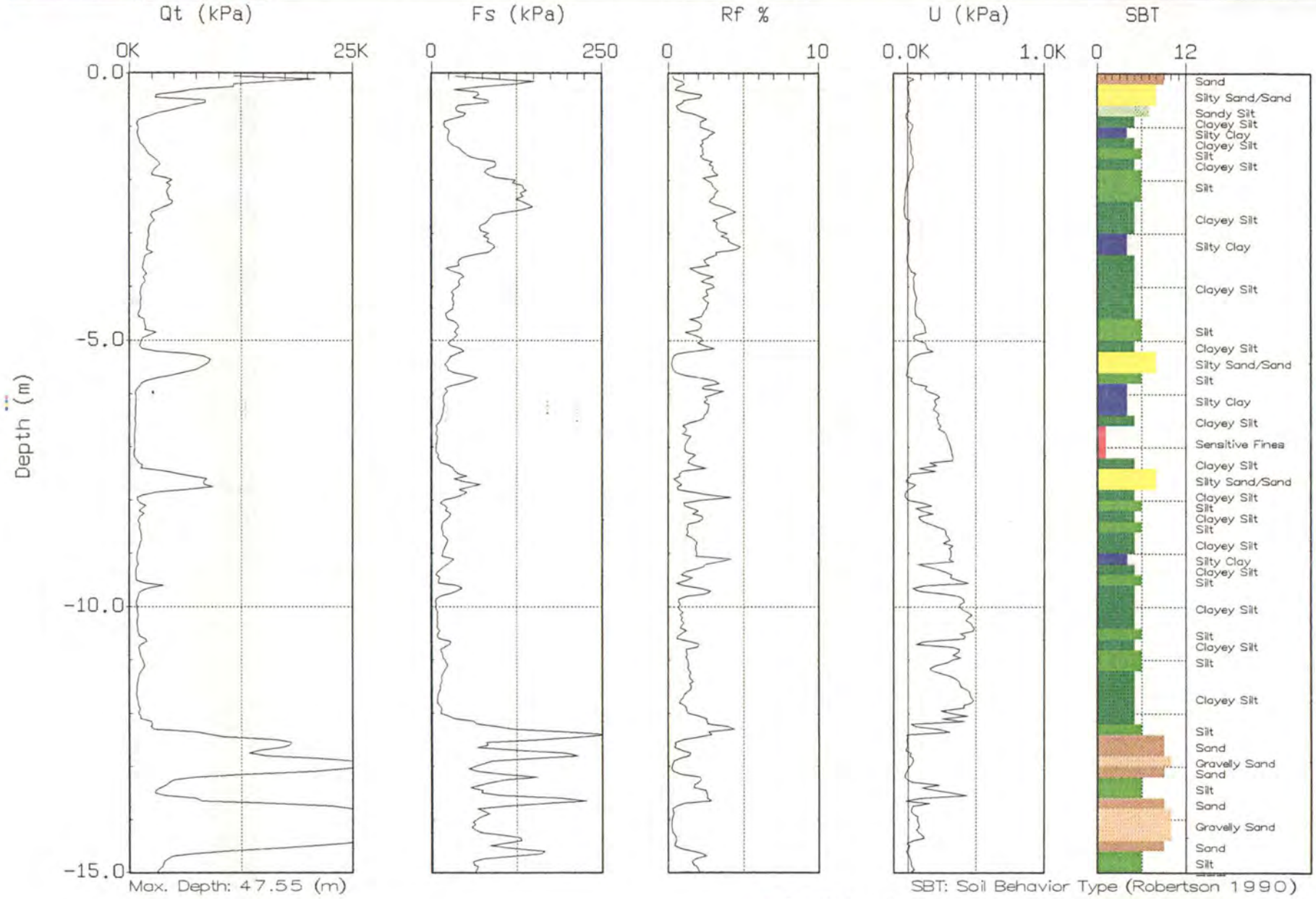
BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway

Site: SC-31-353
Station: 100+036.369 83.64 LT
Elevation: 1284.513

Cone: 20 TON A 070
Date: 05:03:00 08:09



Max. Depth: 47.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

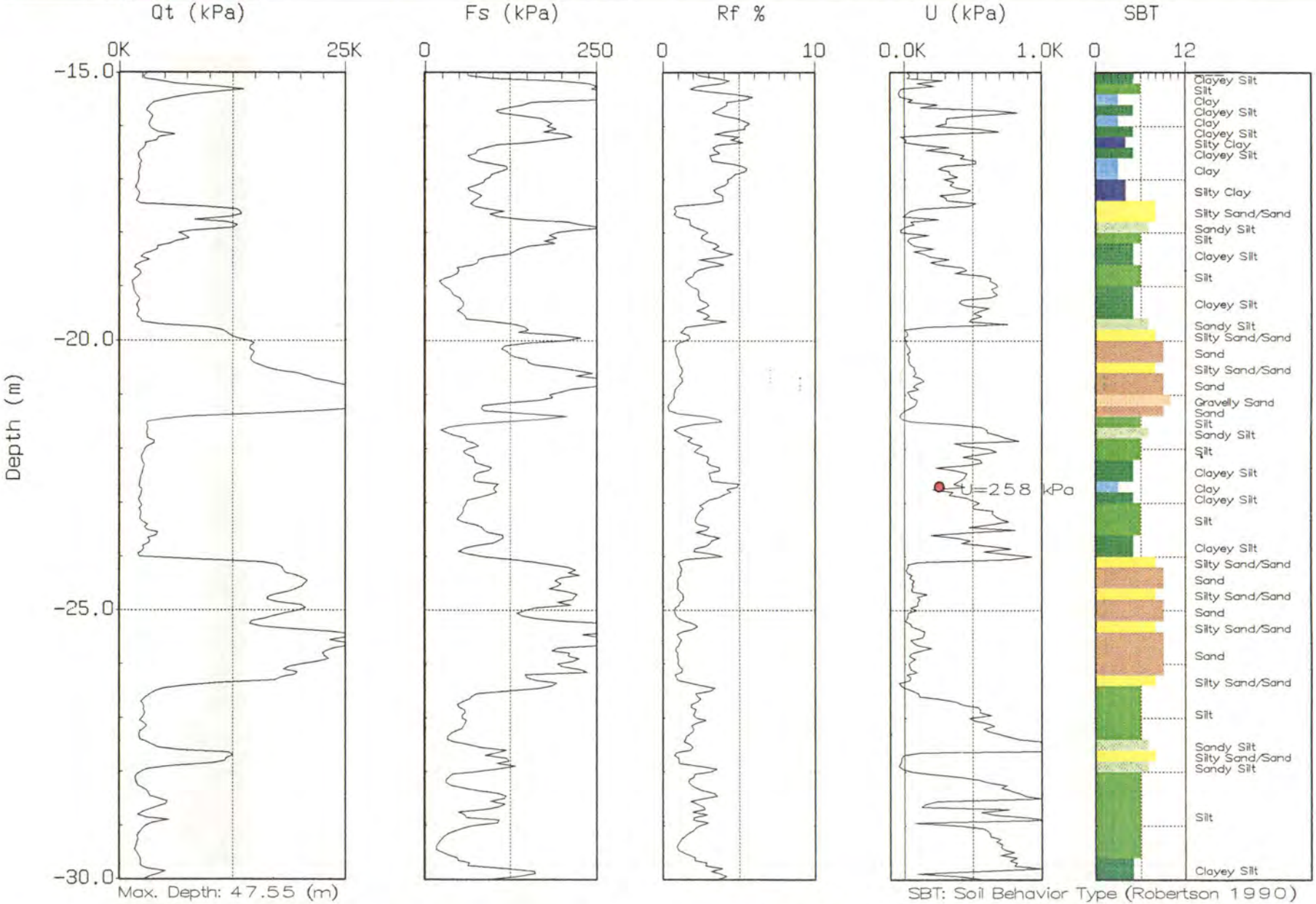
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-296

Legacy Parkway

Site: SC-31-353
Station: 100+036.369 83.64 LT
Elevation: 1284.513

Cone: 20 TON A 070
Date: 05:03:00 08:09



Max. Depth: 47.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

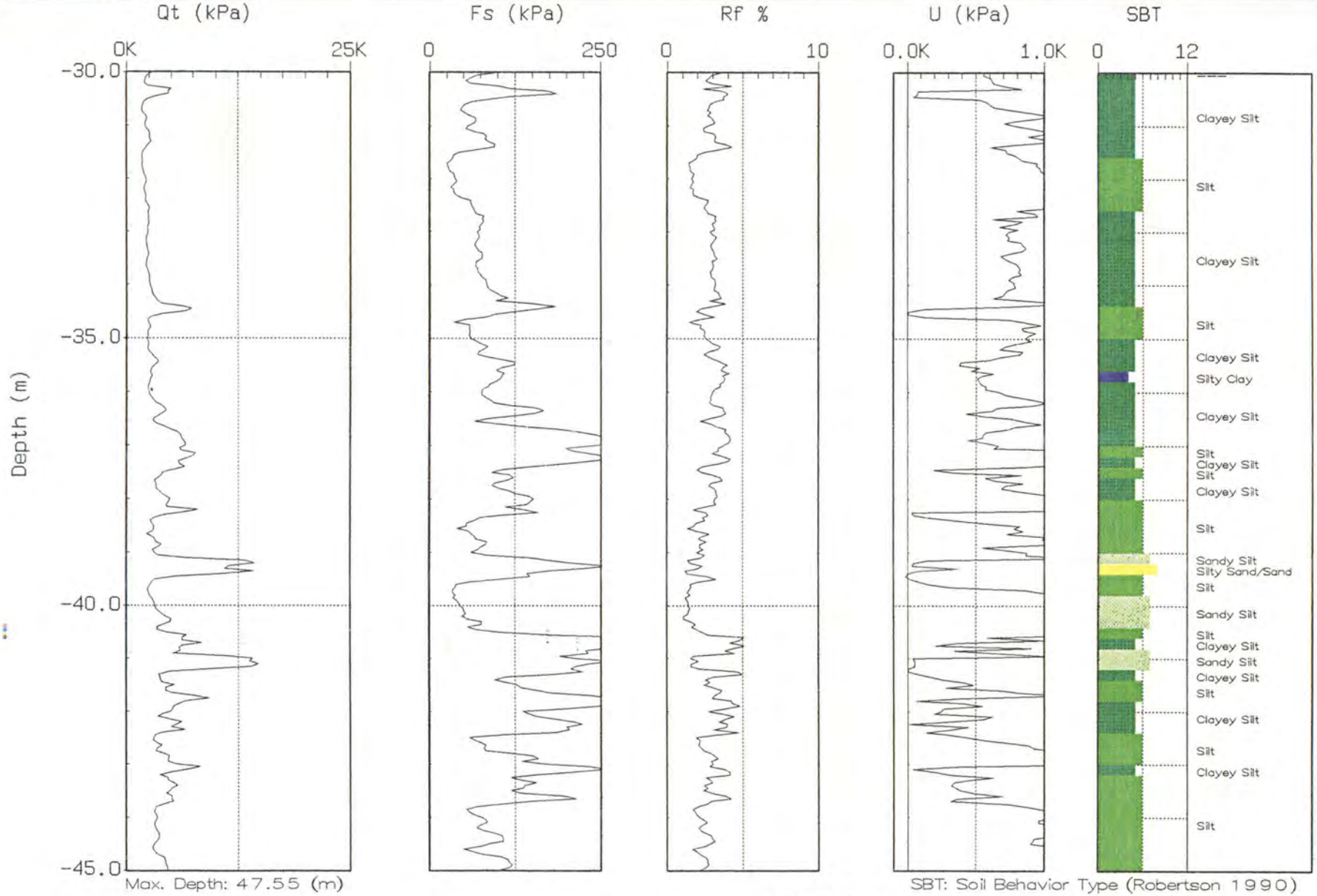
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-297

Legacy Parkway

Site: SC-31-353
Station: 100+036.369 83.64 LT
Elevation: 1284.513

Cone: 20 TON A 070
Date: 05:03:00 08:09



Max. Depth: 47.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

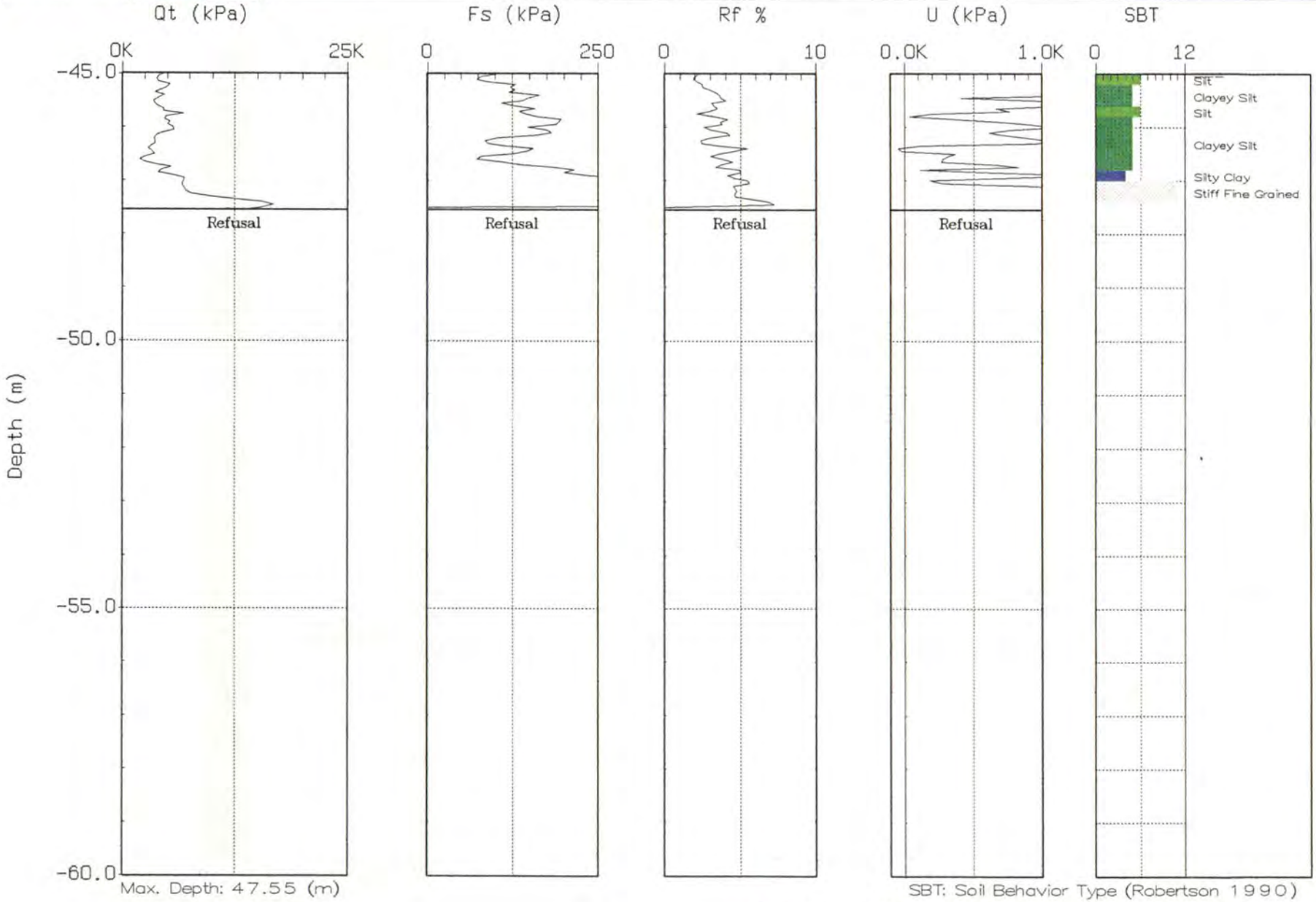
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-298

Legacy Parkway

Site: SC-31-353
Station: 100+036.369 83.64 LT
Elevation: 1284.513

Cone: 20 TON A 070
Date: 05:03:00 08:09



Max. Depth: 47.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-299

Boring: SB-31-354
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - very stiff, moist to wet, dark brown mottled tan-colored				SPT	610	CL	A-6	2 5 8 6							pH WSS R
	- becomes light brown mottled tan, trace medium-grained sands, with thin (grass-roots) extending down to 0.6 meters		1													
		5	2	P	P	610				*19*						
	- stiff, soft mottled rust and gray, frequent seams of silt	10	3		SPT	508			0 3 5 4							
			4													
1280	SILT - wet, gray	15	5	P	P	610	ML	A-7-6		53 *77*	14.0	35	47	26		C SG DS
	Lean CLAY - medium stiff, wet, gray, with frequent seams of silt	20	6		SPT	610	CL	A-6	0 2 3 4							
			7													
		25	8	P	P	610				*62*						
1275	- very soft, frequent seams to 50 mm layers of micaceous fine-grained sand	30	9		SPT	610			0 0 0 4							
			10													
		35	11	P	P	610				*57*						
	- medium stiff, with fine-grained sand	40	12		SPT	76			6 4 6 11							
			13													
1270		45	14	P	P	508				52 *38*	17.1	22	31	13	79	C TR SG
	SILT - stiff, wet, gray, frequent seams of fine-grained sand, micaceous	50	15		SPT	610	ML	A-4	5 7 11 15							
			16													
		55	17													
	Silty CLAY - stiff, wet, gray	60	18	P	P	610	CL-ML	A-6		*86*						
1265			19													
		65														

● SPT $(N_1)_{60}$
○ SPT $(N_1)_{60}$ (Greater than 50 Blows)

Test Results *

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-354**

Sheet **1** of **4**

Logged by:	M. Bostrom
Date Start:	4/21/00
Date Finish:	4/25/00
Station:	100+033.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,271.520 E 17,768.174
Elevation (m):	1284.408
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z0035B2A.GPJ 8/31/00

Boring: SB-31-354
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty CLAY - stiff, wet, gray (continued)																
	Silty SAND with silt - medium dense, wet, gray, with trace coarse-grained sand, with medium-grained sand	70	21		SPT	610	SM	A-2-5	5 7 19 25	●18							SV
			22														
	- fine-grained sand	75	23														
1260	SILT - wet, gray, occasional clay layers 0.3 m thick	80	24		P	610	ML	A-4			*134*						
			25														
		85	26														
			27														
	- stiff	90	28		SPT	559			6 9 10 18	●12							
1255		95	29														
			30														
	Lean CLAY - wet, gray, with trace shell remnants	100	31		P	610	CL	A-6			*134*						
		105	32														
			33														
	- olive-gray, mottled tan-colored	110	34		SPT	559	ML	A-4	4 6 16 14	●12				26	9		
	SILT - stiff, wet, olive-gray, occasional very fine-grained sand layer						CL	A-6									
1250	Lean CLAY - stiff, wet, olive-gray	115	35														
			36														
		120	37		P	610					*153*						
		125	38														
			39														
1245		130			SPT					●23							

Test Results *

UTDOT Z0035B2A.GPJ 5/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-354**

Sheet **2** of **4**

Logged by:	M. Bostrom
Date Start:	4/21/00
Date Finish:	4/25/00
Station:	100+033.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,271.520 E 17,768.174
Elevation (m):	1284.408
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-31-354
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	- very stiff, occasional silt layers 0.3 to 0.6 meters thick																
	Silty CLAY - very stiff, wet, olive-brown					508	CL-ML	A-6	7 19 25 17								
		135	41														
			42														
		140	43	P	P	457					144						
			44														
1240		145	45														
		150	46		SPT	559	SM	A-2-5	7 21 20 31	●20							
	Silty SAND - medium dense, wet, gray, with fine-grained to medium-grained sand																
		155	47														
	Lean CLAY - wet, gray		48				CL	A-6									
		160	49	P	P	610					144						
1235			50														
		165	51														
	Silty SAND - very dense, wet, gray, medium to coarse-grained	170	52		SPT	483	SM	A-2-5	40 86 31 17	○							
	SILT - hard, wet, gray						ML	A-4									
		175	53														
			54														
1230		180	55	P	P	559	CL-ML	A-6			21						
	Silty CLAY - wet, gray																
		185	56														
			57														
	- frequent seams of micaceous silt to fine-grained sands																
	Silty SAND - dense, wet, gray, occasional silt layers	190	58		SPT	508	SM	A-2-5	32 60 46 21	●48							
			59														
1225		195															

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-354**

Sheet **3** of **4**

Logged by:	M. Bostrom
Date Start:	4/21/00
Date Finish:	4/25/00
Station:	100+033.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,271.520 E 17,768.174
Elevation (m):	1284.408
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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BAG = Bulk Sample

Boring: SB-31-354
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) (0 – 25 – 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - dense, wet, gray, occasional silt layers (continued)	200	61		SPT	610			5 10 23 50	14							
			62														
		205	63														
1220		210	64														
			65														
		215	66														
		220	67														
			68														
1215		225	69														
		230	70														
			71														
		235	72														
		240	73														
1210			74														
		245	75														
		250	76														
			77														
		255	78														
1205		260	79														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-354**

Sheet 4 of 4

Logged by:	M. Bostrom
Date Start:	4/21/00
Date Finish:	4/25/00
Station:	100+033.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,271.520 E 17,768.174
Elevation (m):	1284.408
Total Depth Drilled (m):	61.3
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Boring: SB-31-355
Sheet 1 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 25 50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY with sand - soft, moist, gray, occasional sand seams				SPT	686	CL	A-6	0 0 2 3	3							
			1														
		5			P	559					37						
			2														
	- stiff	10	3		SPT	635			3 4 6 6	13							
			4														
1280	Fat CLAY - wet, dark gray, with silt and very fine-grained sands lenses	15			P	610	CH	A-7-6									
			5								36						
	- very soft	20	6		SPT	610			0 0 0 0	0				59	33		
			7														
		25			P	610											
			8								31						
1275	Lean CLAY - very soft, wet, gray, occasional sand seams	30	9		SPT	610	CL	A-6	1 0 1 1	2							
			10														
		35	11		P	559					62						
	- stiff, with sand	40	12		SPT	610			7 7 8 10	13				32	16	59	
			13														
		45	14		P	356					48						
1270			15														
	SILT - stiff, wet, gray, with sand lenses	50			SPT	686	ML	A-4	3 4 7 10	9							
			16														
		55	17														
			18														
		60			P	559					89 72	14.7	31				
			19														
1265		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-355**

Sheet **1** of **4**

Logged by:	C. Hansen
Date Start:	4/17/00
Date Finish:	4/19/00
Station:	100+075.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,262.830 E 17,809.265
Elevation (m):	1284.326
Total Depth Drilled (m):	63.1
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-31-355
Sheet 2 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - stiff, wet, gray, with sand lenses (continued)																
	Poorly Graded SAND - dense, wet, gray	70	21		SPT	610	SP	A-3	11 20 24 18	●31							
		75	22														
			23														
			24														
1260	Lean CLAY - stiff, wet, gray	80	25		P	508	CL	A-6			*56*	15.8	26	30	10	94	C TR SG
		85	26														
			27														
	Silty SAND - medium dense, wet, gray, with interbedded layers of clay and silt 50 to 75 mm thick	90	28		SPT	610	SM	A-2-4	8 20 23 37	●28							
1255		95	29														
			30														
	Lean CLAY - medium stiff, wet, gray	100	31		P	610	CL	A-6			38						
		105	32														
			33														
	- very stiff	110	34		SPT	584			3 12 15 13	●16							
1250		115	35														
			36														
		120	37		P	610					57						
		125	38														
			39														
1245		130			SPT	533		A-7-6	6 13 12 18	●14				45	23	81	

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-355**

Sheet **2** of **4**

Logged by:	C. Hansen
Date Start:	4/17/00
Date Finish:	4/19/00
Station:	100+075.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,262.830 E 17,809.265
Elevation (m):	1284.326
Total Depth Drilled (m):	63.1
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

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Coordinates are NAD '83

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BAG = Bulk Sample

UTDOT Z603SB2A.GPJ 8/31/00

Boring: SB-31-355
Sheet 3 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - very stiff, wet, gray (continued)																
		135	41														
			42														
	- medium stiff	140	43		P	559					55 *38*	15.9	26	47	27		C SG
1240		145	44														
			45														
	- medium stiff, with sand seams	150	46		SPT	635			5 7 8 8	●8							
		155	47														
			48														
1235		160	49		P	279					*40*						
		165	50														
			51														
	- stiff	170	52		SPT	610			11 11 10 10	●10							
		175	53														
1230			54														
	- with sand and silt layers	180	55		SPT	660			20 13 14 18	●13							
		185	56														
			57														
		190	58		P	0											
			59														
1225	Sandy SILT - hard, wet, gray, frequent silt and sand layers	195			SPT	610	ML	A-4	6 7 17 35	●11							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-355**

Sheet **3** of **4**

Logged by:	C. Hansen
Date Start:	4/17/00
Date Finish:	4/19/00
Station:	100+075.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,262.830 E 17,809.265
Elevation (m):	1284.326
Total Depth Drilled (m):	63.1
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

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BAG = Bulk Sample

UTDOT Z003SBZA.GPJ 8/31/00

Boring: SB-31-355
Sheet 4 of 4

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Sample Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Sandy SILT - hard, wet, gray, frequent silt and sand layers (continued)																
	- hard, coarse-grained sand layers	200	61		SPT	305			25 75							30	
			62														
	- stiff	205	63		SPT	610			12 8 11 14	9							
1220		210	64														
			65														
		215	66														
		220	67														
			68														
		225	69														
1215		230	70														
			71														
		235	72														
		240	73														
			74														
1210		245	75														
			76														
		250	77														
		255	78														
			79														
1205		260															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-355**

Sheet **4** of **4**

Logged by:	C. Hansen
Date Start:	4/17/00
Date Finish:	4/19/00
Station:	100+075.967 0.00 LT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,262.830 E 17,809.265
Elevation (m):	1284.326
Total Depth Drilled (m):	63.1
Drill Contractor:	Layne Christensen
Driller:	J. Hulse
Rig Type:	CME-750
Drilling Method:	Mud Rotary
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	133 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

USCS = Unified Soil Classification System

AASHTO = American Association of State Highway and Transportation Officials

* = See Key to Soil Logs for list of abbreviations and descriptions of tests

SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-31-356
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Lean CLAY with concrete debris - moist, brown																
	- very stiff	5	1		SPT	51			4 7 11 8	23							
	Lean CLAY - wet, light brown to brown	10	2		SH	610	CL	A-6			120						pH WSS R
1280	- stiff, interbedded with frequent silt and sand seams and layers	15	3		SPT	610			3 3 5 9	19							
		20	4		SH	610					37 48	13.7	37	38	16	89	C TR SG
	- soft	25	5		SPT	610			2 2 1 3	3							
1275	- medium stiff	30	6		SH	610					43						
		35	7		SPT	610			3 3 4 3	7							
	Silty SAND - wet, dark olive-gray	40	8		SH	508	SM	A-2-4			53						
	SILT - very stiff, wet, gray, contains frequent seams and layers of lean clay and silty sand	45	9		SPT	457	ML	A-4	4 7 11 14	16							
1270		50	10		SH	610					53						
		55	11		SPT	610			5 6 14 20	16							
	Fat CLAY - hard, wet, olive-gray	60	12		SH	610	CH	A-7-6			32 43	14.6	30	66	37	97	C SG
		65	13							50							

UTDOT Z003SB2A.GPJ 5/31/00

Test Results *

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-356**

Sheet **1** of **3**

Logged by:	M. Bostrom
Date Start:	3/30/00
Date Finish:	4/4/00
Station:	100+118.329 8.80 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,245.451 E 17,848.889
Elevation (m):	1284.995
Total Depth Drilled (m):	44.8
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

Boring: SB-31-356
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	● SPT $(N_1)_{60}$ ○ SPT $(N_1)_{60}$ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - dense, wet, gray				SPT	508	SM	A-2-5	11 23 28 32								
		70	21														
	- medium dense				SPT	610			4 5 10 11	11							
		75	22														
			23														
		80	24														
					SPT				4 6 8 9	9							
1260	Lean CLAY - stiff, wet, dark gray, contains frequent silty sand and silt seams and layers		25				CL	A-6									
		85	26														
			27														
		90			SH	508											
	SILT - wet, gray, contains frequent seams of silty sands		28				ML	A-4			67						
		95	29														
1255			30														
	- stiff	100	31		SPT	610			7 12 11 13	14							
		105	32														
			33														
		110			SH	0											
			34		MC	559			15 19 32 31	24							
	- very stiff, becomes interbedded with frequent seams and layers of clay and silty sand																
1250		115	35														
			36														
	- very stiff, brown	120	37		SPT	610			2 4 7 11	6							
		125	38														
			39														
		130			SPT					25							

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-356**

Sheet **2** of **3**

Logged by:	M. Bostrom
Date Start:	3/30/00
Date Finish:	4/4/00
Station:	100+118.329 8.80 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,245.451 E 17,848.889
Elevation (m):	1284.995
Total Depth Drilled (m):	44.8
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

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MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Boring: SB-31-356
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / $(N_1)_{60}$ (Greater than 50 Blows) ○ (0–25–50)	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	SILT - very stiff, brown, contains frequent seams of silty sands (continued)					610			11 21 26 34								
		135	41		SPT	508			11 15 19 16	●18							
			42														
	- stiff	140	43		MC				9 9 11 10	●9							
		145	44		SPT	25			1 3 18 19	●11							
1240			45														
		150	46														
			47														
		155	48														
		160	49														
1235		165	50														
			51														
		170	52														
		175	53														
			54														
1230		180	55														
		185	56														
			57														
		190	58														
		195	59														

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-31-356**

Sheet **3** of **3**

Logged by:	M. Bostrom
Date Start:	3/30/00
Date Finish:	4/4/00
Station:	100+118.329 8.80 RT
Line:	PEDESTRIAN BR.
Coordinates (m):	N 115,245.451 E 17,848.889
Elevation (m):	1284.995
Total Depth Drilled (m):	44.8
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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AASHTO = American Association of State Highway and Transportation Officials

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SAMPLE TYPE

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P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

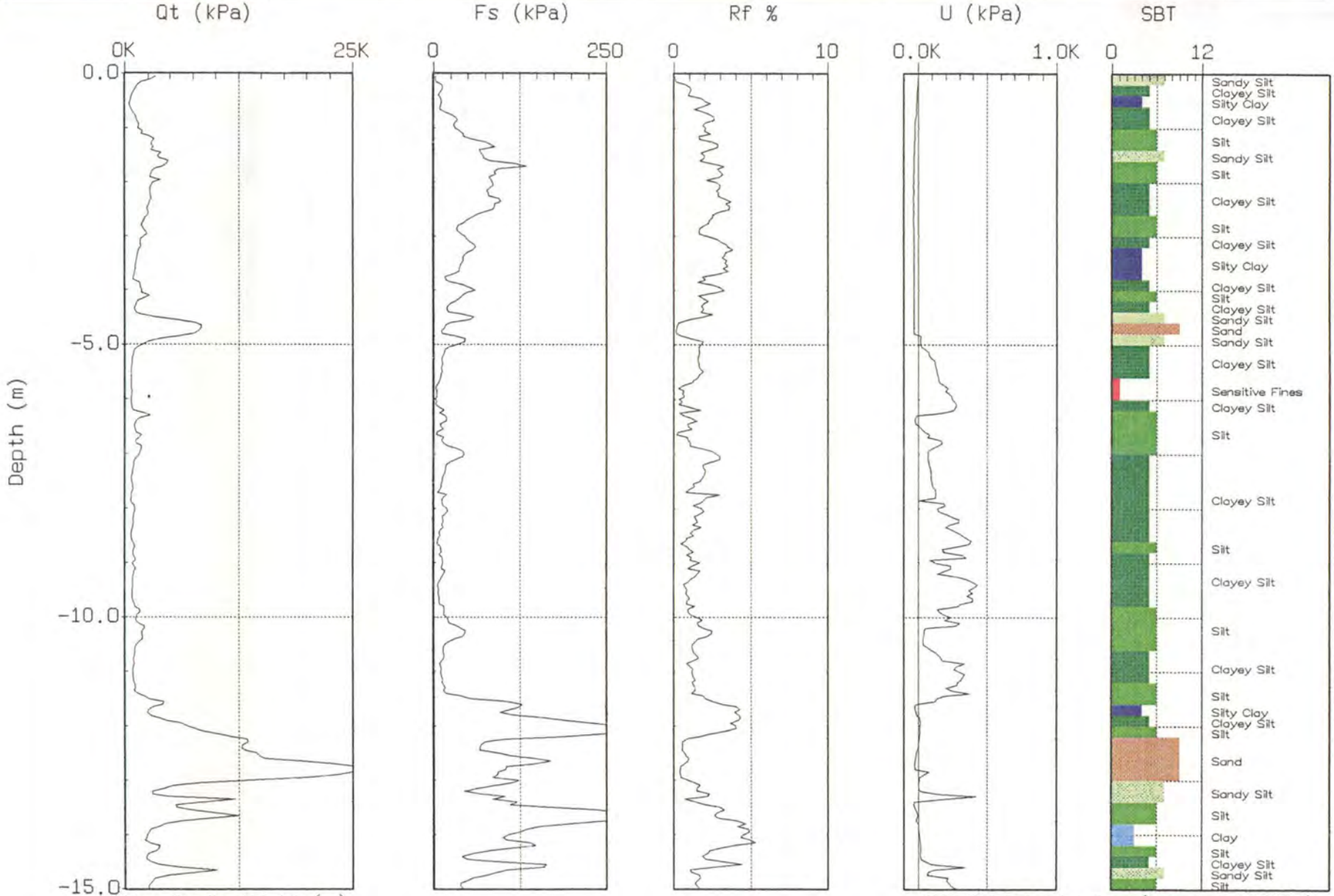
BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway

Site: SC-31-356
Station: 100+115.395 9.43 RT
Elevation: 1284.932

Cone: 20 TON A 0/0
Date: 05:02:00 08:54



Max. Depth: 47.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

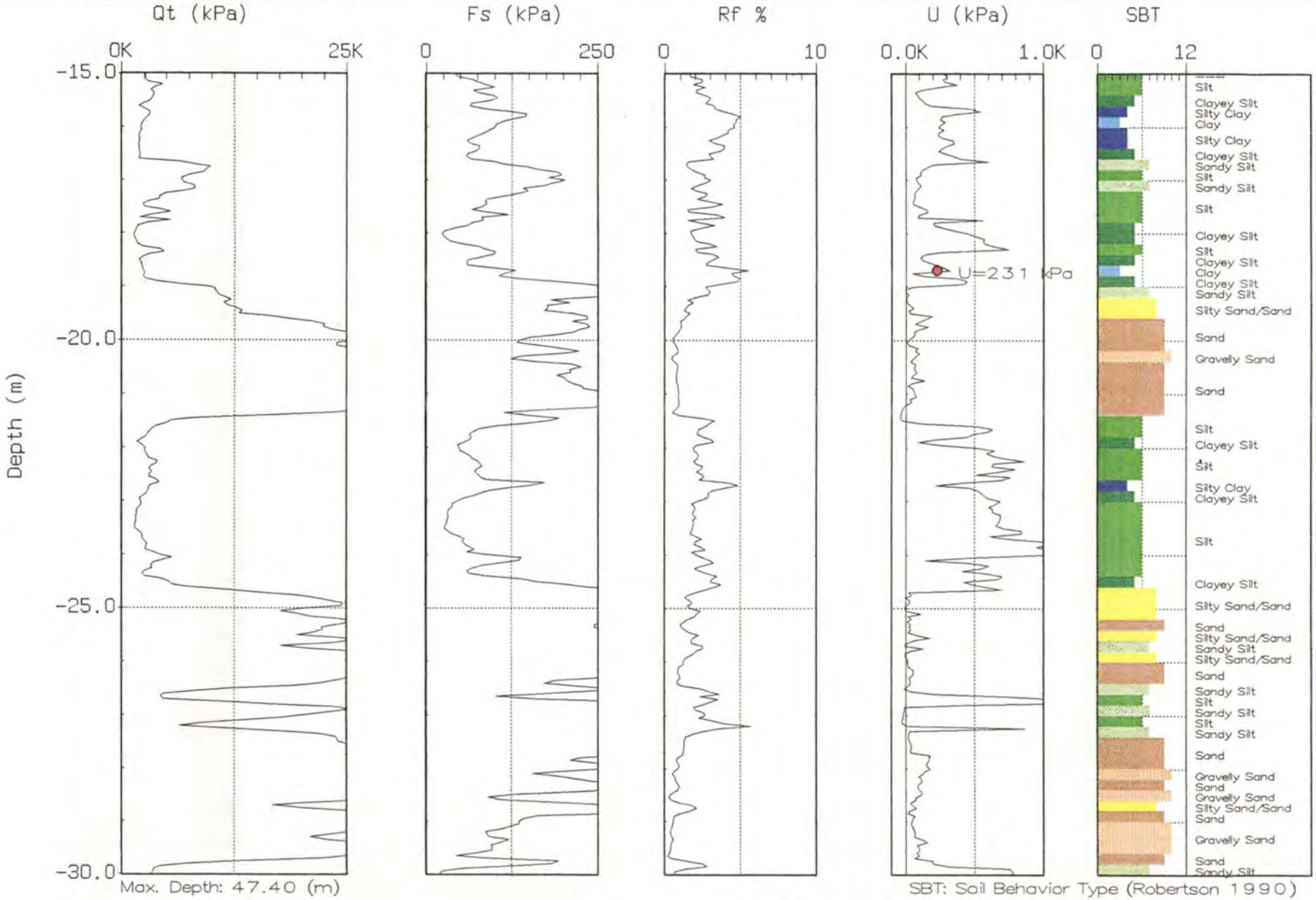
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-311

Legacy Parkway

Site: SC-31-356
Station: 100+115.395 9.43 RT
Elevation: 1284.932

Cone: 20 TON A 070
Date: 05:02:00 08:54



Max. Depth: 47.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

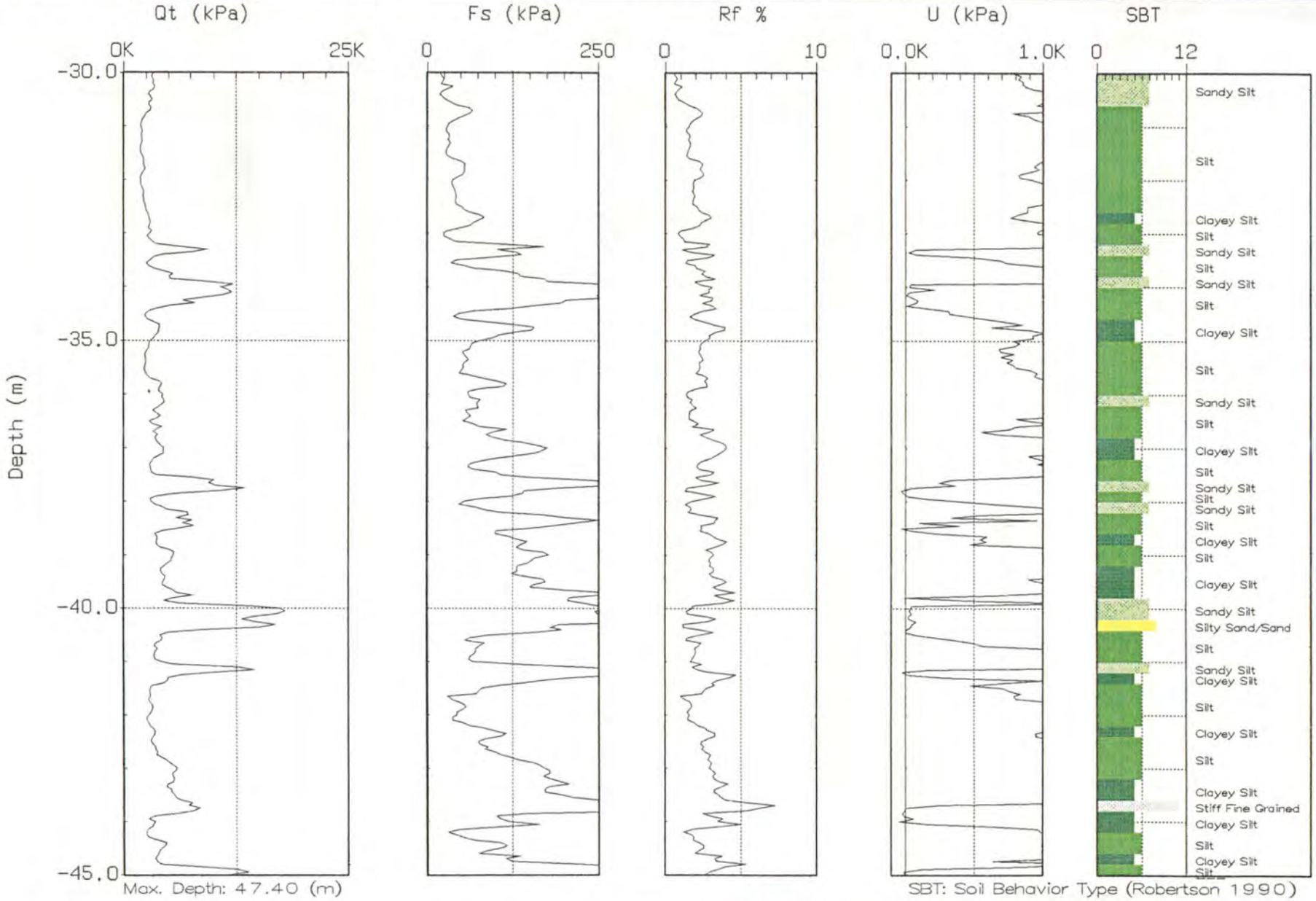
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-312

Legacy Parkway

Site: SC-31-356
Station: 100+115.395 9.43 RT
Elevation: 1284.932

Cone: 20 TON A 070
Date: 05:02:00 08:54



Max. Depth: 47.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

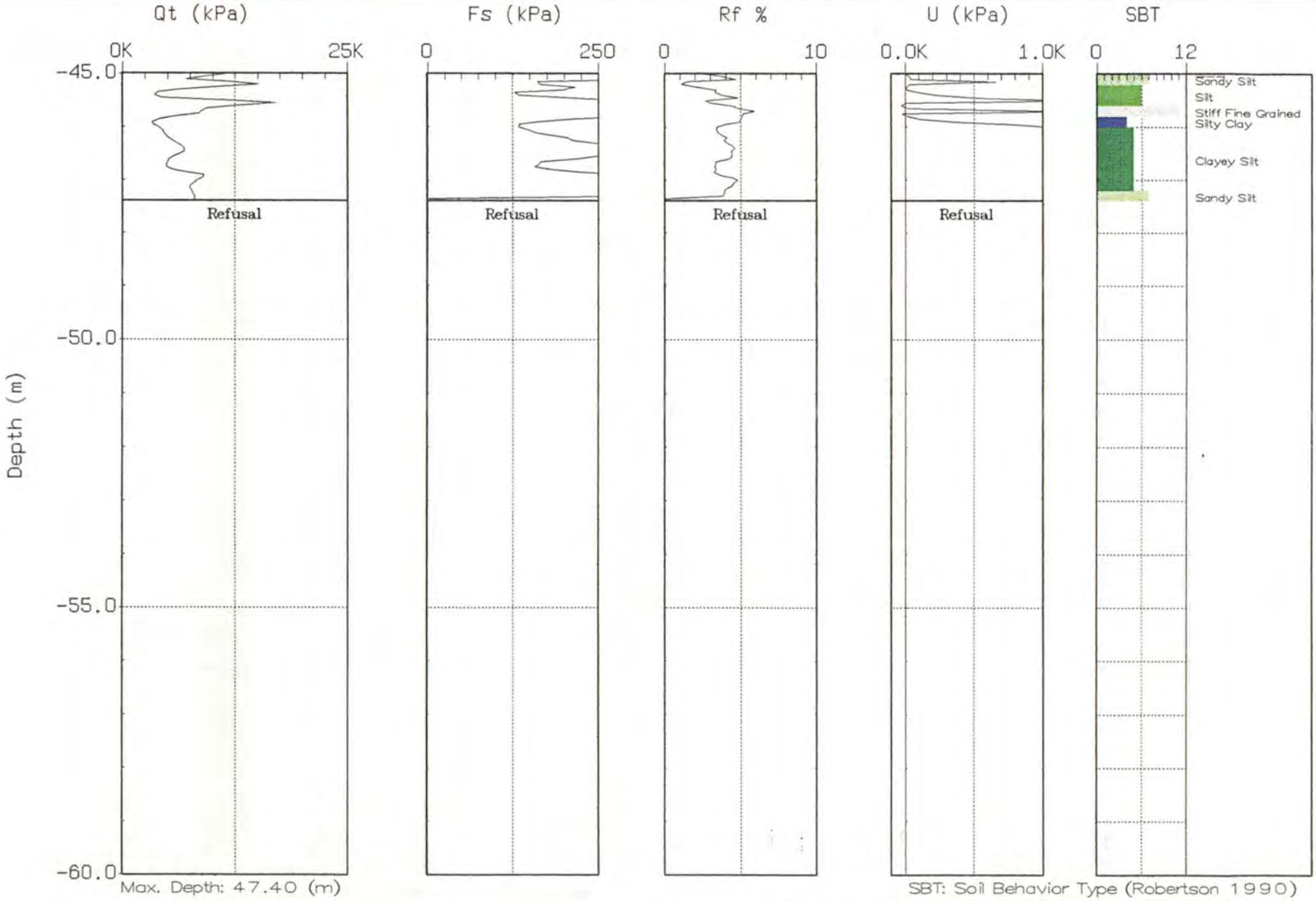
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-313

Legacy Parkway

Site: SC-31-356
Station: 100+115.395 9.43 RT
Elevation: 1284.932

Cone: 20 TON A 070
Date: 05:02:00 08:54



Max. Depth: 47.40 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-314

Boring: SB-32-357
Sheet 1 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT (N1)60 ● / (N1)60 (Greater than 50 Blows) ○ (0 – 25 – 50)	Su, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - hard, slightly moist, dark brown				SPT	356	CL	A-6	4 8 9 12	34							
	- light brown		1														
		5			SH	610	CH	A-7-6			43					90	
	Fat CLAY - soft, wet, light brown with gray and rust mottling		2														
		10	3		SPT	457			1 1 2 1	6				51	26		
	- medium stiff, occasional silt seams																
	- frequent silt seams from 3.5 to 3.7 meters		4														
1280		15			SH	660					20 24	12.7	41				
			5														
	- olive gray with black mottling																
	SILT - very stiff, wet, gray, occasional 50 mm layers of soft clay	20	6		SPT	610	ML	A-4	7 10 6 2	26							
			7														
	- very stiff	25	8		SPT	406			5 4 7 8	16							
			9														
1275		30			SH	305					19	14.7	28	NP	NP	70	C SG
			10														
	Lean CLAY - soft, wet, gray, varved, silt and sand lenses 1.5 to 3.0 mm thick	35	11		SPT	610	CL	A-6	1 2 1 3	4							
		40	12		SH	711					36						
			13														
	- very soft	45	14		SPT	610			0 0 0 0	0							
1270			15														
		50			SH	711					34	15.1	28	36	15		C SG
			16														
		55	17														
			18														
		60			SPT	610			0 0 0 1	0							
			19														
1265		65															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-32-357**

Sheet 1 of 3

Logged by:	M. Bostrom
Date Start:	5/5/00
Date Finish:	5/9/00
Station:	6002+535.900 21.40 LT
Line:	D MAINLINE
Coordinates (m):	N 107,160.592 E 15,686.012
Elevation (m):	1284.553
Total Depth Drilled (m):	43.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

Coordinates are NAD '83

▽ = Observed Groundwater depth at time of drilling

Blows = Number of blows required to drive split spoon sampler 150 mm or interval shown

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SAMPLE TYPE

SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Boring: SB-32-357
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ ○ (Greater than 50 Blows)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - very soft, wet, gray, varved, silt and sand lenses 1.5 to 3.0 mm thick (continued)															
		70	21	SH	610		A-7-6			22 *29*	13.5	38	44	23		C TR SG
			22													
		75	23													
			24													
1260	- medium stiff, gray	80	25	SPT	610			2 2 3 3	●5							
	Sandy SILT - wet, gray	85	26			ML	A-4									
			27													
		90	28	SH	686					*48*						
		95	29													
1255			30													
	- stiff, occasional sand layers	100	31	SPT	254			6 7 7 2	●12							
		105	32													
			33													
		110	34	SH	0											
1250	Lean CLAY - hard, wet, gray, varved	115	35	SPT	610	CL	A-6	7 33 44 27	○							
	Silty SAND - very dense, wet, gray					SM	A-2-5									
	Lean CLAY - hard, wet, gray	120	36			CL	A-6									
	Silty SAND - very dense, wet, gray		37	SPT	610	SM	A-2-5	17 33 47 31	○							
	Lean CLAY - very stiff, wet, hard	125	38			CL	A-7-6									
	Silty SAND - medium dense, wet, gray, with frequent clay layers up to 150 mm		39	SPT	559	SM	A-2-5	8 12 24 32	●26				44	25		
1245		130		SPT					●14							

Graphic Log

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-32-357**

Sheet **2** of **3**

Logged by:	M. Bostrom
Date Start:	5/5/00
Date Finish:	5/9/00
Station:	6002+535.900 21.40 LT
Line:	D MAINLINE
Coordinates (m):	N 107,160.592 E 15,686.012
Elevation (m):	1284.553
Total Depth Drilled (m):	43.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

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BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 8/31/00

Boring: SB-32-357
Sheet 3 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	Type	Recovery (mm)	Soil Classification USCS	Soil Classification AASHTO	N, Blows per 0.15 m (or interval shown)	SPT $(N_1)_{60}$ ● / SPT $(N_1)_{60}$ (Greater than 50 Blows) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - medium dense, wet, gray, with frequent clay layers up to 150 mm (continued)					381			10 10 10 27							63	
	Poorly graded SAND, very dense, wet, gray	135	41		SPT	533	SP	A-3	10 23 49 50/140 mm	● 30							
	Sandy SILT - very stiff, wet, gray, with sand lenses	140	42				ML	A-4									
			43		SPT	559			9 13 17	● 20							
1240		145	44														
			45														
		150	46														
			47														
		155	48														
		160	49														
1235			50														
		165	51														
		170	52														
			53														
		175	54														
1230		180	55														
			56														
		185	57														
		190	58														
			59														
1225		195															

Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

KLEINFELDER

Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **SB-32-357**

Sheet **3** of **3**

Logged by:	M. Bostrom
Date Start:	5/5/00
Date Finish:	5/9/00
Station:	6002+535.900 21.40 LT
Line:	D MAINLINE
Coordinates (m):	N 107,160.592 E 15,686.012
Elevation (m):	1284.553
Total Depth Drilled (m):	43.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Drilling Method:	Hollow-Stem Auger
Hammer Type:	Automatic
Rod Type:	AW
Boring Diameter:	152 mm

LEGEND/NOTES

Elevations based upon North American Vertical Datum of 1988 (NAVD '88)

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SPT = Standard Penetration Test, 34.9mm ID and 50.8mm OD split spoon sampler

MC = Modified California Sampler, 50.8mm ID and 63.5mm OD split spoon sampler

P = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

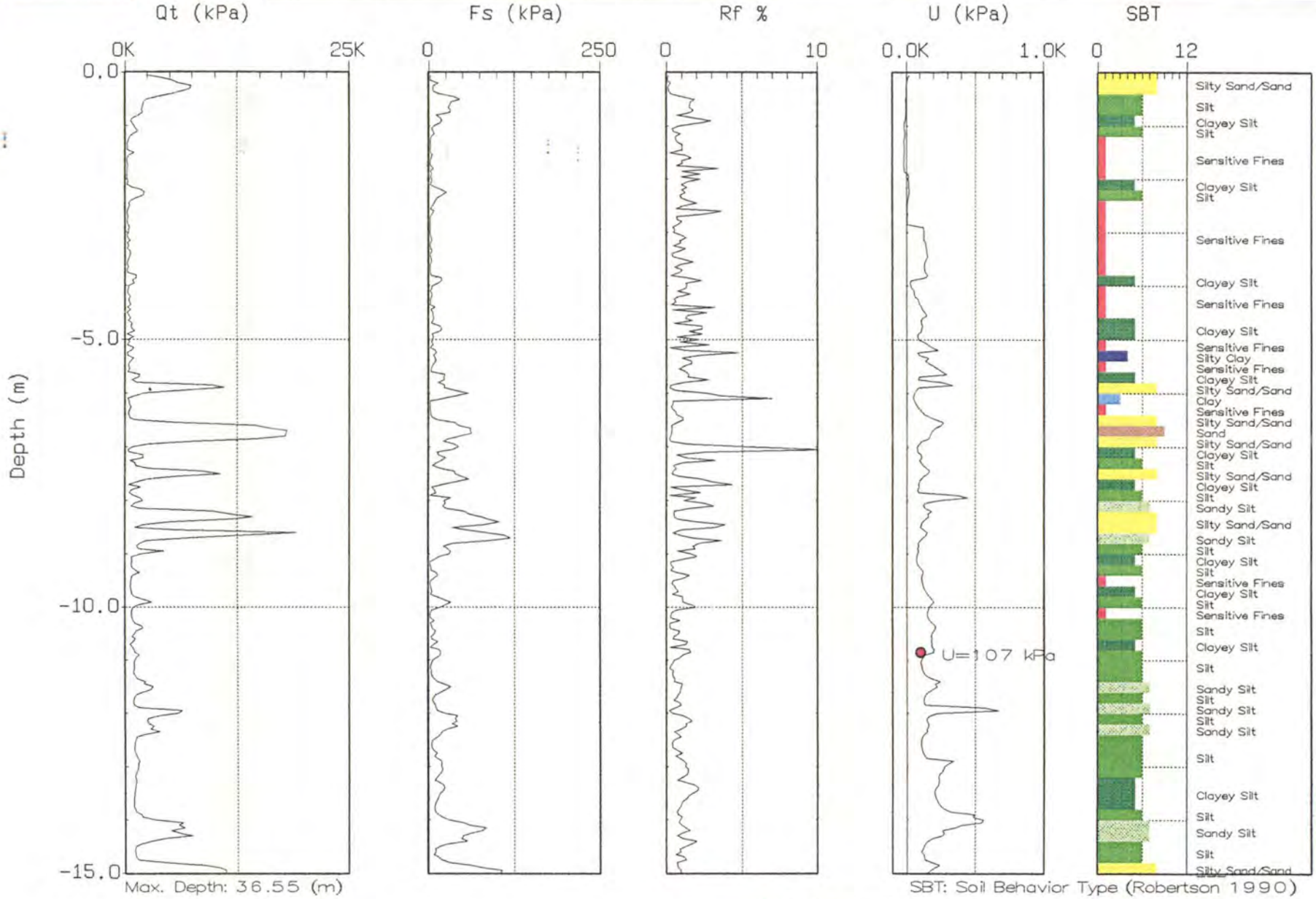
BAG = Bulk Sample

UTDOT Z003SB2A.GPJ 6/31/00

Legacy Parkway

Site: SC-33-358
Station: 6002+489.100 21.40 RT
Elevation: 1284.490

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)
Depth inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

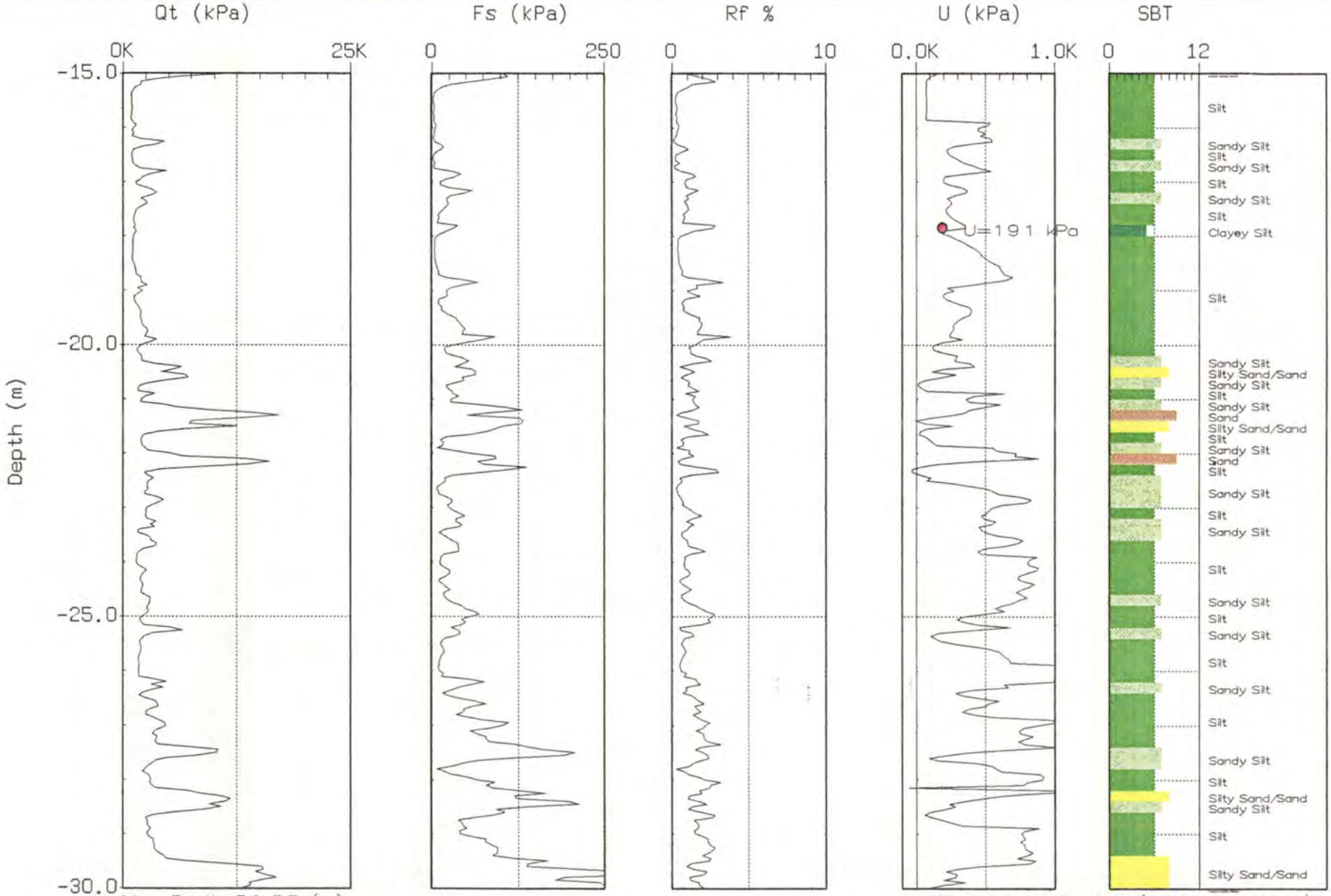
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-318

Legacy Parkway

Site: SC-33-358
Station: 6002+489.100 21.40 RT
Elevation: 1284.490

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

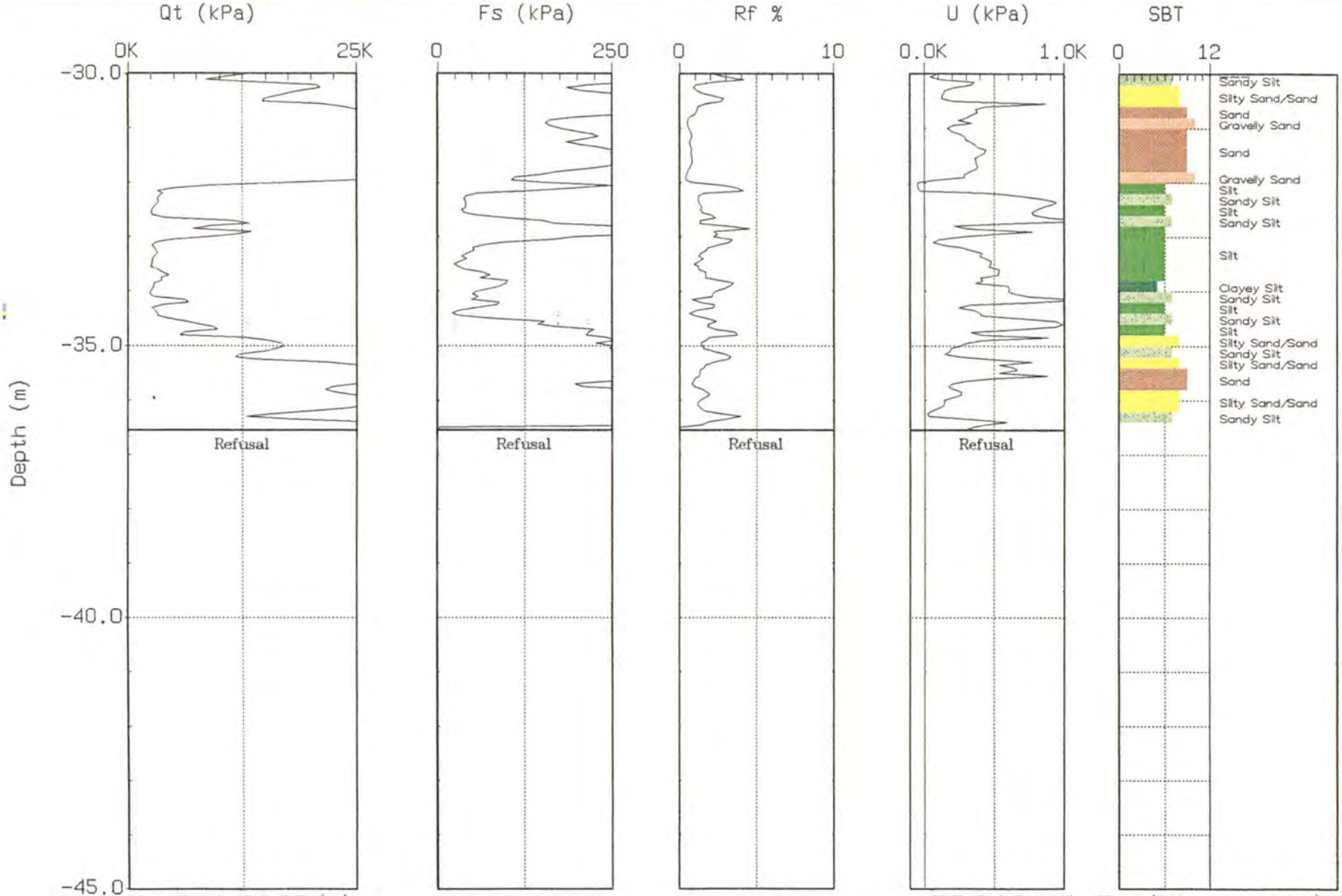
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-319

Legacy Parkway

Site: SC-33-358
Station: 6002+489.100 21.40 RT
Elevation: 1284.490

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-320

FIELD SOIL CLASSIFICATION

PENETRATION RESISTENCE

STANDARD PENETRATION TEST (ASTMD-1586)
NUMBERS OF BLOWS REQUIRED TO DRIVE A STANDARD 50.8 mm OUTSIDE DIAMETER SPLIT BARREL SAMPLER 304.8 mm USING A 63.5 kg WEIGHT

COHESIONLESS SOIL

RELATIVE DENSITY	$SPT(N_1)_{60}$ - VALUE BLOWS PER 0.3m	RELATIVE DENSITY, %
VERY LOOSE	<4	0 - 15
LOOSE	4 - 10	15 - 35
MEDIUM DENSE	10 - 30	35 - 65
DENSE	30 - 50	65 - 85
VERY DENSE	>50	85 - 100

COHESIVE SOILS

CONSISTENCY	$SPT(N_1)_{60}$ - VALUE BLOWS PER 0.3m	THUMB PENETRATION
VERY SOFT	<2	EASILY PENETRATED MORE THAN 25 mm
SOFT	2 - 4	EASILY PENETRATED 25 mm
MEDIUM STIFF	4 - 8	CAN BE PENETRATED OVER 6 mm WITH MODERATE EFFORT
STIFF	8 - 15	INDENTED ABOUT 6 mm, PENETRATED WITH GREAT EFFORT
VERY STIFF	15 - 30	READILY INDENTED BY THUMBNAIL
HARD	30 - 60	INDENTED WITH DIFFICULTY BY THUMBNAIL
VERY HARD	>60	THUMBNAIL WILL NOT INDENT SOIL

GRADATION

MATERIAL	FRACTION	SEIVE SIZE	GRAIN SIZE
BOULDERS		>304.8 mm	>304.8 mm
COBBLES		75 mm to 304.8 mm	75 mm to 304.8 mm
GRAVEL	COARSE	19 mm to 75 mm	19 mm to 75 mm
	FINE	No. 4 to 19 mm	2 mm to 4.74 mm
SAND	COARSE	No. 10 to No. 4	85 - 100
	MEDIUM	No. 40 to No. 10	430µm to 2 mm
	FINE	No. 200 to No. 40	75µm to 430µm
FINES	(SILT AND CLAY)	PASSING No. 200	<75µm

CRITERIA FOR DESCRIBING MOISTURE CONTENT

SLIGHTLY MOIST	ABSENCE OF MOISTURE, DUSTY, DRY TO TOUCH
MOIST	MOIST BUT NOT VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL IS BELOW WATER TABLE

VARIATIONS IN SOIL STRATIGRAPHY

TRACE	<5%
FEW	5 to 10%
LITTLE	15 to 25%
SOME	30 to 45%
MOSTLY	50 to 100%

CRITERIA FOR CLAY PLATICITY AND DRY STRENGTH

PLASTICITY	PLASTICITY INDEX	DRY STRENGTH
NON-PLASTIC	0 - 3	VERY LOW
LOW	3 - 15	LOW
MEDIUM	15 - 30	MEDIUM
HIGH	>30	HIGH

THE TORVANE IS AN INDICATOR OF THE UNCONFINED COMPRESSIVE STRENGTH OF FINE-GRAINED SOILS. THE TORVANE IS MANUALLY ROTATED UNTIL THE SOIL SHEARS. THE TEST IS A VERY CRUDE ESTIMATE OF THE COMPRESSIVE STRENGTH. HENCE, IT SHOULD BE COMPARED WITH OTHERS FOR A RELIABLE ESTIMATE OF THE UNCONFINED COMPRESSIVE STRENGTH. RESULTS SHOWN ON PLOTS IN GDR.

UNIFIED SOIL CLASSIFICATION (USCS) IDENTIFICATION AND DESCRIPTION

MAJOR DIVISIONS				SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS	(LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
					GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES	(APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS	(LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
					SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES	(APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
					SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
		LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
					CH	INORGANIC CLAYS OF HIGH PLASTICITY
					OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS					PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

SOIL LABORATORY TEST DESCRIPTIONS

Water Content and Unit Weight

Measures water (moisture) content of soils by drying with direct heat.
Results reported in percent on field test boring logs.
Dry density determines dry unit weight of soils.
Results reported in kN/m^3on field test boring logs.

Liquid Limit, Plastic Limit, and Plasticity Index - ASTM D 4318

Measures liquid limit, plastic limit, and plasticity index of soils.
Results reported in liquid limit (LL) and plasticity index (PI) or non plastic (NP) on field test boring logs.

Grain Size Distribution Tests - ASTM D 422

Quantitatively measures distribution of particle sizes in soils.
Results shown on a plot in the geotechnical data report (GDR)
SV = Grain size distribution test was run
% Passing No. 200 = Amount of fines passing No. 200 sieve in percent.

Specific Gravity - ASTM D 854

Measures specific gravity of soils by means of a pycnometer.
Results reported in specific gravity (SG) on field test boring log.
SG = Specific gravity test was run.

Consolidation Test - ASTM D 2435

Measures rate and magnitude of consolidation of soil when it is restrained laterally and loaded and drained axially.
Results shown on plot in GRD.
C = Consolidation test was run.

Direct Shear Test - ASTM D 3080

Measures the shear strength of a soil in direct shear.
DS = Direct shear test was run for multi-point test.

Unconfined Compressive Strength - ASTM D 2166

Measures unconfined compressive strength, q_u, of cohesive soil in undisturbed condition using a strain-controlled application of the axial load.
Results shown as undrained shear strength, $s_u = (q_u/2)$, kPa on field boring log and summary of laboratory test data.

Corrosion Resistance Tests

Measures key parameters including pH, electrical resistivity (ohm-cm) and water soluble sulfates (ppm) for use in the evaluation of the corrosion potential of the existing soils.

3510d192

ABBREVIATIONS

NA - NOT APPLICABLE
GDR - GEOTECHNICAL DATA REPORT

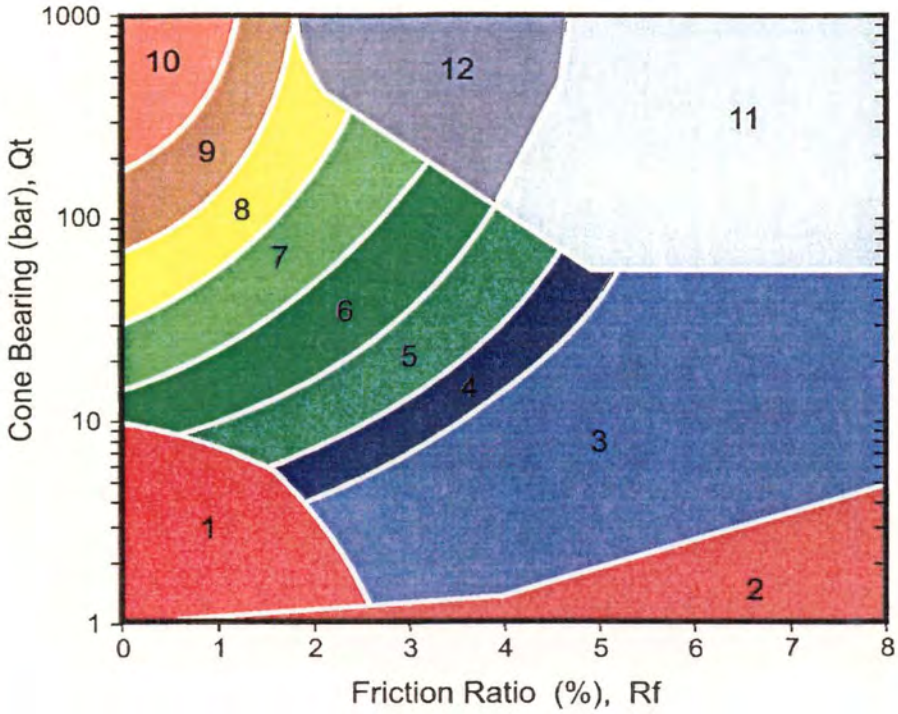
KLEINFELDER

Project Number 35-8163-05

Legacy Parkway - Preferred Alternative
I-215 to I-15 / US 89 Interchange

KEY TO BORING LOG
SOIL SYMBOLS AND TERMS

PLATE
B-321



Zone	Q_t / N	Soil Behaviour 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

CPT Classification Chart
(After Robertson & Campanella, 1990)

CONETEC