LEGACY PARKWAY

Project Number SP-0067(1)0

SEGMENT 1

GEOTECHNICAL INVESTIGATION REPORT

Prepared by
Parsons Brinckerhoff Quade & Douglas, Inc.
For
Fluor Ames Kraemer, LLC

October, 2004

LEGACY

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October 25, 2004

Utah Department of Transportation
Legacy Parkway Office
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Attention: Mr. Jim Higbee, P.E.
UDOT Geotechnical Oversight Engineer

Subject: **Geotechnical Investigation Report**
Segment 1 – Legacy Parkway Project
UDOT Project Number *SP-0067(1)0

Dear Mr. Higbee:

Attached herewith is a report of geotechnical investigations for construction of Segment 1 of the Legacy Parkway Project. Segment 1 generally encompasses the portion of the Legacy Parkway alignment between the southern terminus of the project and the Center Street intersection, including construction of bridges and ramps for the South Interchange. Discussions and recommendations for bridges and ramps planned for construction in the future at the South Interchange will be submitted in a separate report.

The accompanying report describes the field and laboratory explorations, summarizes our findings, and presents geotechnical recommendations for design of bridges, embankments, and MSE walls. If you have any questions or comments concerning this report, please contact us.

Sincerely,

Parsons Brinckerhoff Quade & Douglas, Inc.

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1.0 INTRODUCTION

This report presents the results of the geotechnical field and laboratory investigations conducted for the South Interchange (Segment 1) of the Legacy Parkway Design-Build Project along with the analysis, evaluations and recommendations for the construction of embankments, mechanically stabilized earth (MSE) walls, bridges, and structure foundations. The information obtained during the design-build phase of the project was used to supplement the information provided in the Request for Proposals, Legacy Parkway Design-Build Project (RFP, 2000) issued by the Utah Department of Transportation (UDOT).

1.1 General Project Description

The Preferred Alignment of the Legacy Parkway Project includes a new limited access parkway in south Davis County, located in north central Utah, along the Wasatch Front just north and west of the state's capitol, Salt Lake City. The location and vicinity of the Preferred Alignment with respect to existing site features are shown on the Project Location Map and Project Vicinity Map in Appendix A. The project, which includes 25 bridges and four interchanges, stems between two existing facilities. The southern terminus is in North Salt Lake at I-215 and Redwood Road and the northern boundary meets U.S. 89 at I-15 in the city of Farmington. Within the 14-mile, four-lane divided parkway's right-of-way, there will be a multi-use trail. Additionally, the Legacy Parkway Project includes a 2,098-acre nature preserve.

For ease of management, the Legacy Parkway roadway alignment is divided into five segments. The South Interchange is included in Segment 1, which extends from the south project limit at Legacy Parkway (LP) centerline station 6000+170 to LP 6003+700. Pertinent Segment 1 corridor lines included in this investigation are summarized in Table 1.

Table 1: Segment 1 (South Interchange) Stationing

Line	Station
Legacy Parkway (LP)	6000+170 to 6000+887
Legacy Parkway NB (LBNB)	6000+887 to 6002+196
Legacy Parkway SB (LBSB)	6000+887 to 6002+204
Legacy Parkway (LP)	6000+196 to 6003+700
LP NB to I-215 (LP1)	54+000 to 55+376
I-215 SB to LP SB (LP4)	58+000 to 59+030
LP NB to Redwood Road (R1)	50+000 to 50+649
I-215 SB to Redwood Road (R4)	59+000 to 59+541
Redwood Road to LP SB (R6)	52+000 to 52+368
Center Street (C)	4+980 to 5+810

1.2 Proposed Improvements

Segment 1 includes construction along approximately two miles of the Legacy Parkway mainline. Construction will include new bridges over the Oil Drain Canal and Jordan River, Legacy Parkway to I-215 connector ramps and bridges; Center Street bridge over Legacy Parkway; Redwood Road to Legacy Parkway and I-215 connector ramps; MSE walls abutting two of the new bridges over the Jordan River; an extension of the existing City Drain box culvert; a new Drainage Canal box culvert; and the recreational trail. The two existing bridges over the Jordan River will be removed. Included in Segment 1 are "future ramps/bridges" that are to be designed as a part of the Legacy Parkway Project but not constructed at this time. A separate report with a description of the proposed future construction, pertinent field and laboratory test data, and geotechnical recommendations will be submitted at a later date.

Roadway construction for Segment 1 consists of roadway widening on the south end of the Legacy Parkway (LP) mainline, as well as construction of new roadways and full reconstruction of some existing roadways. The existing I-215 will be widened as part of the new LP mainline between stations LP 6000+170 and LP 6001+060. Upon removal of existing pavements north of station LP 6001+060, including those for I-215 and Enterprise Way, new pavements will be placed to construct the Legacy Parkway mainline. New ramps connecting Redwood Road and I-215 (R1, R4 and R6) will be constructed Pavements for the existing ramps will be removed. Much of the LP1 line, connecting northbound Legacy Parkway (LB NB) to I-215, will be constructed in the location of the existing I-215 just west of the Redwood Road interchange. Removal of existing

pavements in this area will be required. The LP4 line, which consists of a ramp connecting I-215 and southbound Legacy Parkway (LP SB), consists predominantly of new construction. Near the end of the LP4 line, existing I-215 pavements will be removed. The C line, consisting of a new overpass at Center Street, is comprised of new construction located south of the existing intersection of Center Street and Enterprise Way. Existing pavements at this intersection will be removed.

Specific details related to new bridges, embankments, and MSE walls are provided in later sections of this report. In general, eight bridges ranging from approximately 33 to 97 meters in length will be constructed. Four of the bridges will be single span precast concrete; two will be multiple span precast concrete; and one will be multiple span welded steel plate girder. Along lines LP1, LP4, and C, maximum embankment heights range between about 7.8 and 13.3 meters, as required for bridge abutments. Along the other Segment 1 lines, maximum embankment heights are on the order of 5 meters or less. Four MSE walls will be constructed for support of bridge approach embankments. Included in Segment 1 are culverts, sign structures, and utilities; these are discussed later in this report.

2.0 PREVIOUS REPORTS AND INVESTIGATIONS

A geotechnical study was performed by Dames and Moore for UDOT to evaluate the general subsurface and groundwater conditions along the proposed preliminary corridor. The details of the study are included in a report dated 1998 and is available with the UDOT Legacy Parkway Management Team.

Subsequently, Kleinfelder, Inc. conducted a geotechnical field and laboratory investigation along the preferred alternative alignment for the Legacy Parkway Project for UDOT. The details of the investigation are contained in a report dated June 2, 2000, also available with the UDOT Legacy Parkway Management Team. Some of the information presented in the 2000 report is repeated here for completeness.

3.0 EXISTING FACILITIES

Existing facilities in this segment of the project include I-215, Redwood Road, Center Street, and other local roads. The existing I-215 roadway is constructed of Portland cement concrete pavement (PCCP) and generally trends in a north-south direction along the proposed mainline alignment from station LP 6000+170 to about station LP 6002+400. Along the existing roadway, two bridges cross the Jordan River between approximate stations LP 6002+235 and LP 6002+270. The existing I-215 then turns east, following the general alignment of the proposed Legacy Parkway/I-215 connector between approximate stations LP1 54+820 and LP1 55+400. The existing roadway is underlain by the City Drain box culvert at approximate station LP 6001+800 and the Oil Drain Canal box culvert at approximate station LP1 54+930.

Redwood Road, constructed of asphaltic concrete pavement (ACP), intersects the project alignment just outside the LP1 paving limit, at approximate station LP1 55+390. There is an existing PCCP ramp at each quadrant of the I-215/Redwood Road interchange.

The existing Center Street roadway intersects the Segment 1 alignment at approximate station LP 6003+440. Interchange Road intersects the alignment at approximate station LP 6002+870 and Enterprise Way traverses between approximate stations LP 6002+850 and LP 6003+440. These local roads are constructed of ACP.

Based on conditions encountered during field explorations conducted for this study, fills for embankments abutting the existing Jordan River bridges are about 4.5 meters or less in height. Embankment fills for roadways and ramps in other areas of Segment 1 are estimated to be about 3 meters or less in height.

4.0 FINDINGS

4.1 Site Conditions

The site of the South Interchange (Segment 1) is partially developed with the existing I-215 alignment and Redwood Road. Other site features include a few local roads and portions of the City Drain, Jordan River, Oil Drain Canal, and Drainage Canal. Additionally, the site is occupied by several agricultural, commercial, and industrial properties, with some residential properties and areas designated as wetlands or archeological sites. Underground and overhead utilities are present throughout the site, particularly in the vicinities of I-215, Redwood Road, and other local roadways. Topography in the immediate vicinity is relatively level, with ground surface elevations ranging from approximately 1283 to 1287 meters.

4.2 Surface Drainage

Segment 1 is located in a low-lying area; surface drainage is to the west-northwest towards the Great Salt Lake. As indicated in the Kleinfelder (2000) report, there is a potential for local areas of flooding where streams cross the Legacy Parkway alignment.

4.3 Geology

The Legacy Parkway Preferred Alignment is located within the heart of the Salt Lake Valley on the eastern edge of the Basin and Range physiographic province. The Basin and Range province, extending from western Utah to the west through most of Nevada, consists of linear valley basins divided by several north-south trending mountain ranges. Salt Lake Valley is bounded by the Wasatch Mountain Range to the east and by the Oquirrh Mountain Range to the west. The valley is located within the Lake Bonneville Basin, a sediment-filled structural basin bounded by faults and formed over the past 20 million years.

Tectonic activity in the region has helped shape the existing topography. The Salt Lake Valley lies within the Intermountain Seismic Belt, a delineated zone of numerous fault traces and historical earthquakes in the Intermountain West.

Paleolakes have inundated the project vicinity at least four times during the late Pleistocene. During the Bonneville lake cycle which occurred between about 27,000 and 12,000 years ago, the area was inundated to an elevation of about 1585 meters. This represented the highest elevation of the late-Pleistocene lake cycles. The historic average surface elevation (1847-1986) of the Great Salt Lake located just west of the project alignment is about 1280 meters (U.S. Geological Survey, 2001).

Surficial geology in the area consists of unconsolidated Quaternary sediments with Precambrian- to Tertiary-aged rock outcrops on Wasatch Mountain slopes east of the project site. Near-surface soils consist predominantly of fine-grained materials related to regressive lake cycles. These sediments include stream alluvium (upper Holocene), lateral-spread deposits (Holocene to middle Pleistocene), lacustrine silt and clay undivided (uppermost Pleistocene), and young lacustrine and marsh deposits (upper Holocene). Bedrock is estimated to be located at a depth of about 180 to 770 meters below the ground surface.

4.4 Climatic Conditions

Climatic data for the proposed project were extrapolated from data collected at the Salt Lake City International Airport (SLCIA) Weather Station, located approximately 4 km southwest of the project. Climatological normal (30-year average recorded during the period 1961 to 1990) daily mean temperature is 11.1 degrees Celsius (°C) (annual mean), with a maximum value of 25.0°C in July and a minimum value of -1.6°C in January. Normal annual precipitation is approximately 42 centimeters (cm), with a maximum value of 5 cm in May and a minimum of 2 cm in July. Average annual cumulative snowfall over a 74-year monitoring period is about 149 cm, with recorded average snowfalls of about 18 cm or more recorded during the months of November through March. Based on data collected over a 69-year time period, conditions at SLCIA are clear for 125 days per year, partly cloudy for 101 days per year, and cloudy for 139 days per year (National Oceanic and Atmospheric Association, 2003).

4.5 Faulting and Seismicity

In the Basin and Range physiographic province, extensional tectonics has created a series of normal faults, particularly along the bases of mountain ranges. One of these faults is the Wasatch Fault, which extends along the base of the Wasatch Mountains that define the eastern boundary of Salt Lake Valley. The Wasatch Fault is one of the longest and most active faults in the world, and is considered capable of producing earthquakes as large as magnitude 7.3. The combined average repeat time for earthquakes greater than magnitude 7.0 on the five central segments (Brigham City, Weber, Salt Lake City, Provo, Nephi segments) of the Wasatch Fault is approximately 350 years. On any one segment, the average repeat time ranges from about 1,200 to 2,600 years (Utah Geological Survey, 2004).

The north end of the proposed alignment is located approximately 0.9 km west of the Weber segment of the Wasatch Fault Zone. The south end of the proposed alignment is located approximately 4.0 km north of the end of an inferred trace of the Taylorsville

Fault of the West Valley Fault Zone. The seismically active West Valley Fault Zone is located within the Salt Lake Valley west of the Wasatch Fault and is considered capable of generating earthquakes as large as magnitude 7.0. Based on proximity to the proposed project, the Weber segment of the Wasatch Fault Zone is considered to be the primary seismic source.

4.6 Soil Materials

Based upon materials encountered during Kleinfelder's previous investigations and supplemental exploration conducted by Fluor Ames Kraemer (FAK), the native soil profile in Segment 1 predominantly consists of layers of clay and silt with interbedded layers of sand. In general, the native clays and silts are very soft to medium stiff, and the sands are loose to dense.

In the vicinity of the Jordan River and Oil Drain Canal structures, deeper layers of medium dense to very dense sand were typically encountered below elevations of about 1250 to 1260 meters. These deeper sand layers generally extended to the maximum depths explored, corresponding to elevations ranging between about 1243 to 1247 meters. Some gravel layers also were encountered within the deeper sand layers.

In the vicinity of the Center Street Bridge, medium dense to dense sand layers were encountered at elevations ranging from approximately 1260 to 1275 meters. These sand layers generally were underlain by medium stiff to hard silts and clays to the maximum depths explored, corresponding to elevations ranging between about 1235 and 1240 meters. Additional information regarding subsurface materials beneath proposed bridge structures is presented later in this report.

Fill materials were encountered in about one-half of the borings drilled, primarily in those borings located within or near existing roadways, ramps, and bridge embankments. The thickness of existing fill is estimated to range between about 1.5 to 4.5 meters.

4.7 Geohydrologic Conditions

The Quaternary basin-fill material in the Salt Lake Valley is characterized geologically into a shallow unconfined aquifer underlain by a deep confined aquifer, with locally unconfined perched aquifers. The upper-most confining layer in the basin, which defines the top of the confined aquifer, is located generally within about 15 meters of the ground surface. The deep confined aquifer consists of interbedded clay, silt, sand, and gravel. The primary recharge area for this aquifer is near the Wasatch Mountain Front, where there is relatively little fine-grained material to impede infiltration of groundwater.

In the vicinity of the Legacy Parkway Project, groundwater is typically located at depths of about 2 to 5 meters below the natural ground surface, and the gradient is generally toward the west. Reported data in the literature that indicate the potentiometric surface is above the ground surface in localized areas along the project alignment; artesian conditions may be present in these areas.

4.8 Potentially Hazardous Materials

Potentially hazardous materials were not observed by field personnel during subsurface explorations. Further assessment of potentially hazardous materials was not within the scope of work for this geotechnical study.

5.0 EARTHQUAKE CONSIDERATIONS

5.1 Seismic Hazards

No active faults are known to cross the alignment and therefore surface fault rupture hazards are not expected to impact the project. However, ground shaking associated with an event along the Wasatch Fault or West Valley Fault should be anticipated. The Wasatch and West Valley Fault Zones are considered capable of generating earthquakes as large as magnitude 7.3 and 7.0 respectively.

The primary factors affecting the potential of a soil deposit to liquefy include level and duration of seismic ground motion, depth to groundwater, soil type, and soil density. Liquefaction potential of the site soils in Segment 1 was evaluated in general accordance with the methods presented in Youd and Idriss (1997) using data obtained from the borings and Cone Penetrometer Test (CPT) soundings. Should an earthquake of sufficient magnitude occur, localized zones within the soils beneath the alignment may experience liquefaction. Liquefaction-induced settlement was evaluated in general accordance with the procedures presented in Tokimatsu and Seed (1987). The analysis methodology is explained in detail in a design memorandum included in Appendix H. Results of site-specific liquefaction evaluations are summarized in Table 2 on the following page.

Given the relatively level terrain of the project alignment, landslide potential related to deep-seated mass slope stability and/or earthworks is considered to be relatively low. Liquefaction-induced lateral spreading was assessed for each Segment 1 bridge location using data obtained from the exploratory borings and the revised multilinear regression equations by Youd, Hansen, and Bartlett. Results of the analyses are presented in Table 2. For the eight bridges in Segment 1, localized layers of potential lateral spreading were generally thin and/or discontinuous between boring locations; therefore, remediation is not recommended.

Table 2: Results of Evaluations of Liquefaction Potential and Lateral Spread for Segment 1

UDOT Br. No. (FAK Br. No.)	No. Bor./ CPT[1]	Potent. Liquef. Layers?[2]	Est. Sttlmt, full depth [3], mm	Est. Sttlmt, upper 16m [4], mm	Est. Hor. Disp.[5], m	Remarks
F-701 (1)	2 / 2	Yes	Not evaluated	113-150	0.6-1.0	Several thin liq. layers in upper 16m
F-644 S, N (2, 3)	4 / 0	Yes	Not evaluated	56-109	0.0-1.8	One to two liq. layers 1.2–5.8m thick in upper 16m, based on 3 borings
F-702 (4)	2 / 0	Yes	64	0	0.0	One liq. layer 2.9m thick (below a depth of 16m) based on SB-4-252
C-857 (5); F-703 S, N (32, 33)	4 / 4	Yes	Not evaluated	81-173	0-0.1	Several thin liq. layers in upper 16m
F-708 (11)	2 / 2	Yes	Not evaluated	128-232	0.0	Several liq. layers 0.2–4.5m thick based on CPT soundings

[1] No. Bor./CPT – Number of borings and CPT soundings considered in evaluation.
[2] Potent. Liquef. Layers? – An indication of whether or not potentially liquefiable layers were identified in the soil profile.
[3] Est. Sttlmt, full depth – Estimated liquefaction-induced settlement in potentially liquefiable layers within the full depth of exploration.
[4] Est. Sttlmt, upper 16m – Estimated liquefaction-induced settlement in potentially liquefiable layers within the upper 16 meters of the soil profile.
[5] Est. Hor. Disp. – Estimated horizontal displacement due to lateral spread in potentially liquefiable layers.

5.2 Design Criteria

In accordance with the RFP for the Legacy Parkway Project and communication with UDOT, bridges and embankments/retaining walls located within 15 meters of bridge supports were designed to meet a seismic hazard level of 10% exceedence in 250 years, which was selected for the project as a peak ground surface acceleration (PGA) of 0.6*g*. Embankments and walls not supporting abutments were designed to meet a seismic hazard level of 10% exceedence in 50 years, which was selected for the project as a PGA of 0.29*g*.

6.0 FIELD AND LABORATORY TEST DATA

6.1 Field Exploration

Field exploration for Segment 1 included 26 borings and 9 CPT soundings that were carried out as part of Kleinfelder's (2000) study. Subsequent to this initial investigation, one additional boring was drilled in the area of one of the Oil Drain Canal bridges (UDOT Bridge No. C-857). The approximate locations of all Segment 1 explorations are indicated on the Exploration Location Drawings in Appendix A. A table of support information for the borings and CPT soundings is also presented at the end of Appendix A. The locations represented on the figures in Appendix A are based on the coordinates shown in the Soil Exploration Information Table; the station and offset shown in the table (and on the exploration logs) may not reflect final alignment stationing. Logs of subsurface conditions encountered in the borings and CPT soundings are presented in Appendix B. Included with the logs in Appendix B are a Key to Boring Log Soil Symbols and Terms and a CPT Classification Chart.

The borings were drilled to depths ranging from about 11.9 to 50.6 meters below the ground surface. The CPT soundings extended to depths ranging from about 15.3 to 51.5 meters. In general, the locations and planned depths of the explorations were determined based on the size and location of primary bridges, roadway embankments, and MSE walls. The number and depth of explorations corresponding to each feature is summarized in Table 3.

Table 3: Number and Depths of Explorations for Segment 1

	Borings		CPT Soundings	
Feature	**No.**	**Depth, m**	**No.**	**Depth, m**
Bridges	14	29.6-50.6	9	15.3-51.5
Roadway Embankments	12	11.9-31.7	--	--
Walls	1	14.9	--	--

In general, borings for bridge structures were drilled until Standard Penetration Test (SPT) blowcounts of about 30 blows per 0.3 meters were observed for three consecutive 1.5m intervals. Hard or dense soils were encountered in all but one of the structure borings, which was terminated at a depth of about 51 meters. CPT soundings for bridge structures were continued until refusal of the cone was reached.

As a general criterion, borings were drilled to depths of about 30 meters in locations where proposed embankment heights were in the range of 10 to 16 meters. Shallower borings were drilled where embankment heights were less than about 10 meters.
Each exploration was assigned an alphanumeric identification according to

(SB, RB, WB, SC)-XX-XXX

where,

SB = structure (bridge) boring
RB = roadway boring
WB = wall boring
SC = structure CPT sounding
XX = two-digit number corresponding to the assigned FAK structure or wall number; blank for roadway borings
XXX = three-digit number representing a sequential numbering system for borings and soundings

It is noted that two borings and one CPT sounding were assigned identification numbers to indicate that they corresponded to "Wall 29." This wall is no longer planned for construction, and therefore, these borings and soundings are considered to be explorations for roadway embankments.

6.1.1 Borings

Borings were accomplished using truck-, track-, and ATV-mounted drills equipped for soil sampling. Hollow-stem auger or rotary wash methods were used. Drilling fluid was typically used during drilling to equalize hydrostatic pressures in order to reduce the potential for heave and help control artesian water pressures. Typically, soil sampling was attempted at 1.5- to 3-meter intervals. Disturbed soil samples were collected using a SPT or modified California split-barrel sampler driven by a 63.5 kg hammer free-falling from a height of 762 mm. The sampler driving resistance, expressed as "blows per 0.15 m" on the boring logs, was recorded for each sampling depth by the field engineer during drilling.

These field-determined blowcounts were corrected for hammer energy, overburden pressure, rod length, and sampler diameter (as applicable for the modified California sampler) to obtain the $(N_1)_{60}$ values shown on the boring logs. To determine energy correction factors, UDOT performed a hammer efficiency test on each hammer. The SPT hammer calibration records are included in Appendix G. Corrections for sampler diameter were made with the following equation:

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

where,

D_o= outside diameter of modified California sampler (2.5 inches for this study)

D_i = inside diameter of modified California sampler (2.0 inches for this study)

Relatively undisturbed soil samples were collected with 76.2 mm diameter by 762 mm long Shelby tubes pushed hydraulically or using a mechanically operated piston sampler After visual classification in the field, the samples were packaged to prevent moisture loss and transported to the laboratory for testing. Upon completion, borings were backfilled with a 30 percent solid bentonite grout placed by tremie methods.

6.1.2 CPT Soundings

CPT soundings were performed using a truck- or track-mounted rig designed and equipped to conduct the tests. A calibrated piezocone was used to measure tip resistance (Q_T), sleeve friction (F_s), and pore pressure at nearly continuous depth intervals. Once collected, the data were processed with a specialized software program to produce the CPT sounding logs. The soil profile shown on each of the sounding logs was determined based on the Robertson and Campanella (1990) classification system, whereby a "soil behavior type" (SBT) is assigned to soils based on measured Q_T and F_s values. A CPT Classification Chart is included with CPT sounding logs in Appendix B. It should be noted that the cone penetrometer SBT classifications do not necessarily correlate with the soil descriptions given on the boring logs

The shear strength parameters, $(N_1)_{60}$, relative density and overconsolidation ratio (OCR) were estimated for each depth interval based on standard published correlations. These data are summarized on the Interpretation Tables in Appendix D.

Typically, one dynamic pore pressure dissipation test was performed in each sounding. This test consisted of collecting pore pressure measurements while keeping the piezocone stationary for a period of time. Results of the dynamic pore pressure dissipation tests, in the form of plots of pore pressure versus time, are included in Appendix E. In one of the CPT soundings (SC-33-358), shear wave velocity measurements were collected at one-meter intervals. Tabulated and plotted results are presented in Appendix F. Upon completion of testing, CPT sounding holes were filled with a bentonite grout using tremie methods.

6.2 Laboratory Testing

Recovered soil samples were visually classified in the field and again in the laboratory by a second engineer or geologist. As part of the laboratory classification process, Shelby tube samples were extruded for assessment of stratigraphic variations (such as sand and silt layers) and to conduct torvane shear tests. Based upon the visual classifications and laboratory test results, soils were classified in general accordance with the Unified Soil Classification System (USCS). The USCS is described on the boring log key in Appendix B.

Laboratory tests were conducted on selected soil samples for classification purposes and to estimate pertinent physical and engineering properties. These tests include: natural dry unit weight and moisture content; Atterberg Limits (ASTM D 4318); particle size distribution including percent passing the No. 200 sieve (percent fines; ASTM D 422); one-dimensional consolidation (ASTM D 2435); direct shear (ASTM D 3080); unconfined compressive strength (ASTM D 2166); specific gravity (ASTM D 854); and corrosion resistance analyses including resistivity, pH, and water soluble sulfates. Results of chemical tests, performed in general accordance with standard test methods, are summarized in Table 4. Other laboratory test results are presented on the boring logs in Appendix B and on the figures in Appendix C.

Table 4: Soil Chemical Analysis Results for Segment 1 Borings

Boring No.	Sample Depth, M	USCS	pH	Resistivity, ohm-cm	Water Soluble Sulfate, ppm
SB-1-243	1.22	CL	7.7	2,800	35
SB-2-247	1.52	CL	8.0	2,300	48
SB-2-248	5.18	CL	8.0	1,900	35
SB-3-249	2.90	CH	8.2	1,500	< 62
SB-4-251	3.05	CL	8.9	2,200	25
SB-5-297	1.52	ML	8.7	170	520
SB-11-259	1.22	CL	9.1	180	500
SB-11-262	1.52	GM (fill)	9.4	380	220

The pH and resistivity shall be used to estimate the corrosion potential of on-site soils in contact with buried metal. The water soluble content shall be used to evaluate the degree of sulfate attack on concrete exposed to these materials. It is recommended that additional testing be performed to confirm the above chemical results, particularly for Bridges C-857 and F-708. Corrosion test results shall be considered in final design.

7.0 GEOTECHNICAL ANALYSIS AND RECOMMENDATIONS

7.1 Bridges

Eight bridges will be constructed as part of Segment 1. Four of these will extend across the Jordan River; three will extend across the Oil Drain Canal; and one will extend over the Legacy Parkway mainline at Center Street. The bridges will be of simple span precast concrete (SSP), multiple span precast concrete (MSPC), or multiple span welded steel plate girder (MSWS). Additional bridge details are summarized in Table 5.

Table 5: Segment 1 Bridges

UDOT No.	FAK No.	Location	Station	Type	Width, m	Height[1], m
F-701	1	Over Jordan River	LP4 58+218 – 58+281	MSPC w/ 2 spans[2]	13.0	4.5
F-644S	2	Over Jordan River	LP 6002+234 – 6002+271	SSP	13.6	1.9
F-644N	3	Over Jordan River	LP 6002+233 – 6002+270	SSP	13.6	2.0
F-702	4	Over Jordan River	LP1 54+637 – 54+687	SSP	13.3	2.8
C-857	5	Over Oil Drain Can/LPMainline	LP4 58+425 – 58+575	MSWS w/ 4 spans[3]	13.8	11.2
F-708	11	Over LP at Center St.	C 5+384 – 5+481	MSPC w/ 2 spans[4]	13.0	7.9
F-703S	32	Over Oil Drain Canal	LP 6002+493 – 6002+528	SSP	14.4	2.1
F-703N	33	Over Oil Drain Canal	LP 6002+488 – 6002+521	SSP	16.0	2.1

[1] For SSP bridges, height is computed as maximum abutment height. For others, height is computed as maximum pier height.

[2] Span lengths are approximately 48 meters south of bent and 15 meters north of bent.

[3] Span lengths are approximately 31, 51, 40, and 24 meters from south to north end of bridge.

[4] Span lengths are each approximately 48 meters.

7.1.1 Subsurface Conditions

7.1.1.1 Soils

Native soils within Segment 1 of the Legacy Parkway Project may generally be described as soft clays and silts with interbedded sand layers. A more detailed discussion of materials encountered in the borings and CPT soundings at each primary bridge location is presented below. Additional information is provided on the boring and CPT sounding logs. It is noted that stratification boundaries shown on the boring logs represent the approximate location of changes in material types; in situ, the transitions may be gradual.

Bridges over Jordan River (F-701, F-644S, F-644N, and F-702)

In the area of the Jordan River bridges (Bridge Nos. F-701, F-644N, F-644S, and F-702), native soils generally consist of layers of clay (CL, CH) and silt (ML, MH) with interbedded layers of sand (SP, SP-SM, SM, SC).

The silt and clay layers are about 1.5 to 18 meters thick, and contain frequent seams and thin layers of sand. The clays are generally very soft to very stiff, based on typical $(N_1)_{60}$ values ranging between 0 and 26. Typical values of CPT tip resistances measured in soundings SC-1-244 and SC-1-245 were on the order of 3 MPa or less, with higher values measured in some layers.

The sand layers in the upper 25 to 30 meters of the profile are discontinuous between exploration locations. These layers, on the order of about 1.5 to 4.5 meters thick, are predominantly loose to medium dense with occasional dense to very dense zones. Below depths of about 25 to 30 meters, medium dense to very dense sands with occasional loose zones were encountered. Typical $(N_1)_{60}$ values of these deeper sand layers ranged from 12 to greater than 50. Measured cone penetrometer tip resistances for the sand layers below a depth of 30 meters were typically greater than 25 MPa.

Ranges of selected test results for representative soil samples collected from structure borings are summarized in Table 6. These include dry unit weight (γ_d), moisture content (ω), liquid limit (LL), plasticity index (PI), percent fines, and unconfined compressive strength (q_u).

Table 6: Selected Laboratory Test Results for Segment 1 Structure Borings

Bridge No.	USCS	γ_d, kN/m^3	ω, %	LL*	PI*	% Fines	q_u, kPa
F-701	CL, CH, ML, MH	9.2 – 14.5	33 – 69	NP – 51	NP – 23	99	40 – 170
F-644 (N, S)	CL, CH, ML	10.4 – 15.9	23 – 58	37 – 56	15 – 32	38 – 97	24 – 113
	SM	--	--	--	--	38	--
F-702	CL, ML	12.7 – 17.4	26 – 41	32 – 47	14 – 22	51 – 98	40 – 137
C-857	CL, CH, CL-ML, ML	9.9 – 14.0	19 – 64	NP – 71	NP – 48	58 – 97	34 – 52
	SP-SM, SM	--	--	--	--	14 - 15	--
F-708	CL, CH, ML	13.6 – 17.3	10 – 33	29 – 61	6 – 35	50 – 99	34 – 149
F-703 (S)	CL, CH, ML	12.7 – 15.1	28 – 41	NP – 44	NP – 23	63 – 90	39 – 43
	SM	--	--	--	--	25	--

* NP = Non-plastic

Bridges over Oil Drain Canal (F-703S, F-703N, and C-857)

Based on explorations performed for bridges over the Oil Drain Canal, subsurface materials consist of clay (CL, CH, CL-ML) and silt (ML) with interbedded sand layers (SP, SP-SM, SM) below a depth of about 20 meters. Results of selected laboratory tests conducted on representative samples are summarized in Table 6.

The silt and clay layers contain frequent seams and thin layers of sand, and have thicknesses ranging between about 0.4 to 15 meters. The clays and silts in the upper 5 meters are typically very soft to soft, with $(N_1)_{60}$ values ranging between 0 and 3. Deeper clay and silt layers are soft to very stiff, based on $(N_1)_{60}$ values ranging between 3 and 21. Tip resistance values of the clays and silts measured in CPT soundings SC-5-294, SC-5-295, and SC-5-296 were typically on the order of 3 MPa or less.

Discontinuous sand layers on the order of 1 to 4 meters thick were encountered at various depths in the borings and CPT soundings. Based on $(N_1)_{60}$ values ranging from 14 to greater than 50, the sand layers are medium dense to very dense. Measured cone penetrometer tip resistances for the sand layers were typically greater than about 20 MPa

Bridge at Center Street (F-708)

Based on borings SB-11-259 and SB-11-262, the subsurface profile below existing fill consists predominantly of clay (CL, CH, CL-ML) and silt (ML) with occasional layers of sand (SP, SM). Refer to Table 6 for a summary of selected laboratory test results.

The silt and clay layers are about 0.4 to 10 meters thick, and contain frequent seams and thin layers of sand. Clays and silts in the upper 4 to 9 meters of the profile are generally very soft, with $(N_1)_{60}$ values ranging between 0 and 2. Deeper clay and silt layers are soft to hard, based on $(N_1)_{60}$ values ranging between 4 and 41. Tip resistances of the clays and silts measured in CPT soundings SC-11-260 and SC-11-261 varied considerably, with typical values on the order of 5 MPa or less.

A fairly continuous sand layer approximately 9 meters thick was encountered in both borings at depths ranging between about 15 to 17 meters. This sand layer is medium dense to dense, based on $(N_1)_{60}$ values ranging between 14 and 34. Measured cone penetrometer tip resistances for this sand layer generally ranged between about 16 and 25 MPa. Other sand layers within the profile are about 1 to 2 meters thick and are generally medium dense.

7.1.1.2 Groundwater

Based on available historical information and our experience with site conditions in this general location, groundwater is estimated to be located at depths of about 2 to 5 meters below natural grade (i.e., below existing fill, where encountered). Drilling fluid was using during drilling operations; for this reason, groundwater elevations are not indicated on the boring logs in Appendix B.

Based on recent assessments during design of the Legacy Parkway Project, the existing flow elevation for the Jordan River is about 1283.7 meters, and the 100-year flood flow elevation is about 1284.4 meters.

7.1.2 Analysis and Design Recommendations

Capacity, settlement and driveability analyses were conducted based on anticipated service loads (provided by the structural engineers) and subsurface conditions in the relevant borings and CPT soundings. The software program Unipile® was used to estimate capacity and settlement. The program GRLWEAP® was used for evaluation of pile driveability. Piles were designed to develop axial capacity using a combination of end-bearing and side friction. A factor of safety of 2.25 was used to compute the estimated target ultimate resistance as recommended by AASHTO (1996). The design

protocol for analysis of axial pile capacity analysis is explained in detail in a memorandum included in Appendix H. The analysis was conducted assuming that piles would be driven prior to construction of embankments.

For the Legacy Parkway project, proposed bridge foundations for bents and abutments consist of 406-mm diameter concrete-filled pipe piles. Pipe piles will consist of Grade 3 steel, with a minimum yield strength of 448 MPa and a shell thickness of 9.5 mm. The piles will be driven with a bottom end plate, and should bear in the denser sand (SP, SP-SM, SM) layers encountered at varying depths.

Summary design data for the bridge structures are presented in Table 7 on the following page. Additional design data are included with the Geotechnical Recommendations Memoranda in Appendix H. Maximum pile settlements, estimated as described in the pile capacity protocol in Appendix H, were determined to be within the limits specified by the contract documents.

Based on the subsurface conditions encountered in the borings and CPT soundings, standard correlations were used to develop soil parameters for lateral pile analysis. These soil parameters are summarized in the Soil Parameters for LPILE or GROUP (Structures) Tables in Appendix H. Based on the results of the seismic analysis, it was determined that the soil conditions at the Bridge 2, 3, and 4 locations do not lend themselves for adequate lateral structural support. Therefore, it is recommended that soil improvement be used beneath the abutments at these bridge locations. Specifically, the soil improvement shall include overexcavation to at least 3 meters below the bottom of abutment cap and replacement with material conforming to "Embankment for Bridge, Spec Section 02332." Soil improvement should extend laterally at least 2 meters beyond each side of the abutment in plan. Replacement fill should be placed and compacted in accordance with applicable UDOT specifications.

Table 7: Segment 1 Bridges – General Pile Design Data

Bridge No.	Support No.	Min. Tip Elevation, m	Estimated Length, m	Service Load, kN	Req'd Driving Resist., kN	Scour Elevation, m
F-701	Abut 1	1250.5	37	1,081	2,432	1279.7
	Bent 2	1254.0	30	1,133	2,549	1281.2
	Abut 3	1255.0	34	728	1,638	N/A
F-644	Abut 1	1249.7	36	1,520	3,420	1281.0
(N, S)	Abut 2	1252.0	33	1,520	3,420	N/A
F-702	Abut 1	1252.5	35	1,675	3,769	1280.1
	Abut 2	1252.8	36	1,675	3,769	1280.5
C-857	Abut 1	1255.0	38	1,557	3,503	N/A
	Bent 2	1250.5	32	645	2,317	N/A
	Bent 3	1258.0	25	667	2,316	N/A
	Bent 4	1259.0	26	534	2,215	N/A
	Abut 5	1258.5	35	1,557	3,503	N/A
F-708	Abut 1	1267.0	25	900	2,025	N/A
	Bent 2	1258.5	25	500	2,042	N/A
	Abut 3	1267.0	24	900	2,025	N/A
F-703S	Abut 1, 2	1257.0	28.5	1,227	2,761	N/A
F-703N	Abut 1, 2	1257.0	28.9	1,337	3,008	N/A

7.1.3 Field Verification

The design loads must be field-verified using Pile Driving Analyzer (PDA) equipment in accordance with the contract documents during the driving of the initial pile at each abutment and bent location. After initial penetration into the bearing strata, the piles shall be retapped after a period of 24 hours to confirm the required capacity has been achieved. Driving criteria shall be established at each abutment/bent location based on review of the PDA data and in consultation with the geotechnical engineer.

7.1.4 Construction Considerations

Temporary shoring of earth slopes will be required; excavations for pile caps shall be conducted in accordance with applicable safety regulations and UDOT specifications. Based on anticipated groundwater conditions, groundwater may be encountered in excavations and should be removed by pumping or other appropriate means. It is

recommended that excavations be dewatered a minimum of 1 meter below bottom of footing at all times during pile driving.

Pile driving shall be accomplished in accordance with applicable UDOT specifications and contract documents using approved, standard diesel or hydraulic pile hammers. Provisions shall be made to avoid damage to existing utilities, adjacent foundations, and other potential conflicts. The geotechnical engineer shall be contacted if the minimum pile tip elevation is not achieved. Upon approval of pile driving activities by the geotechnical engineer, placement of pile cap concrete and filling of pipe piles with concrete shall be performed in accordance with UDOT specifications.

7.2 Embankments

Embankment heights in Segment 1 are generally on the order of 5 meters or less, except along lines LP1, LP4, and C, where maximum embankment heights ranging between about 7.8 and 13.3 meters are required for bridge abutments. Approximate maximum embankment heights are summarized in Table 8.

Table 8: Segment 1 Embankments

Line	Approximate Station	Approximate Maximum Height, m
Legacy Parkway (mainline)	LP 6001+060 to 6003+700	5[1]
LP NB to I-215	LP1 54+000 to 55+376	7.8[1]
I-215 SB to LP SB	LP4 58+095 to 59+030	13.3[1]
LP NB to Redwood Rd	R1 50+260 to 50+649	2.5
I-215 SB to Redwood Rd	R4 59+000 to 59+260	5
Redwood Rd to LP SB	R6 52+100 to 52+368	4
Center Street	C 4+980 to 5+810	10[1]

[1] Maximum height generally corresponds to embankment heights for new bridge abutments.

7.2.1 Analysis and Design Recommendations

Settlement analysis was conducted in general accordance with the Protocol for Estimating Primary and Secondary Settlement Magnitude, Surcharge Height, and Wick Drain Spacing, included in Appendix H. Ranges of estimated settlement magnitudes (primary plus four cycles of secondary) for representative cross-sections along the Segment 1 alignments are given in Table 9.

Table 9: Estimated Settlement Beneath Segment 1 Embankments with Surcharge

Line	Approximate Station	Estimated Settlement, mm
Legacy Parkway (LP)	6000+196 to 6003+700	100 - 925
LP NB to I-215 (LP1)	54+000 to 55+376	475 - 2300
I-215 SB to LP SB (LP4)	58+000 to 59+030	600 - 1600
LP NB to Redwood Road (R1)	50+000 to 50+649	200 - 350
I-215 SB to Redwood Road (R4)	59+000 to 59+541	275 - 900
Redwood Road to LP SB (R6)	52+000 to 52+368	450 - 675
Center Street (C)	4+980 to 5+810	100 - 1300

The time for completion of primary and secondary (four cycles) settlement for embankments with surcharge and without wick drains was estimated to be about 435 days for the Center Street embankments and 3000 days for other Segment 1 embankments. To reduce the amount of time for completion and thereby minimize post-construction consolidation settlement, surcharges with prefabricated vertical drains are recommended for embankment fills greater than 1.5 meters in height. Specific recommendations for surcharge heights, wick drain spacings, and wick drain tip elevations for each Segment 1 alignment are provided in the Embankment and Grading Summary Tables in Appendix H. In general, surcharge heights ranging between 0.5 and 3.7 meters are recommended for embankments with heights ranging between 1.5 and 13.3 meters. A wick drain spacing of 2.5 meters is recommended for the Center Street embankments; a spacing of 2.0 meters is recommended for the remaining Segment 1 alignments.

With consideration for the recommended surcharge heights, wick drain spacings, and total estimated settlements, it is predicted that each stage of embankment fill will require approximately 75 days to achieve the required degree of consolidation prior to placing the next stage or removing the surcharge. To achieve settlement within approximately 60 days, wick drain spacings of 1.75 meters will be required. It is noted that our analysis was based on the assumption that wick drains with a width of 100 mm, a thickness of 2 mm, and a length ranging between 18 and 27 meters will be installed in a triangular spacing pattern. The actual amount of time necessary to achieve the required amount of settlement will be dependent upon the results of settlement monitoring during construction. The geotechnical engineer shall be consulted prior to placement of

subsequent stages or surcharge removal to verify that the required degree of settlement has occurred.

Global stability of slopes with and without surcharge was evaluated using a limit equilibrium software program, GSTABL7, with Bishop's modified method of slices to estimate the minimum factor of safety along the critical failure surface. Soil strength parameters input into the slope stability model were estimated by the SHANSEP method. Based on communication with UDOT, global stability was evaluated using the design factors of safety (FOS) shown in Table 10.

Table 10: Minimum Factors of Safety for Global Stability of Embankments

Condition	Abutment Embankments[1]	General Embankments
Staged Construction, Static, Adjacent Impact	1.3	1.3
Staged Construction, Static, Non-Impact	1.1	1.1
Long-Term, Static	1.3	1.25
Long-Term, Dynamic	1.0	1.0

[1] Within 15 meters of the abutment.

Results of the stability analyses, included in summary tables in Appendix H, indicate that high-strength geotextile (HSG) reinforcement will be required for many of the Segment 1 embankments to achieve the required FOS under seismic conditions. Approximate locations where HSG is required are listed in Table 11 on the following page.

Geotextile reinforcement with strength parameters meeting or exceeding that of Comtrac 1000 geotextile shall be used. Various options for HSG placement, including number of layers, elevation, length, and warp direction orientation, have been developed for the Segment 1 alignments. These options are presented in tabular form in the High Strength Geotextile and Staging Options Memoranda in Appendix H.

Results of the short-term stability analysis indicate that staging of embankment fills (including surcharge) greater than 5 meters in height is required to achieve a gain in undrained shear strength and reduce the potential for foundation instability. Staging options for Segment 1 embankment fills are included with the HSG information in Appendix H.

Table 11: Segment 1 Embankments where HSG Required

Line	Approximate Station[1]
Legacy Parkway (LP) (mainline)	6001+800 to 6002+235
	6002+270 to 6002+490
	6002+520 to 6002+880
LP NB to I-215 (LP1)	54+240 to 54+640
	54+690 to 54+915
I-215 SB to LP SB (LP4)	58+000 to 58+220
	58+280 to 58+425
	58+575 to 58+910
I-215 SB to Redwood Rd (R4)	59+000 to 59+180
Redwood Rd to LP SB (R6)	52+060 to 52+200
	52+275 to 52+340
Center Street (C)	5+165 to 5+645

[1] Greatest station ranges are shown where various options are available.

7.2.2 Instrumentation

Instrumentation installation and monitoring, performed in accordance with the contract documents, will be required to assess design assumptions; evaluate percent consolidation prior to surcharge removal; monitor stability during construction; and assess long-term performance. Instrumentation shall include traditional survey settlement plates and vibrating wire settlement sensors to monitor embankment/wall settlements; vibrating wire pore pressure transducers to monitor induced pore pressures; and slope inclinometers for monitoring lateral deflections at the toe of an embankment/wall. An Instrumentation Plan for the Legacy Parkway Project has been developed in accordance with RFP requirements and is included in Appendix H. The Instrumentation Plan shall be re-evaluated during construction and in consultation with the geotechnical engineer to verify that the specified instrumentation is adequate for evaluation of embankment/wall performance.

7.2.3 Construction Considerations

It is recommended that water encountered in embankment excavations be removed promptly. If soft, wet, pumping, or otherwise unsuitable soils are exposed at subgrade elevation, the recommendations provided in the Subgrade Preparation Guidelines Memorandum in Appendix H should be followed.

Embankment construction shall be accomplished using approved materials in accordance with applicable contract documents. Consideration must be given to avoid damage to existing utilities, adjacent facilities, and geotechnical instrumentation during and after construction.

In general, permanent fill slopes shall be constructed with slopes no steeper than 2H (horizontal): 1V (vertical). Where permanent fill slopes no steeper than 1½H:1V are required, slope paving shall be used. Temporary construction excavations should be properly sloped or shored. All excavations shall be accomplished in accordance with applicable federal, state, and local standards.

7.3 Retaining Walls

Roadway design for Segment 1 has identified the need to construct four single-stage MSE walls for support of roadway embankments. Walls R-389-01 and R-389-01A supports the Legacy Parkway NB to I-215 ramp (LP1) near the south abutment of Bridge F-702; Wall R-389-02 supports the north abutment of Bridge F-702 and the LP1 ramp north of the bridge; and Wall R-389-02A supports the Legacy Parkway NB mainline near the north abutment of Bridge F-644N. Wall details are summarized in Table 12.

Table 12: Segment 1 MSE Walls

Wall No.	Approx. Station	Max. Height[1], m	Approx. Length, m	Remarks
R-389-01	LP1 54+470 to 54+635	7.6	167	Located on west side of LP1 roadway; north end of wall abuts south side of bridge F-702
R-389-01A	LP1 54+634 to 54+632	<2	2	Located on east side of LP1 roadway; north end of wall abuts south side of bridge F-702
R-389-02	LP1 54+694 to 54+751	6.6	96	Provides support to north abutment of bridge F-702 and along west side of LP1 roadway; permits access along the multi-use trail between the LP and LP1 alignments
R-389-02A	LP 6002+268 to 6002+316	<3	48	Located on east side of LP roadway; south end of wall abuts north side of bridge F-644N; permits access along the multi-use trail between the LP and LP1 alignments

[1] Max. Height corresponds to the approximate maximum supported embankment height without surcharge.

7.3.1 Analysis and Design Recommendations

Analysis of global stability, bearing capacity and settlements are discussed in this section. Per general industry practice for design/construction of MSE walls, internal stability analysis is the responsibility of the proprietary wall designer. Wall design shall include consideration for applicable static and seismic loadings, adjacent structures, supported signs and light poles, etc. Ranges of magnitudes for the various geotechnical parameters for MSE wall design are provided in Table 13.

Table 13: Geotechnical Parameters for Segment 1 MSE Walls

Parameter	Material Type	Value
Unit Weight	Select Backfill	20.5 kN/m^3
	Random Backfill	19.7 kN/m^3
Poisson's Ratio	All	0.4
Young's Modulus	Clay	2 – 50 MPa
	Silt	2 – 20 MPa
	Loose Sand/Gravel	50 – 150 MPa
	Dense Sand/Gravel	100 – 200 MPa
Friction Angle	Clay	0 degrees
	Sand	22 – 36 degrees
Cohesion	Clay	50 – 100 kPa
	Sand	10 kPa

Analysis of global stability was conducted for the MSE walls using the FOS values given in Table 14. The wall stability analysis was performed in conjunction with the embankment stability analysis; a more thorough discussion of the analysis methodology is provided in the "Embankments" section of this report. Based on the analysis results, staging and geotextile fabric are recommended for many embankments and the supporting walls in Segment 1. Fill placement for walls 5 meters or more in height shall be staged to mitigate static, short-term stability concerns High-strength geotextile fabric shall be used where deemed appropriate to mitigate long-term stability under seismic conditions. Recommendations regarding these improvement techniques were discussed in the "Embankments" section of this report.

Table 14: Minimum Factors of Safety for Global Stability of MSE Walls

Condition	Abutment Walls[1]	General Walls
Staged Construction, Static, Adjacent Impact	1.3	1.3
Staged Construction, Static, Non-Impact	--	1.1
Long-Term, Static	1.4	1.3
Long-Term, Dynamic	1.1	1.1

[1] Within 15 meters of the abutment.

Analysis of bearing capacity was conducted in general accordance with AASHTO specifications to achieve an FOS of 2.5. Native subgrade materials beneath walls consist of clays and silts with an allowable bearing capacity on the order of 60 kPa. It is recommended to overexcavate to 1 meter below the bottom of the footing and backfill using select material in accordance with project specifications. Overexcavation and replacement should extend at least 1 meter beyond each edge of the footing. Footings established on a minimum of 1 meter of properly placed and compacted select backfill may be proportioned for a maximum allowable bearing pressure of 120 kPa.

Estimated settlements for the Segment 1 MSE walls were computed following the same methodology as for embankments. Estimated maximum settlements at the wall face and beneath the supported embankment (with surcharge), as well as differential settlement per length of wall, are summarized in Table 15. Prefabricated vertical wick drains with surcharges shall be used for high walls and embankments as required to achieve the required degree of consolidation prior to pavement construction.

Table 15: Estimated Settlement of Segment 1 MSE Walls

Wall No.	Approximate Station	Maximum Embankment Settlement, mm	Maximum Settlement at Wall, mm	Differential Settlement
R-389-01	LP1 54+470 to 54+635	1075 – 1400	750 – 950	100mm/100 meters of wall
R-389-01A	LP1 54+634 to 54+632	Negligible due to relatively small size of wall		
R-389-02	LP1 54+694 to 54+751	975 – 1075	675 – 725	100mm/100 meters of wall
R-389-02A	LP 6002+268 to 6002+316	< 975 – 1075[1]	< 675 – 725[1]	<100mm/100 meters of wall[1]

[1] Given proximity and size of Wall R-389-02A with respect to Wall R-389-02, estimated settlements are expected to be substantially less than for Wall R-389-02.

7.3.2 Construction Considerations

Wall construction shall be accomplished using approved materials in accordance with applicable contract documents and manufacturer's guidelines. MSE walls shall be constructed with facing panels founded on a concrete leveling pad. The walls should be embedded (to top of leveling pad) at least 750 mm below lowest adjacent grade for frost protection. In accordance with AASHTO requirements, a minimum 1.2-meter wide horizontal bench shall be provided in front of retaining walls founded on slopes. However, no bench is required where the slope in front of an abutment wall consists of concrete slope paving; a minimum of 0.6 meters of embedment in front of such walls shall be provided. Drainage behind MSE walls shall be considered in design and construction.

It is recommended that water be promptly removed when encountered in foundation excavations. If soft, wet, pumping, or otherwise unsuitable soils are exposed at subgrade elevation, the recommendations provided in the Subgrade Preparation Guidelines Memorandum in Appendix H shall be followed. As discussed in the "Embankments" section earlier in this report, instrumentation shall be installed and monitored to evaluate settlements and lateral deflection. Consideration must be given to avoid damage to existing utilities, adjacent facilities, and instrumentation during and after construction.

7.4 Culverts

Segment 1 includes construction of a new box culvert (UDOT No. E-2487) for the Drainage Canal beneath the Legacy Parkway mainline between stations LP 6002+623 and 6002+647. The new culvert will be a reinforced concrete structure approximately 11.6 meters wide, 2.9 meters tall, and 74 meters long. The design height of backfill placed on top of the culvert is 4.8 meters or less.

In addition, the existing City Drain reinforced concrete box culvert (UDOT No. E1E-1324) at approximately LP 6001+815 will be extended approximately 11.5 meters to the west and 27.5 meters to the east. The extended City Drain box culvert will be approximately 8 meters wide, 2.9 meters tall, and 90 meters long. The design backfill height atop the new structure is 3.2 meters or less.

Earth pressure magnitudes for design of box culverts were provided based on information from nearby explorations.

7.5 Sign Structures

Overhead and cantilever sign structures will be supported on drilled caissons in natural soils and/or engineered fill. Information obtained from nearby borings and/or CPT soundings was used for geotechnical analyses. Standard correlations were used to develop soil parameters for lateral pile analysis. These soil parameters are summarized in the Soil Parameters for LPILE or GROUP (Signs) Tables in Appendix H.

Casings for drilled shafts will likely be required where groundwater is encountered.

7.6 Utilities

Settlement analysis was conducted for underground gas lines accordance with the protocol in Appendix H. Results of analyses are summarized in Table 16.

Table 16: Estimated Maximum Settlement for Gas Lines

Approximate Station	Maximum Embankment Height, m	Est. Settlement w/ Embankment Fill [1], mm	Est. Settlement w/ Geofoam [2], mm	Est. Settlement w/ Scoria [3], mm
LP4 58+600, 58+680, 58+760; LP 6002+600	4.4 -12.6	500 - 2100	0 - 25	125 - 1150
LP 6001+500 to 6001+700	0	25	Not evaluated	Not evaluated
C 5+500	8	1050	Not evaluated	Not evaluated
C 5+150, 5+240, 5+380	3.5 -10.3	225 - 1500	Not evaluated	Not evaluated

[1] Unit weight of embankment fill was assumed to be 20.4 kN/m^3 for analysis.
[2] Unit weight of Geofoam was assumed to be 0.3 kN/m^3 for analysis.
[3] Unit weight of scoria was assumed to be 11.0 kN/m^3 for analysis.

Anticipated settlements shall be taken into consideration in design of new utilities and installation/relocation of existing utilities. Ground improvement techniques such as use of lightweight fills or surcharge with wick drains may be employed as a technique for settlement mitigation. The geotechnical engineer shall be consulted if evaluation of settlement impacts for underground utilities is required during construction.

Groundwater may be encountered during excavation and if so, dewatering is recommended.

7.7 Earthwork

All earthwork operations, including stripping, subgrade preparation, excavation, fill placement and compaction, dewatering, etc., shall be conducted in accordance with the contract documents and applicable UDOT specifications. All soil materials used on the project, including but not limited to, embankment fill, wall backfill, ground improvement soils, and drainage materials, shall conform to applicable specifications. Excavated soil materials may be suitable for re-use provided that they meet specification requirements and are approved by the geotechnical engineer.

In general, permanent fill slopes shall be constructed with slopes no steeper than 2H:1V. Where permanent fill slopes no steeper than 1½H:1V are required, slope paving shall be used. Temporary construction excavations should be properly sloped or shored. All excavations shall be accomplished in accordance with applicable federal, state, and local standards.

8.0 CLOSURE AND LIMITATIONS

This report summarizes the geotechnical field explorations, laboratory testing, analysis approach, and recommendations for design and construction of bridges, embankments, MSE walls, and other structures in Segment 1 of the Legacy Parkway Design-Build Project. This report does not reflect any variations that may occur between data points such as borings and CPT soundings performed for the subject project. If variations in soil conditions are encountered during construction, it may be necessary to re-evaluate the recommendations of this report. Parsons Brinckerhoff, Inc. should be consulted if additional information or design changes are required during construction.

Parsons Brinckerhoff, Inc. has prepared this report for Segment 1 of the Legacy Parkway Project in accordance with the terms and conditions of its agreement with, and for the exclusive use and benefit of, Fluor Ames Kramer LLC, the Design-Build Contractor. Parsons Brinckerhoff, Inc. does not offer any other warranties, express or implied.

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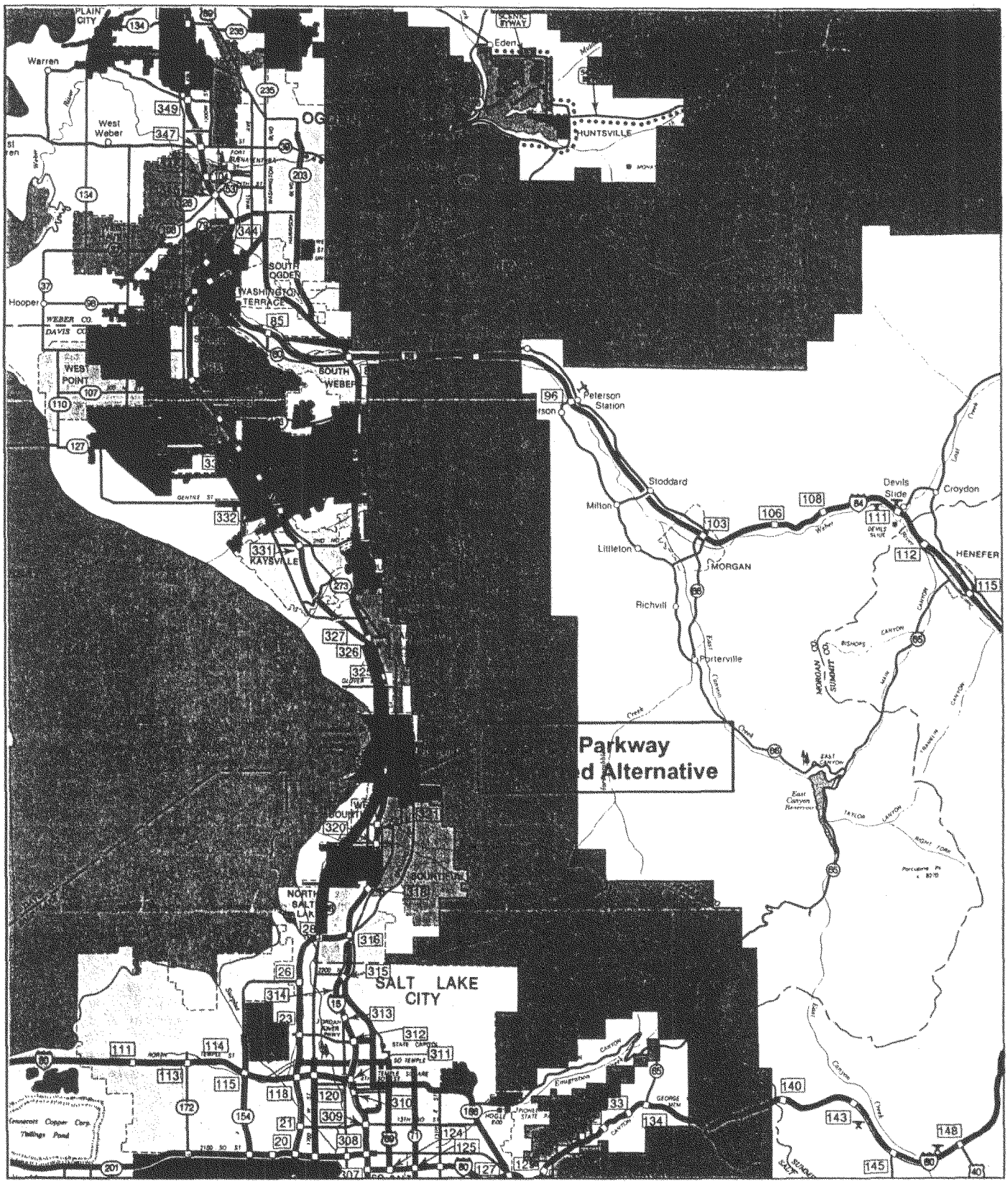
Appendix A



Source:
Official Highway Map
Utah Department of Transportation
1995

0 1 2 4 8

MILES

3510Q134.ppt

KLEINFELDER

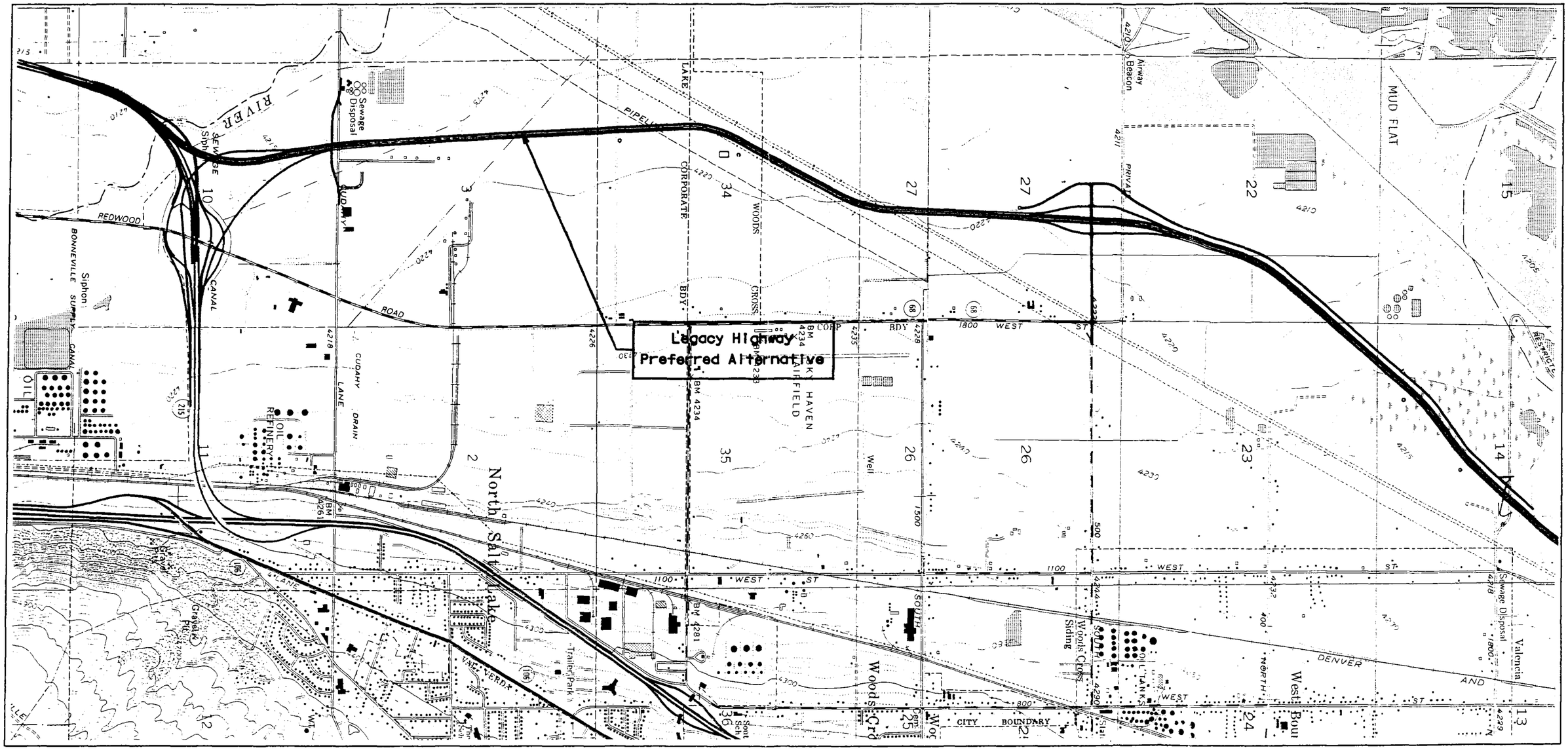
Project Number 35-8163-05

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

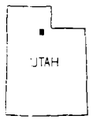
Project Number - 35-8163-05

SCALE 1:24,000

0 1000 2000 FEET

1" = 2000'

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



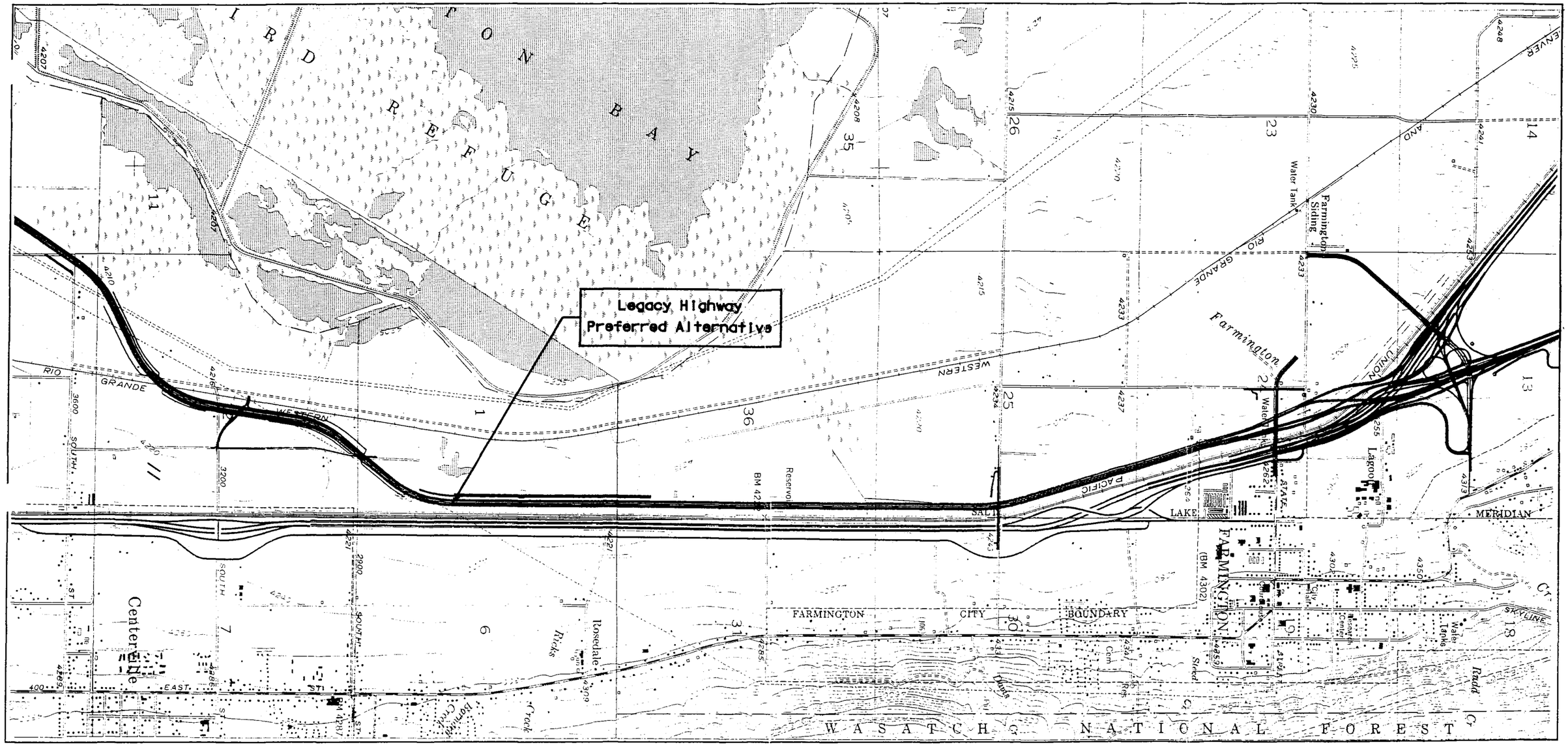
QUADRANGLE LOCATION

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

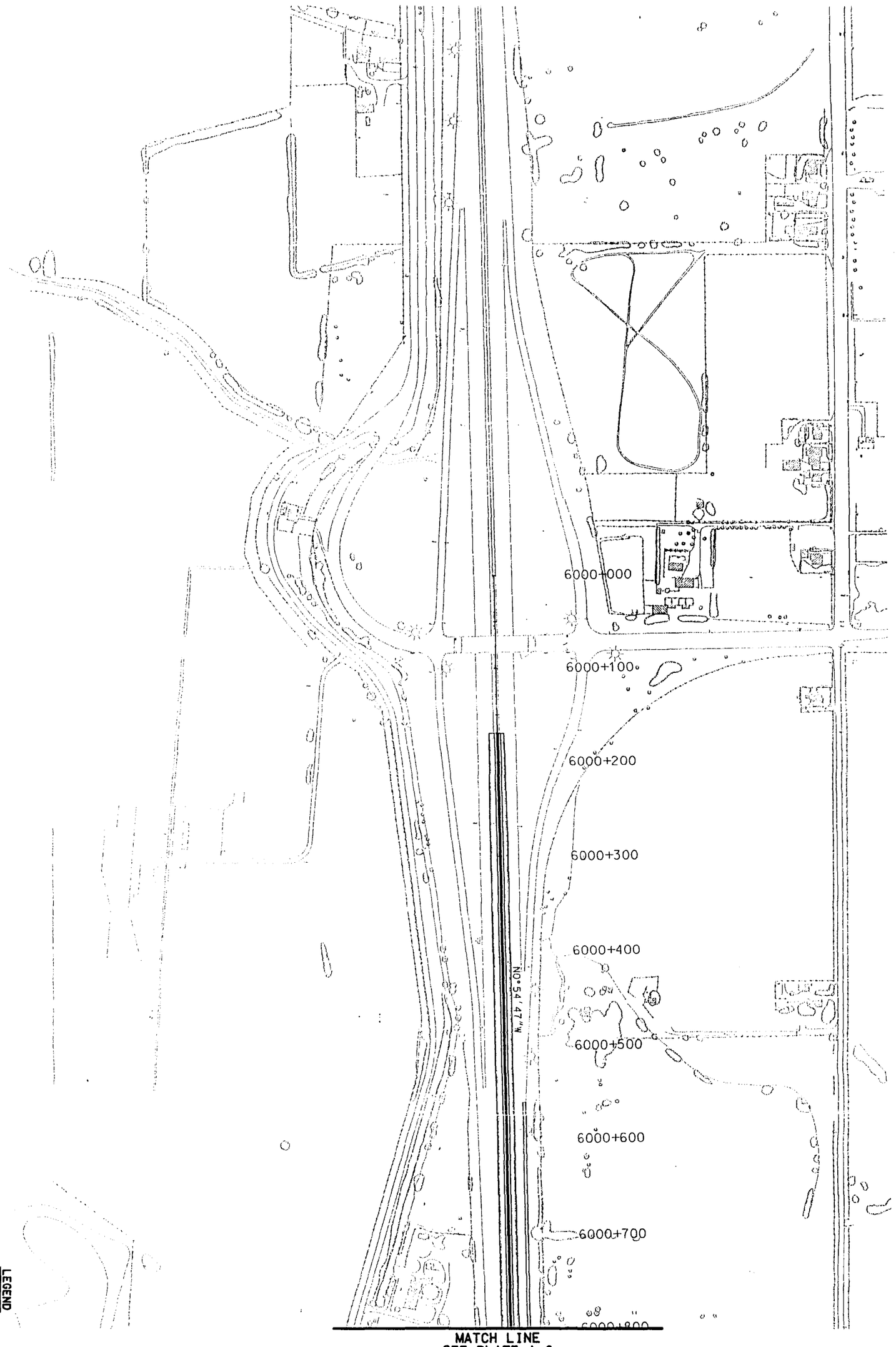
N

KLEINFELDER, INC.

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

PROJECT VICINITY MAP

PLATE
A-3



LEGEND

SC-31-356 CPT Location

SB-31-356 Boring Location

KLEINFELDER

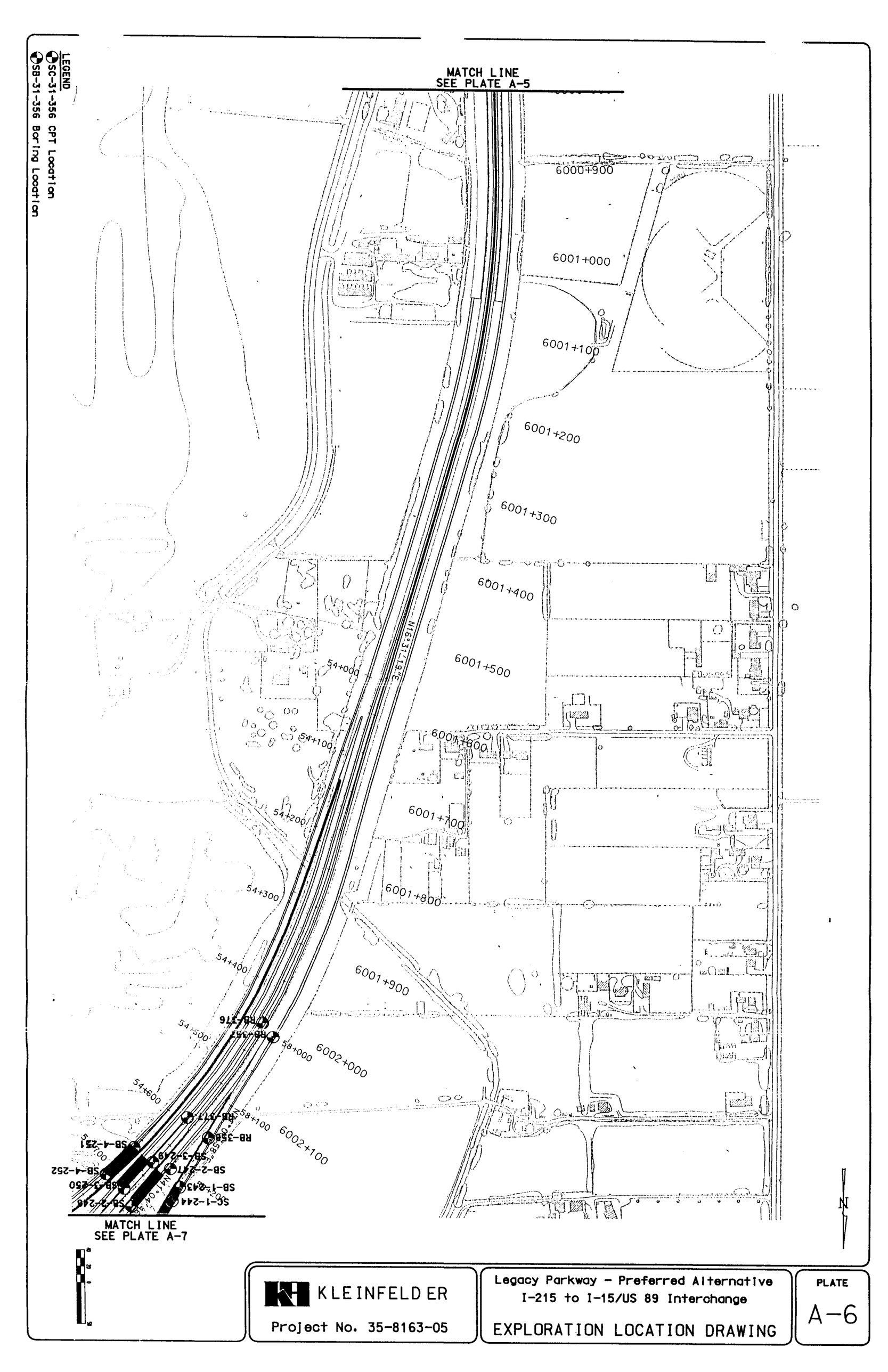
Project No. 35-8163-05

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

EXPLORATION LOCATION DRAWING

PLATE

A-5


LEGEND
SC-31-356 CPT Location
SB-31-356 Boring Location
MATCH LINE
SEE PLATE A-5
6000+900
6001+000
6001+100
6001+200
6001+300
6001+400
6001+500
6001+600
6001+700
6001+800
6001+900
6002+000
6002+100
54+000
54+100
54+200
54+300
54+400
54+500
54+600
58+000
58+100
N16°31'19"E
N41°04'40"E
RB-376
RB-357
RB-358
RB-371
SB-4-251
SB-3-249
SB-4-252
SB-2-247
SB-1-243
SB-2-246
SB-1-244
MATCH LINE
SEE PLATE A-7
N
KLEINFELDER
Project No. 35-8163-05
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange
EXPLORATION LOCATION DRAWING
PLATE
A-6

MATCH LINE
SEE PLATE A-9

MATCH LINE
SEE PLATE A-8

MATCH LINE
SEE PLATE A-6

RB-386
WC-29-321
WB-29-320
SB-6-333
SC-6-332
SC-6-331
SC-6-330
SC-6-329
SB-6-328
RB-360
SB-5-297
SB-32-357
SC-5-295
SC-5-296
SC-5-294
SB-5-293
SC-33-358
RB-359
RB-378
WB-26-314
SB-1-246
SC-1-245
SC-1-244
SB-1-243
SB-2-247
SB-3-249
SB-2-248
SB-3-250
SB-4-252
SB-4-251
RB-358
RB-377
RB-392
RB-393
RB-394
RB-389
SB-9-299
SB-9-298
RB-388
WB-25-201
RB-361
SB-6-327
SC-6-326
SC-6-325
SC-6-324
SB-6-323
RB-364
SB-8-254
SB-8-253
RB-363
SC-10-301
SC-10-302
SB-10-3037

N1°37'32"W
N41°04'46"E
N89°05'57"E
S68°22'18"E
N64°28'22"E
S84°27'33"E
S74°45'02"E
N39°05'57"E
S83°15'50"E
N64°15'08"E

Redwood

LEGEND
SC-31-356 CPT Location
SB-31-356 Boring Location

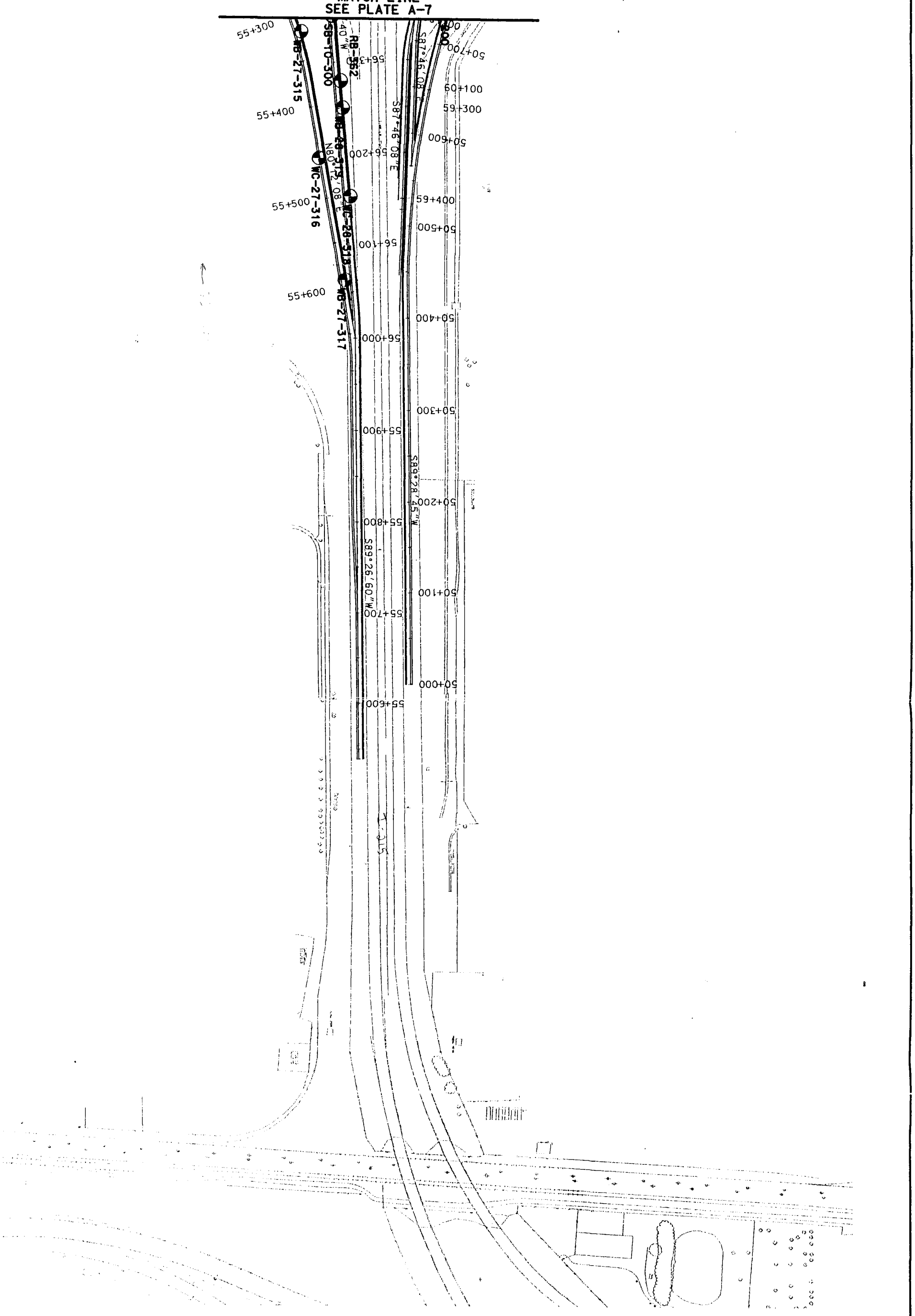
KLEINFELDER
Project No. 35-8163-05

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

EXPLORATION LOCATION DRAWING

PLATE A-7

MATCH LINE
SEE PLATE A-7



LEGEND
SC-31-356 CPT Location
SB-31-356 Boring Location

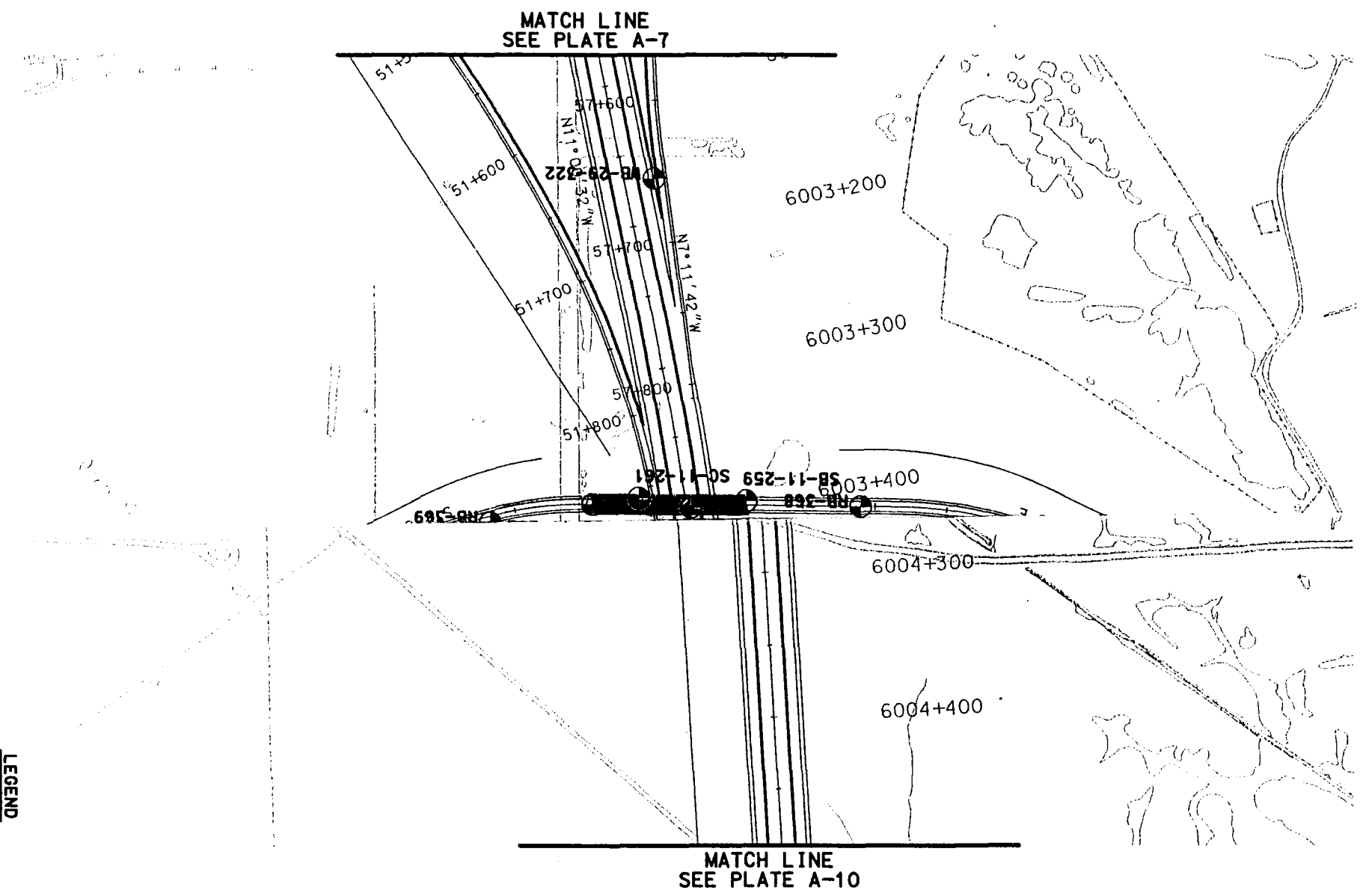
KLEINFELDER

Project No. 35-8163-05

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

EXPLORATION LOCATION DRAWING

PLATE
A-8



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-9

Legacy Parkway
Segment 1 - South Interchange
Soil Exploration Information

POINT	LINE	STATION	OFFSET	NORTHING (m)	EASTING (m)	ELEVATION (m)	TOTAL DEPTH (m)
SB-1-243	I-215 to LP SB	58+220 478	1 99 RT	106,937.510	15,489 756	1,284 413	38 4
SC-1-244	I-215 to LP SB	58+239 780	0 93 RT	106,954 599	15,498 793	1,284 182	38 1
SC-1-245	I-215 to LP SB	58+277 957	5 45 RT	106,984 987	15,522 341	1,286 107	39 8
SB-1-246	I-215 to LP SB	58+294 659	4 26 RT	106,999 639	15,530 064	1,285 602	40 2
SB-2-247	D MAINLINE	6002+221 649	19.91 LT	106,914 589	15,501 290	1,286 810	43 1
SB-2-248	D MAINLINE	6002+288 697	14 78 LT	106,961 761	15,549 213	1,286 972	39 9
SB-3-249	D MAINLINE	6002+229 597	1 90 RT	106,906 251	15,522 950	1,285 632	43 1
SB-3-250	D MAINLINE	6002+277 848	6 92 RT	106,939 326	15,558 438	1,285 948	43 3
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	37 5
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	38 7
SB-5-293	I-215 to LP SB	58+453 275	3 53 RT	107,109 165	15,640 754	1,284 280	38 7
SC-5-294	I-215 to LP SB	58+477 751	3 24 RT	107,121 593	15,661 574	1,284 490	37 5
SC-5-295	I-215 to LP SB	58+521 464	1 91 RT	107,141 014	15,700 387	1,284 568	41 4
SC-5-296	I-215 to LP SB	58+557 465	1 98 RT	107,152 375	15,734.332	1,284 895	42 4
SB-5-297	I-215 to LP SB	58+572 515	1 73 RT	107,156 398	15,748 756	1,284 846	29 6
LSB-5-429	I-215 to LP SB	58+585	0 00 RT	107,166 772	15,760 539	1,285 159	45 1
SB-11-259	CENTER STREET	5+389.204	2 96 RT	107,991 325	15,633 072	1,285 130	50 6
SC-11-260	CENTER STREET	5+427 520	2 05 LT	107,996 029	15,671 426	1,285 188	51 5
SC-11-261	CENTER STREET	5+463 933	4 38 RT	107,989 317	15,707 787	1,285 307	51 5
SB-11-262	CENTER STREET	5+495 950	0.22 LT	107,993 664	15,739 839	1,286 060	46 3
SB-32-357	D MAINLINE	6002+535 900	21 40 LT	107,160 592	15,686 012	1,284 490	43 1
SC-33-358	D MAINLINE	6002+489 100	21 40 RT	107,099 147	15,701 608	1,284 490	36 6
WB-26-314	D MAINLINE	6002+387 809	1 33 RT	107,026 080	15,626 314	1,287 141	14 9
WB-29-320	D MAINLINE	6002+849 932	22 67 LT	107,454 442	15,746 727	1,285 614	14 9
WC-29-321	D MAINLINE	6003+003 280	20 95 LT	107,602.902	15,726 861	1,285 298	15 3
WB-29-322	D MAINLINE	6003+168 988	20 61 LT	107,765 625	15,695 549	1,285 339	11 9
RB-357	I-215 to LP SB	58+000 295	0 61 LT	106,750 145	15,374 077	1,286 335	31 1
RB-358	I-215 to LP SB	58+149 095	3 41 RT	106,875 602	15,454 189	1,284 889	31 1
RB-359	I-215 to LP SB	58+390 722	2 56 LT	107,076 516	15,587 237	1,284 897	30 2
RB-360	I-215 to LP SB	58+649 195	2 48 LT	107,170 518	15,824 180	1,285 150	28 0
RB-361	I-215 to LP SB	58+794 720	7 25 LT	107,177.594	15,969 637	1,287.201	31 7
RB-368	CENTER STREET	5+309 965	0 06 LT	107,994 964	15,553.859	1,285 173	23 5
RB-369	CENTER STREET	5+569 100	3 99 LT	108,005 988	15,811 167	1,286 099	23 5
RB-376	D MAINLINE	6002+008.023	0.84 LT	106,731 773	15,387 081	1,285 566	30 9
RB-377	D MAINLINE	6002+159 558	5 75 RT	106,850 936	15,479 920	1,286 581	24 8
RB-378	D MAINLINE	6002+389 999	0 01 LT	107,028 622	15,626 672	1,285 231	22 6

Appendix B

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

ABBREVIATIONS

NA - NOT APPLICABLE
GDR - GEOTECHNICAL DATA REPORT

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/m³on 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 Resistence 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

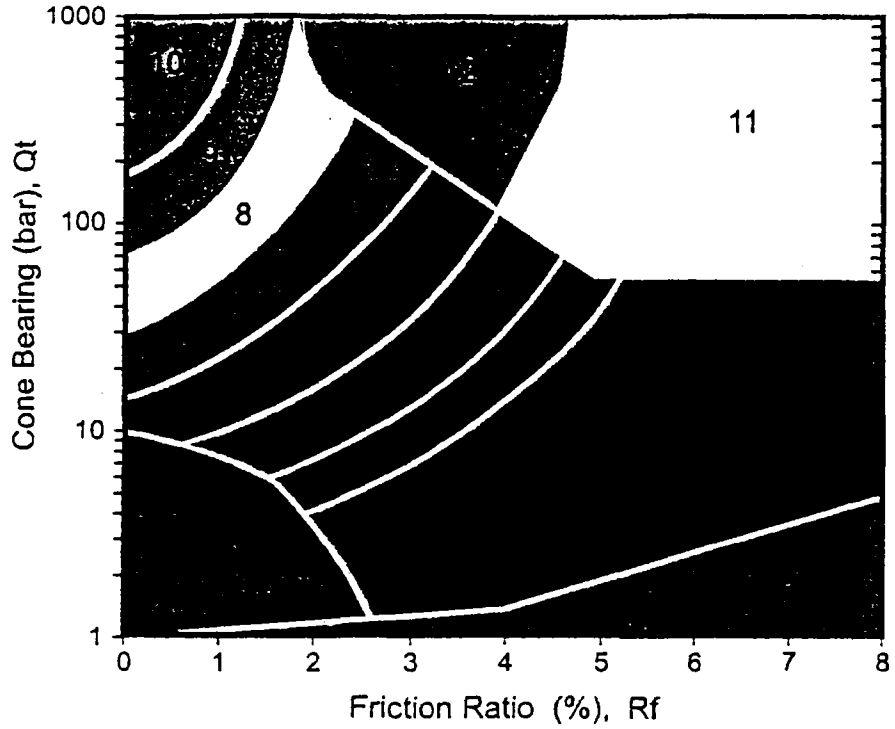
KLEINFELDER

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

PLATE B-322

Boring: SB- 1-243
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 $(N_1)_{60}$	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
	Elastic SILT - brown (soft to med. stiff w/ stiff zones ?)						MH	A-7-6										
	? - stiff, gray	5	2		P	508						53						pH WSS R
	- soft	10	3		SPT	510			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		SPT				1 2 2 1	6								
	- soft, wet, brown with some black	25	7		SPT	457			1 2 1 1	3								
	Sandy SILT - soft, wet with frequent silty sand layers		8				ML	A-2-4										
1275	- medium stiff, occasional gray coloring	30	9		SPT	508			1 2 3 6	5								
		35	10		P							29						
	Lean CLAY - very soft, wet, black (soft w/ stiff zones)	40	11		SPT	432	CL	A-7-6	0 1 0 0	1								
	- stiff	45	12		P							57	14.5	33	44	23		
1270	- soft, some gray coloring, some sand	50	13		SPT	457			4 2 1 1	3								
		55	14															
		60	15		P	51												
1265		65	16															

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- 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

PLATE B-1

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) 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, 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							
		95	29														
1255			30														
	Fat CLAY - stiff, wet, gray	100	31		P		CH	A-7-6			*77*						
		105	32														
			33														
	Silty SAND - medium dense, wet, gray, fine to medium grained sand	110	34		SPT	330	SM	A-2-4	0 0 19 32	12							
1250		115	35		SPT	0			20 25 30 40	33							
			36														
		120	37		SPT	406			22 25 16 24	23							
		125	38		SPT	432			13 27 34 38	34							
			39														
1245		130															

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- 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

PLATE B-2

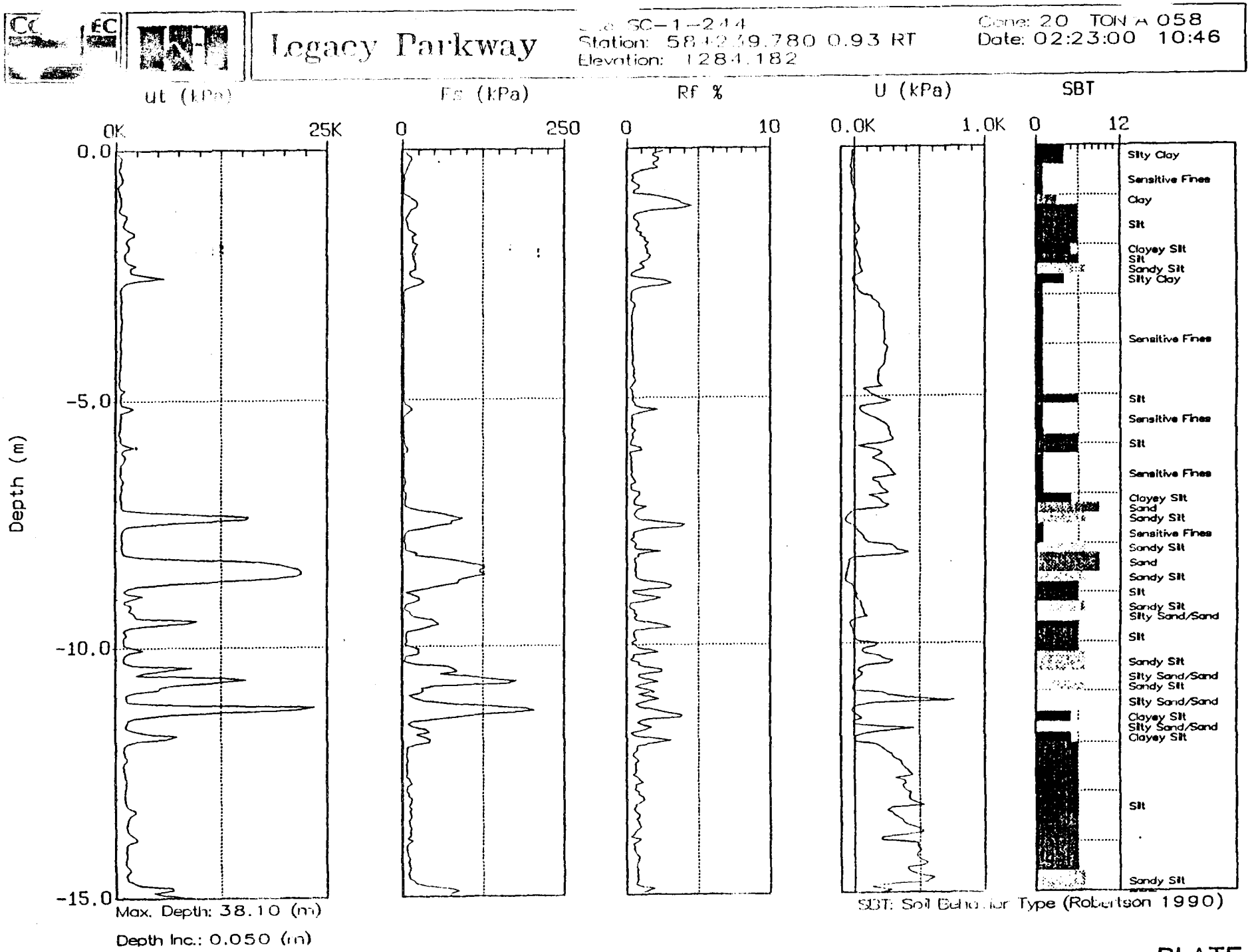

Legacy Parkway
SC-1-244
Station: 584249.780 0.93 RT
Elevation: 1284.182
Cone: 20 TON A 058
Date: 02:23:00 10:46
qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
Silty Clay
Sensitive Fines
Clay
Silt
Clayey Silt
Silt
Sandy Silt
Silty Clay
Sensitive Fines
Silt
Sensitive Fines
Silt
Sensitive Fines
Clayey Silt
Sand
Sandy Silt
Sensitive Fines
Sandy Silt
Sand
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Clayey Silt
Silty Sand/Sand
Clayey Silt
Silt
Sandy Silt
Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-3

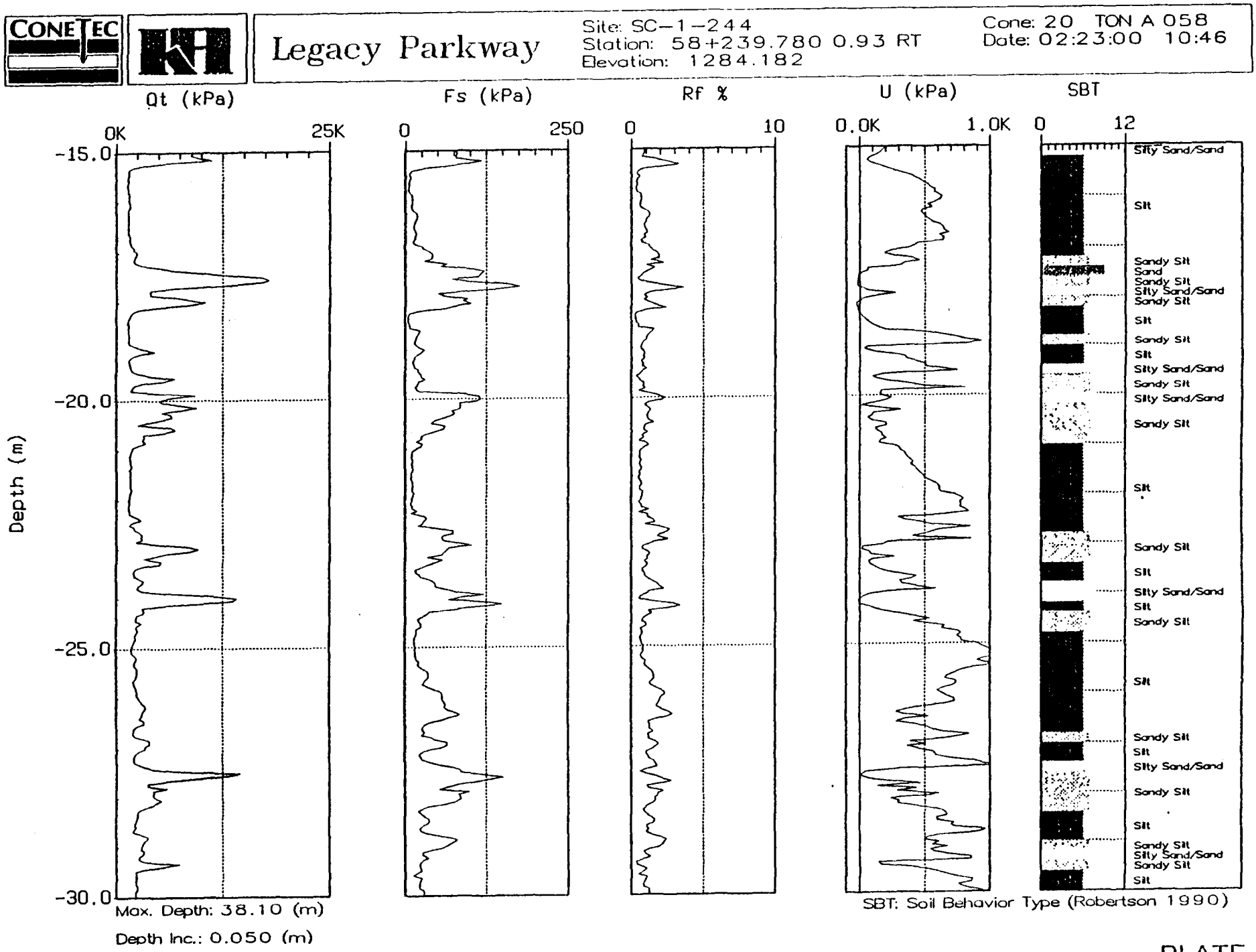

CONETEC
Legacy Parkway
Site: SC-1-244
Station: 58+239.780 0.93 RT
Elevation: 1284.182
Cone: 20 TON A 058
Date: 02:23:00 10:46
Qt (kPa)
0K
25K
Fs (kPa)
0
250
Rf %
0
10
U (kPa)
0.0K
1.0K
SBT
0
12
Depth (m)
-15.0
-20.0
-25.0
-30.0
Silty Sand/Sand
Silt
Sandy Silt
Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-4

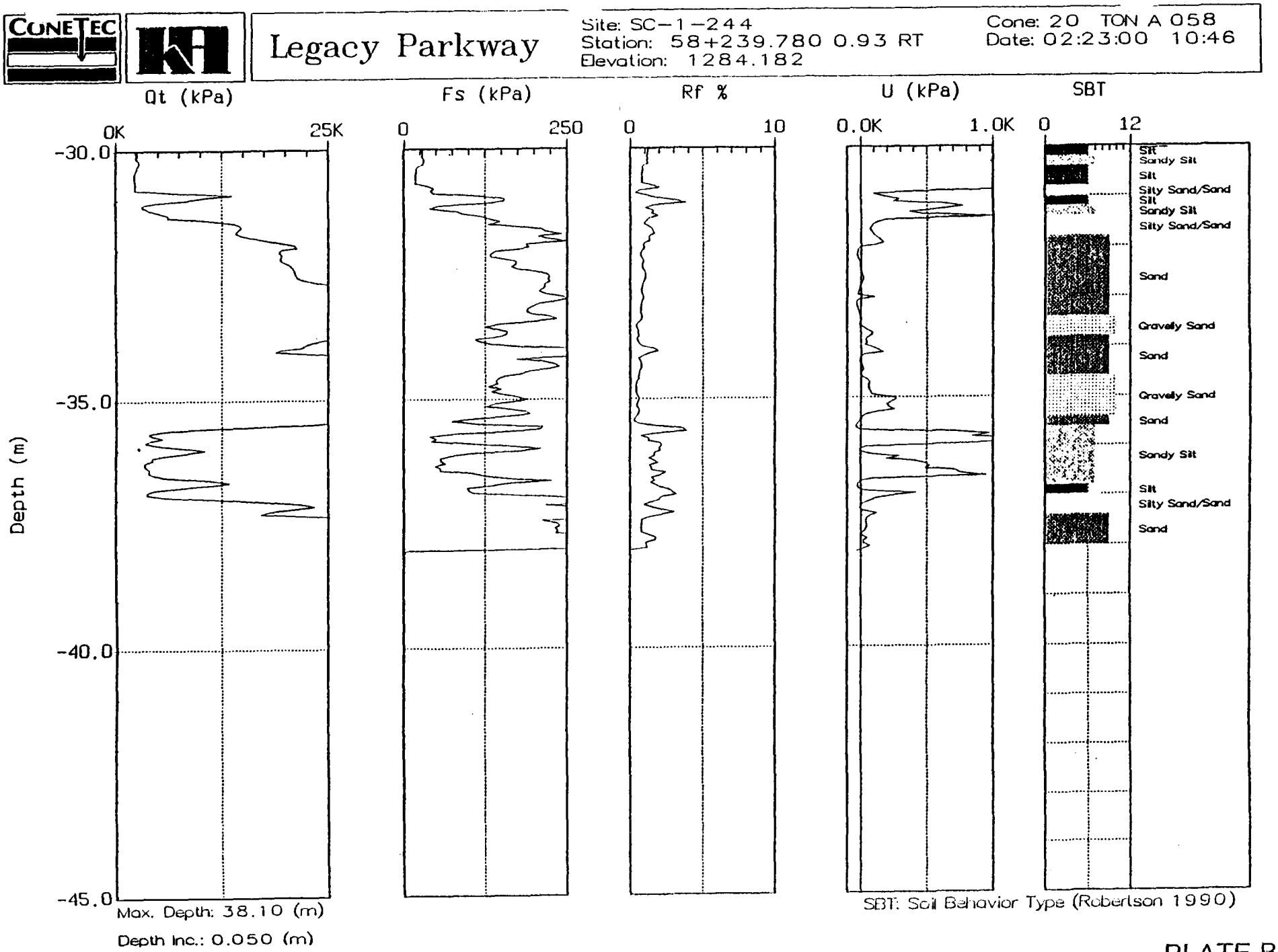

CONETEC
Legacy Parkway
Site: SC-1-244
Station: 58+239.780 0.93 RT
Elevation: 1284.182
Cone: 20 TON A 058
Date: 02:23:00 10:46
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-30.0
-35.0
-40.0
-45.0
Depth (m)
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silty Sand/Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Sandy Silt
Silt
Silty Sand/Sand
Sand
Max. Depth: 38.10 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)

PLATE B-5

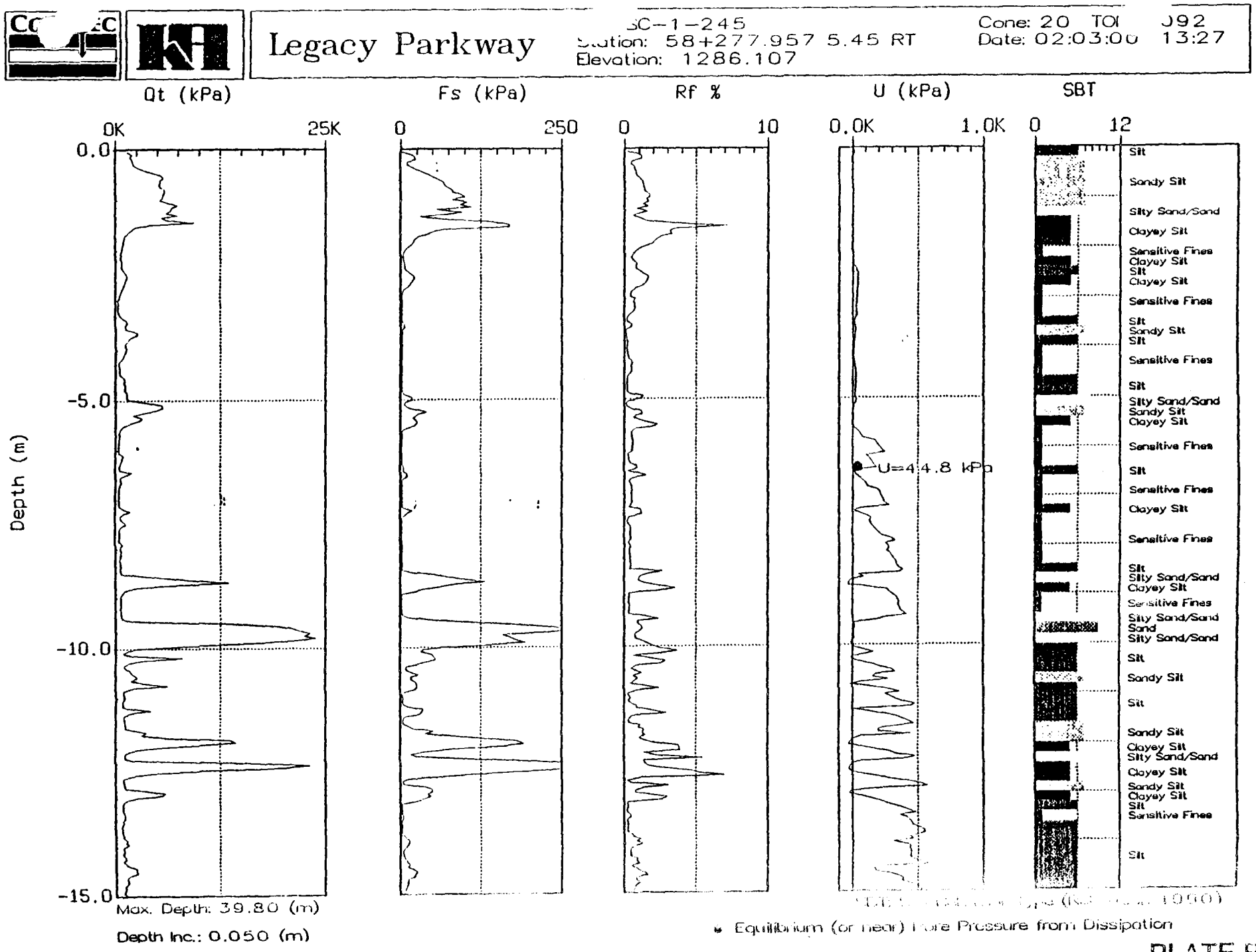

Legacy Parkway
SC-1-245
Station: 58+277.957 5.45 RT
Elevation: 1286.107
Cone: 20 TOI J92
Date: 02:03:00 13:27
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
U=414.8 kPa
Silt
Sandy Silt
Silty Sand/Sand
Clayey Silt
Sensitive Fines
Clayey Silt
Silt
Clayey Silt
Sensitive Fines
Silt
Sandy Silt
Silt
Sensitive Fines
Silt
Silty Sand/Sand
Sandy Silt
Clayey Silt
Sensitive Fines
Silt
Sensitive Fines
Clayey Silt
Sensitive Fines
Silt
Silty Sand/Sand
Clayey Silt
Sensitive Fines
Silty Sand/Sand
Sand
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sandy Silt
Clayey Silt
Silty Sand/Sand
Clayey Silt
Sandy Silt
Clayey Silt
Silt
Sensitive Fines
Silt
Max. Depth: 39.80 (m)
Depth Inc.: 0.050 (m)
* Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-6

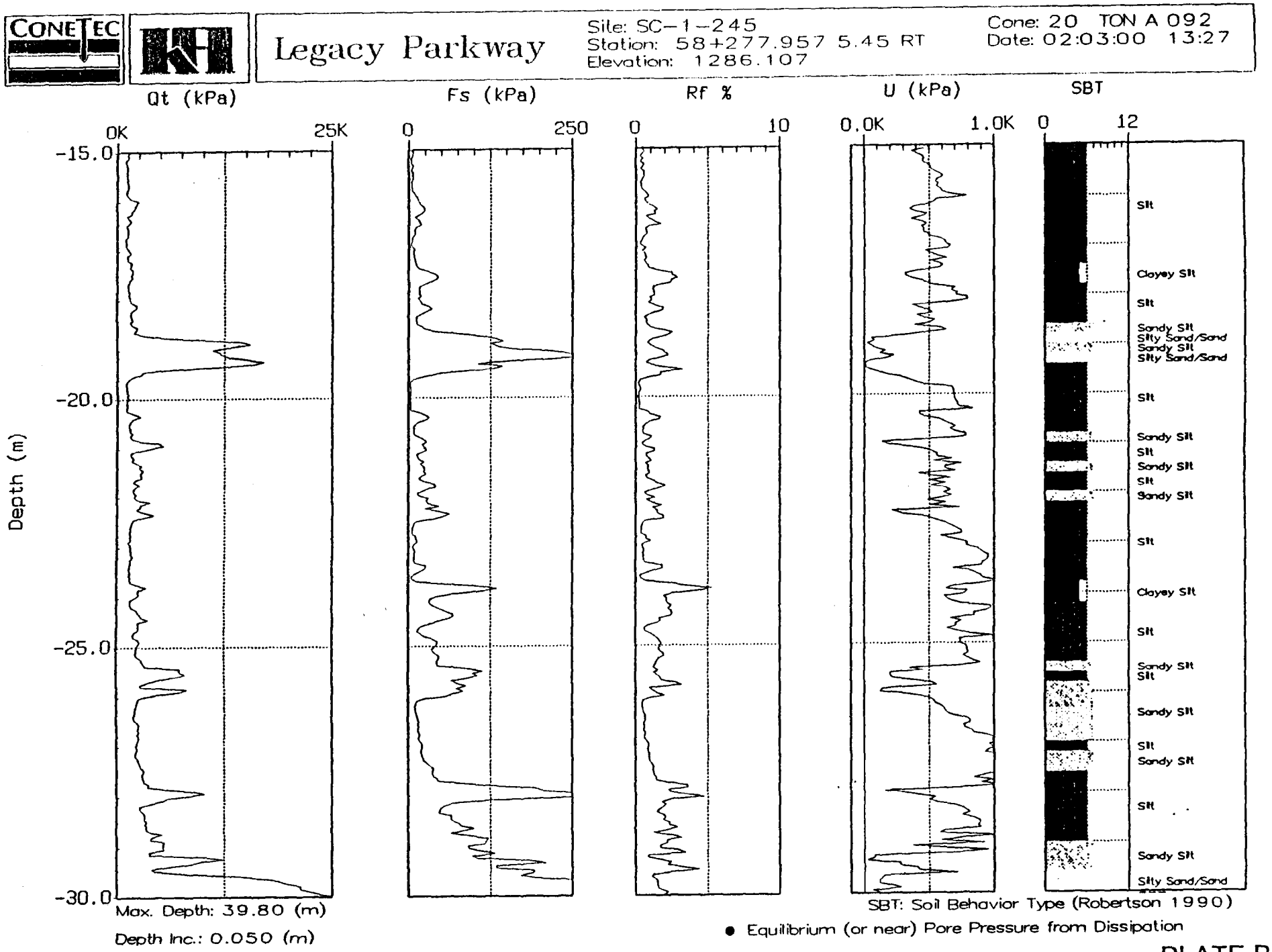

CONETEC
Legacy Parkway
Site: SC-1-245
Station: 58+277.957 5.45 RT
Elevation: 1286.107
Cone: 20 TON A 092
Date: 02:03:00 13:27
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-15.0
-20.0
-25.0
-30.0
Depth (m)
Silt
Clayey Silt
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Max. Depth: 39.80 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)
● Equilibrium (or near) Pore Pressure from Dissipation

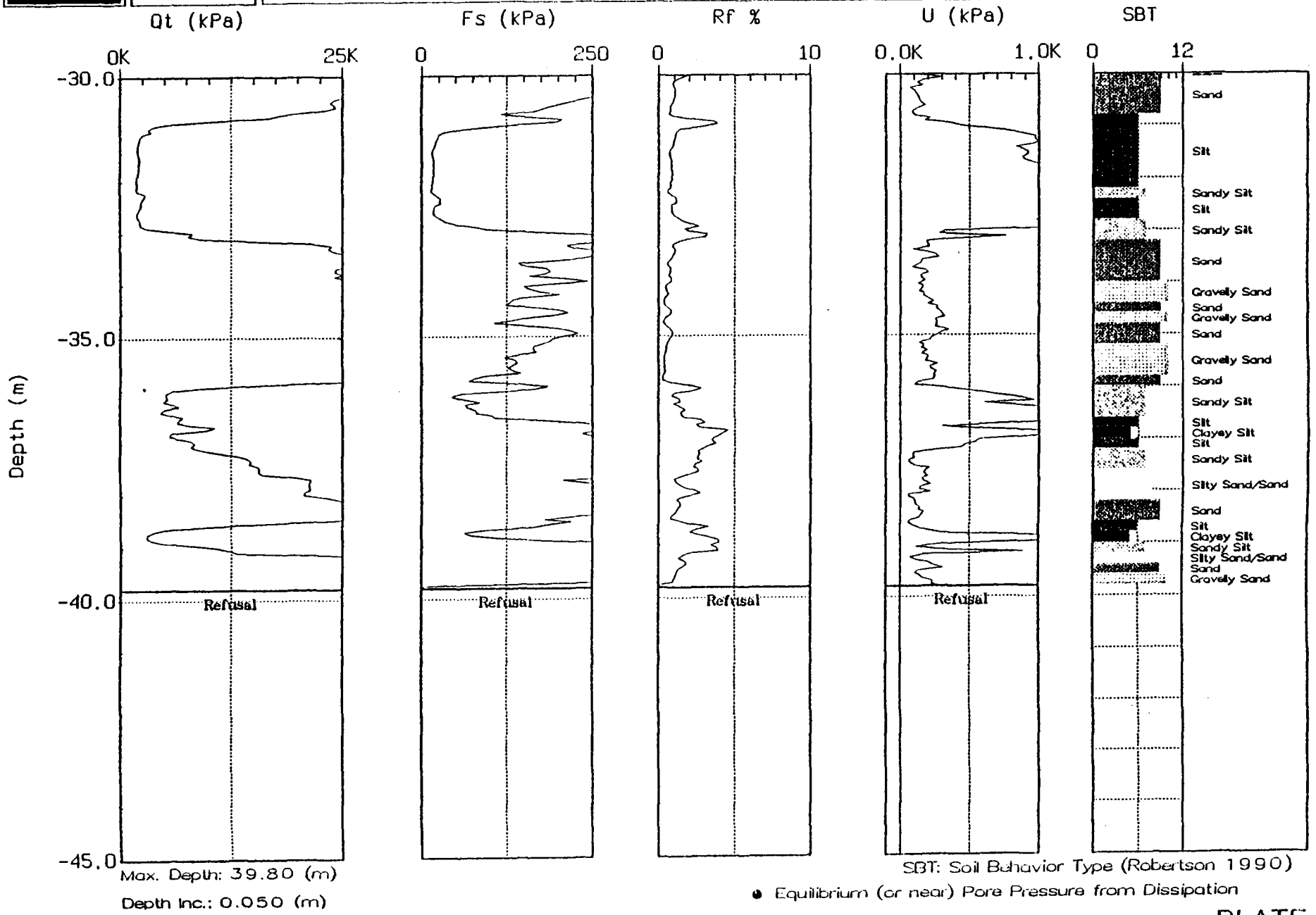
PLATE B-7

CONETEC

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

Boring: SB- 1-246
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
1265	Silty CLAY - medium stiff, moist, gray				SPT	610	CL-ML	A-6	0 0 5 9								
		70	21														
			22														
	- stiff	75	23		SH	610					85 77	14.2	34	37	17		C SG
			24														
		80	25														
1260																	
	- very stiff	85	26		SPT	610			2 7 13 18	18							
			27														
		90	28														
	Poorly Graded SAND - moist, gray	95	29		SH	610	SP	A-3									
			30														
1255	Lean CLAY - medium stiff, moist, gray	100	31		SPT	610	CL	A-6	0 3 5 7	7							
	- very stiff	105	32		SPT	457			7 14 15 26	24							
			33														
	Poorly Graded SAND with gravel - medium dense, moist, gray	110	34		SPT		SP	A-3	3 8 13 25	16							
			35														
	Lean CLAY - very stiff, moist, gray, with trace of sandy gravel	115	36		SPT		CL	A-6	9 13 21 7	26							
1250																	
	Poorly Graded SAND - loose, wet, brownish-gray	120	37		SH	610	SP	A-3									
					SPT	610			3 3 5	6							
	- dense	125	38		SPT	0			30 32 36	47							
			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- 1-246**

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

Logged by:	R. Yates
Date Start:	2/21/00
Date Finish:	2/24/00
Station:	58+294.659 4.26 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,999.639 E 15,530.064
Elevation (m):	1285.665
Total Depth Drilled (m):	40.2
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

Boring: SB- 1-246
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 $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	Test Results * $S_{u,r}$ kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND with gravel																
1285		5	1		SPT	381	CL	A-6	3 3 4 4	11							
	Lean CLAY - medium stiff, moist, dark gray																
	- same as above	10	3		SH	610											
			4														
	Silty SAND - dense, moist, olive-gray	15	5		SPT	305	SM	A-2-4	1 9 11 7	33							
1280																	
	Silty CLAY - very soft, moist, gray	20	6		SPT	305	CL-ML	A-6	0 0 0 0	0							
		25	7														
			8		SPT	610			0 0 0 2	0							
	Silty SAND - medium dense, moist, gray, poorly graded, fine-grained	30	9		SH	610	SM	A-2-4									
1275		35	10														
	Silty CLAY - stiff, moist, gray		11		SPT		CL-ML	A-6	0 6 1 7	9							
		40	12														
	SILT - medium stiff, moist, gray				SH	610	ML	A-4			33 38	12.4	48	NP	NP	99	C SG
		45	13														
	Lean CLAY - stiff, moist, gray		14		SPT	610	CL	A-6	1 4 4 3	10							
		50	15		SH	610											
1270			16														
		55	17														
		60	18		SPT	457	SP-SM	A-3	14 27 24 15								
	Poorly Graded SAND with silt - very dense, moist, gray, with occasional gravelly sands		19														
		65								3							

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- 1-246**

Sheet 1 of 3

Logged by:	R. Yates
Date Start:	2/21/00
Date Finish:	2/24/00
Station:	58+294.659 4.26 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,999.639 E 15,530.064
Elevation (m):	1285.565
Total Depth Drilled (m):	40.2
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 = Amencan 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

PLATE B-9

Boring: SB- 1-246
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
	Silty CLAY - medium stiff, moist, gray				SPT	610	CL-ML	A-6	0 0 5 9								
1265			21														
		70	22														
	- stiff	75	23		SH	610					85 / 77	14.2	34	37	17		C SG
			24														
		80	25														
1260																	
	- very stiff	85	26		SPT	610			2 7 13 18	18							
			27														
		90	28														
	Poorly Graded SAND - moist, gray	95	29		SH	610	SP	A-3									
			30														
1255	Lean CLAY - medium stiff, moist, gray	100	31		SPT	610	CL	A-6	0 3 5 7	7							
	- very stiff	105	32		SPT	457			7 14 15 26	24							
			33														
	Poorly Graded SAND with gravel - medium dense, moist, gray	110	34		SPT		SP	A-3	3 8 13 25	16							
	Lean CLAY - very stiff, moist, gray, with trace of sandy gravel	115	35		SPT		CL	A-6	9 13 21 7	26							
1250			36														
	Poorly Graded SAND - loose, wet, brownish-gray	120	37		SH	610	SP	A-3									
					SPT	610			3 3 5	6							
	- dense	125	38		SPT	0			30 32 36	47							
			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- 1-246**

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

Logged by:	R. Yates
Date Start:	2/21/00
Date Finish:	2/24/00
Station:	58+294.659 4.26 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,999.639 E 15,530.064
Elevation (m):	1285.665
Total Depth Drilled (m):	40.2
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 F = Piston Sampler, 76.2 mm OD

SH = Shelby Tube, 76.2mm OD, pushed

B BAG = Bulk Sample

Boring: SB- 1-246
Sheet 1 of 3

SAMPLE DESCRIPTION
(ASTM D 2488/D 2487)

Elevation (m)	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
1285																
		1		SPT	381	CL	A-6	3 3 4 4	● 11							
	5	2														
				SH	610											
	10	3														
		4														
	15			SPT	305	SM	A-2-4	1 9 11 7	● 33							
1280		5														
	20	6		SPT	305	CL-ML	A-6	0 0 0 0	● 0							
		7														
	25			SPT	610			0 0 0 2	● 0							
		8														
		9		SH	610	SM	A-2-4									
1275	30	10														
	35			SPT		CL-ML	A-6	0 6 1 7	● 9							
		11														
		12		SH	610	ML	A-4			33 38	12.4	48	NP	NP	99	C SG
	40	13														
	45			SPT	610	CL	A-6	1 4 4 3	● 10							
		14														
		15		SH	610											
1270	50															
		16														
	55	17														
		18														
	60			SPT	457	SP-SM	A-3	14 27 24 15								
		19														
	65								● 3							

FILL: Silty SAND with gravel

Lean CLAY - medium stiff, moist, dark gray

- same as above

Silty SAND - dense, moist, olive-gray

Silty CLAY - very soft, moist, gray

Silty SAND - medium dense, moist, gray, poorly graded, fine-grained

Silty CLAY - stiff, moist, gray

SILT - medium stiff, moist, gray

Lean CLAY - stiff, moist, gray

Poorly Graded SAND with silt - very dense, moist, gray, with occasional gravelly sands

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- 1-246**

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

Logged by:	R. Yates
Date Start:	2/21/00
Date Finish:	2/24/00
Station:	58+294.659 4.26 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,999.639 E 15,530.064
Elevation (m):	1285.665
Total Depth Drilled (m):	40.2
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

PLATE B-9

Boring: SB- 1-246
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					457			24 40 45 50/100mm								
1245			41														
		135	42														
		140	43														
			44														
		145	45														
1240																	
		150	46														
			47														
		155	48														
			49														
		160	50														
1235																	
		165	51														
		170	52														
			53														
		175	54														
			55														
1230		180															
			56														
		185	57														
			58														
		190	59														
		195															

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- 1-246**

Sheet 3 of 3

Logged by:	R. Yates
Date Start:	2/21/00
Date Finish:	2/24/00
Station:	58+294.659 4.26 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,999.639 E 15,530.064
Elevation (m):	1285.665
Total Depth Drilled (m):	40.2
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

Boring: SB- 2-247
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 $(N_1)_{60}$ / 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 GRAVEL with sand - dense, moist, yellowish-brown				SPT	610	GP	A-1-a	7 10 7 7	●34							
		5	1														
1285	- very dense				SPT	381			9 18 18 22								pH WSS R
		10	3		SPT	152	ML	A-4	0 1 1 1	●2							
	SILT - very soft, wet, yellowish-brown		4														
	Lean CLAY - medium stiff, wet, gray (soft to (w/ v soft and stiff zones	15	5		SH	610	CL	A-6			34	13.7	34				C SG
	- very soft	20	6		SPT				0 0 0 0	●0							
1280			7														
	- medium stiff	25	8		SH	610					24		48	48	24		H
	- stiff	30	9		SPT	610			9 9 3 2	●15							
			10														
		35	11		SH	584					24						
1275	- soft	40	12		SPT	610			0 1 2 3	●3							
			13														
	- medium stiff	45	14		SH	610					38 43	15.9	23				
		50	15		SPT	610			0 3 3 6	●6							
	SILT - medium stiff, wet, gray	55	16				ML	A-4									
1270			17														
	Lean CLAY - stiff, wet, gray (soft to med. stiff w/ stiff and v soft zones	60	18		SH	584	CL	A-6			62	15.6	28				C SG
		65	19														

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- 2-247**

Sheet 1 of 3

Logged by:	J. Rajek
Date Start:	1/23/00
Date Finish:	1/24/00
Station:	6002+221.649 19.91 LT
Line:	D MAINLINE
Coordinates (m):	N 106,914.589 E 15,501.290
Elevation (m):	1286.873
Total Depth Drilled (m):	43.1
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

PLATE B-11/A

Boring: SB- 2-247
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
	Lean CLAY - wet, gray (continued)																
		70	21														
1265	- soft, with frequent layers of silt to 50 mm				SPT	610			1 2 2 2	●4							
		75	22														
			23														
			24														
		80			SH	0											
	- medium stiff		25		SH	584					34						
		85	26														
1260			27														
	- very soft	90			SPT	610			2 1 1 1	●2							
			28														
		95	29														
			30														
	- medium stiff	100	31		SH	559					77						
1255																	
		105	32														
			33														
	- medium stiff, 150 mm sand layer	110	34		SPT	610			3 2 8 20	●8							
			35														
		115	36														
		120			SPT	610	SM	A-2-4	7 17 18 30	●25							
1250	Silty SAND - medium dense, wet, gray		37														
			38														
	- very dense	125			SPT	610			9 32 42 42								
			39														
		130			SPT					●231							

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

FIELD TEST BORING LOG

Boring: **SB- 2-247**

Sheet 2 of 3

Logged by:	J. Rajek
Date Start:	1/23/00
Date Finish:	1/24/00
Station:	6002+221.649 19.91 LT
Line:	D MAINLINE
Coordinates (m):	N 106,914.589 E 15,501.290
Elevation (m):	1286.873
Total Depth Drilled (m):	43.1
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 Z003SB1.GPJ 5/30/00

PLATE B-12

Boring: SB- 2-247
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
	Lean CLAY - very stiff, wet, gray, some fine-grained sand					610	CL	A-6	6 12 22 35								
	Silty SAND - very dense, wet, gray, fine-grained with layers of lean clay	135	41		SPT	610	SM	A-2-4	9 36 42 50/125mm								
1245		140	42														
	- dense		43		SPT	457			9 22 32	36							
		145	44														
			45														
		150	46														
1240			47														
		155	48														
		160	49														
			50														
		165	51														
1235		170	52														
			53														
		175	54														
		180	55														
			56														
		185	57														
1230																	
		190	58														
			59														
		195															

UTDOT 2003SB1.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- 2-247**

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

Logged by:	J. Rajek
Date Start:	1/23/00
Date Finish:	1/24/00
Station:	6002+221.649 19.91 LT
Line:	D MAINLINE
Coordinates (m):	N 106,914.589 E 15,501.290
Elevation (m):	1286.873
Total Depth Drilled (m):	43.1
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- 3-248
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 $(N_1)_{60}$ / 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 - with cobbles to 75 mm		1		BAG												
		5	2		SPT	0											
1285																	
	- medium dense	10	3		SPT	51			9 8 7 10	13							
	Lean CLAY - wet, olive-gray		4				CL	A-7-6									
		15	5		SH	0											
	- medium stiff				P	610					*38*						pH WSS R
		20	6		SPT	610			1 0 1 0	1							
1280			7														
	- soft, black	25	8		P	356					12 *14*	11.7	49	47	23		C TR SG
			9														
	Silty SAND - loose, moist to wet, gray	30			MC		SM	A-2-4	2 1 10 17	8							
		35	10		P	254											SV
1275			11														
	- medium dense	40	12		SPT				3 4 16 14	15							
	Sandy SILT		13														
		45	14		P	406	ML	A-4									
	Silty CLAY - very soft, wet, olive		15														
		50			SPT		CL-ML	A-6	2 2 2 3	2							
1270			16														
	- gray	55	17														
			18														
		60			P	51											
			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-3-248

Sheet 1 of 3

Logged by:	M. Ivers
Date Start:	1/21/00
Date Finish:	1/24/00
Station:	6002+288.697 14.78 LT
Line:	D MAINLINE
Coordinates (m):	N 106,961.761 E 15,549.213
Elevation (m):	1287.035
Total Depth Drilled (m):	39.9
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 Z0033B1.GPJ 6/30/00

PLATE B-14

Boring: SB- 3-248
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
	Silty CLAY - very soft, wet, gray (continued)																
1265	- stiff, olive-gray to gray, occasional fine-grained sand lenses approximately 50 mm thick	70	21		SPT	610			4 9 8 10	11							
		75	22														
			23														
			24														
	Fat CLAY - medium stiff, wet, dark gray to olive	80	25		P	610	CH	A-7-6			*43*	12.3	42	56	32		C SG
		85	26														
1260			27														
	- stiff	90	28		SPT	610			6 10 12 19	13							
		95	29														
			30														
		100	31		P BAG		SP	A-3	15 37 25	35	57 *34*	15.7	26			97	
1255	Lean CLAY - soft, wet, dark gray to olive	105	32		SPT	610	CL	A-6	3 3 3 5	4							
			33														
		110	34														
	Poorly-Graded SAND with clay - dense, moist, gray	115	35		SPT		SP-SC	A-3	25 41 35 39	40							
			36														
1250	- medium dense	120	37		SPT				13 21 26 36	24							
	- dense	125	38		SPT				12 32 50	41							
			39														
		130			SPT												

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-~~3~~2-248

Sheet 2 of 3

Logged by:	M. Ivers
Date Start:	1/21/00
Date Finish:	1/24/00
Station:	6002+288.697 14.78 LT
Line:	D MAINLINE
Coordinates (m):	N 106,961.761 E 15,549.213
Elevation (m):	1287.035
Total Depth Drilled (m):	39.9
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

PLATE B-15

Boring: SB- 3-248
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
						203			48 61								
1245		135	41														
			42														
		140	43														
			44														
		145	45														
		150	46														
1240			47														
		155	48														
		160	49														
			50														
		165	51														
1235		170	52														
			53														
		175	54														
			55														
		180	56														
		185	57														
1230			58														
		190	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-~~3~~2-248

Sheet 3 of 3

Logged by: M. Ivers
Date Start: 1/21/00
Date Finish: 1/24/00
Station: 6002+288.697 14.78 LT
Line: D MAINLINE
Coordinates (m): N 106,961.761 E 15,549.213
Elevation (m): 1287.035
Total Depth Drilled (m): 39.9
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

Boring: SB- 3-249
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 $(N_1)_{60}$ / 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 gravel - moist, brown, with occasional cobbles		1														
	Fat CLAY - medium stiff, moist, gray with some black coloring, with organics	5	2		SPT	457	CH	A-7-6	8 2 2	●3							
	Lean CLAY - stiff, moist, olive-gray, with trace of fine-grained sand	10	3		P	610	CL	A-6			57						pH WSS R
			4														
	Fat CLAY - soft, moist, gray	15	5		SPT		CH	A-7-6	0 1 1	●4							
1280		20	6		P	457					21 *19*	10.4	58	44	15		C SG
	SILT - soft, wet, dark gray		7				ML	A-4									
	Lean CLAY - very soft, wet, gray to dark gray, with silt and sand seams	25	8		SPT		CL	A-6	0 0 0	●0							
	- medium stiff	30	9		P	533					*24*						
1275		35	10														
	Poorly Graded SAND with silt - stiff, wet, gray, fine-grained		11		SPT		SP-SM	A-1-b	0 2 6	●11							
	- medium stiff	40	12		P	508					*38*						
			13														
	Lean CLAY - very soft, wet, gray to dark gray, occasional silt seams	45	14		SPT		CL	A-6	1 1 1	●2							
	- stiff	50	15		P						34 *48*	13.9	35	37	15	97	C SG
1270			16														
		55	17														
	- medium stiff	60	18		SPT	457			3 3 3	●5							
			19														
		65															

UTDOT 2003981.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- 3-249**

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

Logged by: **C. Wieden**
Date Start: **1/24/00**
Date Finish: **1/26/00**
Station: **6002+229.597 1.90 RT**
Line: **D MAINLINE**
Coordinates (m): **N 106,906.251 E 15,522.950**
Elevation (m): **1285.695**
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

PLATE B-17

Boring: SB- 3-249
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
1265	Lean CLAY - medium stiff, wet, gray to dark gray, occasional silt seams (continued)																
	- frequent silt and occasional fine sand layers	70	21		P	610					*38*						
			22														
		75	23														
			24														
	- stiff	80	25		SPT				3 7 8	14							
1260		85	26														
			27														
		90	28		P	0											
	SILT				P		ML	A-4									
		95	29		SPT				9 7 9	14							
	Lean CLAY - stiff, wet, gray		30				CL	A-6									
1255		100			P	0											
	- medium stiff		31		SPT	457			4 4 5	7							
		105	32														
			33														
	SILT with sand - stiff, wet, gray, fine-grained sand	110	34		SPT	457	ML	A-4	5 4 10	11							
	Poorly Graded SAND - loose, wet, gray	115	35		SPT	0	SP	A-1-b	7 5 7	9							
1250			36														
	- dense, fine to medium-grained with trace of coarse-grained sand	120	37		SPT	0			15 23 30	40							
			38														
	SILT with sand - stiff, wet, gray, fine-grained sand	125	39		SPT	457	ML	A-4	7 9 7	12							
		130			SPT					29							

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- 3-249**

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

Logged by: C. Wieden
Date Start: 1/24/00
Date Finish: 1/26/00
Station: 6002+229.597 1.90 RT
Line: D MAINLINE
Coordinates (m): N 106,906.251 E 15,522.950
Elevation (m): 1285.695
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

PLATE B-18

Boring: SB- 3-249
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 * Su kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Poorly Graded SAND - dense, wet, gray, fine-grained					457	SP	A-1-b	7 12 27								
1245		135	41		SPT	457			15 32 40								
	- very dense		42														
		140	43		SPT				22 25 26	35							
	- dense																
1240		145	44														
			45														
		150	46														
			47														
		155	48														
		160	49														
			50														
1235		165	51														
		170	52														
			53														
		175	54														
		180	55														
			56														
		185	57														
		190	58														
1230			59														
		195															

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- 3-249**

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

Logged by:	C. Wieden
Date Start:	1/24/00
Date Finish:	1/26/00
Station:	6002+229.597 1.90 RT
Line:	D MAINLINE
Coordinates (m):	N 106,906.251 E 15,522.950
Elevation (m):	1285.695
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- 3-250
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 - dense, slightly moist, light to dark brown, with coarse-grained gravels				SPT	533			5 14 7 9	47							
1285		5	1		SPT	305			10 15 6 8	38							pH WSS R
	Silty CLAY - dense, wet, dark brown, with some roots and wood material		2				CL-ML	A-6									
	Clayey SAND - medium dense, wet, gray, fine-grained sand	10	3		SPT	203	SC	A-2-6	3 1 3 3	5							
			4														
	Lean CLAY - very soft, wet, light gray, with frequent very fine sand seams (to med stiff w/ occ. v stiff zones	15	5		SPT	610	CL	A-6	2 1 1 1	2							
1280		20	6		SH	102											
	- very soft, gray and black coloring	25	7														
			8		SPT	610			0 0 1 1	1							
	- medium stiff, some fine sand layers	30	9		SH	508					34	12.5	39	42	19		C SG
			10														
1275	- medium stiff, with 150 mm sand layer	35	11		SPT	610			6 2 2 2	6							
	- very stiff, with 0.35 m layer of silty sand and frequent silty sand seams	40	12		SPT	610			0 15 6 6	27							
			13														
	- medium stiff, mottled, with wood material, occasional very thin seams of peat	45	14		SPT	610			0 2 2 3	4							
			15														
	- very soft	50	16		SH	686					30 48	13.7	33	39	20	93	C TR SG
1270		55	17														
			18														
	Poorly Graded SAND - loose, wet, gray, with a trace of fines, frequent thin layers of silty clay, sandy clay, and clayey silt	60	18		SPT	610	SP	A-3	0 0 5 7	5							
			19														
		65															

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- 3-250**

Sheet 1 of 3

Logged by:	M. Bostrom
Date Start:	1/24/00
Date Finish:	1/25/00
Station:	6002+277.848 6.92 RT
Line:	D MAINLINE
Coordinates (m):	N 106,939.326 E 15,558.438
Elevation (m):	1286.011
Total Depth Drilled (m):	43.3
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

PLATE B-20

Boring: SB- 3-250
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 - loose, wet, gray, with a trace of fines, frequent thin layers of silty clay, sandy clay, and clayey silt (continued)																
1265																	
	SILT with sand - medium stiff, wet, olive gray, with very fine-grained sand and clay seams	70	21		SPT	610	ML	A-4	3 3 5 6	●8							
		75	22														
			23														
			24														
		80	25		SH	0											
1260		85	26														
			27														
	- stiff, 0.15 m poorly graded sand layer	90	28		SPT	610			7 6 8 10	●12							
		95	29														
			30														
	Silty CLAY - very stiff, wet, olive gray, 0.15 m poorly graded sand layer	100	31		SPT	610	CL-ML	A-6	7 10 12 16	●19							
1255																	
		105	32														
			33														
	Poorly Graded SAND - very loose, wet, gray, medium-grained	110	34		SPT	610	SP	A-3	0 0 0 0	●0							
	Silty SAND - very dense, wet, brownish-gray	115	35		SPT	457	SM	A-2-4	12 24 32 44	●45							
1250			36														
	SILT - very stiff, wet, grayish-brown, with very fine-grained sand layers	120	37		SPT	610	ML	A-4	15 12 19 20	●25							
			38														
	Silty SAND - dense, wet, brownish-gray	125	39		SPT	610	SM	A-2-4	9 21 39 47	●46							
		130			SPT					○							

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- 3-250**

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

Logged by:	M. Bostrom
Date Start:	1/24/00
Date Finish:	1/25/00
Station:	6002+277.848 6.92 RT
Line:	D MAINLINE
Coordinates (m):	N 106,939.326 E 15,558.438
Elevation (m):	1286.011
Total Depth Drilled (m):	43.3
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

PLATE B-21

Boring: SB- 3-250
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/m^3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty SAND - dense, wet, brownish-gray (continued)					610			16 30 44 60								
1245		135	41		SPT	305			9 10 12 13	16							
	Lean CLAY - very stiff, wet, gray		42				CL	A-6									
	- dense	140															
	Silty SAND - very dense, wet, gray		43		SPT	610	SM	A-2-4	9 25 38 42	45							
			44														
		145	45														
1240			46														
		150															
			47														
		155	48														
		160	49														
			50														
		165															
1235			51														
		170	52														
			53														
		175															
			54														
		180	55														
			56														
1230		185															
			57														
		190	58														
			59														
		195															

UTDOT Z0035B1.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- 3-250**

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

Logged by:	M. Bostrom
Date Start:	1/24/00
Date Finish:	1/25/00
Station:	6002+277.848 6.92 RT
Line:	D MAINLINE
Coordinates (m):	N 106,939.326 E 15,558.438
Elevation (m):	1286.011
Total Depth Drilled (m):	43.3
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- 4-251
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: Lean Clay - moist, light to dark gray, with cobbles		1														
	Lean CLAY - soft, wet, light gray	5	2		SPT	406	CL	A-6	1 1 1	●4							
		10	3		SH	610					20 *24*	15.0	30	34	14	87	pH WSS R C SG
			4														
1280	- very soft	15	5		SPT				0 0 0	●0							
	- color change to dark gray	20	6		SH	0											
	Silty CLAY - very soft, wet, light to dark gray, trace of fine-grained sand		7		SPT	457	CL-ML	A-6	0 0 0	●0				44	17		
	- very stiff, dark gray, with fine-grained sand	25	8		SPT	356			0 3 8	●16							
		30	9		P	0											
1275	- stiff	35	10		SPT				3 5 3	●11							
	Lean CLAY - very soft, wet, gray, with trace of silt		11		SPT		CL	A-6	0 0 0	●0							
	- medium stiff, with silt seams, 150 mm layer of silty sand	40	12		SPT				3 5 1	●7							
		45	13														
			14		P	0											
1270	- very soft				SPT	203			2 1 0	●1							
	- stiff, moist, gray, with silt and fine-grained sand seams	50	15		SPT				0 4 3	●9							
			16														
		55	17														
			18														
	Poorly Graded SAND with silt - very soft, wet, gray, fine-grained	60	19		P	610	SP-SM	A-2-4			5						
1265		65															

UTDOT Z003S81.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- 4-251**

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

Logged by:	C. Wieden
Date Start:	1/22/00
Date Finish:	1/24/00
Station:	54+663.358 0.41 RT
Line:	LP NB to I-15 (I-215)
Coordinates (m):	N 106,888.086 E 15,546.287
Elevation (m):	1284.833
Total Depth Drilled (m):	37.5
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

▽ = 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

PLATE B-23

Boring: SB- 4-251
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
	Poorly Graded SAND with silt - very soft, wet, gray, fine-grained (continued)																
	SILT - stiff, wet, gray, with fine-grained sand and clay seams	70	21		SPT	457	ML	A-4	4 6 6	12							
		75	22														
			23														
			24														
	Lean CLAY - wet, gray, with silt and organics	80	25		P	0	CL	A-6									
1260					P	0											
	Silty SAND - wet, gray, fine-grained	85	26		P	610	SM	A-2-4			68 *38*	12.7	41	47	22	98	C SG
			27														
	- dense	90	28		SPT				10 20 30	45							
	Lean CLAY - stiff, wet, gray to olive-gray	95	29		SPT		CL	A-6	4 6 6	10							
1255			30														
		100	31														
	Silty SAND - soft, wet, gray, fine-grained	105	32		P	508	SM	A-2-4			39 19	15.5	26			84	C TR SG
			33														
		110	34		SPT				10 19 27	38							
1250		115	35		SPT				17 19 24	34							
			36														
		120	37		SPT	0			16 22 22	34							
	- 150 mm lean clay layer				SPT				17 16 12	9							
		125	38														
			39														
1245		130															

UDOT 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- 4-251**

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

Logged by:	C. Wieden
Date Start:	1/22/00
Date Finish:	1/24/00
Station:	54+663.358 0.41 RT
Line:	LP NB to I-15 (I-215)
Coordinates (m):	N 106,888.086 E 15,546.287
Elevation (m):	1284.833
Total Depth Drilled (m):	37.5
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

▽ = 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

PLATE B-24

Boring: SB- 4-252
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: Silty GRAVEL - medium dense, moist, dark brown to gray, with occasional 150 mm silt layers		1		SPT	356			4 6 6 2	26							
1285		5															
	- dark brown to brown		2		SPT	305			9 8 5 7	21							
	- wet	10	3		SPT	152			3 6 4 3	12							
			4														
	Clayey SAND.- loose, wet, gray, with frequent clay layers approximately 150 mm thick	15	5		SPT	406	SC	A-2-6	3 2 2 3	4							
1280	- very loose	20	6		SPT	508			2 2 1 1	3							
			7														
	Lean CLAY - medium stiff, wet, gray, with frequent silt seams and layers varying from 10 to 150 mm	25	8		SH	508	CL	A-6			24			40	17		
	- hard	30	9		SPT	508			7 15 18 16	35							
		35	10														
1275			11		SH	0											
	- very stiff		11		SPT	610			15 16 10 11	28							
	- stiff, light brown mottling, silt layers up to 200 mm thick	40	12		SPT	610			15 6 8 6	14							
			13														
		45	14		SH	457					39 53	37.4	31	32	14		C SG
			15														
	- medium stiff, dark gray mottling	50	15		SPT	610			3 3 2 4	5							
1270			16														
		55	17														
			17														
	- stiff	60	18		SH	406					53						
	Sandy SILT - stiff, wet, gray		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- 4-252**

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

Logged by:	M. Hislop
Date Start:	1/24/00
Date Finish:	1/25/00
Station:	54+711.938 0.83 RT
Line:	LP NB to I-15 (I-215)
Coordinates (m):	N 106,921.417 E 15,581.574
Elevation (m):	1286.042
Total Depth Drilled (m):	38.7
Drill Contractor:	RC Drilling
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 Z003SB1.GPJ 6/30/00

PLATE B-25

Boring: SB- 4-252
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
	Sandy SILT - stiff, wet, gray (continued)																
1265		70	21														
	- medium stiff, light brown				SPT	610	CL	A-6	6 3 4 8	5							
	Lean CLAY - medium stiff, wet, gray to dark gray		22														
		75	23														
			24														
	Silty SAND - wet, gray, with silt layers	80	25		SH	559	SM	A-2-4			25 57	17.4	26			51	C SG
1260		85	26														
			27														
	- dense, with silt and clay layers 150 to 200 mm thick	90	28		SPT	610			28 27 24 35	40							
		95	29		SPT				7 12 22 14	26							
			30														
1255		100	31														
	Lean CLAY - medium stiff, wet, gray, with peat inclusions and silt seams	105	32		SPT	610	CL	A-6	3 3 4 5	5							
			33														
	Silty SAND - dense, wet, gray	110	34		SPT	610	SM	A-2-4	8 18 28 45	33							
			35														
	Poorly Graded SAND with gravel - dense, wet, gray	115	36		SPT	305	SP	A-3	18 30 36 50	47							
1250		120	37		SPT	457	ML	A-4	12 19 26 49	31							
	SILT - hard, wet, light brown																
	- with gravelly and silty sand layers up to 150 mm thick	125	38		SPT	457			18 26 41 38	46							
			39														
		130															

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- 4-252**

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

Logged by:	M. Hislop
Date Start:	1/24/00
Date Finish:	1/25/00
Station:	54+711.938 0.83 RT
Line:	LP NB to I-15 (I-215)
Coordinates (m):	N 106,921.417 E 15,581.574
Elevation (m):	1286.042
Total Depth Drilled (m):	38.7
Drill Contractor:	RC Drilling
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 2003SB1.GPJ 5/30/00

PLATE B-26

Boring: SB- 5-293
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
	Fat CLAY - very soft, moist, brownish-gray		1		MC	356	CH	A-7-6	0 1 1 1	●2							
	- soft, wet, dark gray	5	2		SH	610					*19*	9.9	64	52	27		C TR SG
	Lean CLAY with sand - ~~very soft~~, wet, dark gray ? medium stiff w/ very soft to stiff zones ?	10	3		MC	356	CL	A-6	0 1 1 1	●2							
1280		15	4		SH	356											
		20	5														
		25	6		SPT	25			1 5 4 9	●16							
1275	- medium stiff	30	7		SH	610					26 *38*	12.7	41	44	23		C SG DS
		35	8		MC	305			2 3 3 7	●8							
		40	9		SH	381					*48*						
1270	- 200 mm silty sand layer	45	10		SPT				3 2 1 2	●5							
		50	11		SH	305					*48*	14.0	31			92	
		55	12														
		60	13		SPT	610			1 2 3 3	●7							
1265	- with fine-grained sand seams	65	14														

UTDOT Z003SB1.GPJ 8/30/00

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- 5-293**

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

Logged by:	G. Whittman
Date Start:	2/24/00
Date Finish:	2/29/00
Station:	58+453.275 3.53 RT
Line:	I-215 to LP SB
Coordinates (m):	N 107,109.165 E 15,640.754
Elevation (m):	1284.343
Total Depth Drilled (m):	38.7
Drill Contractor:	Layne Christensen
Driller:	T. Giles
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

PLATE B-27

Boring: SB- 5-293
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
	Lean CLAY with sand - medium stiff, wet, dark gray, with fine-grained sand seams (continued)																
	Poorly Graded SAND - wet, gray	70	21		SH	356	SP	A-3									
		75	22														
			23														
1260			24														
	Lean CLAY - medium stiff, wet, gray	80	25		SPT	610	CL	A-6	3 2 5 7	●8							
		85	26														
			27														
		90	28		SH												
		95	29		SPT	610	ML	A-4	6 6 8 11	●14							
			30														
		100	31		SPT	610			4 7 14 18	●21							
		105	32		SPT	610			2 5 8 9	●13							
			33														
		110	34														
1250			35		SPT	432	SM	A-2-4	4 10 17 36	●25							
	Silty SAND - medium dense, wet, gray, fine-grained	115	36														
			37		SPT	610			11 36 43 42								
	- very dense	120	38														
		125	39		SPT	610			7 30 42 49								
1245		130															
1255	Sandy SILT - stiff, wet, gray																
	- very stiff, sand increasing																
	- stiff																

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- 5-293**

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

Logged by:	G. Whittman
Date Start:	2/24/00
Date Finish:	2/29/00
Station:	58+453.275 3.53 RT
Line:	I-215 to LP SB
Coordinates (m):	N 107,109.165 E 15,640.754
Elevation (m):	1284.343
Total Depth Drilled (m):	38.7
Drill Contractor:	Layne Christensen
Driller:	T. Giles
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

PLATE B-28

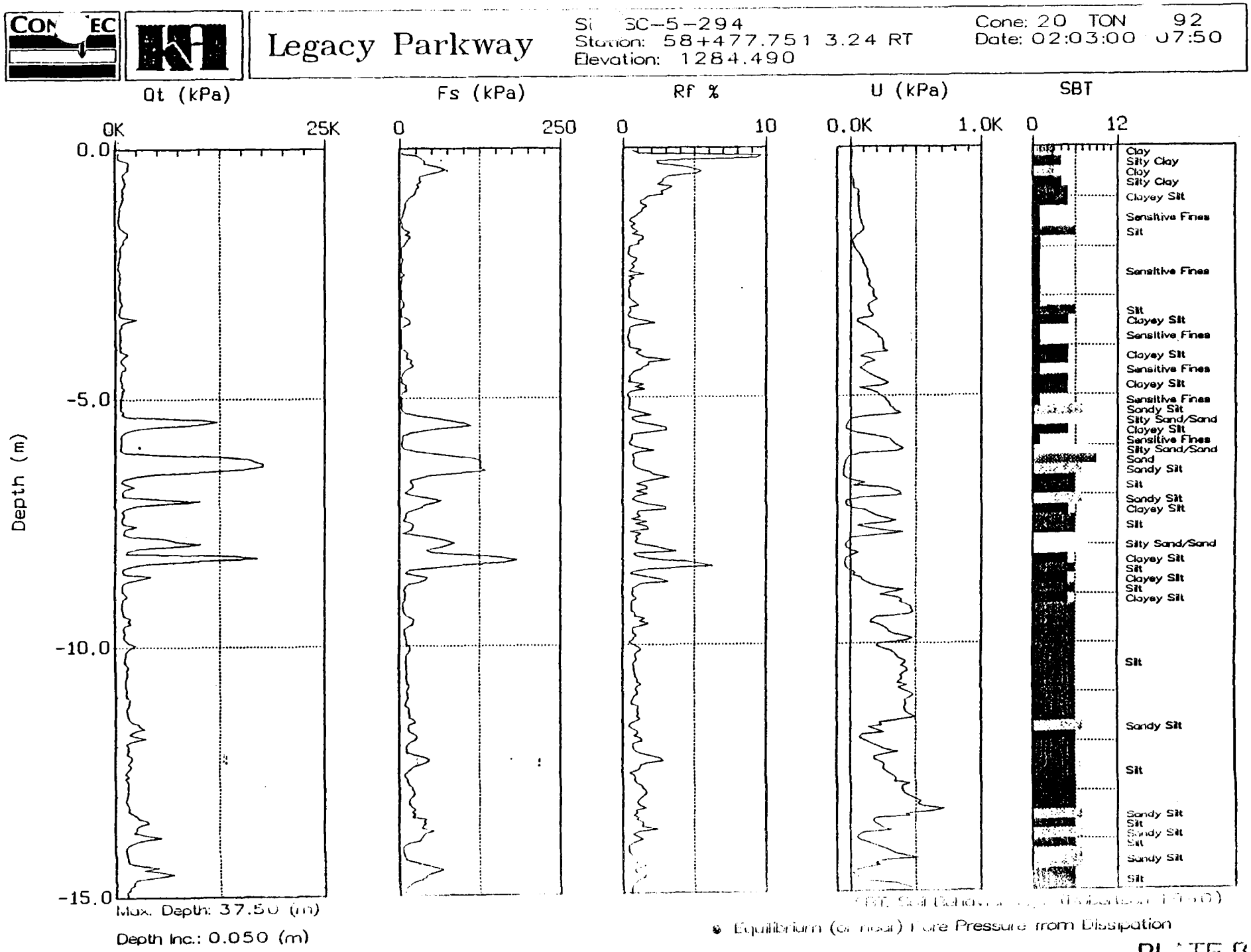
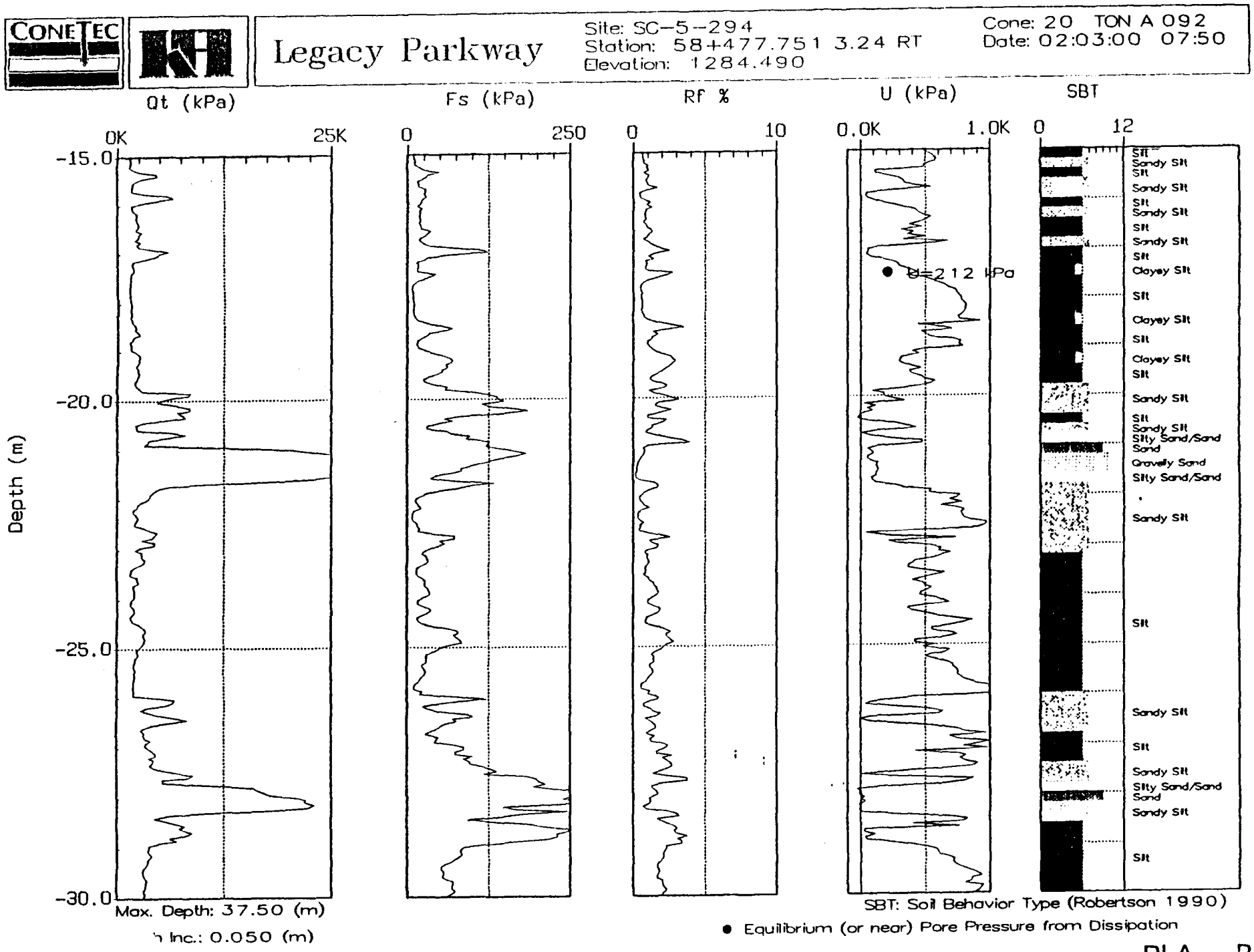

Legacy Parkway
SC-5-294
Station: 58+477.751 3.24 RT
Elevation: 1284.490
Cone: 20 TON 92
Date: 02:03:00 07:50
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
Clay
Silty Clay
Clay
Silty Clay
Clayey Silt
Sensitive Fine
Silt
Sensitive Fine
Silt
Clayey Silt
Sensitive Fine
Clayey Silt
Sensitive Fine
Clayey Silt
Sensitive Fine
Sandy Silt
Silty Sand/Sand
Clayey Silt
Sensitive Fine
Silty Sand/Sand
Sand
Sandy Silt
Silt
Sandy Silt
Clayey Silt
Silt
Silty Sand/Sand
Clayey Silt
Silt
Clayey Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Max. Depth: 37.50 (m)
Depth Inc.: 0.050 (m)
Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-29

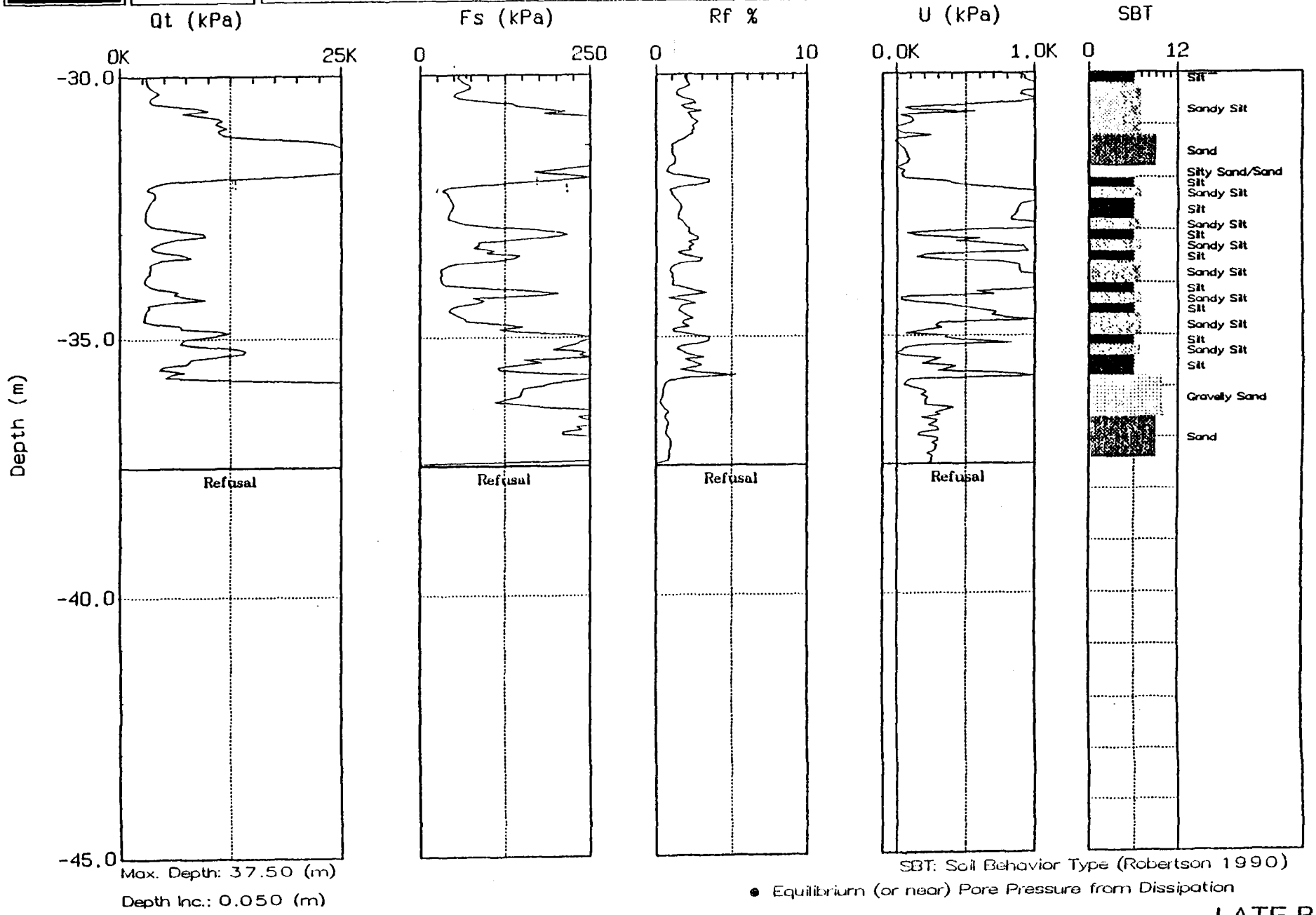

CONETEC
Legacy Parkway
Site: SC-5-294
Station: 58+477.751 3.24 RT
Elevation: 1284.490
Cone: 20 TON A 092
Date: 02:03:00 07:50
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-15.0
-20.0
-25.0
-30.0
Depth (m)
u=212 kPa
Silt
Sandy Silt
Clayey Silt
Silty Sand/Sand
Sand
Gravelly Sand
Max. Depth: 37.50 (m)
Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)
Equilibrium (or near) Pore Pressure from Dissipation

CONETEC

Legacy Parkway

Site: SC-5-294
Station: 58+477.751 3.24 RT
Elevation: 1284.490

Cone: 20 TON A 092
Date: 02:03:00 07:50



Max. Depth: 37.50 (m)
Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

LATE B-31

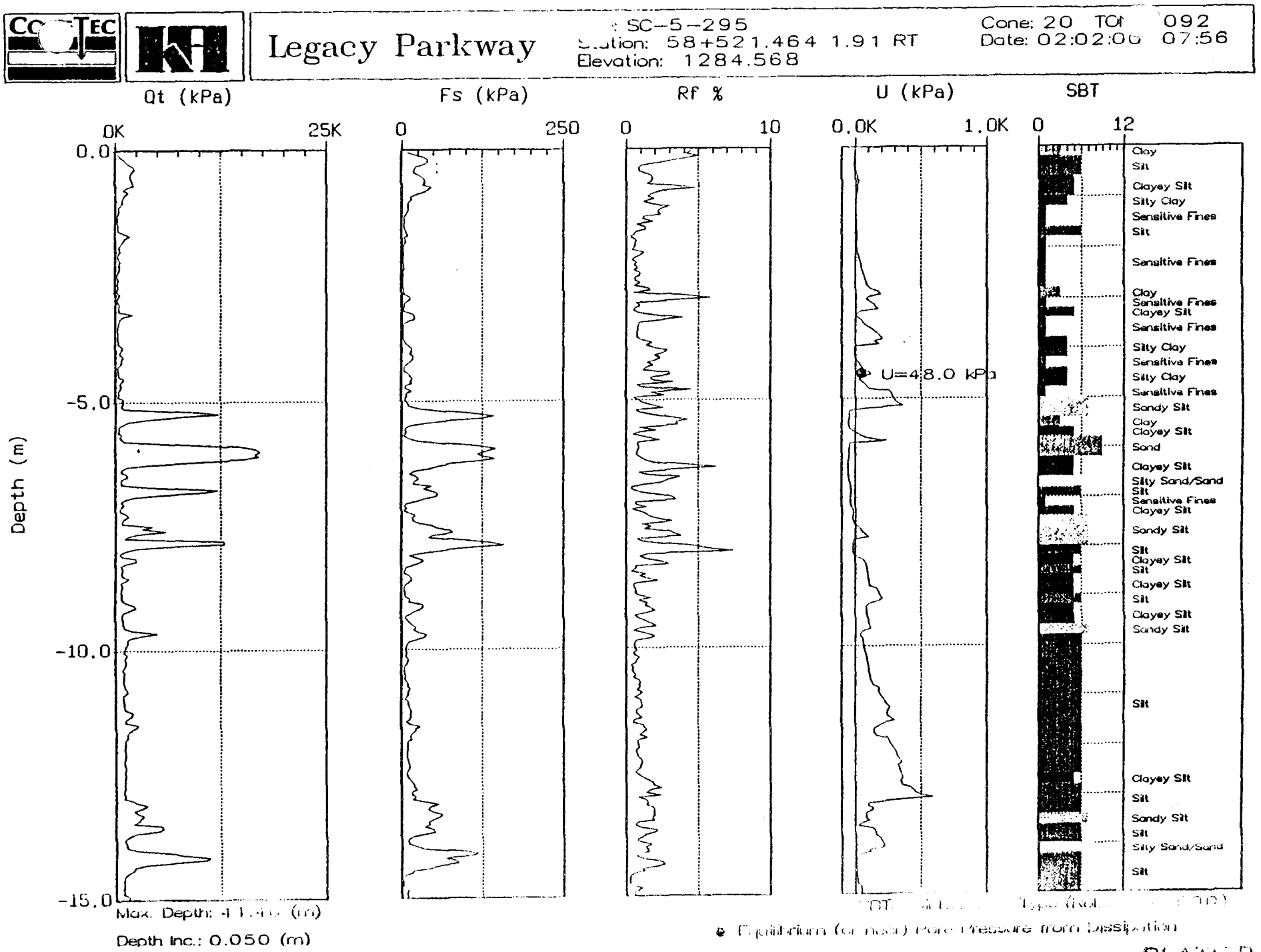

Legacy Parkway
SC-5-295
Elevation: 1284.568
Cone: 20 TOI 092
Date: 02:02:06 07:56
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
U=48.0 kPa
Clay
Silt
Clayey Silt
Silty Clay
Sensitive Fines
Silt
Sensitive Fines
Clay
Sensitive Fines
Clayey Silt
Sensitive Fines
Silty Clay
Sensitive Fines
Silty Clay
Sensitive Fines
Sandy Silt
Clay
Clayey Silt
Sand
Clayey Silt
Silty Sand/Sand
Silt
Sensitive Fines
Clayey Silt
Sandy Silt
Silt
Clayey Silt
Silt
Clayey Silt
Silt
Clayey Silt
Sandy Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Max. Depth: 41.4
Depth Inc.: 0.050 (m)

PLATE B-32

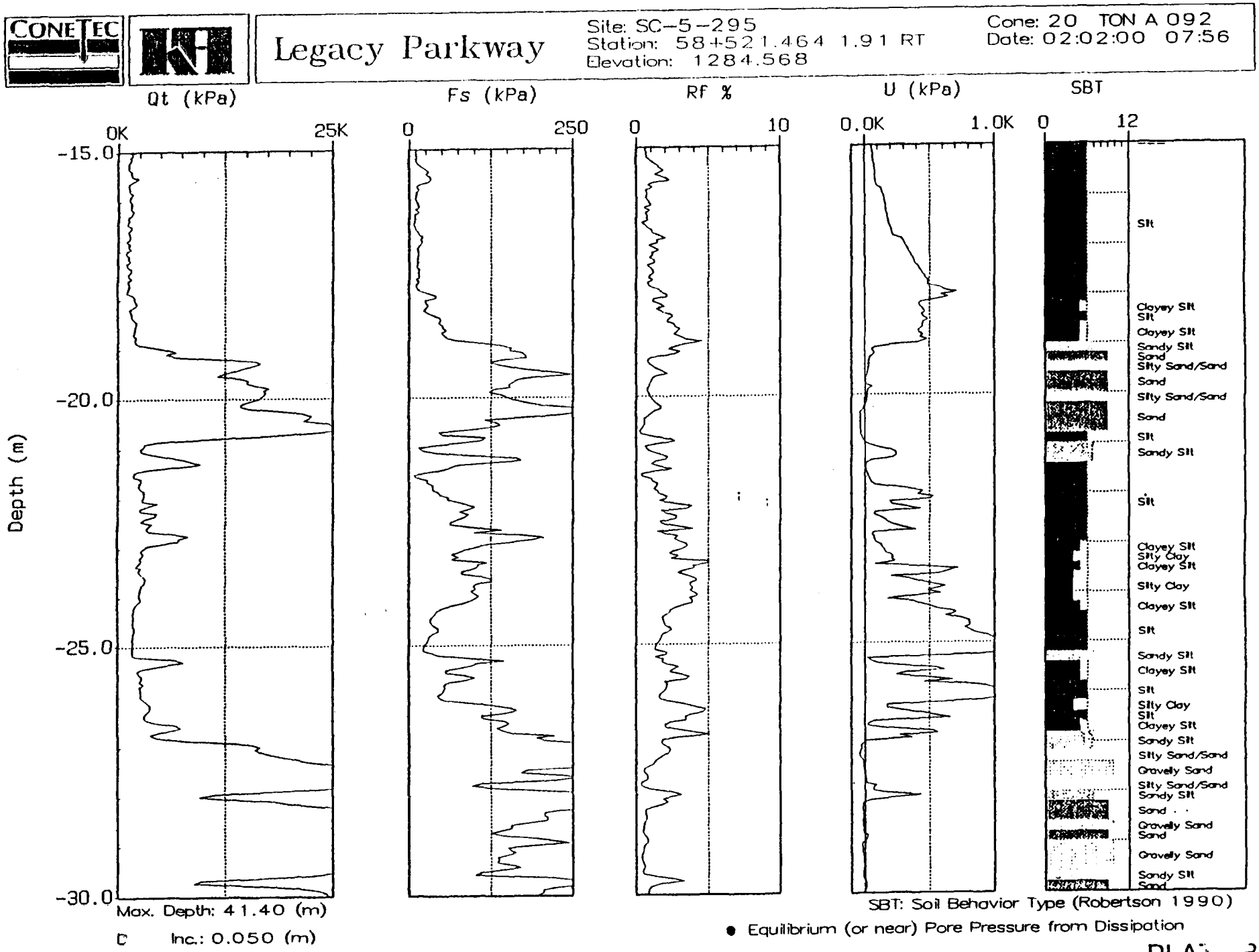
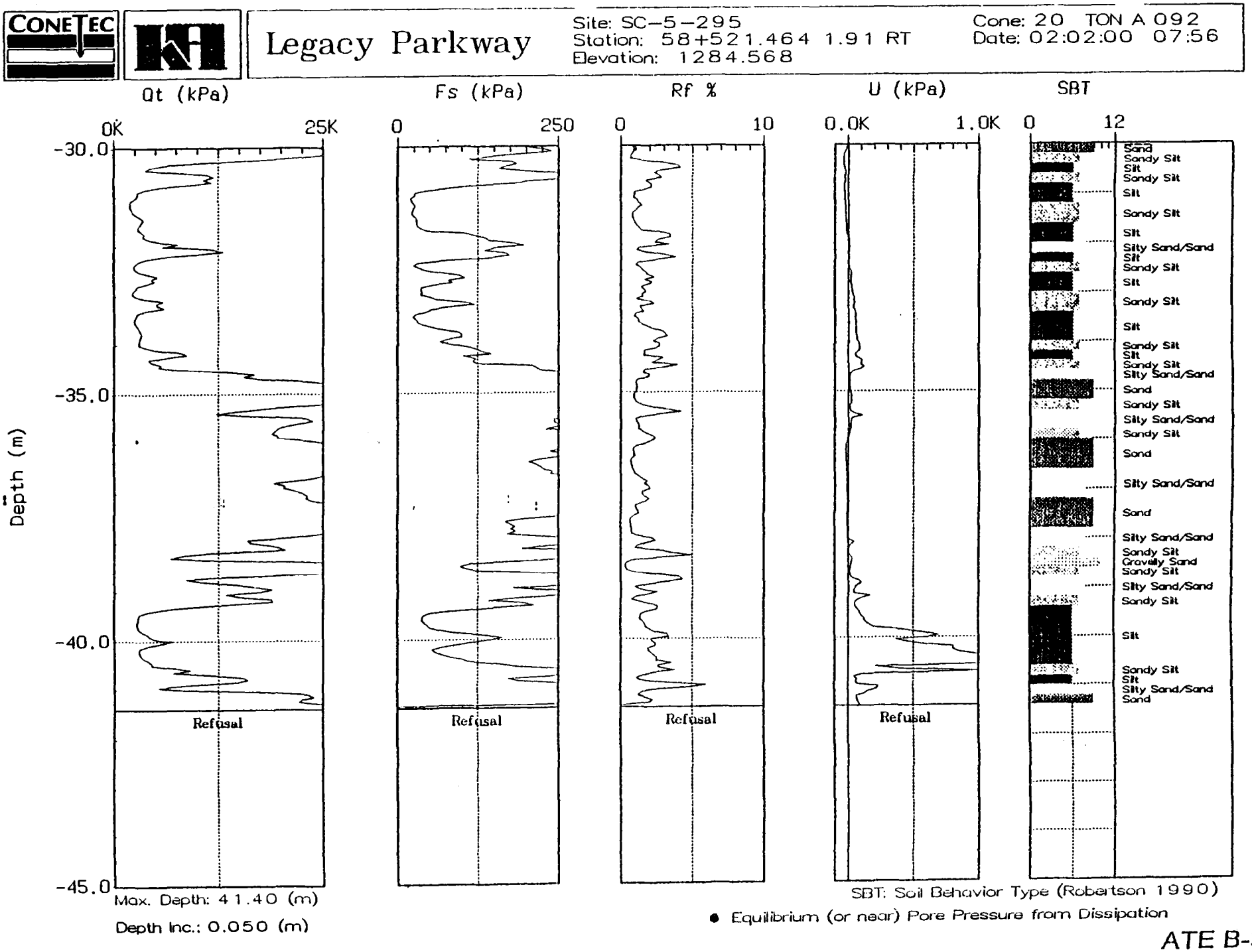
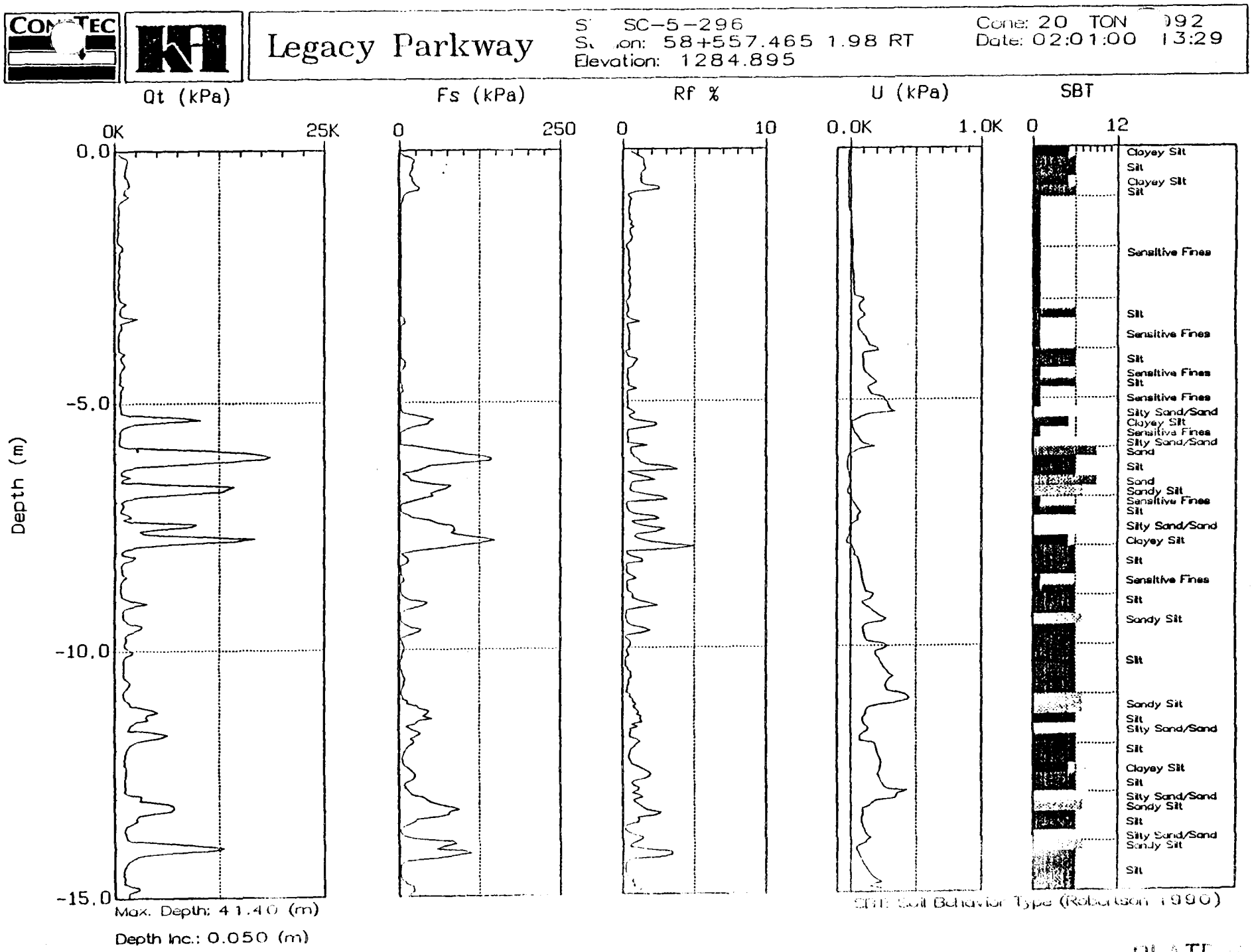

CONETEC
Legacy Parkway
Site: SC-5-295
Station: 58+521.464 1.91 RT
Elevation: 1284.568
Cone: 20 TON A 092
Date: 02:02:00 07:56
Qt (kPa)
Fs (kPa)
RF %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-15.0
-20.0
-25.0
-30.0
Depth (m)
Silt
Clayey Silt
Silt
Clayey Silt
Sandy Silt
Sand
Silty Sand/Sand
Sand
Silty Sand/Sand
Sand
Silt
Sandy Silt
Silt
Clayey Silt
Silty Clay
Clayey Silt
Silty Clay
Clayey Silt
Silt
Sandy Silt
Clayey Silt
Silt
Silty Clay
Silt
Clayey Silt
Sandy Silt
Silty Sand/Sand
Gravelly Sand
Silty Sand/Sand
Sandy Silt
Sand
Gravelly Sand
Sand
Gravelly Sand
Sandy Silt
Sand
Max. Depth: 41.40 (m)
Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)
Equilibrium (or near) Pore Pressure from Dissipation

PLATE 8-33


Legacy Parkway
Site: SC-5-295
Station: 58+521.464 1.91 RT
Elevation: 1284.568
Cone: 20 TON A 092
Date: 02:02:00 07:56
Qt (kPa)
0K
25K
Fs (kPa)
0
250
Rf %
0
10
U (kPa)
0.0K
1.0K
SBT
0
12
Depth (m)
-30.0
-35.0
-40.0
-45.0
Refusal
Refusal
Refusal
Refusal
Sand
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Sand
Silty Sand/Sand
Sand
Silty Sand/Sand
Sandy Silt
Gravelly Sand
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Sand
Max. Depth: 41.40 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)
● Equilibrium (or near) Pore Pressure from Dissipation

ATE B-34


Legacy Parkway
SC-5-296
Elevation: 1284.895
Cone: 20 TON
Date: 02:01:00 13:29
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
Clayey Silt
Silt
Clayey Silt
Silt
Sensitive Fines
Silt
Sensitive Fines
Silt
Sensitive Fines
Silt
Sensitive Fines
Silty Sand/Sand
Clayey Silt
Sensitive Fines
Silty Sand/Sand
Sand
Silt
Sand
Sandy Silt
Sensitive Fines
Silt
Silty Sand/Sand
Clayey Silt
Silt
Sensitive Fines
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Clayey Silt
Silt
Silty Sand/Sand
Sandy Silt
Silt
Silty Sand/Sand
Sandy Silt
Silt
Max. Depth: 41.40 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)

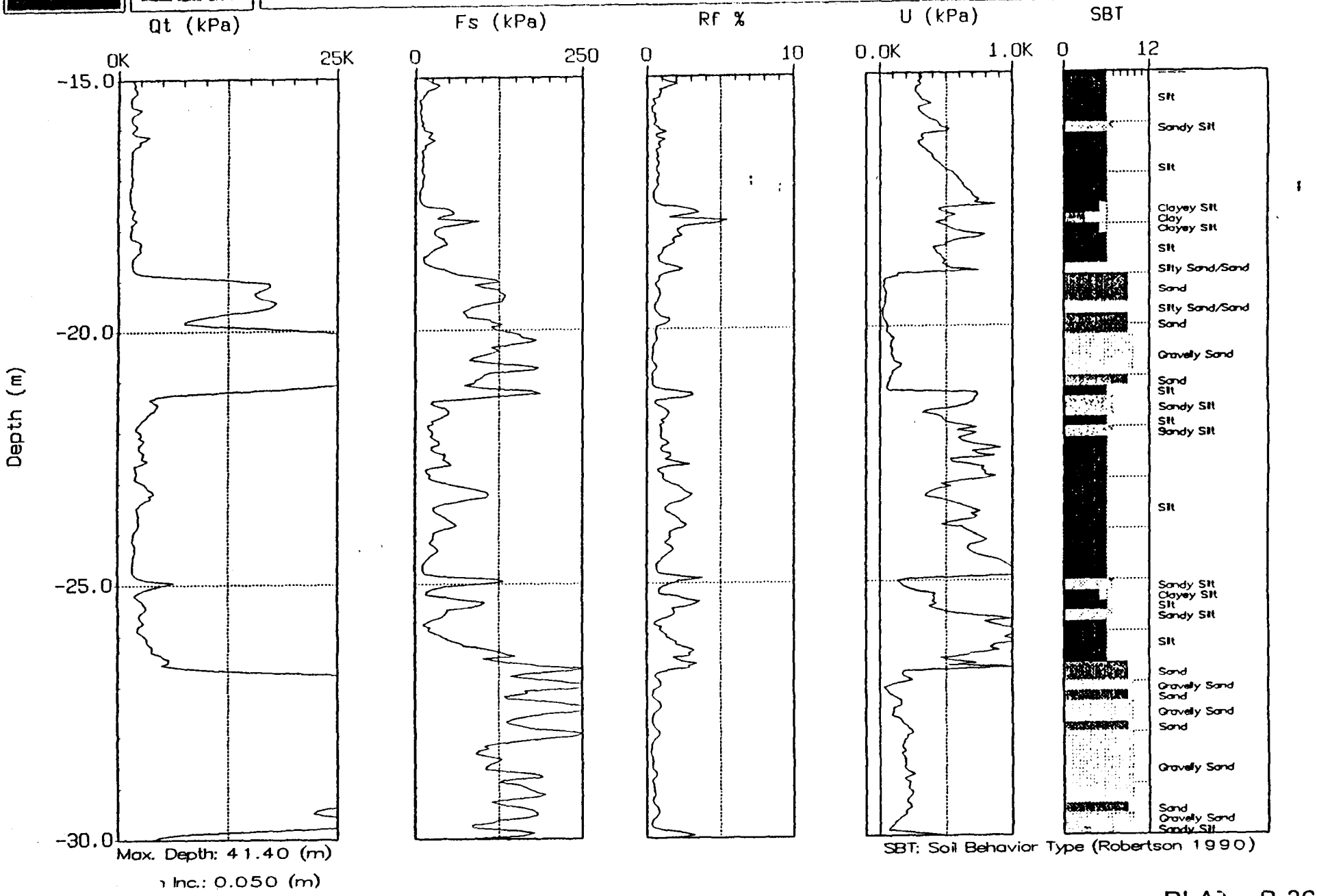
PLATE

CONETEC

Legacy Parkway

Site: SC-5-296
Station: 58+557.465 1.98 RT
Elevation: 1284.895

Cone: 20 TON A 092
Date: 02:01:00 13:29

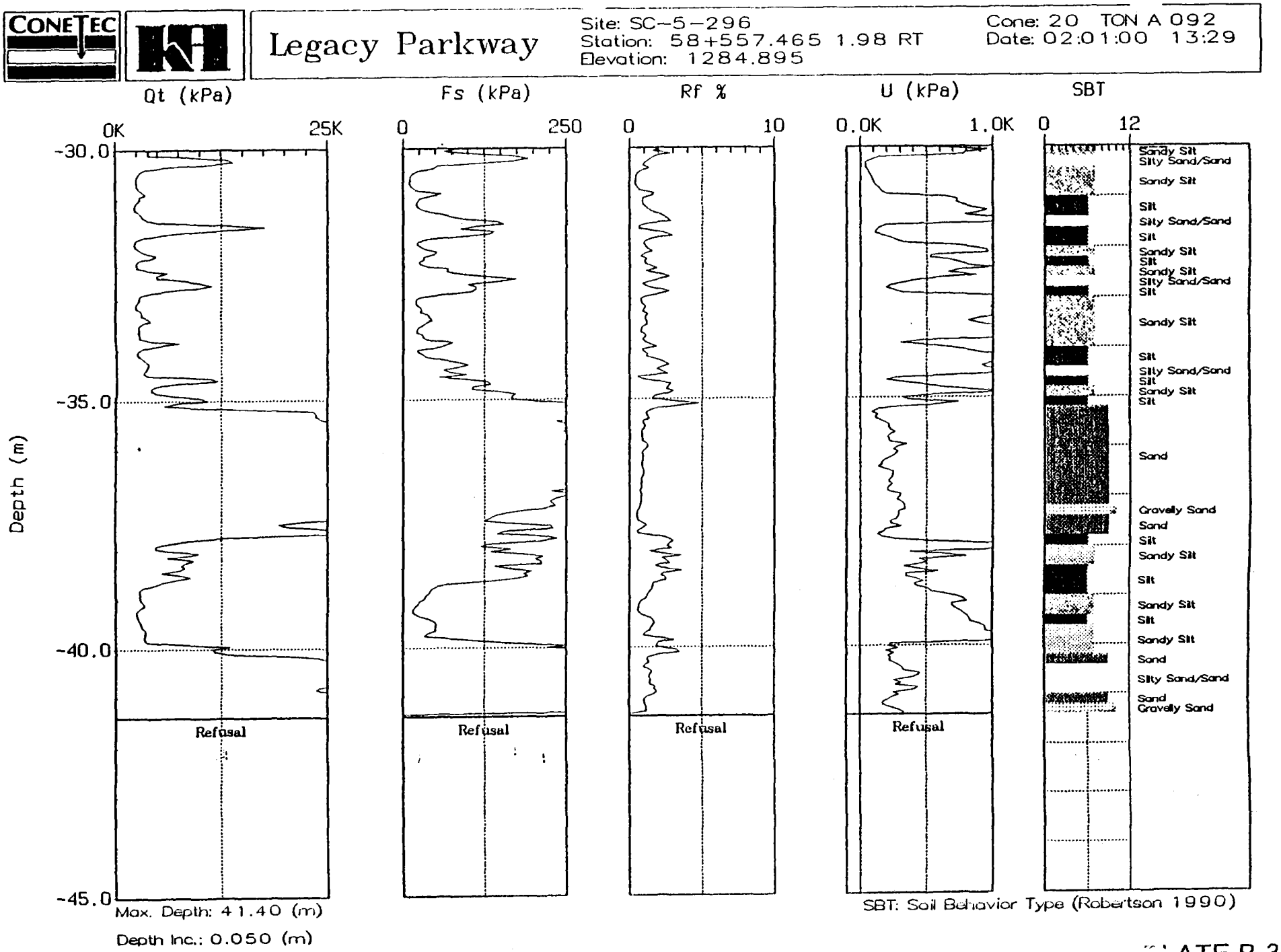


Max. Depth: 41.40 (m)

Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

PLATE B-36


CONETEC
Legacy Parkway
Site: SC-5-296
Station: 58+557.465 1.98 RT
Elevation: 1284.895
Cone: 20 TON A 092
Date: 02:01:00 13:29
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-30.0
-35.0
-40.0
-45.0
Depth (m)
Refusal
Refusal
Refusal
Refusal
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sand
Gravelly Sand
Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Sand
Silty Sand/Sand
Sand
Gravelly Sand
Max. Depth: 41.40 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)

ATE B-37

Boring: SB- 5-297
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
	SILT - moist, brown to black, slightly clayey						ML	A-4								
	- very soft, wet, light gray, 25 mm sand layer	5	2		SPT	610			1 0 1 0							pH 8.7 WSS 540 R 170
	- dark gray to black	10	3		MC	152			1 1 1 0				23	2		
1280	- medium stiff	15	5		P	457				17 29	11.9	47				C TR SG
	Silty CLAY - very stiff, wet, gray, with silty sand seams	20	6		SPT	406	CL-ML	A-6	1 4 7 2						84	
	Lean CLAY - medium stiff, wet, dark gray	25	8		MC	457	CL	A-6	2 3 3 2							
1275		30	9		P	203				38						C SG
	Silty CLAY - stiff, wet, gray	35	11		SPT	610	CL-ML	A-6	3 5 5 2				26	8		
		40	12		MC				3 2 8 18							
	- medium stiff	45	14		P	152				29						
1270	- stiff, occasional silt seams less than 25 mm thick	50	15		SPT	610			2 1 2 5							
		55	16													
		60	18		MC	457			9 12 33 50/75mm							
	Poorly Graded SAND with silt - dense, wet, gray	65	19				SP-SM	A-2-4								

● 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- 5-297**
Sheet 1 of 2

Logged by:	G. Hales
Date Start:	2/22/00
Date Finish:	2/22/00
Station:	58+572.515 1.73 RT
Line:	I-215 to LP SB
Coordinates (m):	N 107,156.398 E 15,748.756
Elevation (m):	1284.909
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 Z003SB1.GPJ 5/30/00

PLATE B-38

Boring: SB- 5-297
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
	Poorly Graded SAND with silt - dense, wet, gray (continued)				SPT	406			6 20 22 22								SV
		70	21														
	Lean CLAY - stiff, wet, olive-gray, trace of gravel				MC		CL	A-6	8 11 10 10	14				39	16		
		75	23														
			24														
	SILT - medium stiff, gray, wet	80	25		SPT	610	ML	A-4	4 4 6 8	8							
1260		85	26		SPT	610			12 17 22 40	28							SV
	Silty SAND - medium dense, wet, grayish brown		27				SM	A-2-4									
	- very dense	90	28		MC	254			23 50/ 125mm								
	- dense	95	29		SPT	356			7 25 46 50/ 125mm	49							
1255			30														
		100	31														
		105	32														
			33														
		110	34														
1250		115	35														
			36														
		120	37														
		125	38														
			39														
1245		130															

UTDOT 2003SB1.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- 5-297**

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

Logged by: **G. Hales**
Date Start: **2/22/00**
Date Finish: **2/22/00**
Station: **58+572.515 1.73 RT**
Line: **I-215 to LP SB**
Coordinates (m): **N 107,156.398 E 15,748.756**
Elevation (m): **1284.909**
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: LSB-5-429
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 $(N_1)_{60}$ / SPT $(N_1)_{60}$ (Greater than 50 Blows) 0 25 50	S_u, kPa (torvane in italics)	Dry Density, kN/m^3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285	Lean CLAY - soft to very stiff, slightly moist to wet, light brown, trace sand				SPT	127	CL	A-6	8 9 10 7	●30							
		5	1		SPT	457			4 2 3 2	●8							
					SPT	508			2 1 2 2	●5							
	Fat CLAY - very soft to soft, wet, light brown		2		SPT	610	CH	A-7-6	2 0 0 1	●0							
		10	3		SPT	127			1 1 0 0	●2							
			4		SPT	610			1 0 1 0	●2			44	71	48	96	
		15	5		SPT	610			0 0 1 1	●1							
1280					SPT	508			1 0 2 11	●3							
	Sandy SILT - soft to stiff, wet, gray, occasional silty sand layers	20	6		SPT	254	ML	A-4	6 7 2 3	●12			21	NP	NP	66	
			7		SPT	330			3 1 2 7	●4						38	
		25			SPT	127			4 7 4 4	●13			21	NP	NP	69	
			8		SPT	508			2 2 1 3	●3			19			67	
	Lean CLAY - soft to stiff, wet, gray	30	9		SPT	584	CL	A-6	1 3 4 3	●8							
1275			10		SPT	508			1 2 3 1	●5							
		35	11		SPT	483			2 2 2 10	●4							
			12		SPT	610			2 3 3 3	●6							
		40			SPT	584			2 2 3 2	●5							
			13		SPT	610			0 1 2 3	●3							
		45	14		SPT	432			3 7 6 7	●12							
					SPT	533			2 2 3 3	●5							
1270		50	15		SPT	610			1 2 3 3	●4							
	Refer to SB-5-297 for additional lithology between 15.8 and 30.5 meters.		16														
		55	17														
			18														
		60															
			19														
		65															

UTDOT 3511ZLSI.GPJ 12/30/02

Legacy Parkway Design/Build
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8440-06

FIELD TEST BORING LOG

Boring: **LSB-5-429**

Sheet 1 of 3

Logged by:	M. Ivers
Date Start:	7/3/01
Date Finish:	7/6/01
Station:	58+585 0.00 RT
Line:	I-215 WB to LP SB
Coordinates (m):	N 107,166.772 E 15,760.539
Elevation (m):	1285.159
Total Depth Drilled (m)	45.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Rig Serial Number:	D-120009
Drilling Method:	Hollow-Stem Auger
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

PLATE A-1
STRUCTURE 5

Boring: LSB-5-429
Sheet 2 of 3

Elevation (m)	SAMPLE DESCRIPTION (ASTM D 2488/D 2487)	Depth ft	Depth m	Graphic Log	SAMPLE Type	SAMPLE Recovery (mm)	SAMPLE Soil Classification USCS	SAMPLE Soil Classification AASHTO	SAMPLE 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)	Test Results * Dry Density, kN/m³	Test Results * Moisture, %	Test Results * Liquid Limit	Test Results * Plasticity Index	Test Results * % Passing No. 200	Test Results * Other Tests
1265	Refer to SB-5-297 for additional lithology between 15.8 and 30.5 meters.																
		70	21														
			22														
		75	23														
			24														
		80	25														
1260																	
		85	26														
			27														
		90	28														
		95	29														
			30														
1255	Lean CLAY - stiff to very stiff, wet, gray	100	31		SPT	610	CL	A-6	6 8 10 17	11			26	38	18		
		105	32		SPT	508			4 5 7 7	7							
			33														
	SILT - very stiff to hard, wet, gray, with some fine sand	110	34		SPT	483	CL ML	A-7-6 A-4	5 9 17 21	16			27	42	22		
1250		115	35		SPT	533			14 21 34 37	32							
			36														
	Silty SAND - very dense, wet, gray	120	37		SPT	406	SM	A-2-4	6 20 37 49	33			18			14	
		125	38		SPT	610	CL-ML	A-4	5 9 11 13	11							
	Silty CLAY - very stiff, wet, olive gray		39														
		130			SPT					12							

UTDOT 3511ZLSI.GPJ 12/30/02

Legacy Parkway Design/Build
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8440-06

FIELD TEST BORING LOG

Boring: **LSB-5-429**

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

Logged by:	M. Ivers
Date Start:	7/3/01
Date Finish:	7/6/01
Station:	58+585 0.00 RT
Line:	I-215 WB to LP SB
Coordinates (m):	N 107,166.772 E 15,760.539
Elevation (m):	1285.159
Total Depth Drilled (m):	45.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type.	Diedrich D-120 ATV
Rig Serial Number:	D-120009
Drilling Method:	Hollow-Stem Auger
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

PLATE A-2
STRUCTURE 5

Boring: LSB-5-429
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
1245	Silty CLAY (continued) - very stiff, wet, olive gray					508			6 10 12 16				22	26	7	97	
	Poorly Graded SAND - very dense, wet, dark gray	135	41		SPT	457	SP	A-3	13 23 50/125 mm								
		140	42														
	Lean CLAY - hard, wet, gray		43		SPT	610	CL	A-6	15 17 19 22	19							
		145	44														
	Sandy SILT - hard, wet, gray				MC	279	ML	A-4	10 50/125 mm								
1240			45		SPT	559			10 23 25 20	22							
		150	46														
		155	47														
			48														
		160	49														
1235			50														
		165	51														
		170	52														
			53														
		175	54														
1230		180	55														
			56														
		185	57														
		190	58														
			59														
		195															

UTDOT 35112L-SI.GPJ 12/30/02

Legacy Parkway Design/Build
I-215 to I-15/US 89 Interchange
KLEINFELDER
Project No. 35-8440-06

FIELD TEST BORING LOG

Boring: **LSB-5-429**

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

Logged by:	M. Ivers
Date Start:	7/3/01
Date Finish:	7/6/01
Station:	58+585 0.00 RT
Line:	I-215 WB to LP SB
Coordinates (m):	N 107,166.772 E 15,760.539
Elevation (m):	1285.159
Total Depth Drilled (m):	45.1
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120 ATV
Rig Serial Number:	D-120009
Drilling Method:	Hollow-Stem Auger
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

PLATE A-3
STRUCTURE 5

Boring: SB-11-259
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
1285	Lean CLAY - wet, dark brown in top 0.3 m and gray in bottom 0.3 m, frequent roots				BAG		CL	A-6									
		1															
	- very soft, light brown, with occasional seams of very fine-grained sands	5	2		SPT	610			0 0 0 2	●0							pH 9.1 WSS R
	- medium stiff, with 150 mm silty sand layer	10	3		P	610					*38*						
			4														
	- very soft, gray to black, mottled light brown, with frequent seams of very fine-grained seams	15	5		SPT	610			1 0 1 0	●1							
1280																	
	- medium stiff	20	6		P						*38*						
			7														
	- very soft	25	8		SPT	610			0 0 2 3	●2							
	Silty SAND - medium stiff, wet, gray	30	9		P		SM	A-2-4			17 *34*	15.3	27	31	6	50	C SG
			10														
1275	Lean CLAY - wet, gray	35	11		SPT	610	CL	A-6	3 3 2 4	●5							
		40	12		P	0											
	Silty SAND - wet, gray		13		P	0	SM	A-2-4									
	Sandy SILT - very stiff, wet, gray, frequent seams of silty sand	45	14		SPT	305	ML	A-4	3 7 17 28	●23							
1270	Silty SAND - dense, wet, gray, with frequent layers of poorly graded sand	50	15		SPT		SM	A-2-4	9 14 22 30	●33							
			16														
		55	17														
	- medium dense	60	18		SPT	610			7 7 10 17	●14							
			19														
		65															

UTDOT 2003SB1.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-11-259**

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

Logged by:	M. Bostrom
Date Start:	1/26/00
Date Finish:	1/29/00
Station:	5+389.204 2.96 RT
Line:	CENTER STREET
Coordinates (m):	N 107,991.325 E 15,633.072
Elevation (m):	1285.193
Total Depth Drilled (m):	50.6
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

PLATE B-94

Boring: SB-11-259
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
1265	Silty SAND - medium dense, wet, gray, with frequent layers of poorly graded sand (continued)	70	21		SPT	457			6 13 25 30	29							
			22														
	Poorly Graded SAND - medium dense, wet, gray, coarse-grained, frequent layers of silty sand	75	23		SPT	610	SP	A-3	6 17 23 28	29							
			24														
	Silty CLAY - stiff, wet, gray, with occasional layers of very fine sand	80	25		SPT	610	CL-ML	A-6	9 5 7 10	9							
1260																	
		85	26														
			27														
	- medium stiff	90			P	610					74 / *43*	16.8	23	35	16	93	C TR SG
			28														
		95	29														
1255	- very stiff, frequent layers of silt and poorly graded sand	100	30		SPT	457			14 23 13 17	24							
			31														
		105	32														
			33														
	SILT - medium stiff, wet, gray	110			P	508	ML	A-4			*34*						
			34														
1250		115	35														
			36														
		120			SPT	610			7 7 7 9	8							
			37														
		125	38														
			39														
	Silty SAND - moist, bluish-gray, fine-grained	130			P	457	SM	A-2-4									

UTDOT 2003SB1.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-11-259**

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

Logged by:	M. Bostrom
Date Start:	1/26/00
Date Finish:	1/29/00
Station:	5+389.204 2.96 RT
Line:	CENTER STREET
Coordinates (m):	N 107,991.325 E 15,633.072
Elevation (m):	1285.193
Total Depth Drilled (m):	50.6
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

PLATE B-95

Boring: SB-11-259
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
1245	Silty SAND - moist, bluish-gray, fine-grained (continued)																
	Lean CLAY - medium stiff, wet, olive-gray, with frequent silt layers 0.15 to 0.3 m thick	135	41		SPT	610	CL	A-6	5 3 9 13	●7							
			42														
		140	43														
			44		P	356											
1240		145	45														
		150	46														
			47		SPT				3 3 8 7	●5							
		155	48														
		160	49														
1235			50		P	0											
		165	51														
		170	52														
			53														
		175	54														
		180	55														
1230			56														
		185	57														
		190	58														
			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-11-259**

Sheet 3 of 3

Logged by:	M. Bostrom
Date Start:	1/26/00
Date Finish:	1/29/00
Station:	5+389.204 2.96 RT
Line:	CENTER STREET
Coordinates (m):	N 107,991.325 E 15,633.072
Elevation (m):	1285.193
Total Depth Drilled (m):	50.6
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

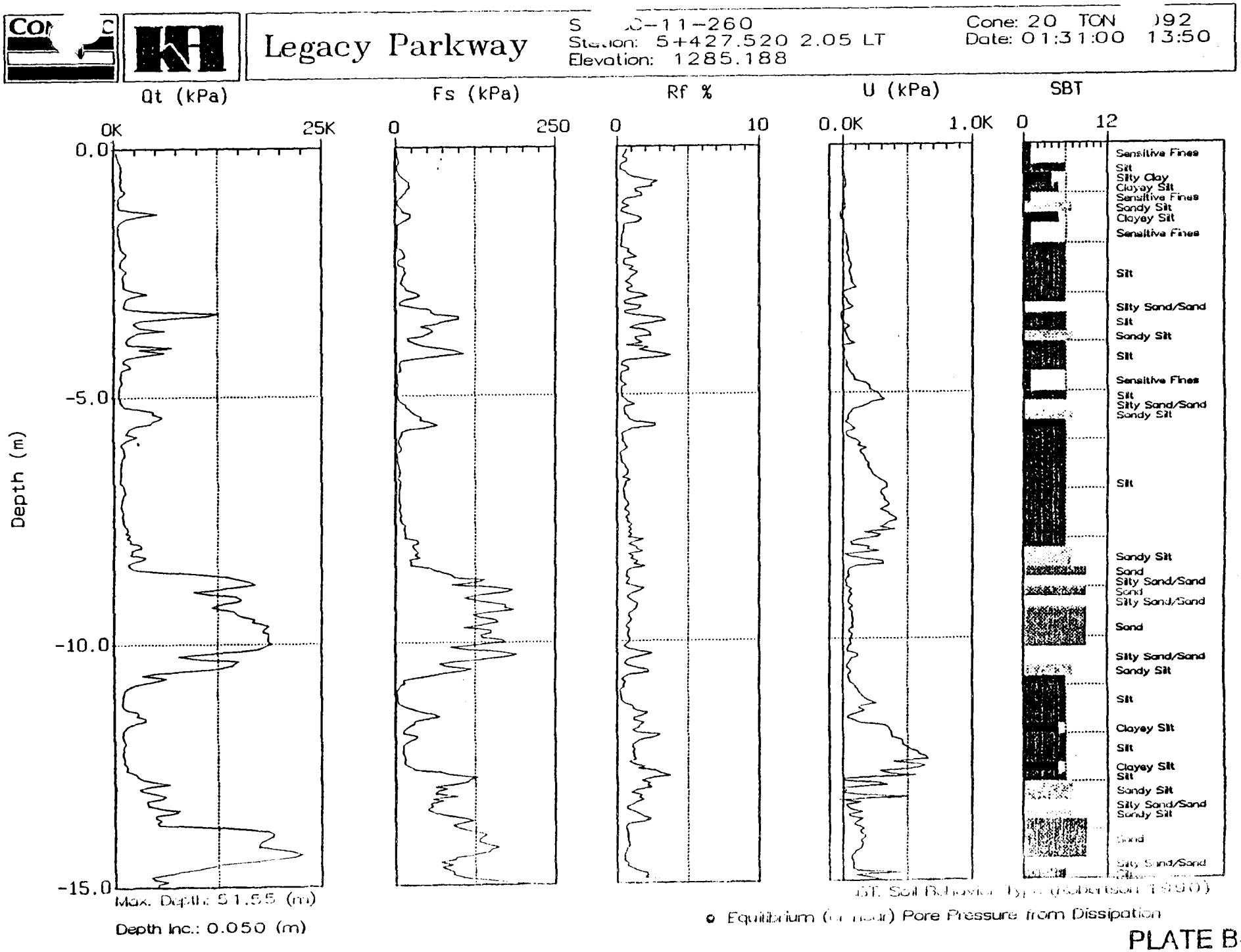

Legacy Parkway
S -11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188
Cone: 20 TON 092
Date: 01:31:00 13:50
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
Sensitive Fines
Silt
Silty Clay
Clayey Silt
Sensitive Fines
Sandy Silt
Clayey Silt
Sensitive Fines
Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Sensitive Fines
Silt
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Sand
Silty Sand/Sand
Sand
Silty Sand/Sand
Sand
Silty Sand/Sand
Sandy Silt
Silt
Clayey Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Sand
Silty Sand/Sand
Max. Depth: 51.55 (m)
Depth Inc.: 0.050 (m)
Equilibrium (24 hour) Pore Pressure from Dissipation

PLATE B-97

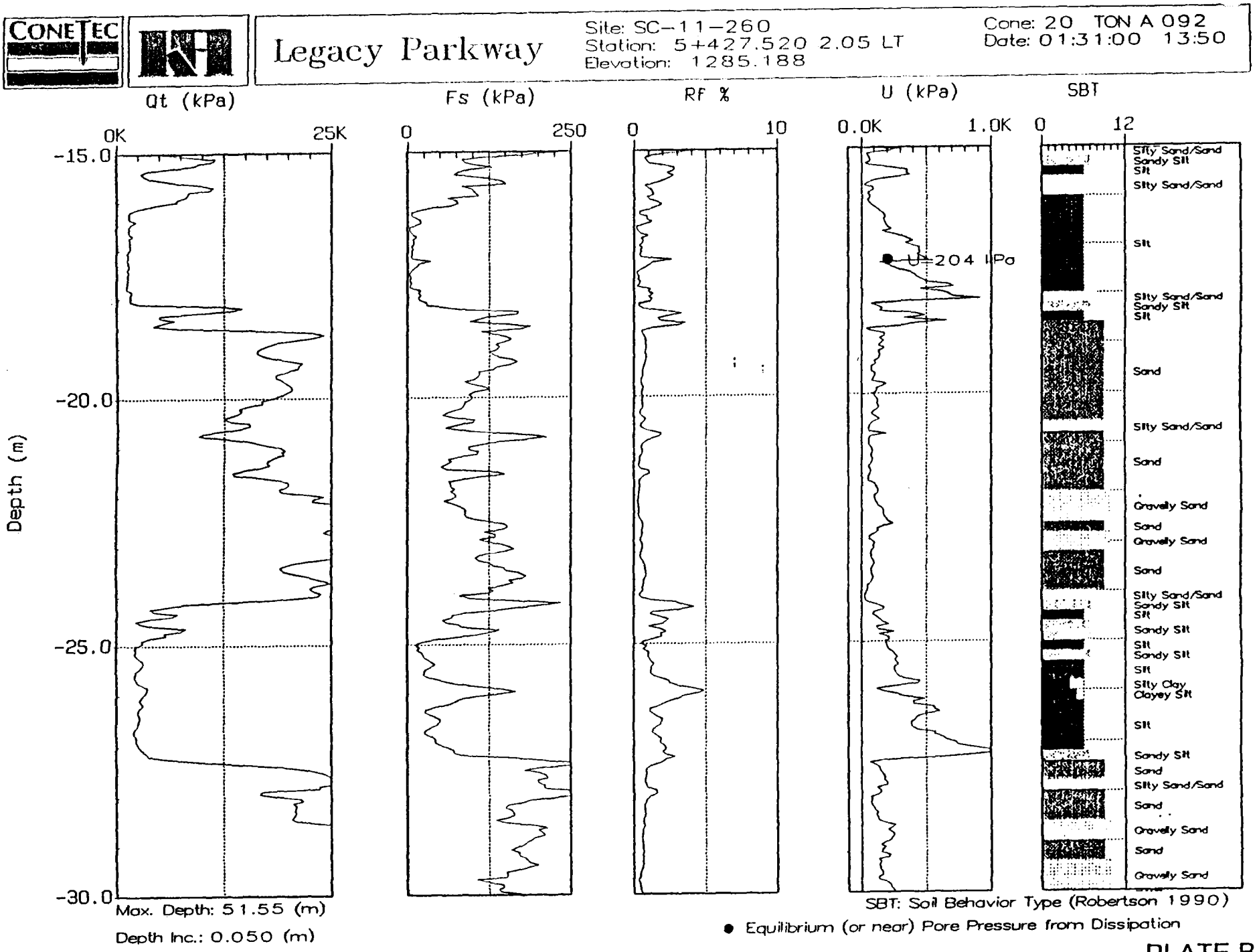

CONETEC
Legacy Parkway
Site: SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188
Cone: 20 TON A 092
Date: 01:31:00 13:50
Qt (kPa)
Fs (kPa)
RF %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-15.0
-20.0
-25.0
-30.0
Depth (m)
U=204 kPa
Silty Sand/Sand
Sandy Silt
Silt
Silty Sand/Sand
Silt
Silty Sand/Sand
Sandy Silt
Silt
Sand
Silty Sand/Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Sand
Silty Sand/Sand
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Silty Clay
Clayey Silt
Silt
Sandy Silt
Sand
Silty Sand/Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
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

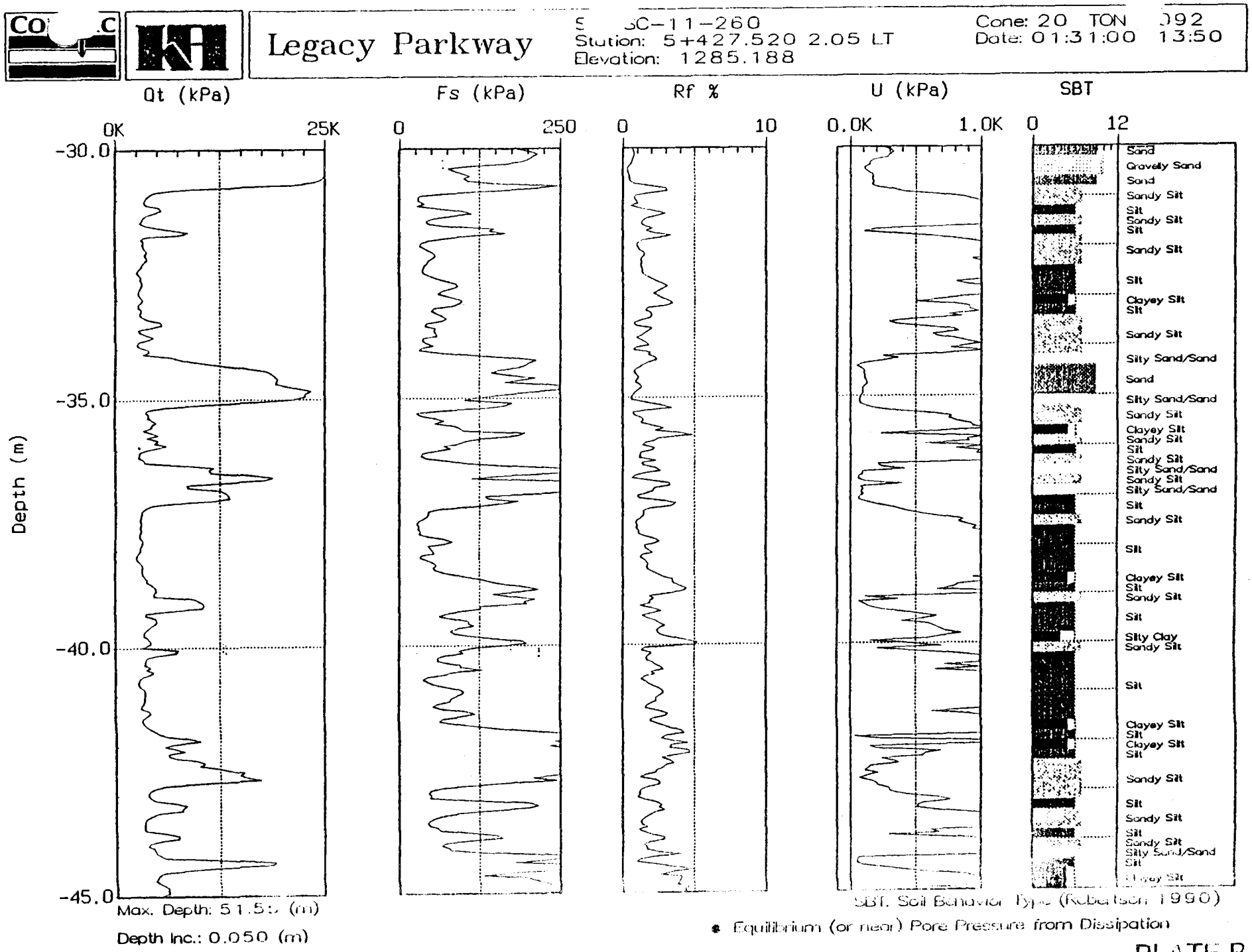

Legacy Parkway
SC-11-260
Station: 5+427.520 2.05 LT
Elevation: 1285.188
Cone: 20 TON
Date: 01:31:00 13:50
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-30.0
-35.0
-40.0
-45.0
Depth (m)
Sand
Gravelly Sand
Sand
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silty Sand/Sand
Sand
Silty Sand/Sand
Sandy Silt
Clayey Silt
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Silt
Sandy Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Silty Clay
Sandy Silt
Silt
Clayey Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silty Sand/Sand
Silt
Clayey Silt
Max. Depth: 51.5 (m)
Depth Inc.: 0.050 (m)
SBT: Soil Behavior Type (Robertson 1990)
* Equilibrium (or near) Pore Pressure from Dissipation

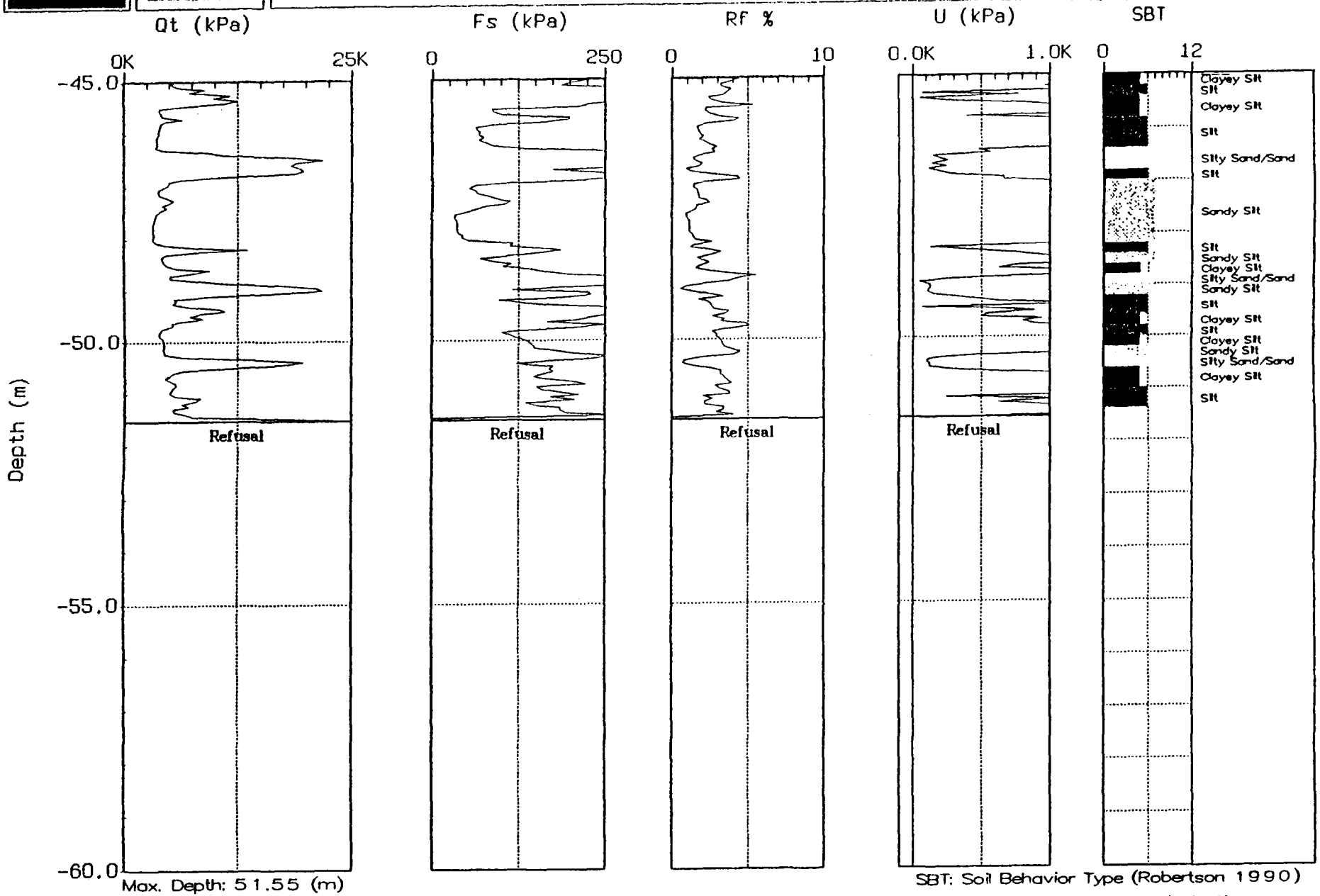
PLATE B-99

CONETEC

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

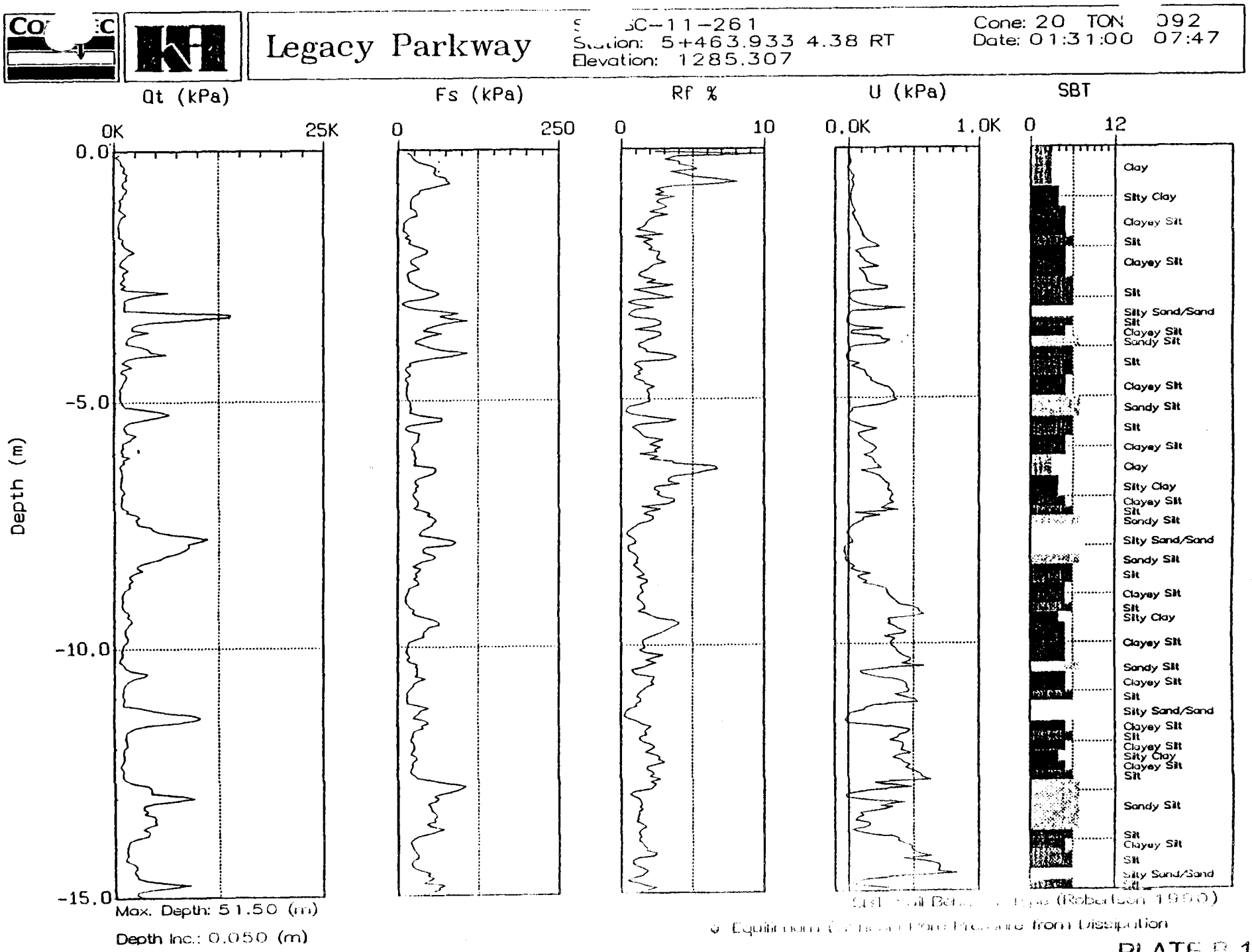

Legacy Parkway
SC-11-261
Station: 5+463.933 4.38 RT
Elevation: 1285.307
Cone: 20 TON 092
Date: 01:31:00 07:47
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
Clay
Silty Clay
Clayey Silt
Silt
Clayey Silt
Silt
Silty Sand/Sand
Silt
Clayey Silt
Sandy Silt
Silt
Clayey Silt
Sandy Silt
Silt
Clayey Silt
Clay
Silty Clay
Clayey Silt
Silt
Sandy Silt
Silty Sand/Sand
Sandy Silt
Silt
Clayey Silt
Silt
Silty Clay
Clayey Silt
Sandy Silt
Clayey Silt
Silt
Silty Sand/Sand
Clayey Silt
Silt
Clayey Silt
Silty Clay
Clayey Silt
Silt
Sandy Silt
Silt
Clayey Silt
Silt
Silty Sand/Sand
Max. Depth: 51.50 (m)
Depth Inc.: 0.050 (m)

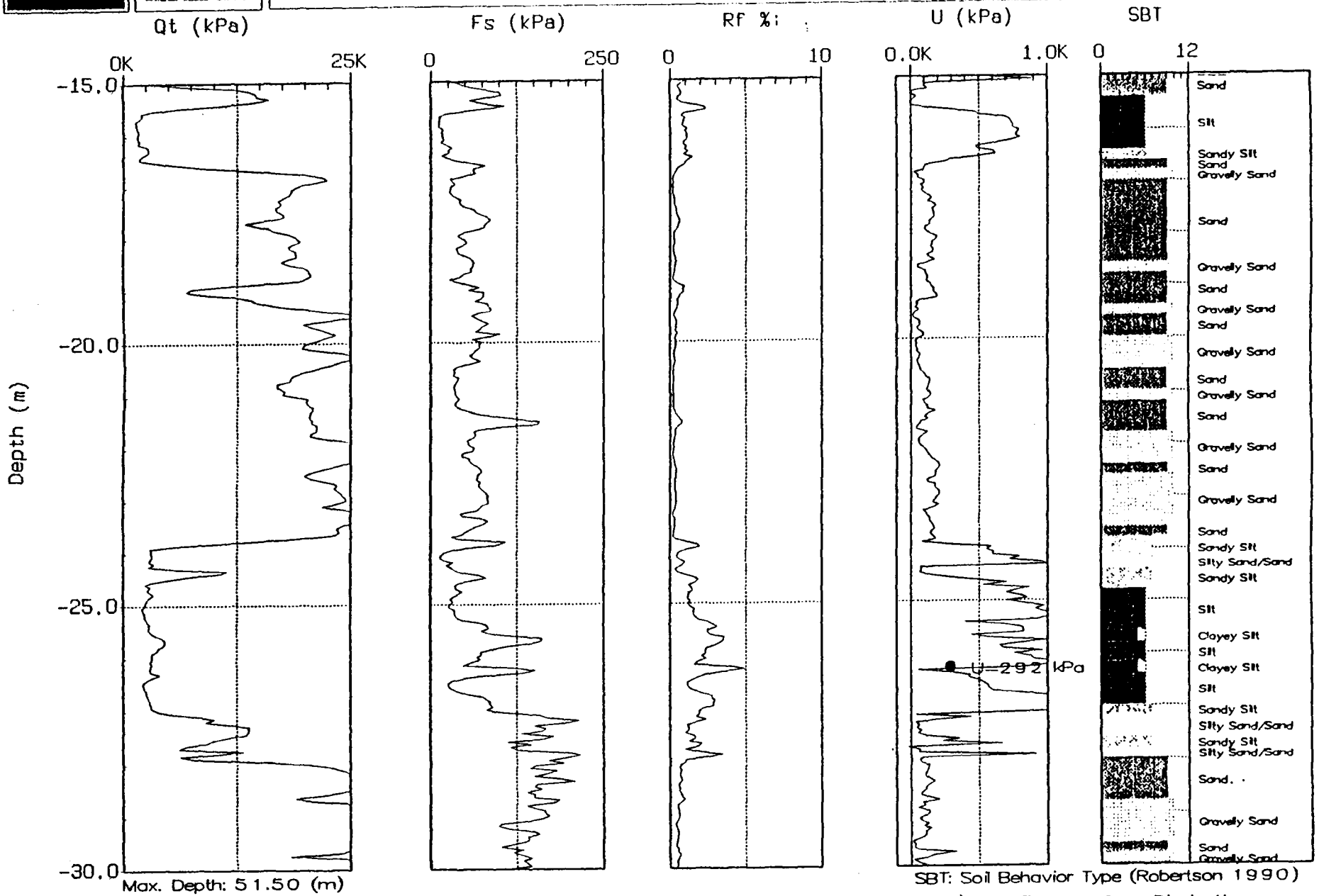
PLATE B-101

CONETEC

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)

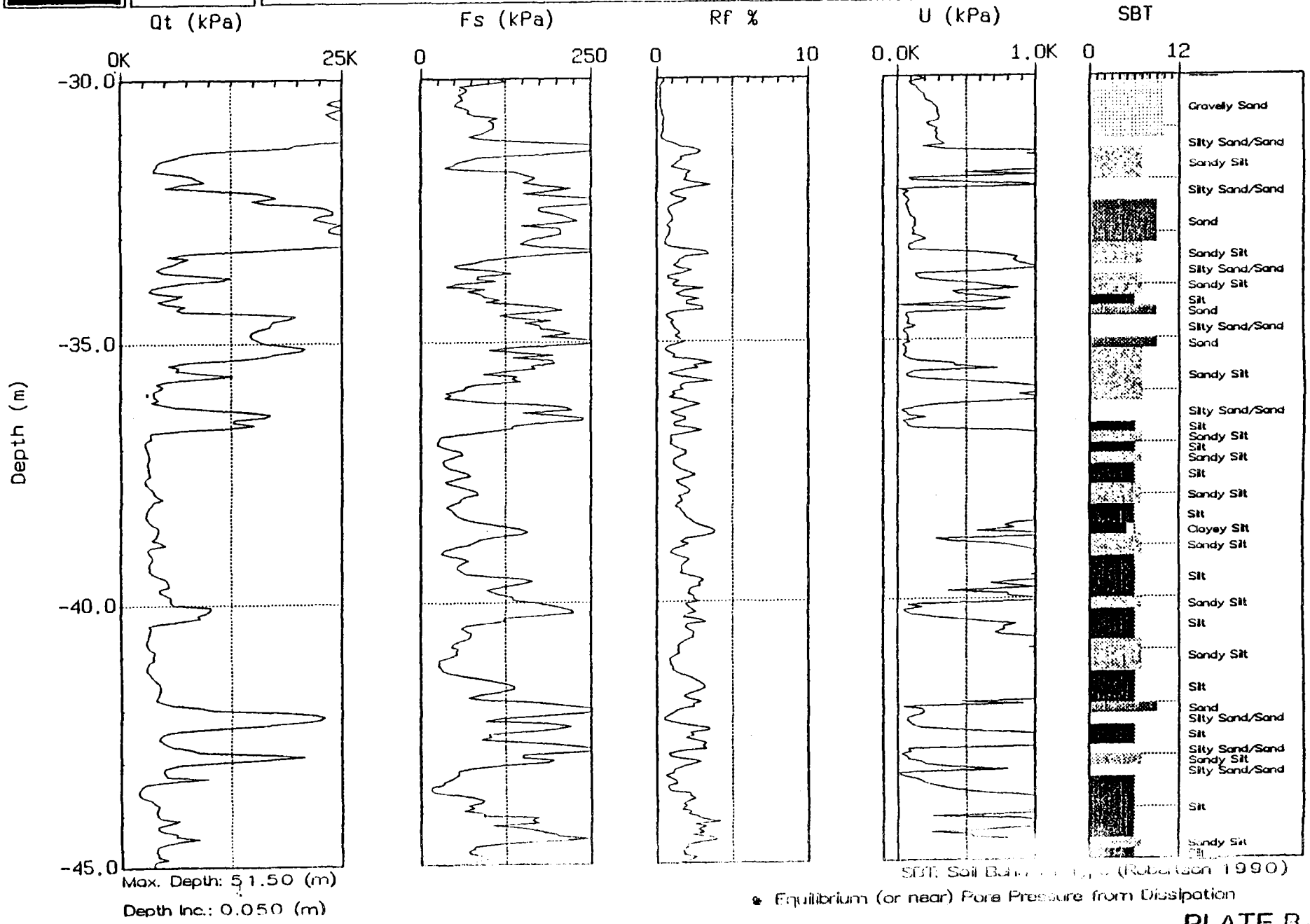
● Equilibrium (or near) Pore Pressure from Dissipation

PLATE B-102

Legacy Parkway

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

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



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

SBT: Soil Ba... (Robertson 1990)

* Equilibrium (or near) Pore Pressure from Dissipation

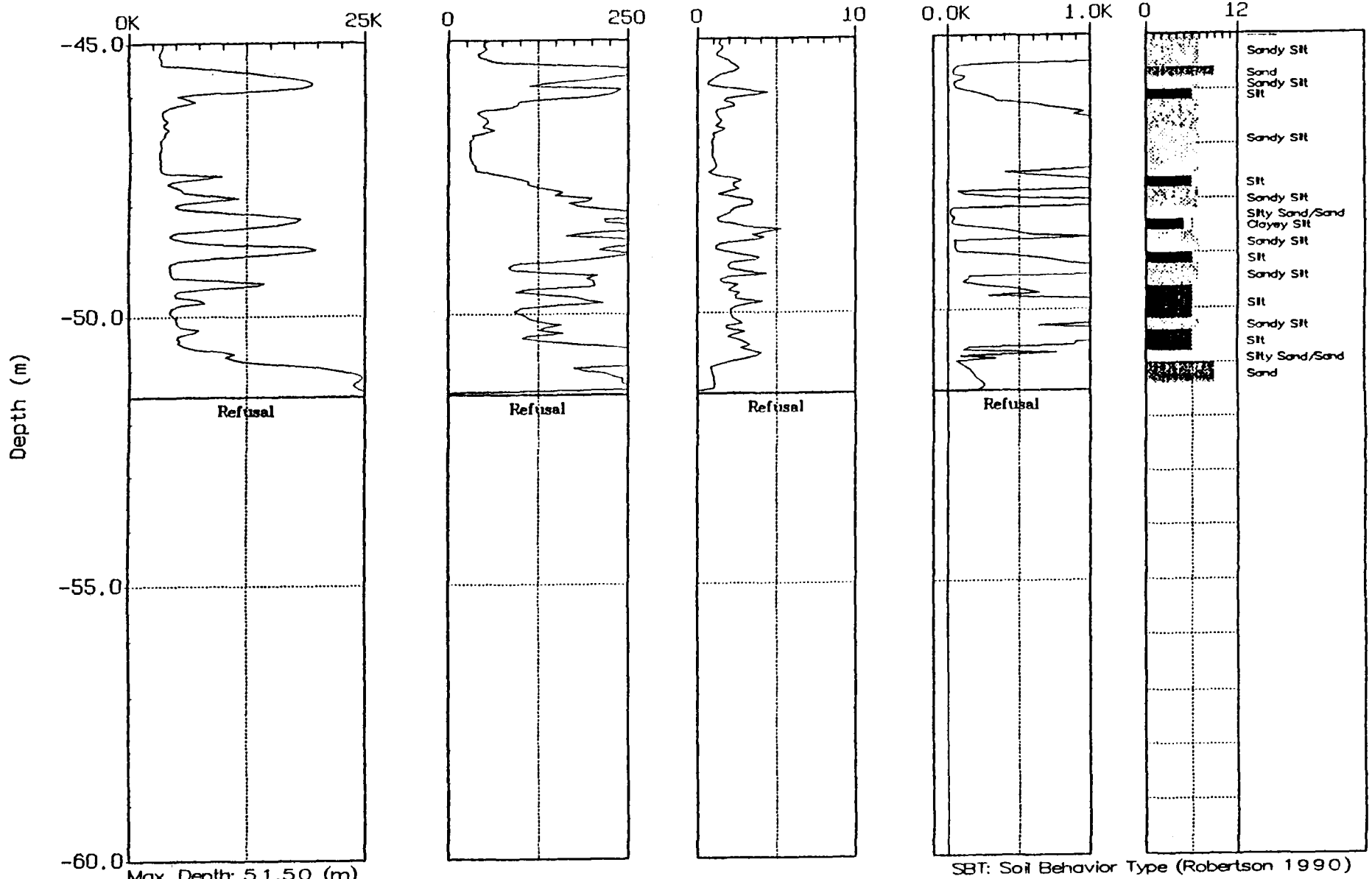
PLATE B-103

CONETEC

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-104

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) 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 GRAVEL - loose, moist				SPT	330			1 2 2 4	●8							
1285		5	1		SH	457											pH 9.4 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														
	Sandy SILT - very soft, wet, gray, frequent sand seams		5		SH	356	ML	A-4									SV
1280	- medium stiff, moist, bluish-gray	20	6		SPT	610			1 2 2 1	●6							
		25	7														
			8		SH	457					21 *38*	17.3	10	29	9	77	SV C SG
		30	9		SPT	559			3 2 2 3	●6							
		35	10														
1275			11		SH	559					37 24	15.0	29				
	Fat CLAY - soft, wet, black to blackish-gray, occasional 3 mm thick sand seams	40	12		SPT	610	CH	A-7-6	0 0 3 3	●4			51	72	44		
		45	13														
			14		SH	0											
	- stiff, interbedded with silt and sand seams				SPT	610			3 3 8 9	●12							
		50	15		SH	0											
1270	- very stiff		16		SPT	610			8 9 10 9	●21							
		55	17		SH						62 *67*	13.6	33	61	35	99	C SG
			18														
	Silty SAND - medium dense, wet, gray	60	19		SPT	610	SM	A-2-4	0 6 14 24	●20							
		65															

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-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

B BAG = Bulk Sample

PLATE B-105

Boring: SB-11-262
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 $(N_1)_{60}$ / 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														
1255	- occasional poorly graded sand layers	100	31		SPT	610			7 8 37 37	35							
		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 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-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

PLATE B-106

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)	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 - 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	17							
			42														
	- olive-gray, trace of sand seams up to 4 mm thick	140	43		SPT	610			10 17 23 21	28							
		145	44		SPT	610			11 18 22 21	26							
1240			45														
		150	46		SPT	610			8 20 26 21	30							
			47														
		155	48														
		160	49														
			50														
		165	51														
		170	52														
			53														
		175	54														
		180	55														
			56														
1235		185	57														
		190	58														
			59														
1230		195															

UTDOT Z0035B1.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 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

PLATE B-107

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 $(N_1)_{60}$ / 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 - 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														
	- medium stiff, occasional silt seams	10	3		SPT	457			1 1 2 1	6				51	26		
-	- frequent silt seams from 3.5 to 3.7 meters		4														
1280		15	5		SH	660					20 *24*	12.7	41				
	- 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							
1275		30	9		SH	305					*19*	14.7	28	NP	NP	70	C SG
	Lean CLAY - soft, wet, gray, varved, silt and sand lenses 1.5 to 3.0 mm thick		10				CL	A-6									
		35	11		SPT	610			1 2 1 3	4							
		40	12		SH	711					*36*						
	- very soft		13														
1270		45	14		SPT	610			0 0 0 0	0							
		50	15		SH	711											
			16								*34*	15.1	28	36	15		C SG
		55	17														
			18														
		60			SPT	610			0 0 0 1	0							
1265			19														
		65															

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-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

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

PLATE B-315

Boring: SB-32-357
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
	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
		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						
1255	- stiff, occasional sand layers	95	29														
			30														
		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				CL	A-6									
	Silty SAND - very dense, wet, gray				SPT	610	SM	A-2-5	7 33 44 27								
	Lean CLAY - hard, wet, gray		36				CL	A-6									
	Silty SAND - very dense, wet, gray	120	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				SPT	559	SM	A-2-5	8 12 24 32	●26				44	25		
1245		130	39		SPT					●14							

UTDOT Z0035B2A.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-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

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

PLATE B-316

Boring: SB-32-357
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
	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									
1240			43		SPT	559			9 13 17	20							
		145	44														
			45														
		150	46														
			47														
		155	48														
1235		160	49														
			50														
		165	51														
		170	52														
			53														
		175	54														
1230		180	55														
			56														
		185	57														
		190	58														
			59														
1225		195															

UTDOT Z0035B2A.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-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)

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

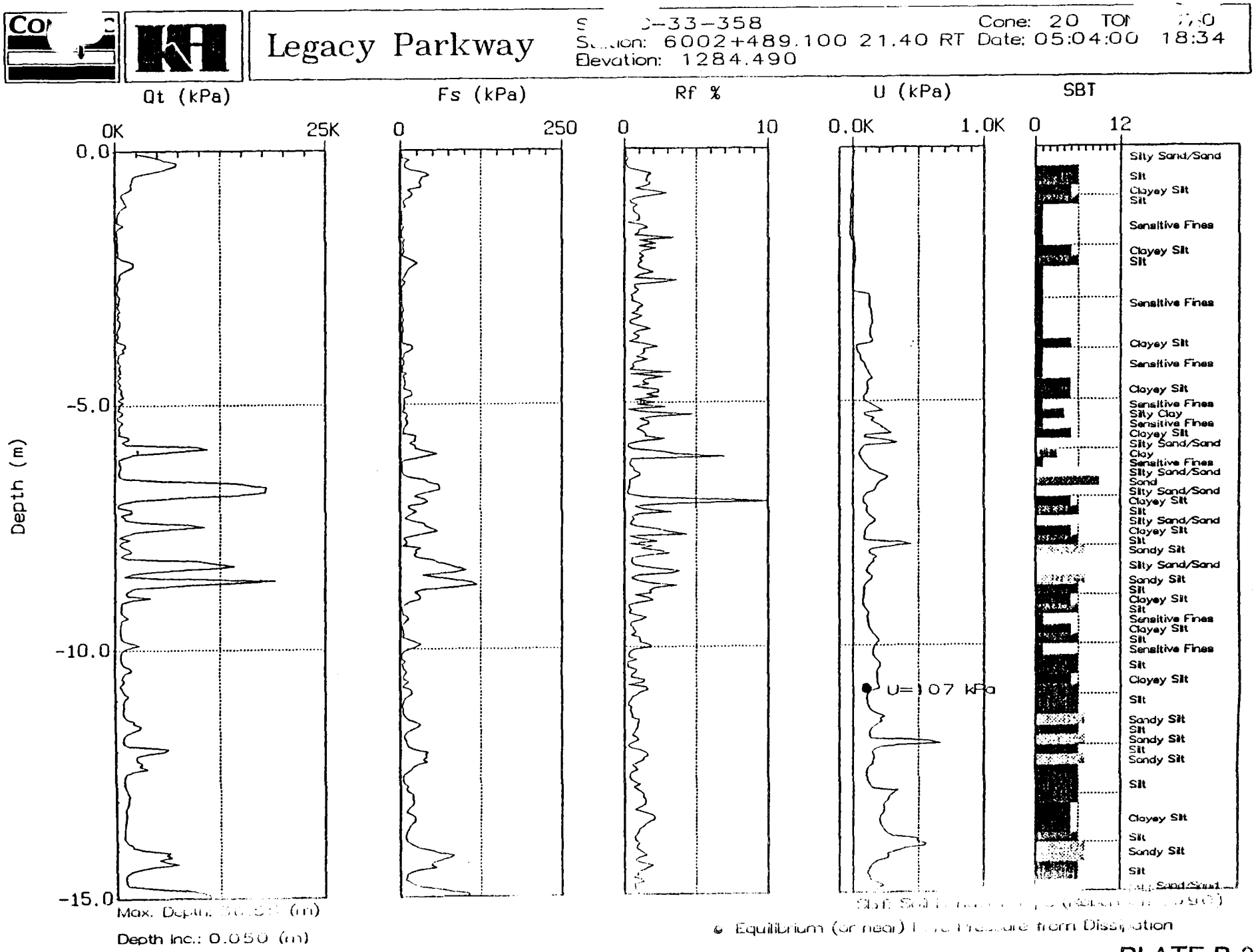

Legacy Parkway
Cone: 20 TOI
Elevation: 1284.490
Date: 05:04:00 18:34
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
U=107 kPa
Silty Sand/Sand
Silt
Clayey Silt
Sensitive Fines
Silty Clay
Clay
Sand
Sandy Silt
Max. Depth
Depth Inc.: 0.050 (m)
Equilibrium (or near) Pore Pressure from Dissipation

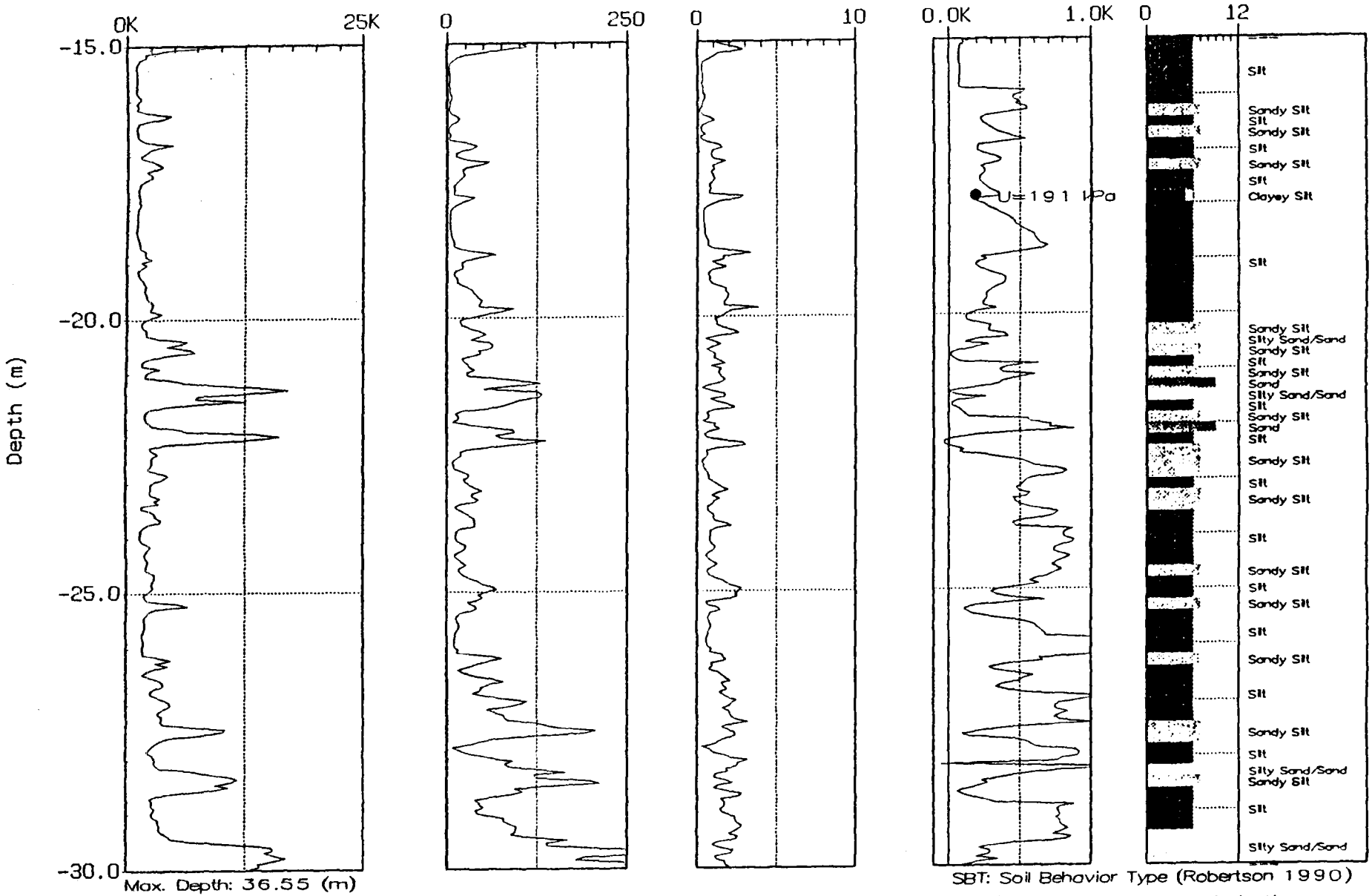
PLATE B-318

CONETEC

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

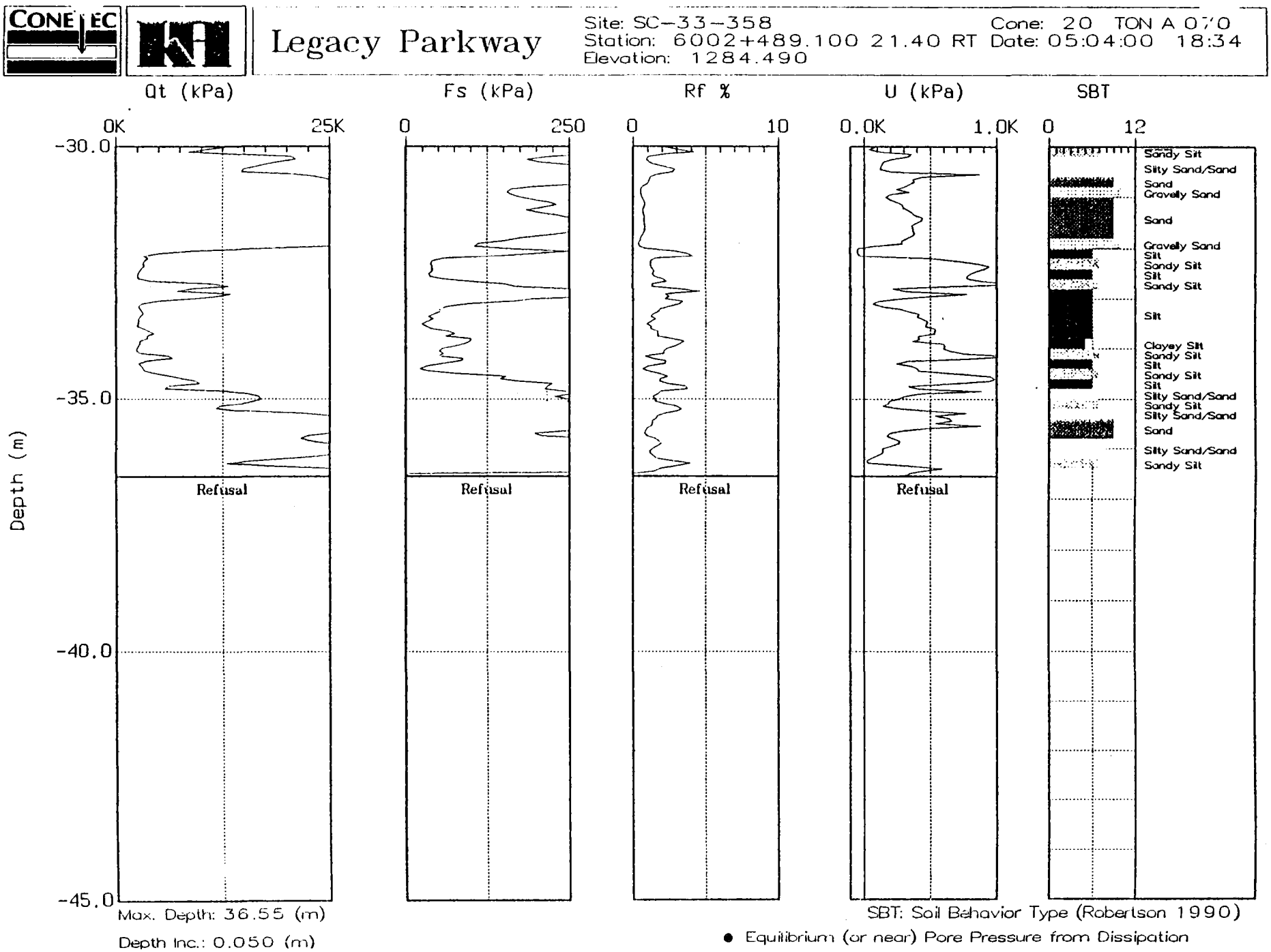

CONE EC
Legacy Parkway
Site: SC-33-358
Station: 6002+489.100 21.40 RT
Elevation: 1284.490
Cone: 20 TON A 07'0
Date: 05:04:00 18:34
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
-30.0
-35.0
-40.0
-45.0
Depth (m)
Refusal
Refusal
Refusal
Refusal
Sandy Silt
Silty Sand/Sand
Sand
Gravelly Sand
Sand
Gravelly Sand
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Clayey Silt
Sandy Silt
Silt
Sandy Silt
Silt
Silty Sand/Sand
Sandy Silt
Silty Sand/Sand
Sand
Silty Sand/Sand
Sandy Silt
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

Boring: WB-26-314
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 and GRAVEL- very dense, moist, light brown to brown				MC	508			10 12 21 50			21.5	4				
			1		SPT	457			40 28 21 10								
		5			MC	457			8 22 22 27			19.2	10				SV
1285	- yellowish to reddish brown		2		SPT	610			15 27 22 25								
		10	3		MC	508	CL	A-6	9 5 7 7	19							
	Lean CLAY - very stiff, wet, dark brown, some fine-grained sand - stiff, wet, olive-gray to gray mottled white - very stiff, wet, frequent seams of very fine-grained sands		4		SPT	610			3 3 4 3	12							
		15			MC	0			4 6 7 5	19							
			5		SPT	610			3 1 1 1	4							
	- soft, some fine-grained gravel - with occasional fine to medium-grained sand seams	20	6		P	610					24 *34*	10.2	62	51	22		C SG
	- gray transitions to black		7		SPT	457			1 1 1 0	4							
1280		25			MC	610			2 2 1 2	3							
	- soft, wet, with frequent seams of very fine sands, trace fine to coarse-grained gravel		8		SPT	610			1 2 1 2	3							
	frequent seams of very fine-grained sands - Silty SAND layer - loose to medium dense - with frequent silty sand and gravel layers	30	9		MC	457			5 5 4 7	11							
	Silty SAND - dense to medium dense, wet, gray		10		SPT	457	SM	A-2-5	14 14 9 3	33							
		35	11		MC	610			4 9 4 4	15							
	Lean CLAY - stiff, wet, black to gray, frequent silty sand layers 25 to 50 mm thick				SPT	610	CL	A-6	3 4 4 6	10							
1275		40	12		P	152					*34*	14.7	29	28	6		C SG
			13		SPT	610			1 7 4 5	14							
	Clayey SAND - loose, wet, brownish gray to gray, frequent silt and clay layers	45	14		MC	610	SC	A-2-6	5 3 3 4	6							
					SPT	610			5 3 3 4	8							
		50	15														
			16														
1270		55	17														
			18														
		60															
			19														
		65															

UTDOT Z003WB.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: **WB-26-314**

Sheet 1 of 1

Logged by:	M. Bostrom
Date Start:	1/21/00
Date Finish:	12/21/99
Station:	6002+387.809 1.33 RT
Line:	D MAINLINE
Coordinates (m):	N 107,026.080 E 15,626.314
Elevation (m):	1287.204
Total Depth Drilled (m):	14.9
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

PLATE C-57

Boring: WB-29-320
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
	TOPSOIL: Sod - poor recovery				SPT	152	CL	A-6	3 3 7 9	●16							
1285	Lean CLAY - very stiff, moist, dark brown				MC	610			6 8 9 8	●22							
	- olive-brown mottled reddish brown	5	1		SPT	457			1 1 2 1	●4							
	- soft, wet		2		SH	610											C SG
	- silty SAND layer, 200 to 300 mm thick										*13*						
	- medium stiff, gray mottled black	10	3		SPT	457			4 3 1 2	●5							
	- with frequent sand layers, 3 mm thick																
	- very soft, frequent silt layers 12 mm thick		4		MC				3 1 1 5	●2				39	15	92	
		15			SH	610											
			5		SPT	356			3 1 1 5	●2	*12*						
1280		20	6		P	305											
	- medium stiff		7		SPT	457			4 3 2 2	●5	*29*						
	- stiff	25	8		MC	203			8 5 8 12	●11							
					SPT	610			2 3 4 4	●7							
	- medium stiff	30	9		P	508					40 *53*	14.5	32	37	19	99	
	- soft		10		SPT				4 2 2 2	●4							
1275		35	11		MC	610			2 2 3 6	●4							
	- medium stiff				SPT	610			2 3 5 5	●8							
		40	12		P	610					57 *48*	14.0	35	41	18	100	C SG
			13		SPT	610			2 3 3 3	●6							
		45	14		MC	610			2 3 4 6	●5							
					SPT	610			2 3 3 3	●6							
1270		50	15														
			16														
		55	17														
		60	18														
			19														
		65															

UTDOT Z003WB.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: **WB-29-320**

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

Logged by:	M. Hislop
Date Start:	2/15/00
Date Finish:	2/15/00
Station:	6002+849.932 22.67 LT
Line:	D MAINLINE
Coordinates (m):	N 107,454.442 E 15,746.727
Elevation (m):	1285.677
Total Depth Drilled (m):	14.9
Drill Contractor:	Layne Christensen
Driller:	M. Labenski
Rig Type:	Terra 1000
Drilling Method:	Mud Rotary
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

PLATE C-64

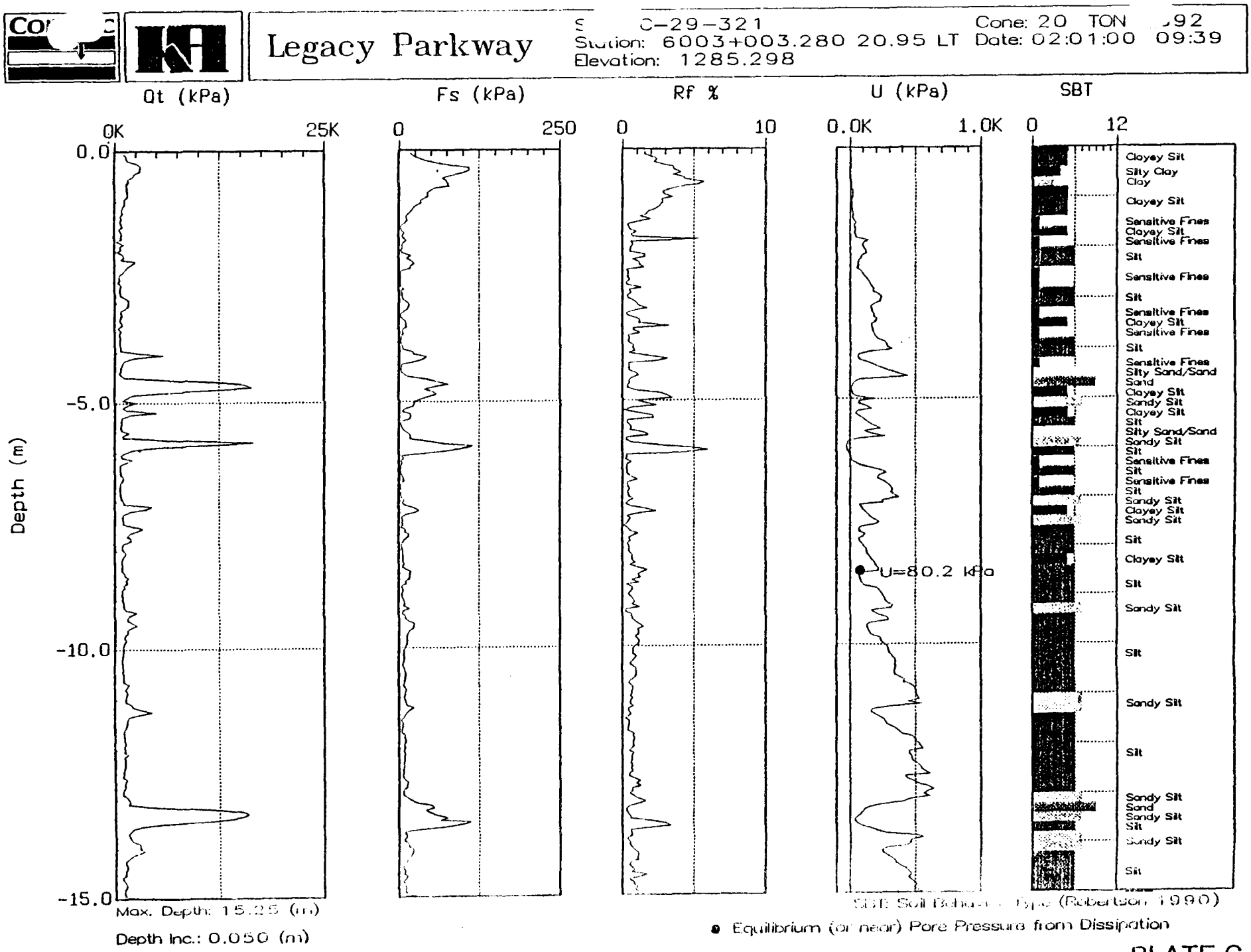

Legacy Parkway
C-29-321
Station: 6003+003.280 20.95 LT
Elevation: 1285.298
Cone: 20 TON
Date: 02:01:00 09:39
Qt (kPa)
Fs (kPa)
Rf %
U (kPa)
SBT
0K
25K
0
250
0
10
0.0K
1.0K
0
12
0.0
-5.0
-10.0
-15.0
Depth (m)
U=80.2 kPa
Clayey Silt
Silty Clay
Clay
Clayey Silt
Sensitive Fines
Clayey Silt
Sensitive Fines
Silt
Sensitive Fines
Silt
Sensitive Fines
Clayey Silt
Sensitive Fines
Silt
Sensitive Fines
Silty Sand/Sand
Sand
Clayey Silt
Sandy Silt
Clayey Silt
Silt
Silty Sand/Sand
Sandy Silt
Silt
Sensitive Fines
Silt
Sensitive Fines
Silt
Sandy Silt
Clayey Silt
Sandy Silt
Silt
Clayey Silt
Silt
Sandy Silt
Silt
Sandy Silt
Silt
Sandy Silt
Sand
Sandy Silt
Silt
Sandy Silt
Silt
Soil Behaviour Type (Robertson 1990)
Max. Depth: 15.25 (m)
Depth Inc.: 0.050 (m)
Equilibrium (or near) Pore Pressure from Dissipation

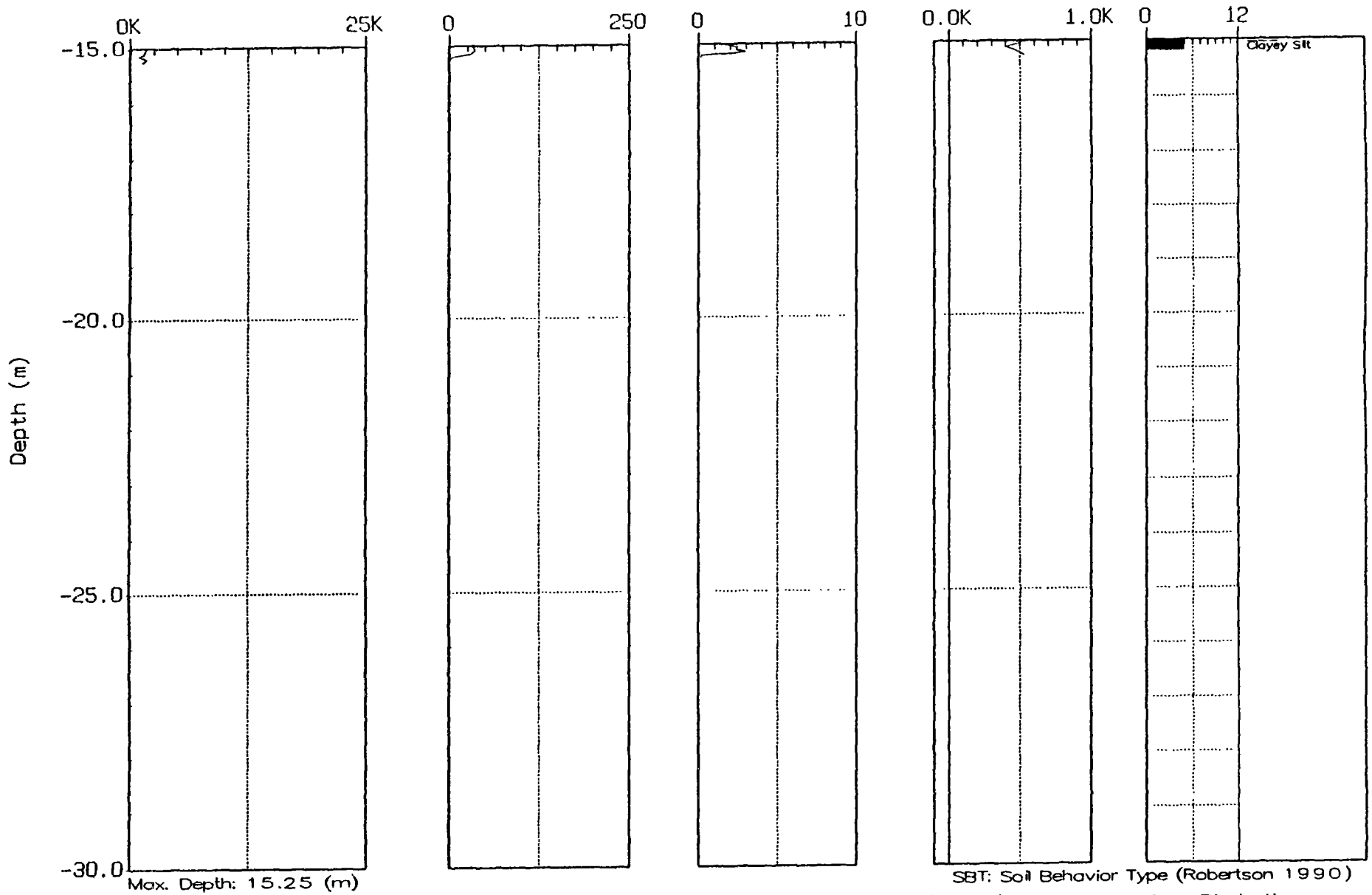
PLATE C-65

CONETEC

Legacy Parkway

Site: WC-29-321
Station: 6003+003.280 20.95 LT
Elevation: 1285.298

Cone: 20 TON A 092
Date: 02:01:00 09:39



Max. Depth: 15.25 (m)

Depth Inc.: 0.050 (m)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium (or near) Pore Pressure from Dissipation

PLATE C-66

Boring: WB-29-322
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
	TOPSOIL: clayey SILT, moist, light to dark brown				MC	610	CL	A-6	3 2 4 6	●10							
1285	Lean CLAY - stiff, moist, olive gray mottled reddish brown, frequent sand layers 6 mm thick		1		SPT	610			2 2 2 2	●8							
	- medium stiff	5			SH	610											
			2		SPT	610			0 1 2 3	●5	*34*			37	15	94	
	- Silty SAND layer, 25 mm thick, becomes wet																
	- soft	10	3		MC	610			2 2 1 1	●4							
					SPT				5 3 2 4	●8							
	- medium stiff - Silty SAND layer 75 mm thick		4														
		15			SH							13.3	36	39	19	84	C SG
			5		SPT				3 5 9 9	●22	*29*						
1280	- very stiff																
		20	6		MC				2 2 1 1	●3				39	13	85	
	- soft									●5							
	- medium stiff, gray with mottled black		7		SPT	610			3 2 2 2								
		25			SH	305											
	- frequent silt layers to 12 mm thick		8								*55*						
					SPT	610			3 3 2 3	●7				34	14		
			9		MC	610			4 5 7 7	●13							
	- stiff, light brown, with frequent silt layers to 50 mm thick	30															
	- gray		10		SPT	610			4 4 5 6	●11							
1275		35			SH	610					46 *36*	16.9	24	30	12	94	C SG
			11		SPT				0 2 2 3	●4							
		40	12														
			13														
		45															
			14														
1270		50	15														
			16														
		55	17														
			18														
		60															
			19														
		65															

UTDOT Z003WB 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: **WB-29-322**

Sheet 1 of 1

Logged by:	M. Hislop
Date Start:	2/16/00
Date Finish:	2/16/00
Station.	6003+168.988 20.61 LT
Line:	D MAINLINE
Coordinates (m):	N 107,765.625 E 15,695.549
Elevation (m):	1285.402
Total Depth Drilled (m):	11.9
Drill Contractor:	RC Exploration
Driller:	M. Labenski
Rig Type:	Diedrich D-120
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: RB-357
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: Poorly Graded GRAVEL with sand - very dense, gray, moist				MC	457			41 52 34 29								
			1		SPT	305			16 26 29 41								
1285		5			MC	305			67 57 85 74								
			2		SPT	356	CL	A-7-6	46 28 9 11	38							
	Lean CLAY - stiff, wet, black	10															
			3		MC	305			16 7 10 12	14							
	SILT - soft, wet, gray, with silty sand lenses		4		SPT	305	ML	A-4	1 1 1 1	2							
	- medium stiff	15	5	P	P	610											
	Poorly Graded SAND - medium dense, gray, wet				SPT	610	SP	A-3	4 3 14 15	22	29						
		20	6		MC	305			5 17 12 17	24							
1280			7		SPT	356	ML	A-4	6 5 4 5	9							
	Sandy SILT - medium stiff, wet, gray	25	8	P	P	610					38						
					SPT	457	SP	A-3	3 5 13 17	17							
	Poorly Graded SAND - medium dense, wet, gray, fine to medium-grained	30	9		MC	457	CL	A-7-6	4 5 4 2	5							
	Lean CLAY - medium stiff, wet, gray		10		SPT	610			2 2 1 1	3							
	- soft	35															
	- frequent seams of fine-grained clayey sand		11	P	P	559					21	15.5	26	41	16		C
	- medium stiff				SPT	610	SM	A-2-4	2 6 11 14	14	38						SG
1275	Silty SAND - medium dense, wet, gray, fine-grained	40	12		MC	356	ML	A-4	4 5 4 3	5							
	Sandy SILT - medium stiff, wet, gray, with fine-grained sand lenses		13		SPT	610	CL	A-7-6	6 3 3 3	4							
	Lean CLAY - soft, wet, gray	45	14	P	P	610					38						
					SPT	610			2 2 10 38	8							
	- medium stiff, with silty sand lense		15				CH	A-7-6									
	Fat CLAY - medium stiff, wet, gray	50			MC	305			1 2 6 12	4							
			16		SPT	381			4 5 4 5	5							
1270	- silty sand lenses	55										13.6	36				C
	- stiff		17	P	P	610					53						TR SG
			18														
	- occasional silty sand seams	60			SPT	610			2 2 3 3	3							
	- soft		19														
	SILT - very stiff, wet, gray	65		P			ML	A-4									

UTDOT Z003RB.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: **RB-357**

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

Logged by:	A. Waldman
Date Start:	2/18/00
Date Finish:	2/20/00
Station:	58+000.295 0.61 LT
Line:	I-215 to LP SB
Coordinates (m):	N 106,750.145 E 15,374.077
Elevation (m):	1286.398
Total Depth Drilled (m):	31.1
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

PLATE D-1

Boring: RB-357
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
	Lean CLAY - medium stiff, wet, gray				P	610	CL	A-7-6			24						
1265		70	21		SPT	559			6 12 40 52	●29							
	Poorly Graded SAND - medium dense, wet, gray		22				SP	A-3									
	Lean CLAY - very stiff, gray						CL	A-7-6									
		75	23		P	610					74 *48*	11.3	43			*98*	
			24														
	- soft, fine-grained sand lenses	80	25		SPT	203			1 2 5 6	●4							
	Sandy SILT - stiff, wet, gray						ML	A-4									
1260		85	26		P	610					*43*						
	Lean CLAY - stiff, wet, gray, with silty sand lenses up to 75 mm thick		27				CL	A-7-6									
		90	28		SPT	610			4 10 7 11	●9							
		95	29		P	483											
			30														
		100	31		SPT	610			3 7 9 18	●9							
1255		105	32														
			33														
		110	34														
			35														
		115	36														
1250		120	37														
		125	38														
			39														
		130															

UTDOT 2003RB 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: **RB-357**

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

Logged by:	A. Waldman
Date Start:	2/18/00
Date Finish:	2/20/00
Station:	58+000.295 0.61 LT
Line:	I-215 to LP SB
Coordinates (m):	N 106,750.145 E 15,374.077
Elevation (m):	1286.398
Total Depth Drilled (m):	31.1
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

PLATE D-2

Boring: RB-358
Sheet 1 of 2

SAMPLE DESCRIPTION
(ASTM D 2488/D 2487)

Elevation (m)	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
		1				ML	A-4									
	5			MC	152			4 4 5 6	11							
		2		SPT	0			0 0 1 1	1							
	10			P	610											
▽		3								34	15.1	29	33	9	56	C SG
		4		SPT	610	SM	A-2-4	5 5 9 11	18							
	15			MC	610			7 10 13 13	24							
1280		5														
		6		MC	610	CL	A-6	0 2 2 1	4							
	20			SPT	610			0 3 3 2	6							
		7														
	25			P	0											
		8		SPT	610			0 0 0 0	0							
		9		MC	610	SM	A-2-4	14 16 21 8	30							
	30			SPT	457	CL-ML	A-6	2 4 6 21	10							
		10														
	35			P	0											
		11		SPT	305			0 1 2 1	3							
	40			P	305					48	17.1	27				
		12														
		13		SPT	610	SM	A-2-4	0 9 5 4	10							
						CL	A-6									
	45	14		MC	610			0 3 2 3	3							
				SPT	610			0 2 4 2	4							
	50	15														
				P	610					51 67	14.2	32	48	21	99	C SG
		16														
	55			SPT	610			0 1 4 3	4							
		17														
		18		P	610					77						
1270	60	19														
	65								2							

SILT - stiff, moist, black, with trace of organics

- very soft

Silty SAND - medium dense, wet, gray, fine-grained

Lean CLAY - soft, wet, gray

- very soft

Silty SAND - medium dense, wet, gray

Silty CLAY - stiff, wet, gray

- soft

Silty SAND - medium dense, wet, gray

Lean CLAY - stiff, wet, gray

- soft

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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: **RB-358**

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

Logged by:	R. Yates
Date Start:	2/18/00
Date Finish:	2/22/00
Station:	58+149.095 3.41 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,875.602 E 15,454.189
Elevation (m):	1284.952
Total Depth Drilled (m):	31.1
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

PLATE D-3

Boring: RB-358
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, gray (continued)	70	21		SPT	610			0 0 5 6								
			22	P	P	508					24						
	Silty SAND - medium dense, moist, gray, fine-grained	75	23		SPT	508	SM	A-2-4	1 4 12 14	11							
			24														
1260	Silty CLAY - medium stiff, moist, gray, little to no fine-grained sand	80	25		SPT	508	CL-ML	A-6	4 3 3 7	4							
		85	26	P	P	0											
	Silty SAND - medium dense, wet, gray		27		SPT	508	SM	A-2-4	0 0 3 2	2							
	- dense, moist, gray	90	28		SPT	406			11 23 26 33	32							
	- very dense, moist, gray	95	29		SPT	610			20 26 36 29	41							
1255	- medium dense	100	30														
			31		SPT	406			0 4 6 5	7							
		105	32														
			33														
1250		110	34														
			35														
		115	36														
		120	37														
		125	38														
			39														
		130															

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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: **RB-358**

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

Logged by:	R. Yates
Date Start:	2/18/00
Date Finish:	2/22/00
Station:	58+149.095 3.41 RT
Line:	I-215 to LP SB
Coordinates (m):	N 106,875.602 E 15,454.189
Elevation (m):	1284.952
Total Depth Drilled (m):	31.1
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

PLATE D-4

Boring: RB-359
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
	SILT - stiff, moist, brown, some roots				MC	610	ML	A-4	3 3 5 7	●11							
	- sand seams	1			SPT	610			4 4 10 8	●22							
		5			P	610											
		2									19						
	Silty SAND - very loose, wet, light brown				SPT	610	SM	A-2-4	2 1 1 4	●2							
	Sandy SILT - soft, wet, reddish-brown	10	3				ML	A-4									
	Fat CLAY - very soft, wet, gray				MC	610	CH	A-7-6	1 1 1 1	●2							
			4		SPT	610			0 1 0 0	●1							
		15			P	610					20	11.1	54	55	29		C
1280	- dark gray	5									24						TR
					SPT	610			1 0 1 1	●1							SG
		20	6		MC	610			1 0 0 12	●0							
	- silty sand lense				SPT	610			7 2 2 1	●4							
	Silty SAND - loose, wet, gray	25					SM	A-2-4									
			8		P	305					34						
					SPT	305			13 5 4 3	●9							
	- dense	30	9		MC	483			6 30 13 8	●36							
1275	Sandy SILT- stiff, wet, gray				SPT	610	ML	A-4	13 8 6 7	●14							
	Silty SAND - medium dense, wet, gray		10				SM	A-2-4									
	Fat CLAY - medium stiff, wet, gray	35			P	610	CH	A-7-6									
			11								34						
	- soft with sand lenses				SPT	610			2 2 2 3	●4							
		40	12		MC	610			2 2 3 6	●4							
	Silty SAND - medium dense, wet, gray				SPT	610	SM	A-2-4	4 7 11 16	●18							
	Fat CLAY - medium stiff, wet, gray	45	14		P	610	CH	A-7-6									
					SPT	610			2 1 2 3	●3	53						
1270		50	15														
	Sandy SILT - stiff, wet, gray				SPT	610	ML	A-4	2 9 9 11	●16							
			16														
	Fat CLAY - stiff, wet, gray	55			P	610	CH	A-7-6			52	12.3	42			99	
			17								67						
		60	18														
	- medium stiff, fine sand lenses				SPT	610			2 2 3 4	●4							
			19														
		65															

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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: **RB-359**

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

Logged by:	N. Miller
Date Start:	2/23/00
Date Finish:	2/24/00
Station:	58+390.722 2.56 LT
Line:	I-215 to LP SB
Coordinates (m):	N 107,076.516 E 15,587.237
Elevation (m):	1284.960
Total Depth Drilled (m):	30.2
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

PLATE D-5

Boring: RB-359
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
	Fat CLAY - medium stiff, wet, gray (continued)				P	610					*43*	11.4	50	57	29		C SG
		70	21		SPT	610			7 9 9 10	●14							
	- silty sand lense	75	22 23		SPT	559			19 27 9 9	●28							
1260	- very stiff	80	24 25		SPT	457			8 10 13 16	●17							
	- stiff	85	26		P	610					*48*						
		90	27 28		SPT	610			4 4 5 6	●6							
		95	29		P	457					*34*						
1255	Silty SAND - very dense, wet, brownish-gray		30		SPT	610	SM	A-4	12 15 35 55	●36							
		100	31														
		105	32														
			33														
1250		110	34														
		115	35														
			36														
		120	37														
		125	38														
			39														
		130															

UTDOT Z003RB.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: **RB-359**

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

Logged by:	**N. Miller**
Date Start:	**2/23/00**
Date Finish:	**2/24/00**
Station:	**58+390.722 2.56 LT**
Line:	**I-215 to LP SB**
Coordinates (m):	**N 107,076.516 E 15,587.237**
Elevation (m):	**1284.960**
Total Depth Drilled (m):	**30.2**
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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* = See Key to Soil Logs for list of abbreviations and descriptions of tests

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

PLATE D-6

Boring: RB-360
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
1285	Lean CLAY - soft, moist, brown				MC	457	ML	A-6	3 3 4 6	●9							
	- becomes gray		1		SPT	305			4 8 10 11	●29							
		5			P	584											
			2								*14*						
	- wet, with occasional sand seams				SPT	610			1 1 2 1	●4							
		10	3		MC	610			1 1 3 1	●4							
					SPT	610			1 2 1 1	●4							
		15			P	305					12	12.7	42	37	14	99	
1280			5								*14*						
					SPT	254			2 2 3 7	●7							
	Silty SAND - medium dense, wet, gray, fine-grained	20	6		MC	76	SM	A-2-4	6 3 4 4	●7							
	Lean CLAY - soft, wet, gray		7		SPT	610	CL	A-7-6	6 8 3 4	●14							
	Silty SAND - loose, wet, gray, fine-grained						SM	A-2-4									
	Lean CLAY - soft to medium stiff, wet, gray	25	8		P	610	CL	A-7-6			17	12.0	41	49	28		
			9		SPT	610			2 5 2 4	●8							
	- with occasional silty sand lenses	30			MC	457			6 5 3 4	●7							
			10		SPT	610			3 2 3 5	●5	*38*						
1275		35			P	610						15.1	28				C SG
			11		SPT	508			3 3 1 4	●4	*72*						
		40	12		MC	457			5 6 5 5	●9							
			13		SPT	610			2 2 3 6	●5	*29*						
		45			P	610											
			14		SPT	610			4 3 2 4	●5	*53*						
1270		50	15		SPT	610			3 2 2 4	●4							
			16														
		55	17		P	457					*53*						
			18														
	Poorly graded SAND - very dense, wet, gray, fine-grained	60			SPT	305	SP	A-3	17 38 50/125mm								
			19														
		65															

UTDOT Z003RB 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: **RB-360**

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

Logged by:	G. Hales
Date Start:	2/18/00
Date Finish:	2/22/00
Station:	58+649.195 2.48 LT
Line:	I-215 to LP SB
Coordinates (m):	N 107,170.518 E 15,824.180
Elevation (m):	1285.213
Total Depth Drilled (m):	28.0
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

PLATE D-7

Boring: RB-360
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
1265	Poorly graded SAND - very dense, wet, gray, fine-grained (continued)			P	P	0											
	Lean CLAY - stiff, wet, gray	70	21				CL	A-7-6									
					SPT	610			4 3 6 7	●7							
		75	23	P	P	610					*62*	13.1	39				C SG
			24														
	Silty SAND - very dense, wet, gray	80	25		SPT	610	SM	A-2-4	15 30 33 36	●44							
1260		85	26		SPT	457			21 39 50/ 125mm								
			27														
		90	28		SPT	406			7 33 50/ 100mm								
		95	29														
1255			30														
		100	31														
		105	32														
			33														
		110	34														
		115	35														
1250			36														
		120	37														
		125	38														
			39														
		130															

UTDOT Z003RB.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: **RB-360**

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

Logged by:	G. Hales
Date Start:	2/18/00
Date Finish:	2/22/00
Station:	58+649.195 2.48 LT
Line:	I-215 to LP SB
Coordinates (m):	N 107,170.518 E 15,824.180
Elevation (m):	1285.213
Total Depth Drilled (m):	28.0
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

* = 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

PLATE D-8

Boring: RB-361
Sheet 1 of 2

SAMPLE DESCRIPTION
(ASTM D 2488/D 2487)

Elevation (m)	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	Sample Description
				MC	152			15 25 30 27									FILL. Silty SAND with gravel - very dense, moist, yellowish brown, fine-grained, with trace of gravel
		1		SPT	457			16 22 27 22									
	5			P	152												
		2				CL	A-7-6										Lean CLAY - very stiff, wet, gray
370				SPT	356			6 9 11 17	16								- grayish brown
	10	3		MC	356			15 4 5 5	5								- very soft
		4		SPT	152			2 1 2 3	2								- wet
	15			P	610												
		5		SPT	610			1 1 1 1	2	43							
	20	6		MC	610			1 2 21 17	14								
						SM	A-2-4										Silty SAND - medium dense, wet, gray, fine-grained
		7		SPT	610			2 2 4 5	4	43							
365	25			P	508												
		8		SPT	610	CL	A-7-6	1 3 3 1	4								Lean CLAY - soft, wet, dark gray, with trace fine-grained sand seams
	30	9		MC	610			1 3 4 4	4								
		10		SPT	610			3 2 1 2	2								
	35			P	610					42 53	15.8	24	43	22		C SG	- olive gray
		11		SPT	610			1 1 1 1	2								- very soft
		12		MC	610			1 2 3 3	2								
360	40			SPT	610			1 3 8 4	6								
		13				SM	A-2-4										Silty SAND - medium dense, wet, olive gray
	45					CL	A-6										Lean CLAY - very soft, wet, olive gray
		14		P	610					48							
				SPT	610			1 1 1 2	2								
	50	15		MC	610			1 1 3 2	1								
		16		SPT	610			4 4 3 4	2								- medium stiff
	55	17		P	610					62							
						SP	A-2-3										Poorly Graded SAND - medium dense, wet, gray, fine to medium-grained
355	60	18		SPT	406			16 25 28 44	23								
		19				CL	A-6										Lean CLAY - medium stiff to stiff, wet, olive gray
	65																

UTDOT Z003RB.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: **RB-361**
Sheet **1** of **2**

Logged by:	A. Waldman
Date Start:	2/15/00
Date Finish:	2/17/00
Station:	58+794.720 7.25 LT
Line:	I-215 to LP SB
Coordinates (m):	N 107,177.594 E 15,969.637
Elevation (m):	372.864
Total Depth Drilled (m):	31.7
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
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

PLATE D-9

Boring: RB-361
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
	SILT - hard, wet, mottled green and grayish-brown				SPT	610	ML	A-4	2 3 5 19								
	Lean CLAY - medium stiff, wet, gray	70	21				CL	A-6									
				P	P	406					58 / *57*	15.1	29	36	15		C TR SG
	Sandy Lean CLAY - very stiff, wet, gray		22				CL	A-6									
350		75	23		SPT	559			6 7 9 15	15							
			24														
		80		P	P	279					*38*						
			25														
	Silty SAND - medium dense, wet, brown, fine-grained						SM	A-2-4									
		85	26		SPT	229			5 16 38 49	20							
			27														
345		90			MC	0			4 44 50/100mm	28							
			28														
	Sandy Lean CLAY - medium stiff, wet, grayish-brown,						CL	A-6									
		95	29		SPT	457			6 13 9 13	8							
			30														
		100		P	P	25											
			31		MC	356			2 5 12 23	6							
		105	32														
340			33														
		110	34														
			35														
		115	36														
		120	37														
			38														
335		125															
			39														
		130															

UTDOT Z003RB.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: **RB-361**

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

Logged by:	A. Waldman
Date Start:	2/15/00
Date Finish:	2/17/00
Station:	58+794.720 7.25 LT
Line:	I-215 to LP SB
Coordinates (m):	N 107,177.594 E 15,969.637
Elevation (m):	372.864
Total Depth Drilled (m):	31.7
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-53
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

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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

PLATE D-10

Boring: RB-368
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	Test Results * Su, kPa (torvane in italics)	Dry Density, kN/m3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1285 ▽	Silty SAND - medium stiff, moist, light gray-brown				MC	508	SM	A-2-4	3 3 4 5	●9							
			1		SPT	483	CL	A-7-6	2 1 2 2	●5							
	Lean CLAY - soft to medium stiff, wet, light gray, with minor light brown mottling	5			P	584											
			2		SPT	610			1 1 1 2	●2	14						
	- with silt lenses	10	3		MC	584			2 3 2 3	●5							
			4		SPT	610			3 2 3 6	●7							
		15			P	559					14	13.3	38	43	18		C
			5				SM	A-2-4			29						TR
1280	Silty SAND - loose, wet, gray, fine-grained				SPT	356			1 1 1 1	●2							SG
	Sandy SILT - soft to medium stiff, wet, gray	20	6				ML	A-4									
					MC	152			1 3 2 3	●5							
			7		SPT	457			1 2 2 3	●4							
		25			P	610											
			8		SPT	356	SM	A-2-4	1 3 5 5	●8	38						
	Silty SAND - loose, wet, light brown, with trace clay, fine-grained with mica flakes		9		MC	508	CL-ML	A-6	1 1 2 4	●3							
	Silty CLAY - soft, wet, gray, with occasional fine-grained sand	30			SPT	508			2 5 12 15	●17							
1275	Silty SAND - medium dense, wet, gray , fine-grained, with mica flakes		10				SM	A-2-4									
		35			P	610											
			11		SPT	356			2 1 3 6	●4	24						
			12		MC	610	ML	A-4	2 2 2 4	●4							
	SILT - soft, wet, dark gray, with occasional fine-sand	40			SPT	610			2 3 2 3	●5							
	- medium stiff		13		P	610						13.0	39				C
			14		SPT	610			1 2 5 7	●8	43						SG
			15				SM	A-2-4									
1270	Silty SAND - medium dense, wet, gray, fine-grained	50			SPT	457			1 12 15 16	●30							
			16														
		55					ML	A-2-4									
	SILT with sand - very stiff, wet, dark gray		17		P	508					36	17 1	24			76	
											29						
			18														
		60			SPT	508			3 6 16 15	●25							
			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: **RB-368**

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

Logged by:	W. Lewis
Date Start:	2/6/00
Date Finish:	2/7/00
Station:	5+309.965 0.06 LT
Line:	Center Street
Coordinates (m):	N 107,994.964 E 15,553.859
Elevation (m):	1285.236
Total Depth Drilled (m):	23.5
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
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 Z003RB.GPJ 6/30/00

PLATE D-23

Boring: RB-368
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
1265	Silty SAND - dense, wet, gray				P	0											
					P	305	SM	A-2-4									
		70	21		SPT	559			8 20 21 30	●45							
			22														
	- medium dense	75	23		SPT	584			6 12 15 27	●29							
			24														
1260		80	25														
		85	26														
			27														
		90	28														
		95	29														
			30														
1255		100	31														
		105	32														
			33														
		110	34														
		115	35														
			36														
		120	37														
		125	38														
1250			39														
		130															

UTDOT Z003RB.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: **RB-368**

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

Logged by:	W. Lewis
Date Start:	2/6/00
Date Finish:	2/7/00
Station:	5+309.965 0.06 LT
Line:	Center Street
Coordinates (m):	N 107,994.964 E 15,553.859
Elevation (m):	1285.236
Total Depth Drilled (m):	23.5
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
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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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: RB-369
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
▽	Lean CLAY - stiff, moist, light gray-brown				MC	508	CL	A-7-6	3 3 4 5	●9							
	- wet		1		SPT	559			3 1 3 2	●7							
1285	medium stiff	5			P	254						11.5	48	48	25	99	C TR SG
	Silty SAND - loose, wet, light grayish-brown, fine to medium-grained		2		SPT	610	SM	A-2-4	1 1 2 4	●3	34						
	Lean CLAY - soft, wet, light brown with yellow-brown mottling	10					CL	A-7-6									
			3		MC	610			1 1 2 1	●3							
			4		SPT	457			1 1 1 1	●2							
	- gray, with organics	15			P	610											
			5		SPT	610	ML	A-4	1 1 2 4	●3	14						
	SILT - soft, wet, dark gray						SM	A-2-4									
	Silty SAND - loose, wet, gray	20	6		MC	610	ML	A-4	1 1 1 1	●2							
1280	SILT - soft, wet, dary gray, with organics and seams of fine-grained sand		7		SPT	610			1 2 1 6	●3							
							SM	A-2-4									
	Silty SAND - loose, wet, gray	25	8		P	559	ML	A-4			57						
	SILT - soft, wet, dark gray, with organics				SPT	610			1 1 1 1	●2							
		30	9		MC	610			1 1 2 2	●3							
			10		SPT	610			2 2 3 4	●5							
	- medium stiff, green-gray	35			P	508					34						
1275			11		SPT	610			1 1 2 2	●3							
	- soft, wet, mottled green-gray and dark gray, with fine-grained sand, mica flakes with trace clay	40	12		MC	610			1 1 1 2	●2							
			13		SPT	610			3 6 3 3	●8							
	Silty SAND - loose, wet, gray, fine-grained						SM	A-2-4									
	Lean CLAY - soft, wet, dark gray	45	14		P	610	ML	A-7-6			60 53	15.3	28	45	25	86	
			15		SPT	559			2 3 4 5	●7							
	- medium stiff	50			SPT	533			2 2 2 3	●4							
	- soft		16														
1270		55	17		P	305					57	15.3	28			97	C SG
			18														
	- medium stiff	60			SPT	559			4 5 4 6	●8							
			19														
		65															

UTDOT Z003RB.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: **RB-369**

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

Logged by:	W. Lewis
Date Start:	2/8/00
Date Finish:	2/8/00
Station:	5+569.100 3.99 LT
Line:	Center Street
Coordinates (m):	N 108,005.988 E 15,811.167
Elevation (m):	1286.162
Total Depth Drilled (m):	23.5
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
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

PLATE D-25

Boring: RB-369
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/m^3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Lean CLAY - medium stiff, wet, dark gray (continued)				P	305											
1265	Silty SAND - medium dense, wet, light brownish-gray, fine-grained	70	21		SPT	533	SM	A-2-4	5 10 17 20	● 24							
		75	23		SPT	330			5 7 14 20	● 21							
		80	24														
		85	25														
1260		90	26														
		95	27														
		100	28														
		105	29														
1255		110	30														
		115	31														
		120	32														
		125	33														
1250		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: **RB-369**

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

Logged by:	W. Lewis
Date Start:	2/8/00
Date Finish:	2/8/00
Station:	5+569.100 3.99 LT
Line:	Center Street
Coordinates (m):	N 108,005.988 E 15,811.167
Elevation (m):	1286.162
Total Depth Drilled (m):	23.5
Drill Contractor:	Layne Christensen
Driller:	C. Davis
Rig Type:	Mobile B-59
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 2003RB.GPJ 6/30/00

PLATE D-26

Boring: RB-376
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) ○	Test Results * S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	Silty GRAVEL - dense, moist, dark brown, fine to coarse-grained				MC	152			6 26 27 19								
1285					SPT	432			6 10 12 9	31							
	Lean CLAY - very stiff, wet, gray	5	1				CL	A-6									
					MC	0			8 9 11 9	22							
	Fat CLAY - stiff, wet, dark gray		2		SPT	152	CH	A-7-6	9 4 3 3	9							
		10	3		P	305											
	Lean CLAY - very soft to soft, wet, gray, occasional silt lenses		4		SPT	610	CL	A-6	0 0 0 0	0	*48*						
	Poorly Graded SAND - medium dense, wet, gray	15	5		MC	356	SP	A-3	12 19 20 17	35							
					SPT	610			11 11 14 18	25							
1280		20	6		P	610	CL	A-6			65 *48*	15.7	27	36	13	94	C TR SG DS
	Silty SAND - loose, fine-grained, some clay seams		7		SPT	457	SM	A-2-4	1 2 4 4	6							
	Poorly Graded SAND - loose, wet, gray	25					SP	A-3									
	SILT - soft, wet, brownish-gray		8		MC	610	ML	A-4	2 1 3 1	4							
					SPT	305			1 2 2 2	4							
	Fat CLAY - very soft, wet, gray						CH	A-7-6									
		30	9		P	584											
			10		SPT	610			0 0 0 2	0							
1275	- silty sand lenses	35	11		MC	305			1 0 1 5	1							
	SILT - medium stiff, wet, gray				SPT	457	ML	A-4	1 1 3 8	4							
	Lean CLAY with sand - very soft, gray, with fine-grained sand	40	12				CL	A-6									
					P	610					*24*	13.4	31	35	13		C SG
	Silty SAND - medium dense, gray, fine-grained, occasional clay seams		13		SPT	457	SM	A-2-4	2 3 9 6	12							
		45	14		MC	305			25 55 14 4								
					SPT	457			2 2 9 7	11							
1270	Fat CLAY - very soft, wet, black	50	15		P	610	CH	A-7-6									
	- medium stiff		16		SPT	610			1 2 3 3	5	*48*						
	- soft, olive gray																
	- occasional silty sand seams	55	17		P	610					*67*						
	Lean CLAY - medium stiff to stiff, olive gray		18				CL	A-6									
		60			SPT	610			7 6 7 10	13							
			19														
			65														

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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: **RB-376**

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

Logged by:	A. Waldman
Date Start:	2/20/00
Date Finish:	2/21/00
Station:	6002+008.023 0.84 LT
Line:	D Mainline
Coordinates (m):	N 106,731.773 E 15,387.081
Elevation (m):	1285.629
Total Depth Drilled (m):	30.9
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

PLATE D-40

Boring: RB-376
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
1265	Lean CLAY - very stiff, wet, olive gray (continued)																
	Fat CLAY - soft to medium stiff, wet, olive gray, very fine-grained, laminae	70	21		SPT	610	CH	A-7-6	1 1 0 3	●1							
	Silty SAND - medium dense, wet, gray	75	23		P	610	SM	A-2-4			38						
1260	- lean clay seams, olive-gray	80	24		SPT	406			4 12 24 28	●29							
		85	26		P	610					48						
		90	27		SPT	381			6 26 33 28	●43							
	Fat CLAY - stiff, wet, olive gray	95	28		P	610	CH	A-7-6			53						
1255		100	30		SPT	457			12 24 34	●41							
1250		105	31														
		110	32														
		115	34														
		120	35														
		125	36														
		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: **RB-376**

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

Logged by:	A. Waldman
Date Start:	2/20/00
Date Finish:	2/21/00
Station:	6002+008.023 0.84 LT
Line:	D Mainline
Coordinates (m):	N 106,731.773 E 15,387.081
Elevation (m):	1285.629
Total Depth Drilled (m):	30.9
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

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PLATE D-41

Boring: RB-377
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) ○ (0 – 25 – 50)	S_u, kPa (torvane in italics)	Dry Density, kN/m³	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
	FILL: Silty SAND - medium dense, moist, reddish tan		1		MC	381			12 16 17								
1285		5			SPT	457			10 10 14	●45							
	Fat CLAY - very stiff to stiff, wet, olive-gray to dark gray		2														
		10	3		MC	381	CH	A-7-6	4 7 9	●28							
					SPT	457			2 3 5	●13							
			4														
		15			MC	305			5 12 16	●35							
		5			SPT	0			3 3 3	●10							
		20	6		P	610					26	11.3	51	50	25	99	C
	soft to very soft										*53*						SG
1280			7		SPT	457			0 1 1	●2							
		25			MC	0			2 1 0	●1							
			8		SPT	457			1 1 1	●2							
		30	9		P	610											
					SPT	254			8 7 3	●13	*19*						
	Silty SAND - dense, wet, gray, fine-grained	35	11		MC	254	SM	A-2-4	7 21 23	●48							
					SPT	305			7 4 6	●12							
1275	SILT - stiff, wet, gray						ML	A-4									
	Lean CLAY - medium stiff, wet, gray	40	12				CL	A-7-6									
					P	610					*38*	14.2	34	40	16	99	C
			13		SPT	457			4 8 13	●28							SG
		45															TR
	Poorly graded SAND with silt - medium dense, wet, gray		14		MC	229	SP-SM	A-2-4	2 10 7	●17							
					SPT	381			4 7 10	●21							
	Lean CLAY - soft, wet, gray, with silt seams		15				CL	A-7-6									
		50			MC	457			0 0 0	●0							
			16		SPT	457			2 4 3	●9							
1270	- stiff to medium stiff																
		55	17		P	610					51	14.1	31			99	
											53						
			18														
		60			SPT	457			2 2 3	●6							
			19														
	SILT - medium stiff to stiff, wet, gray	65					ML	A-4									

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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: **RB-377**

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

Logged by:	C. Wieden
Date Start:	2/23/00
Date Finish:	2/24/00
Station:	6002+159.558 5.75 RT
Line:	D Mainline
Coordinates (m):	N 106,850.936 E 15,479.920
Elevation (m):	1286.644
Total Depth Drilled (m):	24.8
Drill Contractor:	Haztech Drilling
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

PLATE D-42

Boring: RB-377
Sheet 2 of 2

SAMPLE DESCRIPTION
(ASTM D 2488/D 2487)

Elevation (m)	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
				P	102											
	70	21				CL	A-7-6									
1265		22		SPT	457			0 0 0	●0							
	75	23		P	508					*38*						
		24														
	80			SPT	457			0 0 0	●0							
		25														
	85	26														
1260		27														
	90	28														
	95	29														
		30														
	100	31														
1255	105	32														
		33														
	110	34														
	115	35														
		36														
1250	120	37														
	125	38														
		39														
	130															

SILT - medium stiff to stiff, wet, gray (continued)

Lean CLAY - very soft, wet, gray

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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: **RB-377**

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

Logged by:	**C. Wieden**
Date Start:	**2/23/00**
Date Finish:	**2/24/00**
Station:	**6002+159.558 5.75 RT**
Line:	**D Mainline**
Coordinates (m):	**N 106,850.936 E 15,479.920**
Elevation (m):	**1286.644**
Total Depth Drilled (m):	**24.8**
Drill Contractor:	**Haztech Drilling**
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: RB-378
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
1285	FILL: Silty SAND - very dense, moist, brown				MC	356			9 19 39 24								
			1		SPT	305			18 11 11 13	●48							
		5			MC	610			10 17 19 20								
			2		SPT	457			9 18 22 39								
		10			MC	0			25 21 10 9	●44							
			4		SPT	457			10 9 6 7	●28							
	Fat CLAY - stiff to very stiff, wet, gray to gray-brown mottled tan/white	15			MC	559			2 3 3 4	●8							
	- medium stiff		5		SPT	305			3 4 4 4	●14							
1280	- mottled rust-colored - frequent seams of very fine to fine-grained sands	20			SH	660					19 *24*	11.5	50	62	32		C SG
			7		SPT	610			3 0 0 0	●0							
	- very soft	25			MC	610			0 2 2 3	●3							
			8		SPT	610			3 0 0 0	●0							
			9		SH	0											
					SH	76											
1275	Silty SAND - wet, gray, very fine-grained, maximum grain size fine-grained sand	35			MC	457			3 4 9 6	●15							
	Lean CLAY - medium stiff, wet, gray		11		SPT	457			0 4 2 6	●9							
		40			SH	305											
			13		SPT	559			18 7 6 7	●17							
		45			MC	610			0 4 3 4	●7							
	- medium stiff		14		SPT	610			4 3 3 3	●8							
1270		50			SH	203					43	13.8	33	42	22	89	C TR SG
			17		SPT	610			1 3 5 4	●9							
		60			SH	254											
			19														
				65													

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Legacy Parkway - Preferred Alternative
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KLEINFELDER
Project No. 35-8163-05

FIELD TEST BORING LOG

Boring: **RB-378**

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

Logged by:	M. Bostrom
Date Start:	2/22/00
Date Finish:	2/23/00
Station:	6002+389.999 0.02 RT
Line:	D Mainline
Coordinates (m):	N 107,028.622 E 15,626.672
Elevation (m):	1285.294
Total Depth Drilled (m):	22.6
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

PLATE D-44

Boring: RB-378
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/m^3	Moisture, %	Liquid Limit	Plasticity Index	% Passing No. 200	Other Tests
1265	Lean CLAY - soft, wet, gray (continued)				SPT	610			3 1 2 3								
			21														
		70			SH	254					43						
		22			SPT	610			4 6 8 8	●14							
		75	23														
			24														
		80	25														
1260			26														
		85															
			27														
		90	28														
		95	29														
			30														
1255		100	31														
		105	32														
			33														
		110	34														
		115	35														
			36														
1250		120	37														
		125	38														
			39														
		130															

UTDOT Z003RB 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: **RB-378**

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

Logged by:	**M. Bostrom**
Date Start:	**2/22/00**
Date Finish:	**2/23/00**
Station:	**6002+389.999 0.02 RT**
Line:	**D Mainline**
Coordinates (m):	**N 107,028.622 E 15,626.672**
Elevation (m):	**1285.294**
Total Depth Drilled (m):	**22.6**
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

PLATE D-45

Appendix C

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 1-243	SB- 1-243	SB- 1-243	SB- 1-243	SB- 1-243	SB- 1-243	SB- 1-246	SB- 1-246		
SAMPLE DEPTH (m)	1 22	4 57	10 36	13 41	24.38	30.18	12.19	22.86		
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB		
STATION	58+220 478	58+220 478	58+220.478	58+220 478	58+220.478	58+220.478	58+294.659	58+294 659		
OFFSET (RT or LT)	1.99 RT	1 99 RT	1 99 RT	1 99 RT	1.99 RT	1.99 RT	4.26 RT	4 26 RT		
ELEVATION (m)	1284.48	1284 48	1284.48	1284 48	1284 48	1284 48	1285.66	1285.66		
SAMPLE TYPE	P	P	P	P	P	P	SH	SH		
DATE SAMPLED	3/1/2000	3/1/2000	3/1/2000	3/1/2000	3/1/2000	3/1/2000	2/21/2000	2/21/2000		
SOIL CLASSIFICATION (USCS)	CL	MH		CL	ML	CH	ML	CL		
GROUP CLASSIFICATION (AASHTO)					A-2-4	A-7-6	A-4			
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)							99			
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%) more →	Ø	69		33			48	34		
WET UNIT WEIGHT (kN/m^3)		15 6		19 3			18.4	18.9		
DRY UNIT WEIGHT (kN/m^3)		9 2		14 5			12.4	14.2		
SPECIFIC GRAVITY		2.84					2 80	2.60		
ATTERBERG LIMITS										
LIQUID LIMIT, LL		51		44			NP	37		
PLASTICITY INDEX, PI		20		23			NP	17		
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)		40					66	170		
TORVANE (kPa) Ø (good, but could do more) →	53	24	29	57	38	77	38	77		
CORROSION										
pH	7.7									
RESISTIVITY (ohm-cm)	2800									
WATER SOLUBLE SULFATE (ppm)	35									

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1096~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 2-247	SB- 2-247	SB- 2-247	SB- 2-247	SB- 2-247	SB- 2-247	SB- 2-247	SB- 2-247		
SAMPLE DEPTH (m)	1 52	4 57	7.62	10 67	13 72	18 29	24 99	30 48		
LINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE		
STATION	6002+221.649	6002+221.649	6002+221.649	6002+221 649	6002+221.649	6002+221 649	6002+221.649	6002+221.649		
OFFSET (RT or LT)	19 91 LT	19.91 LT	19 91 LT	19 91 LT	19 91 LT	19 91 LT	19.91 LT	19 91 LT		
ELEVATION (m)	1286.87	1286 87	1286 87	1286.87	1286 87	1286.87	1286 87	1286.87		
SAMPLE TYPE	SPT	SH	SH	SH	SH	SH	SH	SH		
DATE SAMPLED	1/23/2000	1/23/2000	1/23/2000	1/23/2000	1/23/2000	1/23/2000	1/23/2000	1/23/2000		
SOIL CLASSIFICATION (USCS)	CL	CL	CL		CL	CL				
GROUP CLASSIFICATION (AASHTO)		A-6				A-6				
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)										
CLAY FRACTION (2 microns)			46							
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		34	48		23	28				
WET UNIT WEIGHT (kN/m^3)		18.3			19.5	20 0				
DRY UNIT WEIGHT (kN/m^3)		13.7			15.9	15.6				
SPECIFIC GRAVITY		2.77				2.67				
ATTERBERG LIMITS										
LIQUID LIMIT, LL			48							
PLASTICITY INDEX, PI			24							
SHEAR STRENGTH										
UNDRAINED SHEAR STRENGTH, Su, (kPa)					76					
TORVANE (kPa)		34	24	24	43	62	34	77		
CORROSION										
pH	8.0									
RESISTIVITY (ohm-cm)	2300									
WATER SOLUBLE SULFATE (ppm)	48									

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1097~~

UDOTSUM (LEGACY 2) 35-8163-05 P.O. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO	SB- 3-248	SB- 3-248	SB- 3-248	SB- 3-248	SB- 3-248	SB- 3-249	SB- 3-249	SB- 3-249	SB- 3-249	SB- 3-249
SAMPLE DEPTH (m)	5 18	7 62	10 67	24 38	30.48	2 90	6 10	9 14	12.19	15 24
LINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE
STATION	6002+288 697	6002+288.697	6002+288 697	6002+288 697	6002+288.697	6002+229 597	6002+229.597	6002+229 597	6002+229.597	6002+229.597
OFFSET (RT or LT)	14.78 LT	14 78 LT	14 78 LT	14 78 LT	14 78 LT	1.90 RT	1.90 RT	1.90 RT	1 90 RT	1.90 RT
ELEVATION (m)	1287 03	1287.03	1287 03	1287 03	1287 03	1285 69	1285 69	1285 69	1285.69	1285 69
SAMPLE TYPE	P	P	P	P	P	P	P	P	P	P
DATE SAMPLED	1/21/2000	1/21/2000	1/21/2000	1/21/2000	1/21/2000	1/24/2000	1/24/2000	1/24/2000	1/24/2000	1/24/2000
SOIL CLASSIFICATION (USCS)	CL	CL	SM	CL	CL	CH	ML			CL
GROUP CLASSIFICATION (AASHTO)				A-7-6		A-6				
SIEVE ANALYSIS (percent passing)										
9 5mm SQUARE OPENING			100							
NO. 4 (4760 microns)			100							
NO. 100 (147 microns)			76							
NO. 200 (74 microns)			38		97					97
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		49		42	26		58			35
WET UNIT WEIGHT (kN/m^3)		17.4		17 5	19 8		16.5			18.8
DRY UNIT WEIGHT (kN/m^3)		11.7		12 3	15.7		10.4			13.9
SPECIFIC GRAVITY		2 74		2.71			2.74			2.84
ATTERBERG LIMITS										
LIQUID LIMIT, LL		47		56			44			37
PLASTICITY INDEX, PI		23		32			15			15
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)		24			113		43			68
TORVANE (kPa)	38	14		43	34	57	19	24	38	48
CORROSION										
pH	8.0					8.2				
RESISTIVITY (ohm-cm)	1900					1500				
WATER SOLUBLE SULFATE (ppm)	35					< 62				

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1098~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 8/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 3-249	SB- 3-250	SB- 3-250							
SAMPLE DEPTH (m)	21.34	9.14	15 24							
LINE	D MAINLINE	D MAINLINE	D MAINLINE							
STATION	6002+229.597	6002+277.848	6002+277.848							
OFFSET (RT or LT)	1.90 RT	6.92 RT	6.92 RT							
ELEVATION (m)	1285.69	1286.01	1286 01							
SAMPLE TYPE	P	SH	SH							
DATE SAMPLED	1/24/2000	1/24/2000	1/24/2000							
SOIL CLASSIFICATION (USCS)		CL	CL							
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)			93							
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		39	33							
WET UNIT WEIGHT (kN/m^3)		17.4	18.2							
DRY UNIT WEIGHT (kN/m^3)		12.5	13.7							
SPECIFIC GRAVITY		2.71	2.68							
ATTERBERG LIMITS										
LIQUID LIMIT, LL		42	39							
PLASTICITY INDEX, PI		19	20							
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)			60							
TORVANE (kPa)	38	34	48							
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1099~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 4-251	SB- 4-251	SB- 4-251	SB- 4-251	SB- 4-252	SB- 4-252	SB- 4-252	SB- 4-252		
SAMPLE DEPTH (m)	3 05	18.29	25 91	32 00	7 62	13.72	18.29	24.38		
LINE	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)	P NB/I15(I215)		
STATION	54+663 358	54+663.358	54+663 358	54+663 358	54+711 938	54+711.938	54+711.938	54+711.938		
OFFSET (RT or LT)	0 41 RT	0 41 RT	0 41 RT	0 41 RT	0 83 RT	0.83 RT	0.83 RT	0.83 RT		
ELEVATION (m)	1284 83	1284 83	1284 83	1284 83	1286 04	1286.04	1286 04	1286.04		
SAMPLE TYPE	SH	P	P	P	SH	SH	SH	SH		
DATE SAMPLED	1/22/2000	1/22/2000	1/22/2000	1/22/2000	1/24/2000	1/24/2000	1/24/2000	1/24/2000		
SOIL CLASSIFICATION (USCS)	CL	SP-SM	CL	CL	CL	CL		ML		
GROUP CLASSIFICATION (AASHTO)		A-2-4						A-2-4		
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)	87		98	84				51		
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	30		41	26		31		26		
WET UNIT WEIGHT (kN/m^3)	19 5		18 0	19 4		49.1		21 9		
DRY UNIT WEIGHT (kN/m^3)	15.0		12.7	15.5		~~37.4~~ 17.4		17.4		
SPECIFIC GRAVITY	2.74		2.74	2.72		2.70		2.71		
ATTERBERG LIMITS										
LIQUID LIMIT, LL	34		47		40	32				
PLASTICITY INDEX, PI	14		22		17	14				
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su;~~ (kPa)	40		137	79		78		50		
TORVANE (kPa)	24	5	38	19	24	53	53	57		
CORROSION										
pH	8 9									
RESISTIVITY (ohm-cm)	2200									
WATER SOLUBLE SULFATE (ppm)	25									

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1100~~

LDOTSUM (LEGACY 2) 35-8163-05 P.D 8/200

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 5-293	SB- 5-293	SB- 5-293	SB- 5 293	SB- 5-297	SB- 5-297	SB- 5-297	SB- 5-297	SB- 5-297	SB- 5-297
SAMPLE DEPTH (m)	1.52	9 14	12.19	15 24	1 52	4 57	6.10	9.14	13.72	19.81
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB
STATION	58+453.275	58+453 275	58+453 275	58+453 275	58+572.515	58+572 515	58+572 515	58+572.515	58+572.515	58+572.515
OFFSET (RT or LT)	3 53 RT	3 53 RT	3 53 RT	3 53 RT	1.73 RT	1.73 RT	1.73 RT	1.73 RT	1.73 RT	1.73 RT
ELEVATION (m)	1284.34	1284 34	1284 34	1284.34	1284.91	1284.91	1284.91	1284.91	1284 91	1284 91
SAMPLE TYPE	SH	SH	SH	SH	SPT	P	SPT	P	P	SPT
DATE SAMPLED	2/24/2000	2/24/2000	2/24/2000	2/24/2000	2/22/2000	2/22/2000	2/22/2000	2/22/2000	2/22/2000	2/22/2000
SOIL CLASSIFICATION (USCS)	CH	CL		CL	ML	ML	CL-ML	CL		SP-SM
GROUP CLASSIFICATION (AASHTO)							A-6			
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										100
NO. 4 (4760 microns)										99
NO. 100 (147 microns)										31
NO. 200 (74 microns)				92			84			15
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	64	41		31		47				
WET UNIT WEIGHT (kN/m^3)	16.1	17.9		18.4		17.4				
DRY UNIT WEIGHT (kN/m^3)	9.9	12.7		14.0		11.9				
SPECIFIC GRAVITY	2.84	2.78				2.81				
ATTERBERG LIMITS										
LIQUID LIMIT, LL	52	44								
PLASTICITY INDEX, PI	27	23								
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su~~, (kPa)		52				34				
TORVANE (kPa)	19	38	48	48		29		38	29	
CORROSION										
pH					8 7					
RESISTIVITY (ohm-cm)					170					
WATER SOLUBLE SULFATE (ppm)					520					

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1101~~

UDOTSLM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB- 5-297									
SAMPLE DEPTH (m)	25.91									
LINE	I-215 to LP SB									
STATION	58+572.515									
OFFSET (RT or LT)	1.73 RT									
ELEVATION (m)	1284.91									
SAMPLE TYPE	SPT									
DATE SAMPLED	2/22/2000									
SOIL CLASSIFICATION (USCS)	ML									
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING	100									
NO. 4 (4760 microns)	100									
NO. 100 (147 microns)	99									
NO. 200 (74 microns)	58									
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)										
WET UNIT WEIGHT (kN/m^3)										
DRY UNIT WEIGHT (kN/m^3)										
SPECIFIC GRAVITY										
ATTERBERG LIMITS										
LIQUID LIMIT, LL										
PLASTICITY INDEX, PI										
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)										
TORVANE (kPa)										
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1102~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB-11-259	SB-11-259	SB-11-259	SB-11-259	SB-11-259	SB-11-259	SB-11-262	SB-11-262	SB-11-262	SB-11-262
SAMPLE DEPTH (m)	1.22	2 74	5 79	8 84	27.13	33 22	1.52	4 57	7.62	10.67
LINE	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST	CENTER ST
STATION	5+389.204	5+389.204	5+389 204	5+389 204	5+389 204	5+389 204	5+495.950	5+495 950	5+495.950	5+495.950
OFFSET (RT or LT)	2 96 RT	2 96 RT	2 96 RT	2.96 RT	2 96 RT	2 96 RT	0 22 LT	0.22 LT	0.22 LT	0.22 LT
ELEVATION (m)	1285.19	1285.19	1285.19	1285 19	1285.19	1285 19	1286 12	1286.12	1286.12	1286 12
SAMPLE TYPE	SPT	P	P	P	P	P	SH	SH	SH	SH
DATE SAMPLED	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000	1/26/2000
SOIL CLASSIFICATION (USCS)	CL			ML	~~SC~~ CL		Fill, GM	CL	CL	CL
GROUP CLASSIFICATION (AASHTO)				A-2-4				–		
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING								100		
NO. 4 (4760 microns)								100		
NO. 100 (147 microns)								93		
NO. 200 (74 microns)				50	93			65	77	
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)				27	23				10	29
WET UNIT WEIGHT (kN/m^3)				19 5	20.6				18.9	9.6
DRY UNIT WEIGHT (kN/m^3)				15.3	16.8				17.3	~~7.6~~ 15.0
SPECIFIC GRAVITY				2.68	2.74				2.76	
ATTERBERG LIMITS										
LIQUID LIMIT, LL				31	35				29	
PLASTICITY INDEX, PI				6	16				9	
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH~~, S_u (kPa)				34	149				42	75
TORVANE (kPa)		38	38	34	43	34			38	24
CORROSION										
pH	9.1						9.4			
RESISTIVITY (ohm-cm)	180						380			
WATER SOLUBLE SULFATE (ppm)	500						220			

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
K-1109

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB-11-262									
SAMPLE DEPTH (m)	16.76									
LINE	CENTER ST									
STATION	5+495 950									
OFFSET (RT or LT)	0 22 LT									
ELEVATION (m)	1286.12									
SAMPLE TYPE	SH									
DATE SAMPLED	1/26/2000									
SOIL CLASSIFICATION (USCS)	CH									
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)	99									
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	33									
WET UNIT WEIGHT (kN/m^3)	18.1									
DRY UNIT WEIGHT (kN/m^3)	13.6									
SPECIFIC GRAVITY	2.72									
ATTERBERG LIMITS										
LIQUID LIMIT, LL	81									
PLASTICITY INDEX, PI	35									
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH~~ q_u S_u, (kPa)	123									
TORVANE (kPa)	87									
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1110~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	SB-32-357	SB-32-357	SB-32-357	SB-32-357	SB-32-357	SB-32-357	SB-32-357	SB-32-357	SB-32-357	
SAMPLE DEPTH (m)	1.52	4.57	9.14	12 19	15.24	21 34	27.43	39.62	41.15	
LINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	
STATION	6002+535.900	6002+535 900	6002+535 900	6002+535 900	6002+535.900	6002+535.900	6002+535 900	6002+535 900	6002+535.900	
OFFSET (RT or LT)	21.40 LT	21.40 LT	21 40 LT	21.40 LT	21.40 LT	21.40 LT	21.40 LT	21.40 LT	21.40 LT	
ELEVATION (m)	1284.55	1284.55	1284 55	1284 55	1284 55	1284 55	1284 55	1284.55	1284.55	
SAMPLE TYPE	SH	SH	SH	SH	SH	SH	SH	SPT	SPT	
DATE SAMPLED	5/5/2000	5/5/2000	5/5/2000	5/5/2000	5/5/2000	5/5/2000	5/5/2000	5/5/2000	5/5/2000	
SOIL CLASSIFICATION (USCS)		CH	ML		CL	CL			SM	
GROUP CLASSIFICATION (AASHTO)						A-7-6				
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING									100	
NO. 4 (4760 microns)									97	
NO. 100 (147 microns)									36	
NO. 200 (74 microns)	90		70					63	25	
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		41	28		28	38				
WET UNIT WEIGHT (kN/m^3)		17.9	18.8		19.4	18.5				
DRY UNIT WEIGHT (kN/m^3)		12.7	14.7		15.1	13.5				
SPECIFIC GRAVITY			3.12		2.80	2.81				
ATTERBERG LIMITS										
LIQUID LIMIT, LL			NP		36	44				
PLASTICITY INDEX, PI			NP		15	23				
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su~~, (kPa)		39				43				
TORVANE (kPa)	43	24	19	36	34	29	48			
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1143~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	WB-26-314	WB-26-314	WB-26-314							
SAMPLE DEPTH (m)	1.52	6.10	12.19							
LINE	D MAINLINE	D MAINLINE	D MAINLINE							
STATION	6002+387 809	6002+387 809	6002+387 809							
OFFSET (RT or LT)	1.33 RT	1 33 RT	1 33 RT							
ELEVATION (m)	1287 20	1287 20	1287 20							
SAMPLE TYPE	MC	P	P							
DATE SAMPLED	01/21/2000	01/21/2000	01/21/2000							
SOIL CLASSIFICATION (USCS)		CH	CL-ML							
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9 5mm SQUARE OPENING	100									
NO. 4 (4760 microns)	91									
NO. 100 (147 microns)	60									
NO. 200 (74 microns)	42									
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	10	62	29							
WET UNIT WEIGHT (kN/m^3)	21.1	16 6	19 0							
DRY UNIT WEIGHT (kN/m^3)	19 2	10 2	14.7							
SPECIFIC GRAVITY		2.76	2.72							
ATTERBERG LIMITS										
LIQUID LIMIT, LL		51	28							
PLASTICITY INDEX, PI		22	6							
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)		49								
TORVANE (kPa)		34	34							
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1170~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	WB-29-320	WB-29-320	WB-29-320	WB-29-320	WB-29-320	WB-29-320				
SAMPLE DEPTH (m)	2 13	3.66	4 57	6 10	9 14	12.19				
LINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE				
STATION	6002+849.932	6002+849.932	6002+849 932	6002+849 932	6002+849 932	6002+849 932				
OFFSET (RT or LT)	22.67 LT	22.67 LT	22.67 LT	22 67 LT	22 67 LT	22 67 LT				
ELEVATION (m)	1285.68	1285 68	1285 68	1285 68	1285 68	1285.68				
SAMPLE TYPE	SH	MC	SH	P	P	P				
DATE SAMPLED	02/15/2000	02/15/2000	02/15/2000	02/15/2000	02/15/2000	02/15/2000				
SOIL CLASSIFICATION (USCS)	CL	CL			CL	CL				
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)		92			99	100				
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)					32	35				
WET UNIT WEIGHT (kN/m^3)					19.1	19.0				
DRY UNIT WEIGHT (kN/m^3)					14.5	14.0				
SPECIFIC GRAVITY	2.76					2.78				
ATTERBERG LIMITS										
LIQUID LIMIT, LL		39			37	41				
PLASTICITY INDEX, PI		15			19	18				
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, C_u~~ (kPa)					81	115				
TORVANE (kPa)	13		12	29	53	48				
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1173~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	WB-29-322	WB-29-322	WB-29-322	WB-29-322	WB-29-322	WB-29-322				
SAMPLE DEPTH (m)	1.52	2.13	4 57	6 10	7 62	10 67				
LINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE	D MAINLINE				
STATION	6003+168 988	6003+168 988	6003+168.988	6003+168 988	6003+168 988	6003+168 988				
OFFSET (RT or LT)	20 61 LT	20 61 LT	20 61 LT	20 61 LT	20 61 LT	20 61 LT				
ELEVATION (m)	1285.40	1285.40	1285 40	1285.40	1285 40	1285 40				
SAMPLE TYPE	SH	SPT	SH	MC	SH	SH				
DATE SAMPLED	02/16/2000	02/16/2000	02/16/2000	02/16/2000	02/16/2000	02/16/2000				
SOIL CLASSIFICATION (USCS)		CL	CL	ML		CL				
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)		94	84	85		94				
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)			36			24				
WET UNIT WEIGHT (kN/m^3)			18.1			21.0				
DRY UNIT WEIGHT (kN/m^3)			13 3			16 9				
SPECIFIC GRAVITY			2.83			2 75				
ATTERBERG LIMITS										
LIQUID LIMIT, LL		37	39	39		30				
PLASTICITY INDEX, PI		15	19	13		12				
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u (kPa)						93				
TORVANE (kPa)	34		29		55	36				
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1174~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-357	RB-357	RB-357	RB-357	RB-357	RB-357	RB-357	RB-357		
SAMPLE DEPTH (m)	4.57	7.62	10 67	13.72	16 76	19 81	22 86	25 91		
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB		
STATION	58+000 295	58+000 295	58+000.295	58+000 295	58+000.295	58+000.295	58+000.295	58+000.295		
OFFSET (RT or LT)	0.61 LT	0.61 LT	0.61 LT	0.61 LT	0 61 LT	0.61 LT	0.61 LT	0.61 LT		
ELEVATION (m)	1286.40	1286 40	1286.40	1286 40	1286.40	1286.40	1286.40	1286.40		
SAMPLE TYPE	P	P	P	P	P	P	P	P		
DATE SAMPLED	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000		
SOIL CLASSIFICATION (USCS)			CL		CH		CL			
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)							98			
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)			26		36		43			
WET UNIT WEIGHT (kN/m^3)			19 5		18.6		16.3			
DRY UNIT WEIGHT (kN/m^3)			15.5		13.7		11.3			
SPECIFIC GRAVITY			2.79		2.72					
ATTERBERG LIMITS										
LIQUID LIMIT, LL			41							
PLASTICITY INDEX, PI			16							
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Cu~~ q_u (kPa)			42				148			
TORVANE (kPa)	29	38	38	38	53	24	48	43		
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1175~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-358	RB-358	RB-358	RB-358	RB-358					
SAMPLE DEPTH (m)	3 05	12.19	15 24	18 29	21 34					
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB					
STATION	58+149.095	58+149 095	58+149.095	58+149 095	58+149 095					
OFFSET (RT or LT)	3.41 RT	3 41 RT	3.41 RT	3 41 RT	3 41 RT					
ELEVATION (m)	1284 95	1284 95	1284 95	1284.95	1284 95					
SAMPLE TYPE	P	P	P	P	P					
DATE SAMPLED	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000					
SOIL CLASSIFICATION (USCS)	ML	CL	CL							
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)	56		99							
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	29	27	32							
WET UNIT WEIGHT (kN/m^3)	19.4	21.7	18.7							
DRY UNIT WEIGHT (kN/m^3)	15.1	17 1	14 2							
SPECIFIC GRAVITY	2 79		2 82							
ATTERBERG LIMITS										
LIQUID LIMIT, LL	33		48							
PLASTICITY INDEX, PI	9		21							
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)			102							
TORVANE (kPa)	34	48	67	77	24					
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONFINED COMPRESSIVE STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1176~~

UDOTSUM (LEGACY 2) 35-8163-05 P.O. 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO	RB-359	RB-359	RB-359	RB-359	RB-359	RB-359	RB-359	RB-359	RB-359	
SAMPLE DEPTH (m)	1 52	4 57	7 62	10 67	13 72	16.76	19.81	25.91	28.96	
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	
STATION	58+390.722	58+390.722	58+390 722	58+390.722	58+390.722	58+390.722	58+390.722	58+390.722	58+390.722	
OFFSET (RT or LT)	2.56 LT	2.56 LT	2.56 LT	2.56 LT	2.56 LT	2 56 LT	2 56 LT	2.56 LT	2.56 LT	
ELEVATION (m)	1284 96	1284.96	1284 96	1284.96	1284 96	1284 96	1284.96	1284.96	1284 96	
SAMPLE TYPE	P	P	P	P	P	P	P	P	P	
DATE SAMPLED	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000	
SOIL CLASSIFICATION (USCS)		CH		CH	CH	CH	CH			
GROUP CLASSIFICATION (AASHTO)				A-7-6	A-7-6	A-7-6				
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)						99				
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		54				42	50			
WET UNIT WEIGHT (kN/m^3)		17.0				17.5	17.1			
DRY UNIT WEIGHT (kN/m^3)		11.1				12 3	11.4			
SPECIFIC GRAVITY		2 74					2.73			
ATTERBERG LIMITS										
LIQUID LIMIT, LL		55					57			
PLASTICITY INDEX, PI		29					29			
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u (kPa)		41				105				
TORVANE (kPa)	19	24	34	34	53	67	43	48	34	
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1177~~

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-360	RB-360	RB-360	RB-360	RB-360	RB-360	RB-360	RB-360		
SAMPLE DEPTH (m)	1 52	4 57	9 14	10 67	12.19	13.72	16 76	22.86		
LINE	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB	I-215 to LP SB		
STATION	58+649 195	58+649 195	58+649 195	58+649 195	58+649.195	58+649 195	58+649.195	58+649.195		
OFFSET (RT or LT)	2 48 LT	2.48 LT	2.48 LT	2 48 LT	2 48 LT	2 48 LT	2.48 LT	2.48 LT		
ELEVATION (m)	1285 21	1285 21	1285 21	1285.21	1285.21	1285.21	1285.21	1285 21		
SAMPLE TYPE	P	P	MC	P	MC	P	P	P		
DATE SAMPLED	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000	2/18/2000		
SOIL CLASSIFICATION (USCS)		CL		CL				CL		
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)		99								
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		42		28				39		
WET UNIT WEIGHT (kN/m^3)		18 0		19 3				18 1		
DRY UNIT WEIGHT (kN/m^3)		12 7		15.1				13.1		
SPECIFIC GRAVITY				2.77				2.74		
ATTERBERG LIMITS										
LIQUID LIMIT, LL		37								
PLASTICITY INDEX, PI		14								
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su~~ q_u, (kPa)		24								
TORVANE (kPa)	14	14	38	72	29	53	53	62		
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1178~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-361	RB-361	RB-361	RB-361	RB-361	RB-361	RB-361			
SAMPLE DEPTH (m)	4.57	6 10	10 67	13.72	16 76	21 34	24.38			
LINE	I-215/LP SB	I-215/LP SB	I-215/LP SB	I-215/LP SB	I-215/LP SB	I-215/LP SB	I-215/LP SB			
STATION	58+794.720	58+794.720	58+794.720	58+794.720	58+794.720	58+794 720	58+794.720			
OFFSET (RT or LT)	7.25 LT	7.25 LT	7 25 LT	7 25 LT	7.25 LT	7.25 LT	7.25 LT			
ELEVATION (m)	372 86	372 86	372 86	372 86	372 86	372 86	372 86			
SAMPLE TYPE	P	MC	P	P	P	P	P			
DATE SAMPLED	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000	2/15/2000			
SOIL CLASSIFICATION (USCS)			CL			CL				
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)										
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)			24			29				
WET UNIT WEIGHT (kN/m^3)			19 6			19.5				
DRY UNIT WEIGHT (kN/m^3)			15.8			15.1				
SPECIFIC GRAVITY			2.72			2.69				
ATTERBERG LIMITS										
LIQUID LIMIT, LL			43			36				
PLASTICITY INDEX, PI			22			15				
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su~~, (kPa)			83			117				
TORVANE (kPa)	43	43	53	48	62	57	38			
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

KLEINFELDER

Project No.: 25-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1179~~

UDOTSUM (LEGACY 2) 25-8163-05 P.D. 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO	RB-368	RB-368	RB-368	RB-368	RB-368	RB-368				
SAMPLE DEPTH (m)	1 52	4 57	7 62	10 67	13 72	16.76				
LINE	Center Street	Center Street	Center Street	Center Street	Center Street	Center Street				
STATION	5+309 965	5+309 965	5+309 965	5+309 965	5+309 965	5+309.965				
OFFSET (RT or LT)	0 06 LT	0 06 LT	0 06 LT	0 06 LT	0 06 LT	0 06 LT				
ELEVATION (m)	1285 24	1285 24	1285 24	1285 24	1285 24	1285 24				
SAMPLE TYPE	P	P	P	P	P	P				
DATE SAMPLED	2/6/2000	2/6/2000	2/6/2000	2/6/2000	2/6/2000	2/6/2000				
SOIL CLASSIFICATION (USCS)		CL			CL	ML				
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9 5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)						76				
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		38			39	24				
WET UNIT WEIGHT (kN/m^3)		18.3			18.1	21.3				
DRY UNIT WEIGHT (kN/m^3)		13.3			13.0	17.2				
SPECIFIC GRAVITY		2.80				2 76				
ATTERBERG LIMITS										
LIQUID LIMIT, LL		43								
PLASTICITY INDEX, PI		18								
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su~~, (kPa)		28				73				
TORVANE (kPa)	14	29	38	24	43	29				
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1186~~

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-369	RB-369	RB-369	RB-369	RB-369	RB-369				
SAMPLE DEPTH (m)	1 52	4 57	7.62	10 67	13.72	16 76				
LINE	Center Street	Center Street	Center Street	Center Street	Center Street	Center Street				
STATION	5+569.100	5+569 100	5+569.100	5+569.100	5+569 100	5+569 100				
OFFSET (RT or LT)	3.99 LT	3.99 LT	3 99 LT	3.99 LT	3 99 LT	3.99 LT				
ELEVATION (m)	1286.16	1286.16	1286 16	1286.16	1286.16	1286.16				
SAMPLE TYPE	P	P	P	P	P	P				
DATE SAMPLED	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000	2/8/2000				
SOIL CLASSIFICATION (USCS)	CL				CL	CL				
GROUP CLASSIFICATION (AASHTO)					A-7-6					
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)	99				86	97				
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	48				28	28				
WET UNIT WEIGHT (kN/m^3)	17.0				19.6	19.5				
DRY UNIT WEIGHT (kN/m^3)	11.5				15.3	15.3				
SPECIFIC GRAVITY	2 82					2 75				
ATTERBERG LIMITS										
LIQUID LIMIT, LL	48				45					
PLASTICITY INDEX, PI	25				25					
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su~~, (kPa)					121					
TORVANE (kPa)	34	14	57	34	53	57				
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1187~~

UDOTSUM (LEGACY2) 35-8163-05 P.D. 6/2000

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-376	RB-376	RB-376	RB-376	RB-376	RB-376	RB-376	RB-376		
SAMPLE DEPTH (m)	3 05	6.10	12.19	15 24	16 76	22.86	25 91	28.96		
LINE	D Mainline	D Mainline	D Mainline	D Mainline	D Mainline	D Mainline	D Mainline	D Mainline		
STATION	6002+008.023	6002+008 023	6002+008 023	6002+008 023	6002+008 023	6002+008.023	6002+008 023	6002+008 023		
OFFSET (RT or LT)	0 84 LT	0 84 LT	0 84 LT	0 84 LT	0 84 LT	0 84 LT	0 84 LT	0 84 LT		
ELEVATION (m)	1285 63	1285 63	1285 63	1285 63	1285 63	1285.63	1285 63	1285.63		
SAMPLE TYPE	P	P	P	P	P	P	P	P		
DATE SAMPLED	2/20/2000	2/20/2000	2/20/2000	2/20/2000	2/20/2000	2/20/2000	2/20/2000	2/20/2000		
SOIL CLASSIFICATION (USCS)		CL	CL	CH						
GROUP CLASSIFICATION (AASHTO)				A-7-6						
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)		94								
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)		27	31							
WET UNIT WEIGHT (kN/m^3)		19 9	18 5							
DRY UNIT WEIGHT (kN/m^3)		15 7	13.4							
SPECIFIC GRAVITY		2 69	2.79							
ATTERBERG LIMITS										
LIQUID LIMIT, LL		36	35							
PLASTICITY INDEX, PI		13	13							
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su,~~ (kPa)		130								
TORVANE (kPa)	48	48	24	48	67	38	48	53		
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

UDOTSUM (LEGACY 2) 35-8163-05 P.D. 6/2/00

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE

~~K-1194~~

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-377	RB-377	RB-377	RB-377	RB-377					
SAMPLE DEPTH (m)	6.10	9.14	12.19	16 76	22 86					
LINE	D Mainline	D Mainline	D Mainline	D Mainline	D Mainline					
STATION	6002+159.558	6002+159.558	6002+159.558	6002+159.558	6002+159.558					
OFFSET (RT or LT)	5.75 RT	5.75 RT	5.75 RT	5.75 RT	5.75 RT					
ELEVATION (m)	1286.64	1286.64	1286.64	1286 64	1286.64					
SAMPLE TYPE	P	P	P	P	P					
DATE SAMPLED	2/23/2000	2/23/2000	2/23/2000	2/23/2000	2/23/2000					
SOIL CLASSIFICATION (USCS)	CH		CL	CL						
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)	99		99	99						
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	51		34	31						
WET UNIT WEIGHT (kN/m^3)	17.0		19.1	18 4						
DRY UNIT WEIGHT (kN/m^3)	11.3		14 2	14.1						
SPECIFIC GRAVITY	2.79		2 71							
ATTERBERG LIMITS										
LIQUID LIMIT, LL	50		40							
PLASTICITY INDEX, PI	25		16							
SHEAR STRENGTH										
~~UNDRAINED SHEAR STRENGTH, Su,~~ q_u (kPa)	53			102						
TORVANE (kPa)	53	19	38	53	38					
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1195~~

SUMMARY OF LABORATORY TEST DATA

DESCRIPTION										
BORING NO.	RB-378	RB-378	RB-378							
SAMPLE DEPTH (m)	6 10	15.24	21.34							
LINE	D Mainline	D Mainline	D Mainline							
STATION	6002+389 999	6002+389 999	6002+389 999							
OFFSET (RT or LT)	0 02 RT	0.02 RT	0 02 RT							
ELEVATION (m)	1285 29	1285.29	1285.29							
SAMPLE TYPE	SH	SH	SH							
DATE SAMPLED	2/22/2000	2/22/2000	2/22/2000							
SOIL CLASSIFICATION (USCS)	CH	CL								
GROUP CLASSIFICATION (AASHTO)										
SIEVE ANALYSIS (percent passing)										
9.5mm SQUARE OPENING										
NO. 4 (4760 microns)										
NO. 100 (147 microns)										
NO. 200 (74 microns)		89								
CLAY FRACTION (2 microns)										
MOISTURE CONTENT & UNIT WEIGHT										
MOISTURE CONTENT (%)	50	33								
WET UNIT WEIGHT (kN/m^3)	17.2	18 6								
DRY UNIT WEIGHT (kN/m^3)	11.5	13 8								
SPECIFIC GRAVITY	2.81	2.75								
ATTERBERG LIMITS										
LIQUID LIMIT, LL	62	42								
PLASTICITY INDEX, PI	32	22								
SHEAR STRENGTH q_u										
~~UNDRAINED SHEAR STRENGTH, Su,~~ (kPa)	39									
TORVANE (kPa)	24	43	43							
CORROSION										
pH										
RESISTIVITY (ohm-cm)										
WATER SOLUBLE SULFATE (ppm)										

q_u = UNCONF. COMPRESS. STRENGTH

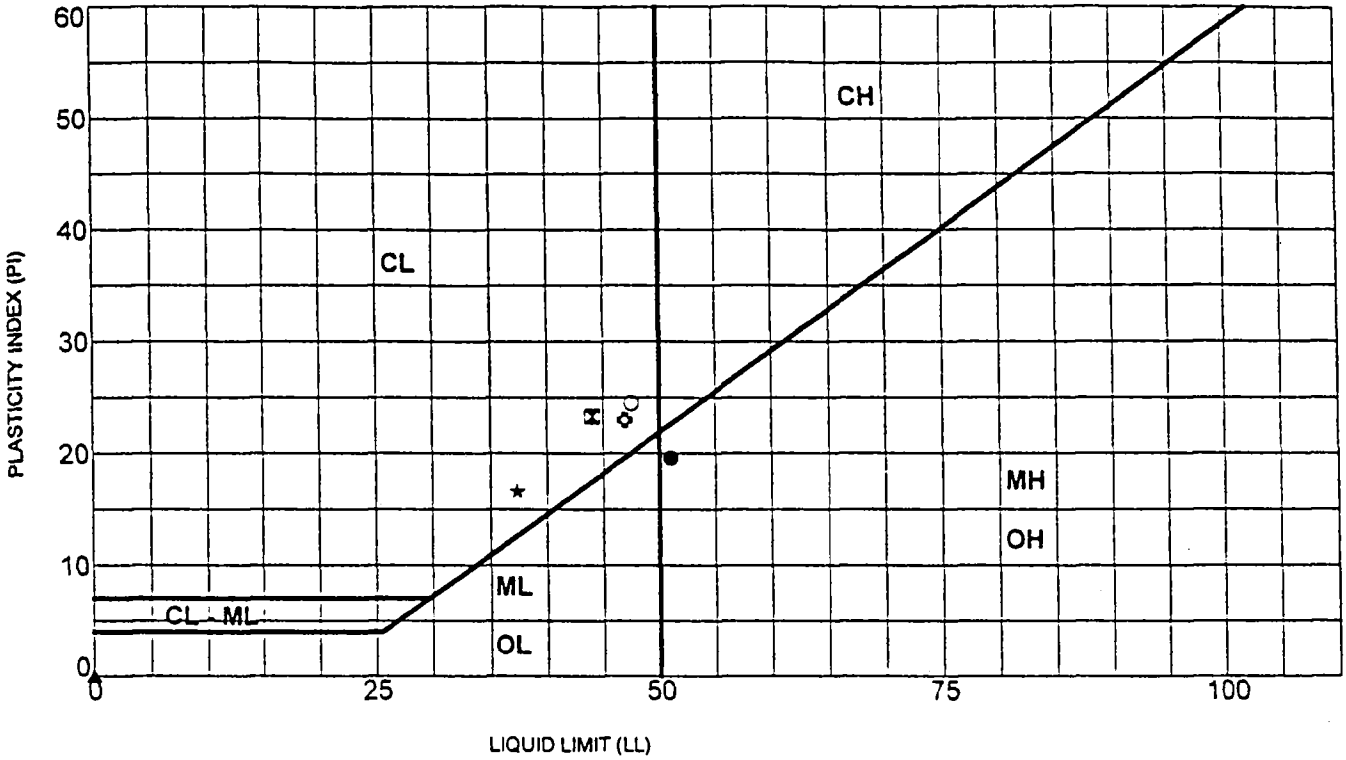
KLEINFELDER

Project No.: 35-8163-05

SUMMARY OF LABORATORY TEST DATA
Legacy Parkway - Preferred Alternative
I-215 to I-15/US 89 Interchange

PLATE
~~K-1196~~

UDOTSUM (LEGACY2) 35-8163-05 P.D 6/2000



	Sample	Depth (m)	LL	PL	PI	Description
●	SB- 1-243	4.6	51	31	20	Elastic SILT (MH)
⊠	SB- 1-243	13.4	44	21	23	Lean CLAY (CL)
▲	SB- 1-246	12.2	NP	NP	NP	SILT (ML)
★	SB- 1-246	22.9	37	21	17	Lean CLAY (CL)
○	SB- 2-247	7.6	48	23	24	Lean CLAY (CL)
✿	SB- 3-248	7.6	47	24	23	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

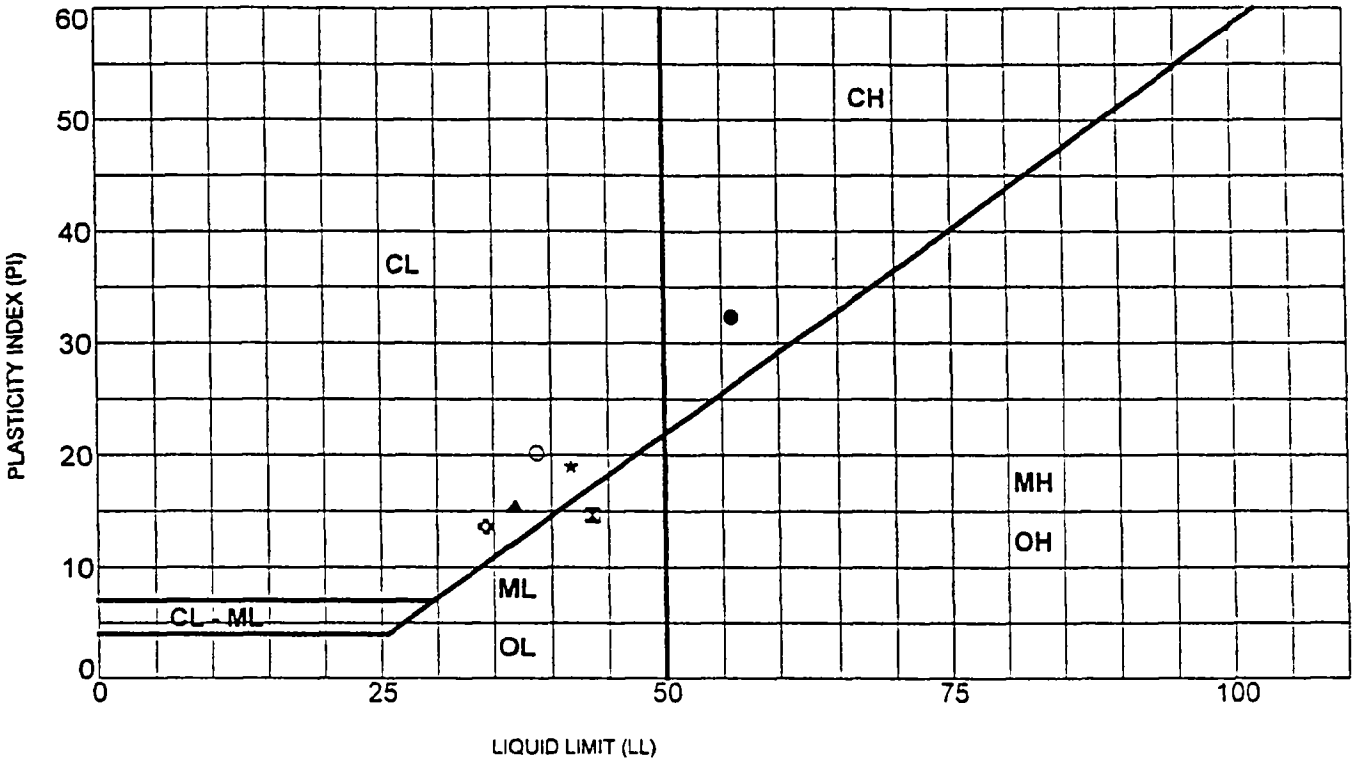
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-1



	Sample	Depth (m)	LL	PL	PI	Description
●	SB- 3-248	24.4	56	24	32	Fat CLAY (CL)
⊠	SB- 3-249	6.1	44	29	15	SILT (ML)
▲	SB- 3-249	15.2	37	21	15	Lean CLAY (CL)
★	SB- 3-250	9.1	42	23	19	Lean CLAY (CL)
○	SB- 3-250	15.2	39	19	20	Lean CLAY (CL)
✿	SB- 4-251	3.0	34	21	14	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

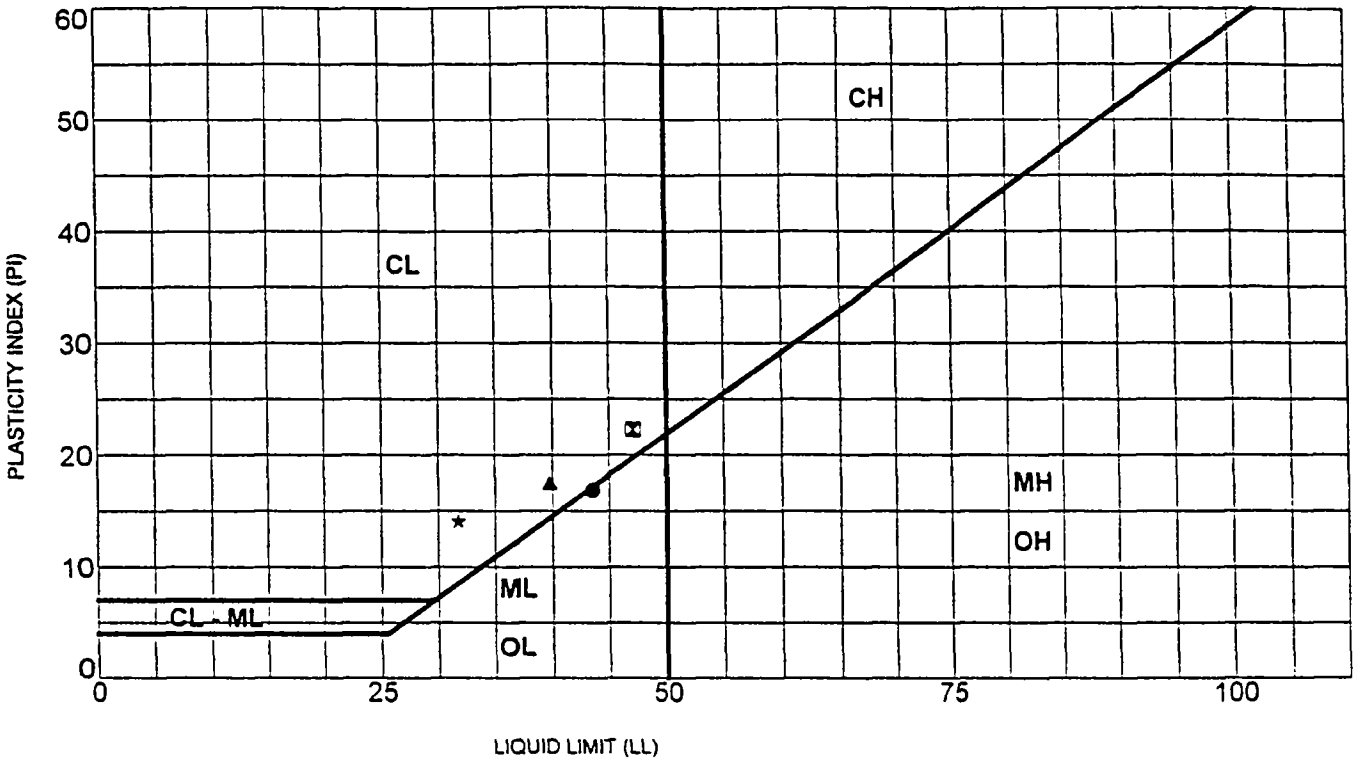
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-2



	Sample	Depth (m)	LL	PL	PI	Description
●	SB- 4-251	6.7	44	27	17	SILT (ML)
⊠	SB- 4-251	25.9	47	25	22	Lean CLAY (CL)
▲	SB- 4-252	7.6	40	22	17	Lean CLAY (CL)
★	SB- 4-252	13.7	32	18	14	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

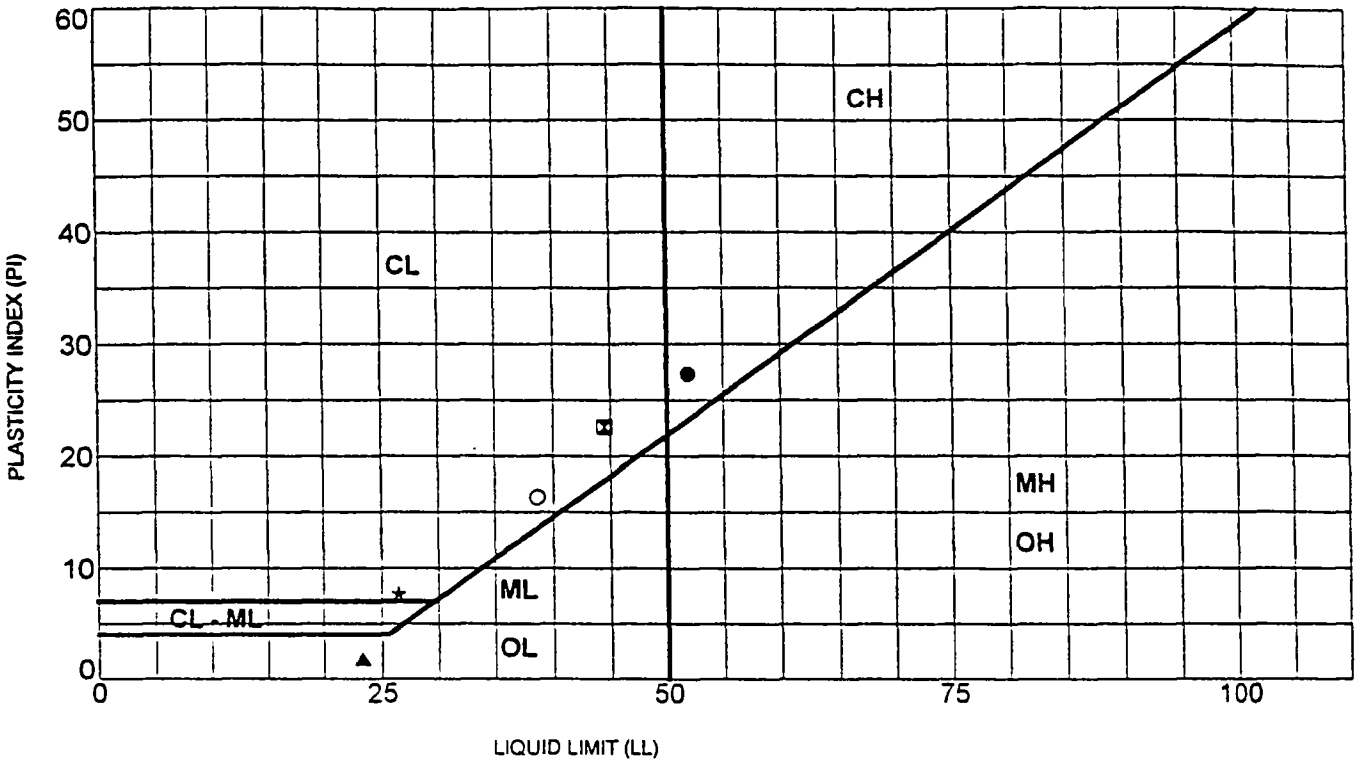
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-3



	Sample	Depth (m)	LL	PL	PI	Description
●	SB- 5-293	1.5	52	25	27	Fat CLAY (CH)
⊠	SB- 5-293	9.1	44	22	23	Lean CLAY (CL)
▲	SB- 5-297	3.0	23	22	2	SILT (ML)
★	SB- 5-297	10.7	26	19	8	Lean CLAY (CL)
○	SB- 5-297	21.3	39	22	16	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

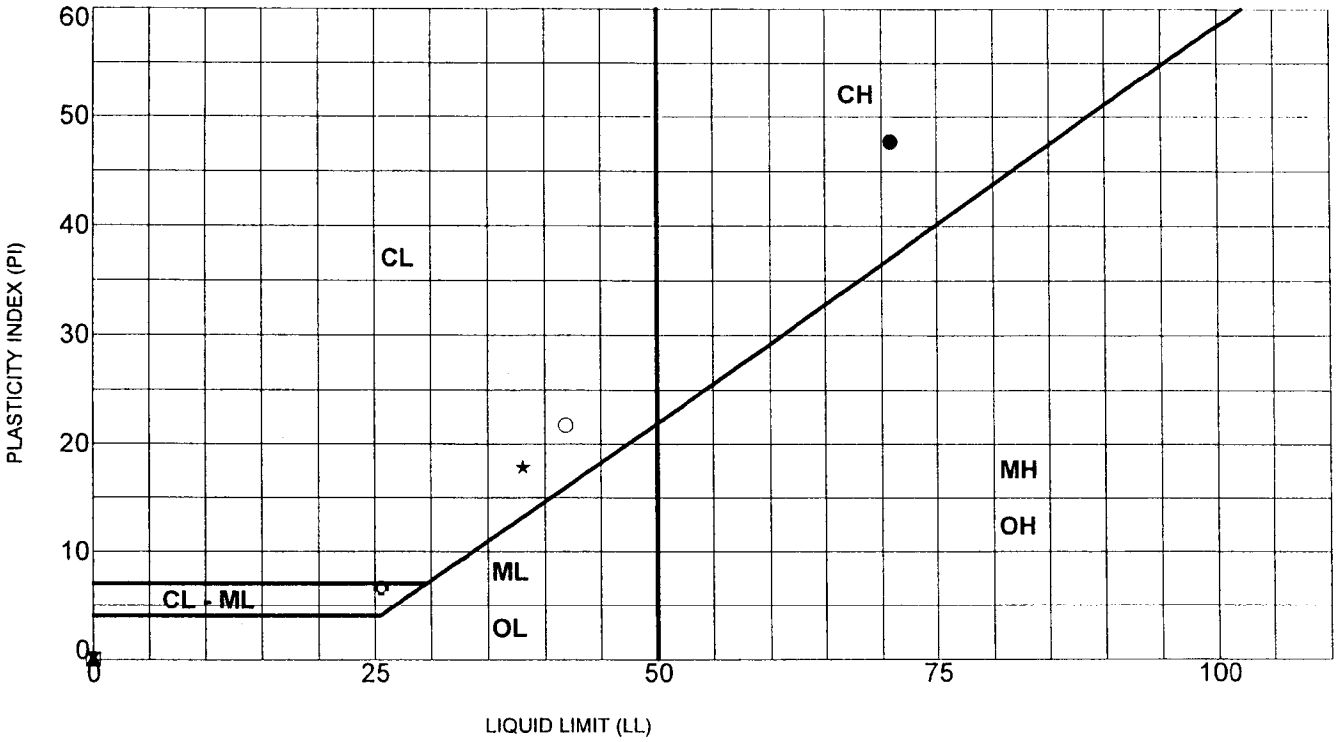
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-4



	Sample	Depth (m)	LL	PL	PI	Description
●	LSB-5-429	3.8	71	23	48	Fat CLAY (CH)
⊠	LSB-5-429	5.6	NP	NP	NP	Sandy SILT (ML)
▲	LSB-5-429	6.9	NP	NP	NP	Sandy SILT (ML)
★	LSB-5-429	30.5	38	20	18	Lean CLAY (CL)
○	LSB-5-429	33.5	42	20	22	Lean CLAY (CL)
✿	LSB-5-429	39.6	26	19	7	Silty CLAY (CL-ML)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

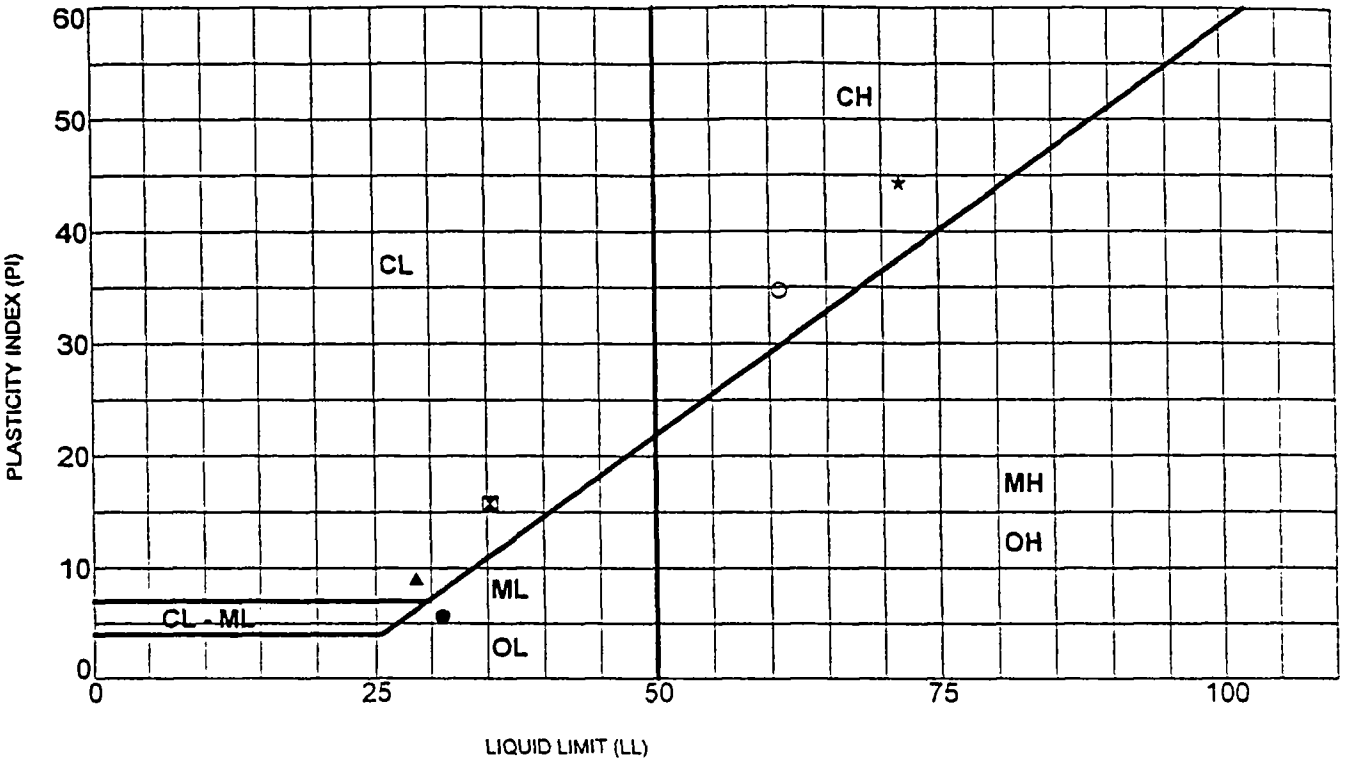
KLEINFELDER

PROJECT NO. 35-8440-06

Legacy Parkway Design/Build
I-215 to I-15/US 89 Interchange

PLASTICITY CHART

PLATE
K-1



	Sample	Depth (m)	LL	PL	PI	Description
●	SB-11-259	8.8	31	25	6	Sandy SILT (ML)
⊠	SB-11-259	27.1	35	19	16	Clayey SAND (SC)
▲	SB-11-262	7.6	29	20	9	Sandy Lean CLAY (CL)
★	SB-11-262	12.2	72	27	44	Fat CLAY (CH)
○	SB-11-262	16.8	61	26	35	Fat CLAY (CH)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

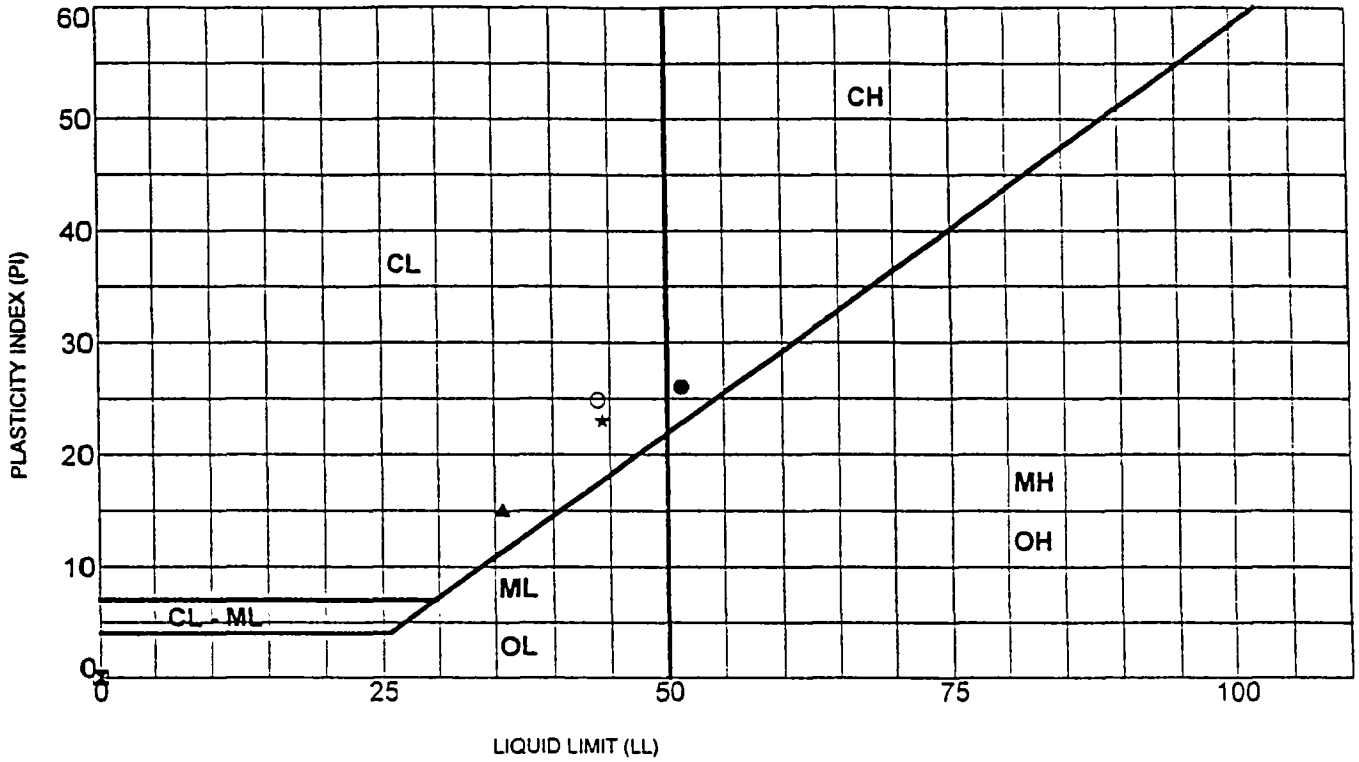
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-11



	Sample	Depth (m)	LL	PL	PI	Description
●	SB-32-357	3.0	51	25	26	Fat CLAY (CH)
⊠	SB-32-357	9.1	NP	NP	NP	Sandy SILT (ML)
▲	SB-32-357	15.2	36	21	15	Lean CLAY (CL)
★	SB-32-357	21.3	44	21	23	Lean CLAY (CL)
○	SB-32-357	38.1	44	19	25	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

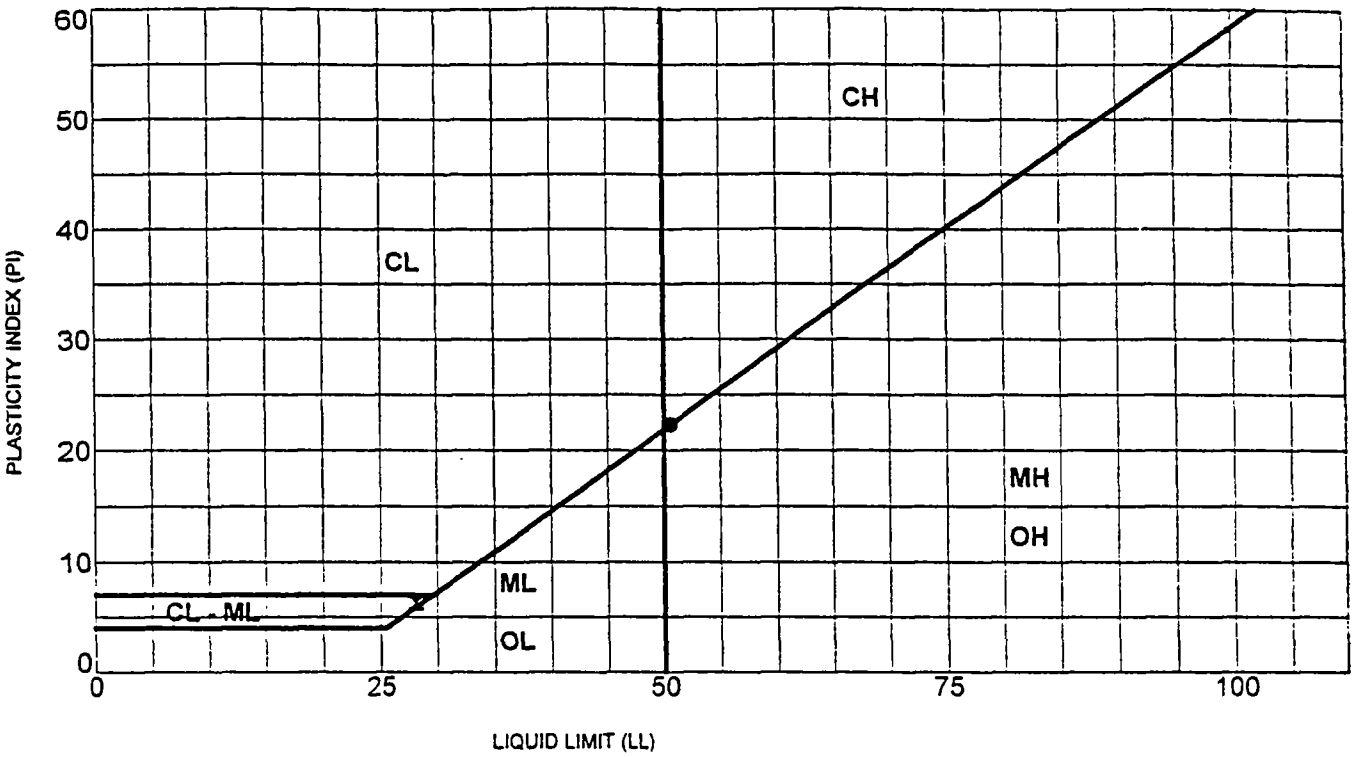
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-30



	Sample	Depth (m)	LL	PL	PI	Description
●	WB-26-314	6.1	51	28	22	Fat CLAY (CH)
⧓	WB-26-314	12.2	28	22	6	Silty CLAY (CL-ML)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

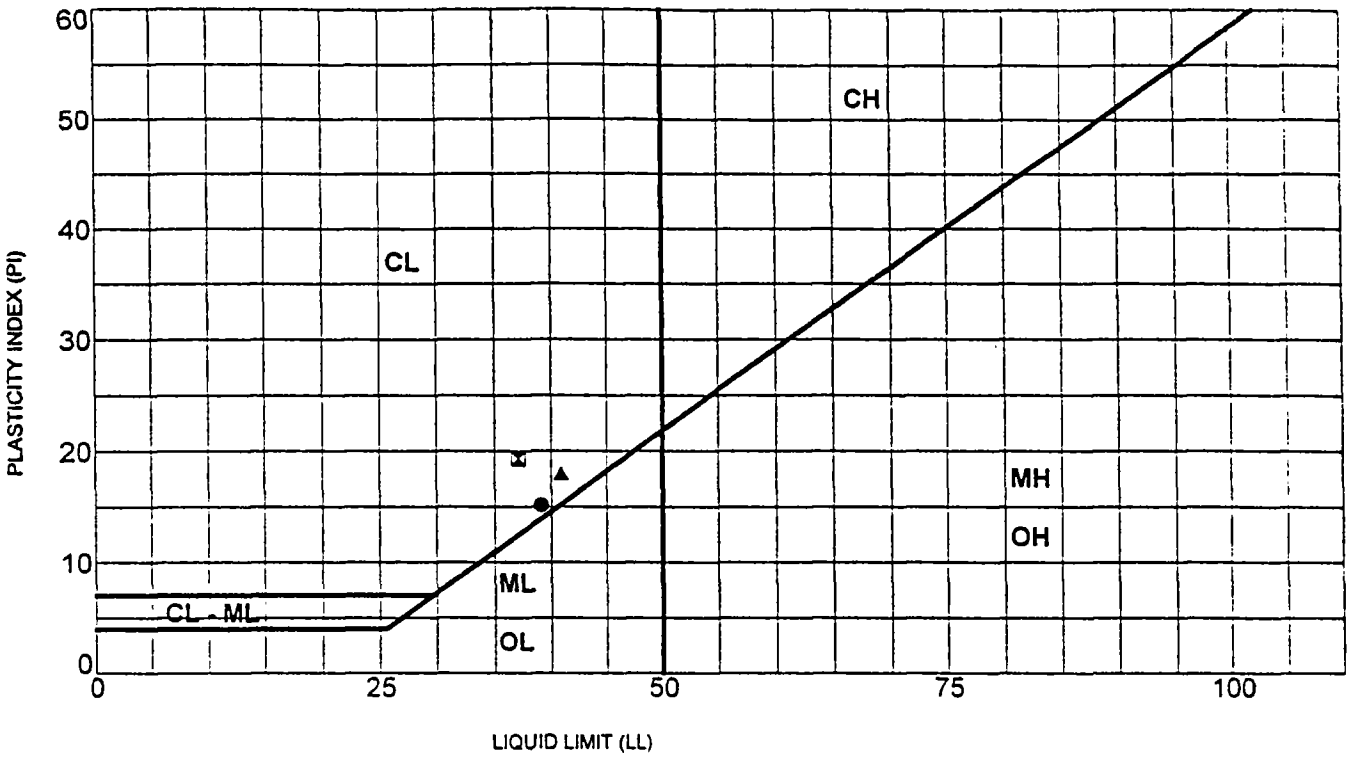
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-49



	Sample	Depth (m)	LL	PL	PI	Description
●	WB-29-320	3.7	39	24	15	Lean CLAY (CL)
⧗	WB-29-320	9.1	37	18	19	Lean CLAY (CL)
▲	WB-29-320	12.2	41	23	18	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit
PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

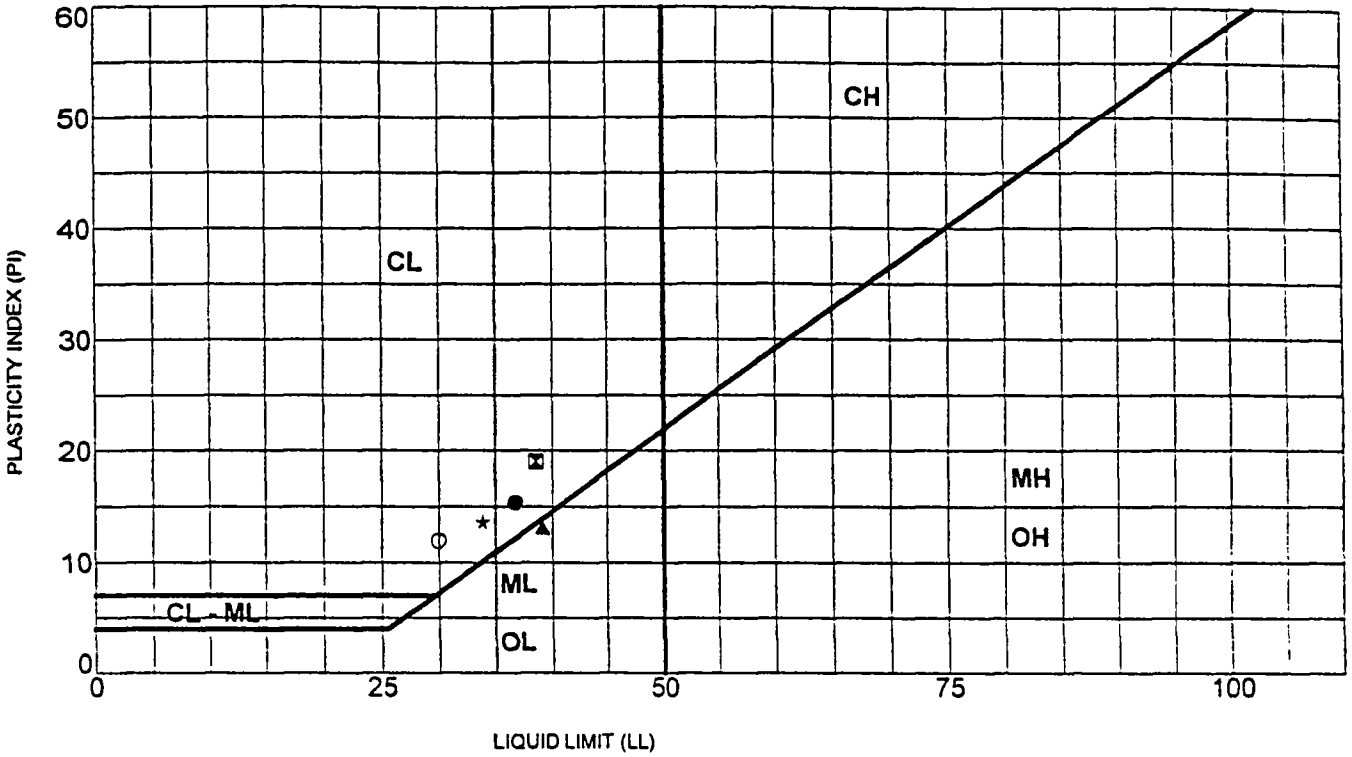
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-52



	Sample	Depth (m)	LL	PL	PI	Description
●	WB-29-322	2.1	37	21	15	Lean CLAY (CL)
⊠	WB-29-322	4.6	39	20	19	Lean CLAY with SAND (CL)
▲	WB-29-322	6.1	39	26	13	SILT (ML)
★	WB-29-322	8.2	34	20	14	Lean CLAY (CL)
○	WB-29-322	10.7	30	18	12	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

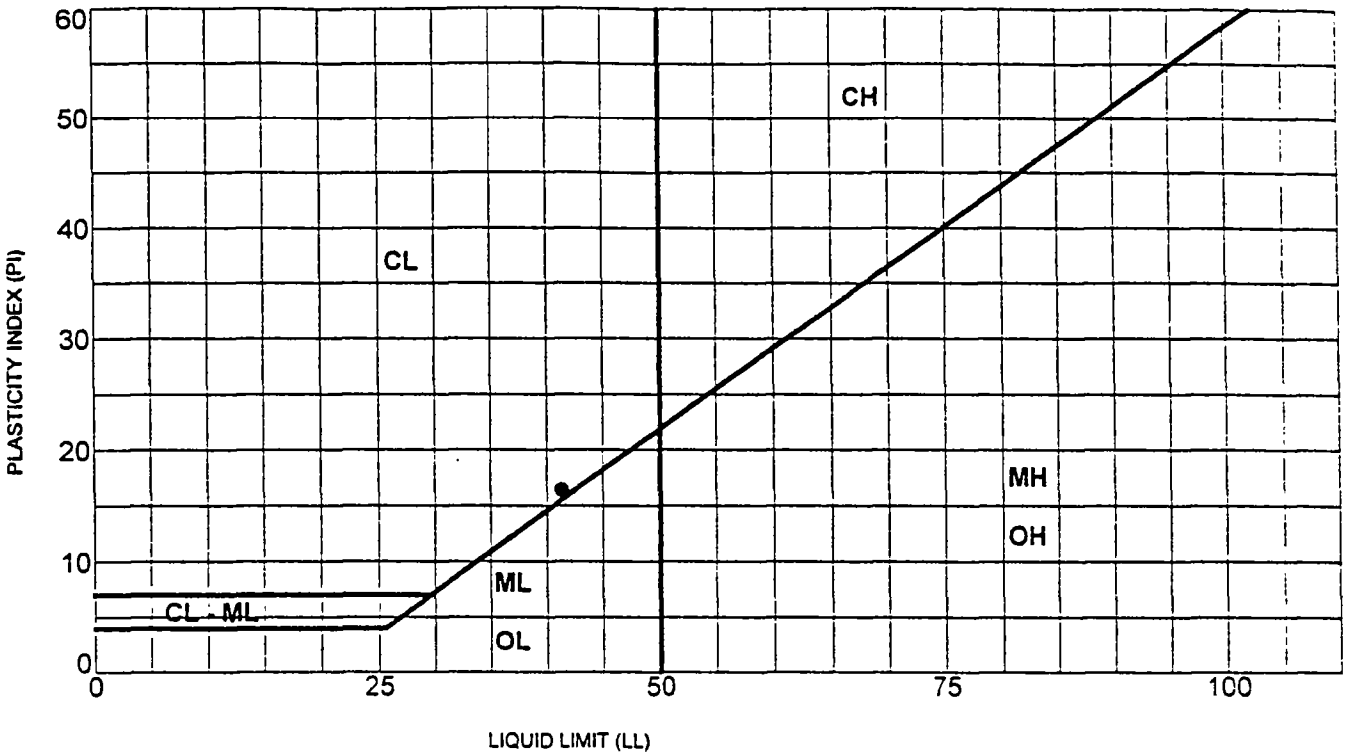
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-53



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-357	10.7	41	25	16	Lean CLAY with sand (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

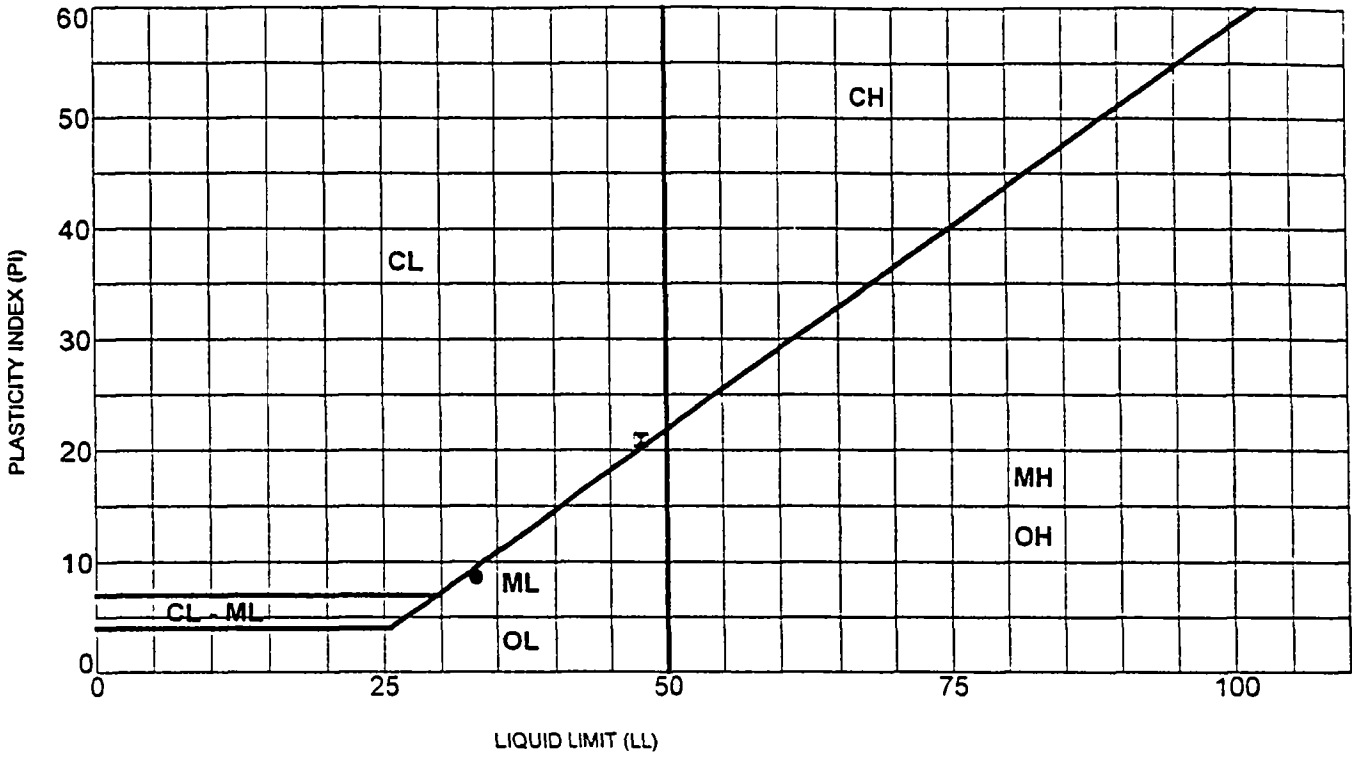
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-55



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-358	3.0	33	24	9	SILT (ML)
⧓	RB-358	15.2	48	27	21	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

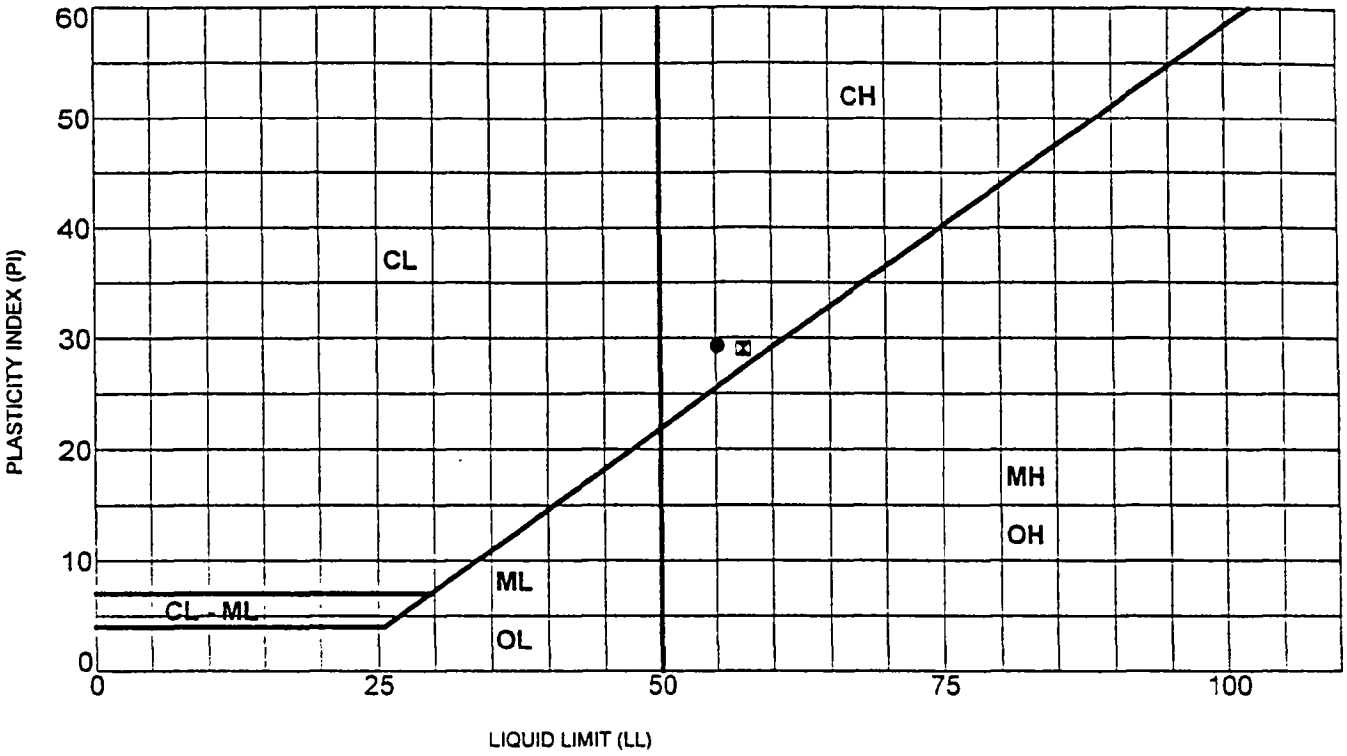
PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE

K-56



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-359	4.6	55	26	29	Fat CLAY (CH)
⧓	RB-359	19.8	57	28	29	Fat CLAY (CH)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

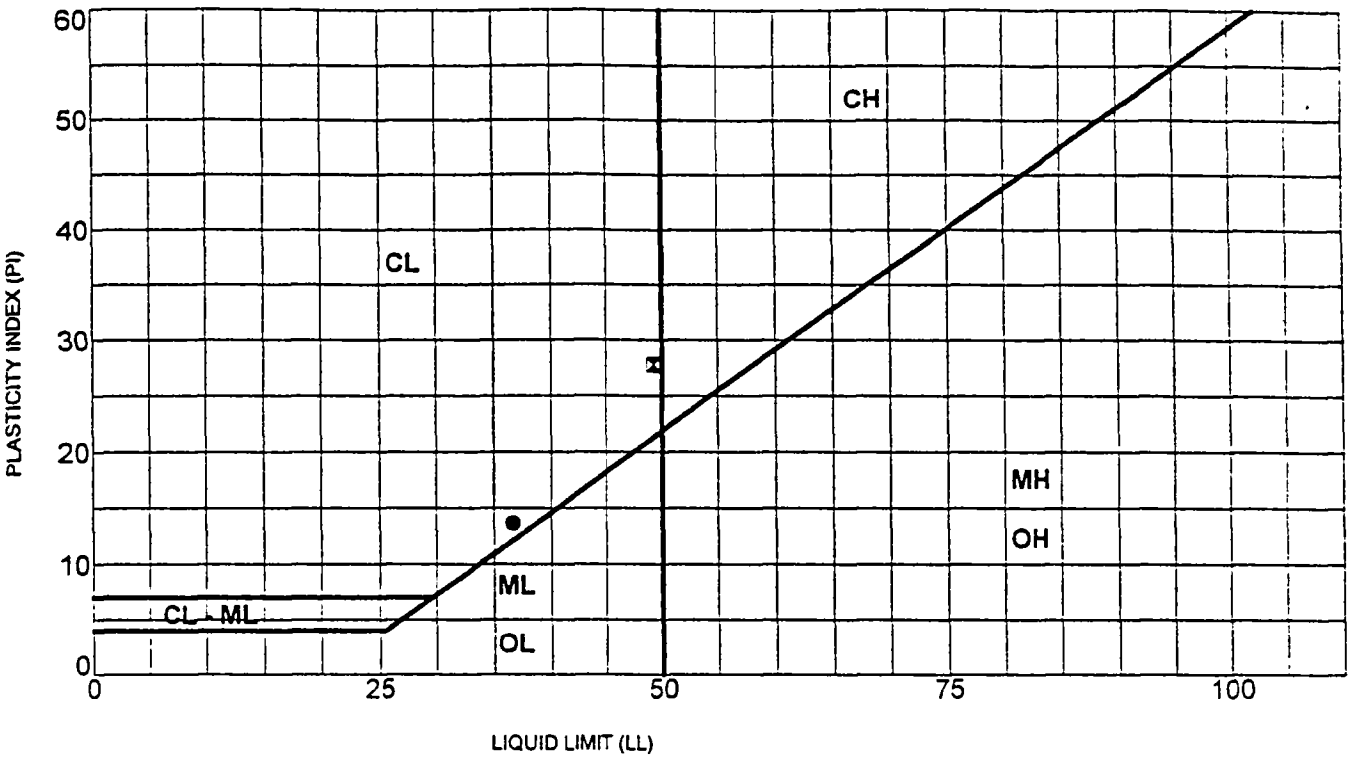
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-57



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-360	4.6	37	23	14	Lean CLAY (CL)
⧗	RB-360	7.6	49	21	28	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

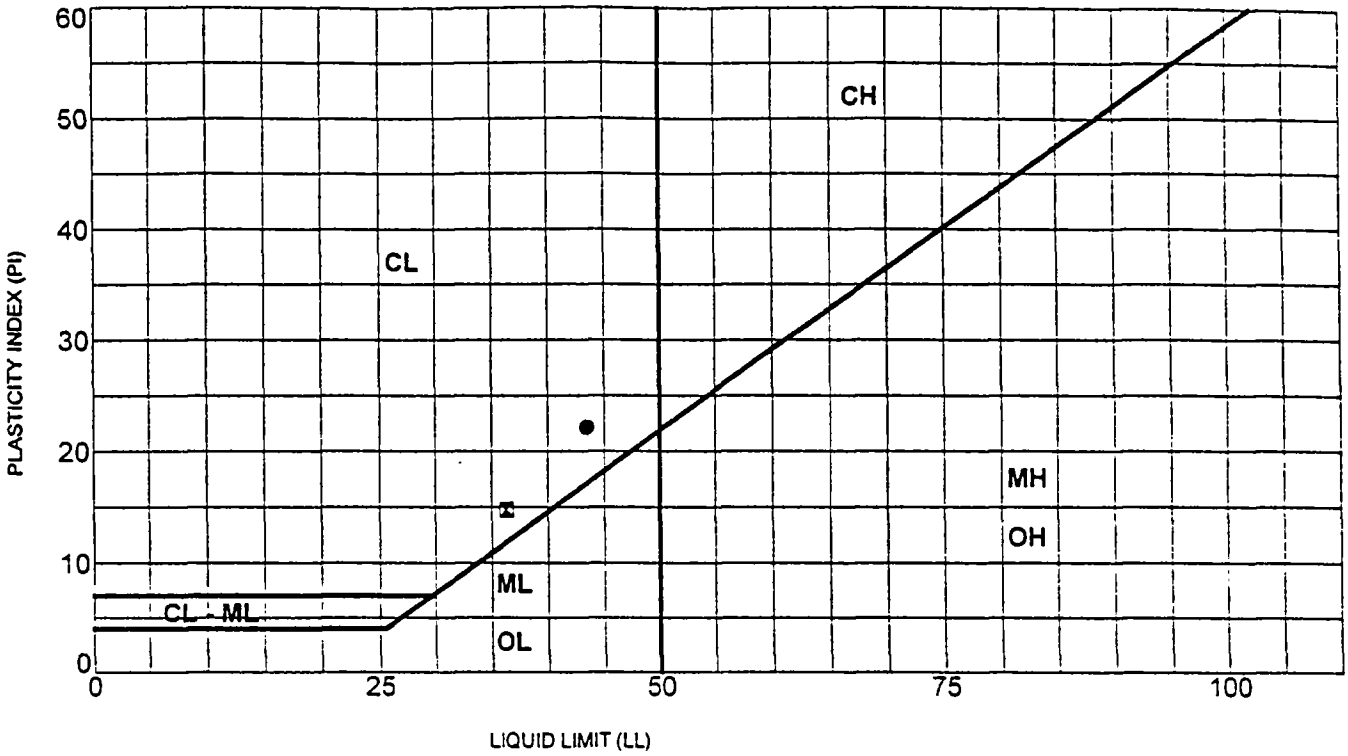
PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE

K-58



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-361	10.7	43	21	22	Lean CLAY (CL)
⧗	RB-361	21.3	36	22	15	Lean CLAY (CL)

LL - Liquid Limit

PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

PROJECT NO. 35-8163-05

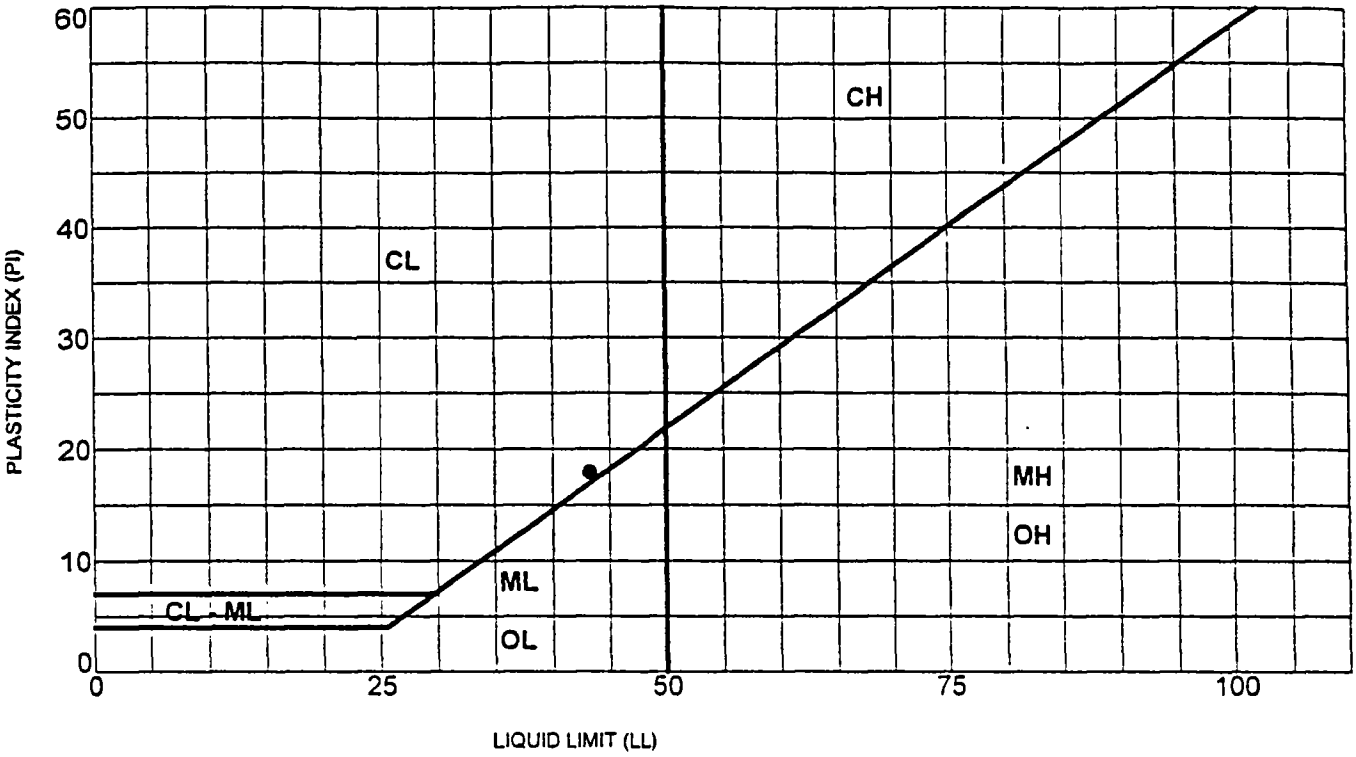
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

PLASTICITY CHART

PLATE

K-59



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-368	4.6	43	25	18	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

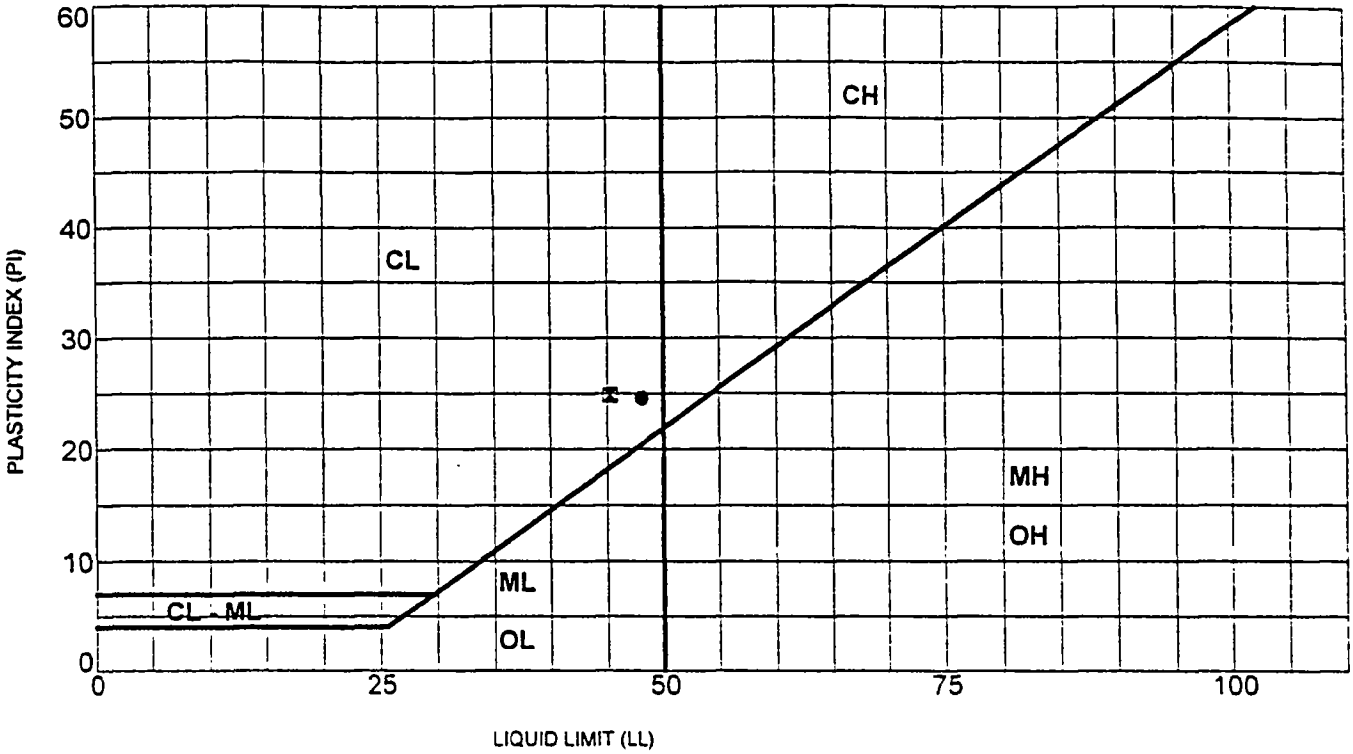
PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE

K-64



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-369	1.5	48	23	25	Lean CLAY (CL)
⧗	RB-369	13.7	45	20	25	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

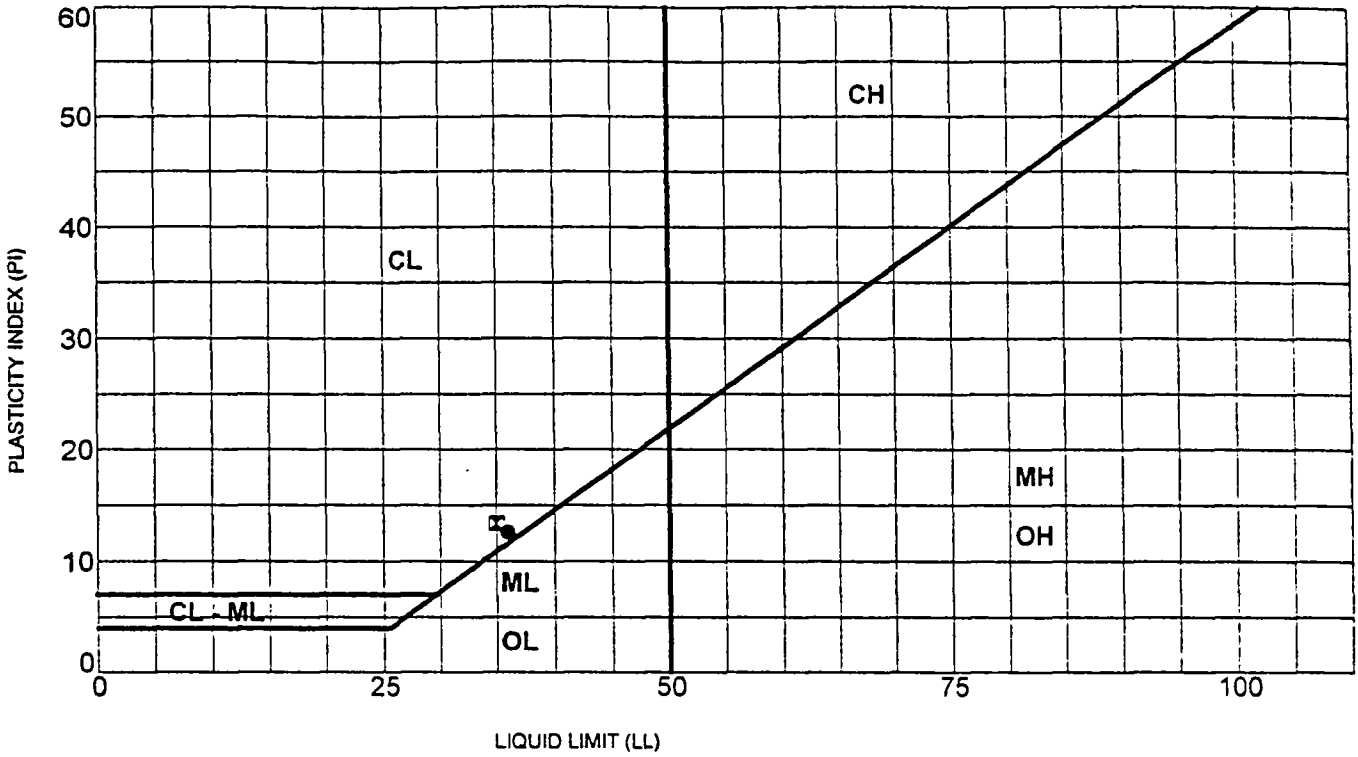
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-65



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-376	6.1	36	23	13	Lean CLAY (CL)
⊠	RB-376	12.2	35	22	13	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

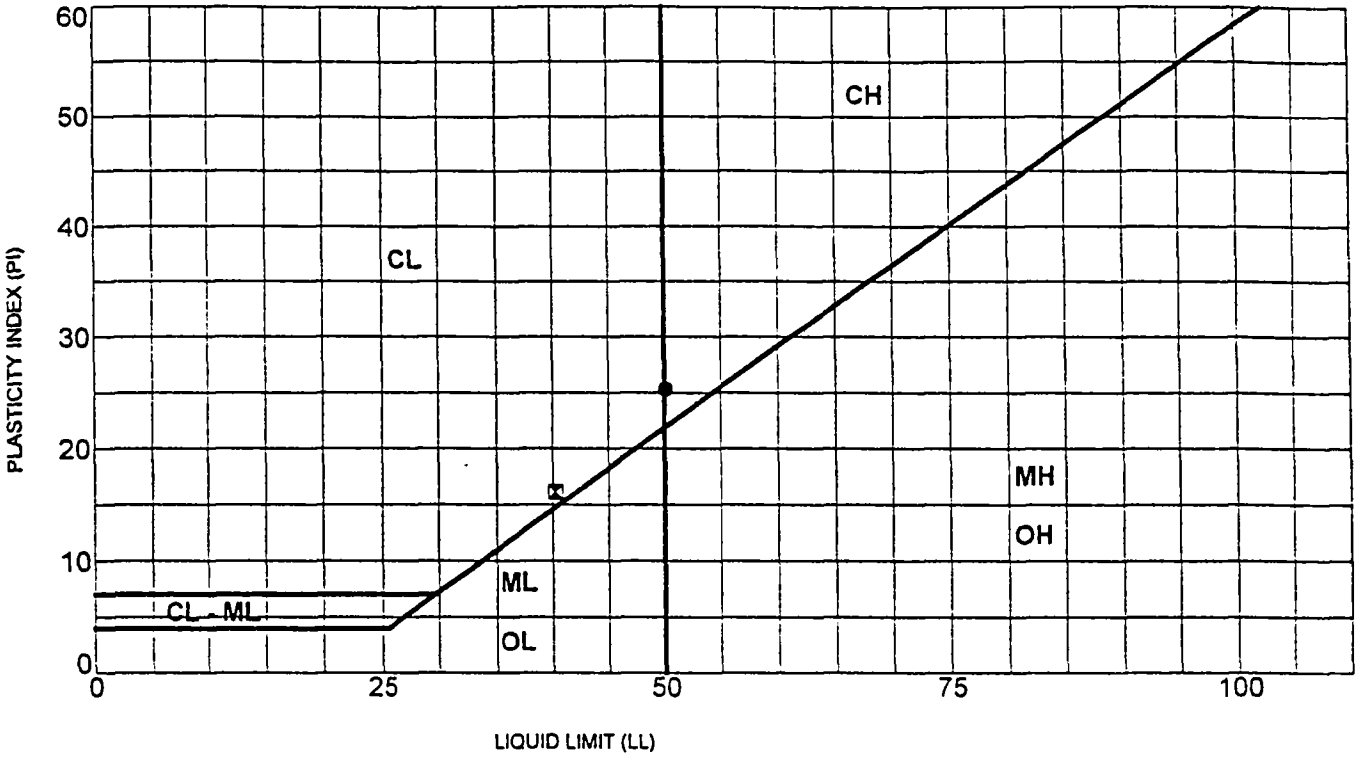
KLEINFELDER

PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-71



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-377	6.1	50	25	25	Fat CLAY (CH)
⊠	RB-377	12.2	40	24	16	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

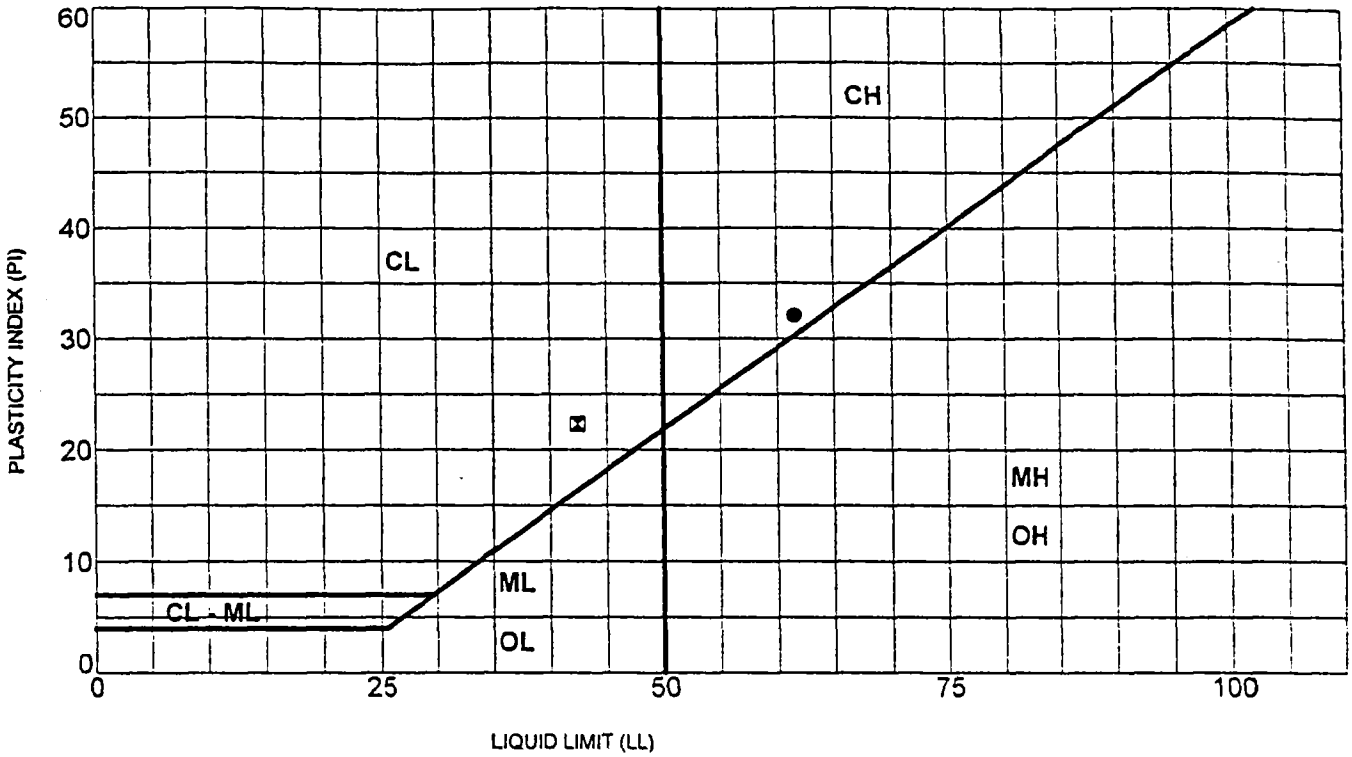
PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE

K-72



	Sample	Depth (m)	LL	PL	PI	Description
●	RB-378	6.1	62	29	32	Fat CLAY (CH)
⊠	RB-378	15.2	42	20	22	Lean CLAY (CL)

LL - Liquid Limit
PL - Plastic Limit

PI - Plasticity Index

Unified Soil Classification
Fine Grained Soil Groups

	LL < 50
ML	Inorganic clayey silts to very fine sands of low plasticity
CL	Inorganic clays of low to medium plasticity
OL	Organic silts and organic silty clays of low plasticity

	LL ≥ 50
MH	Inorganic silts and clayey silts of high plasticity
CH	Inorganic clays of high plasticity
OH	Organic clays of medium to high plasticity and organic silts

KLEINFELDER

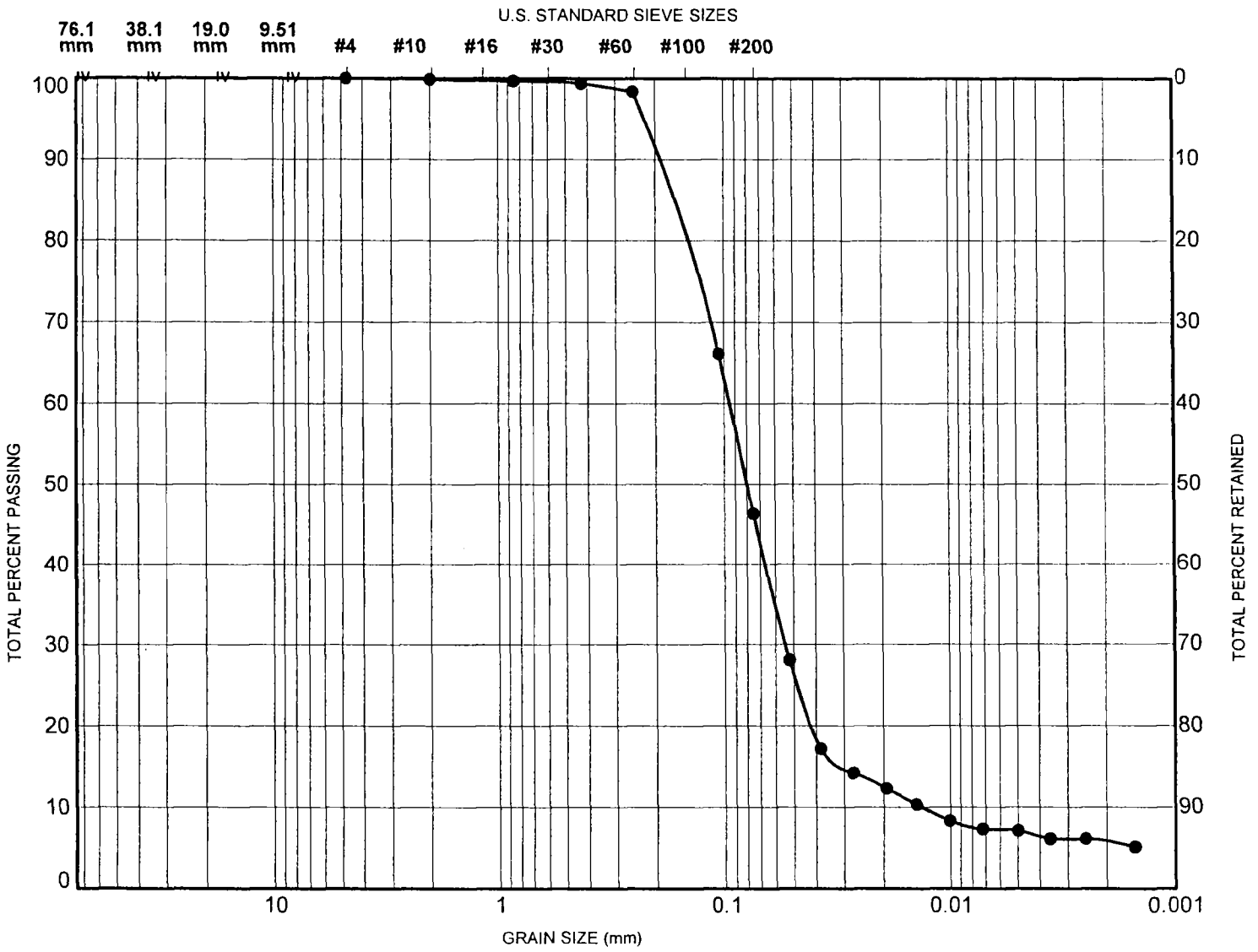
PROJECT NO. 35-8163-05

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

PLASTICITY CHART

PLATE
K-73

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-1-246	9.1		

KLEINFELDER

PROJECT NO. 35-8440-06

Legacy Parkway Design/Build

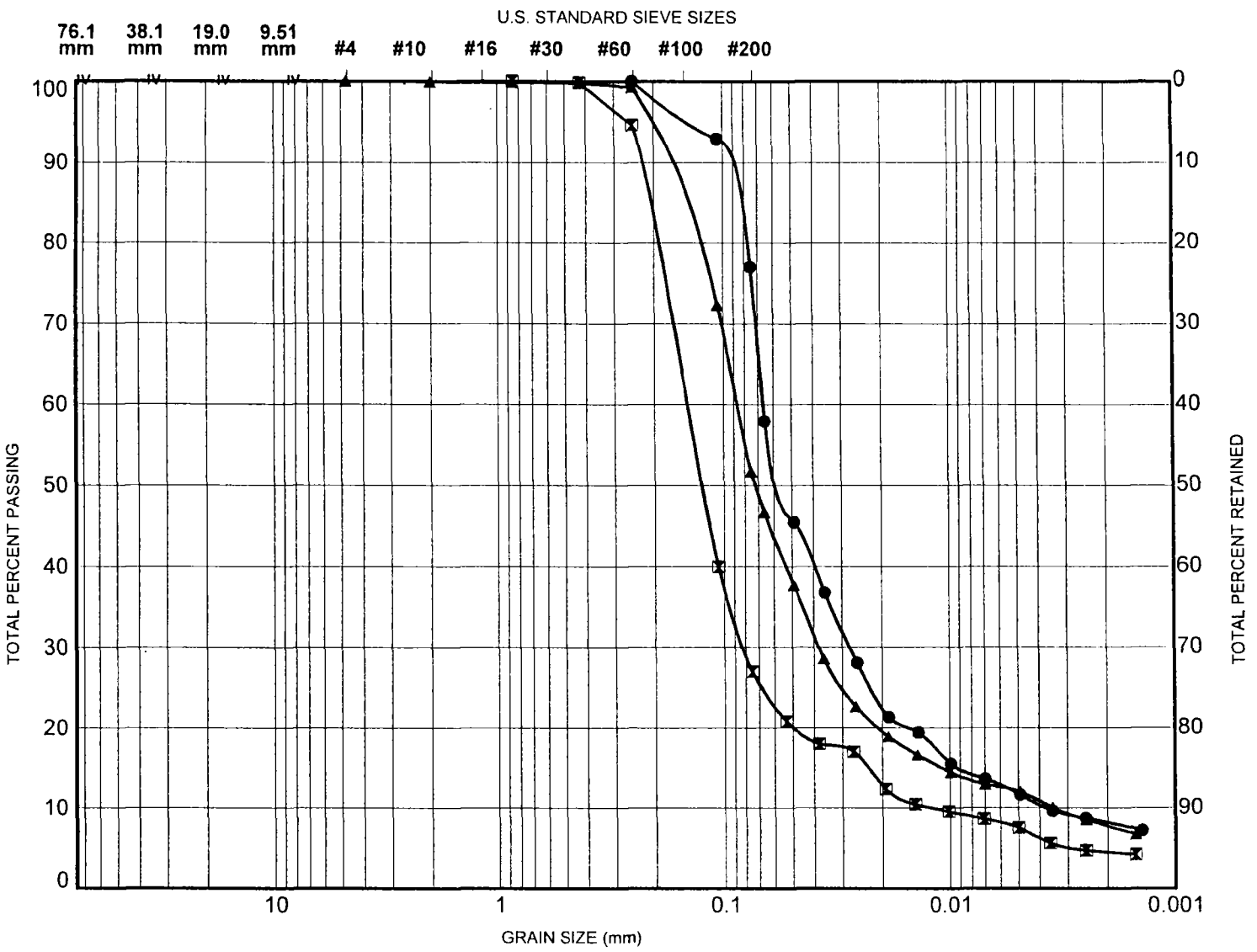
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

~~K-1~~

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-2-248	9.6		
⊠	SB-2-248	10.7		
▲	SB-2-248	13.7		

KLEINFELDER

PROJECT NO. 35-8440-06

Legacy Parkway Design/Build

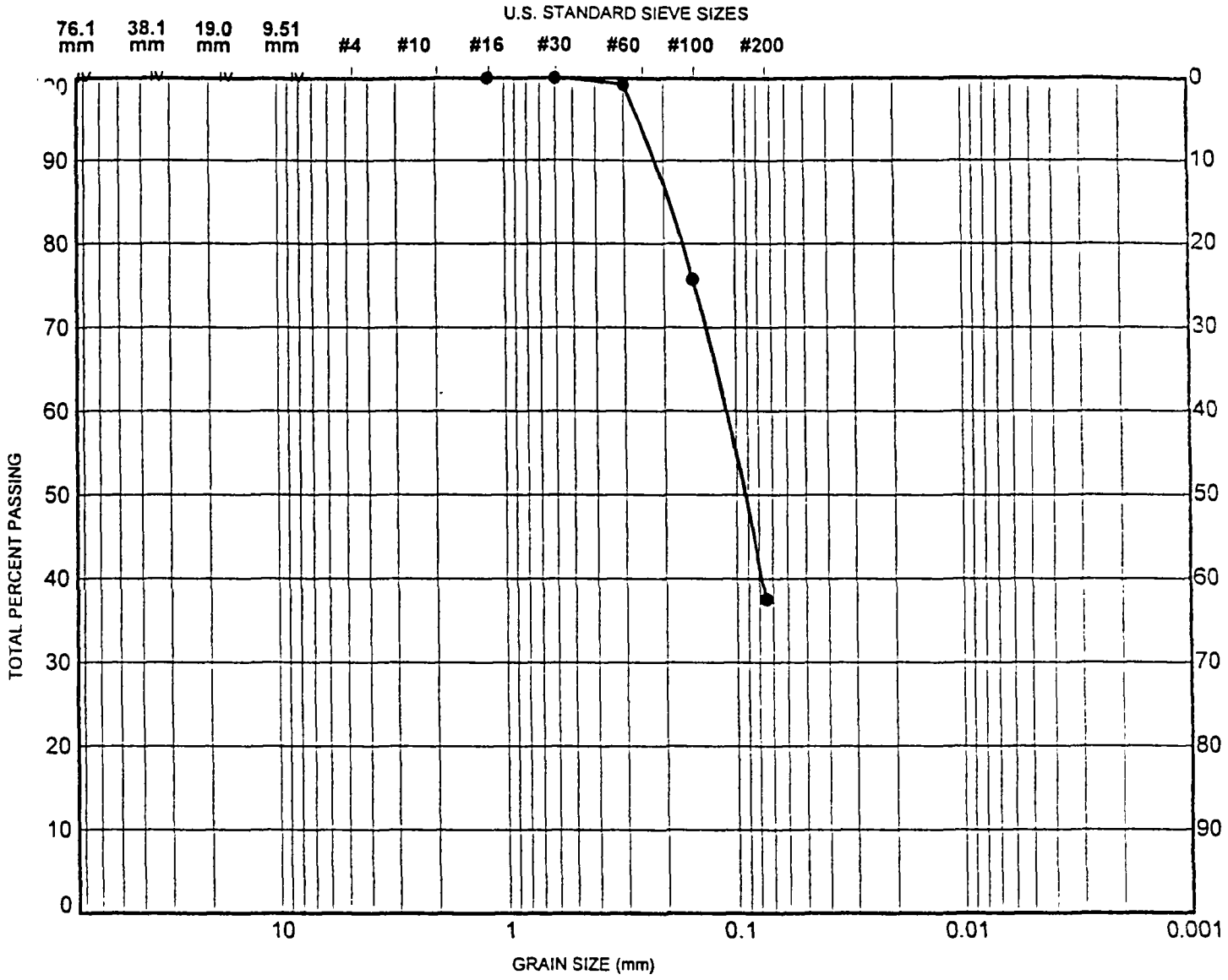
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

~~K-1~~

SIEVE ANALYSIS | HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-3-248	10.7	Silty SAND	SM

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

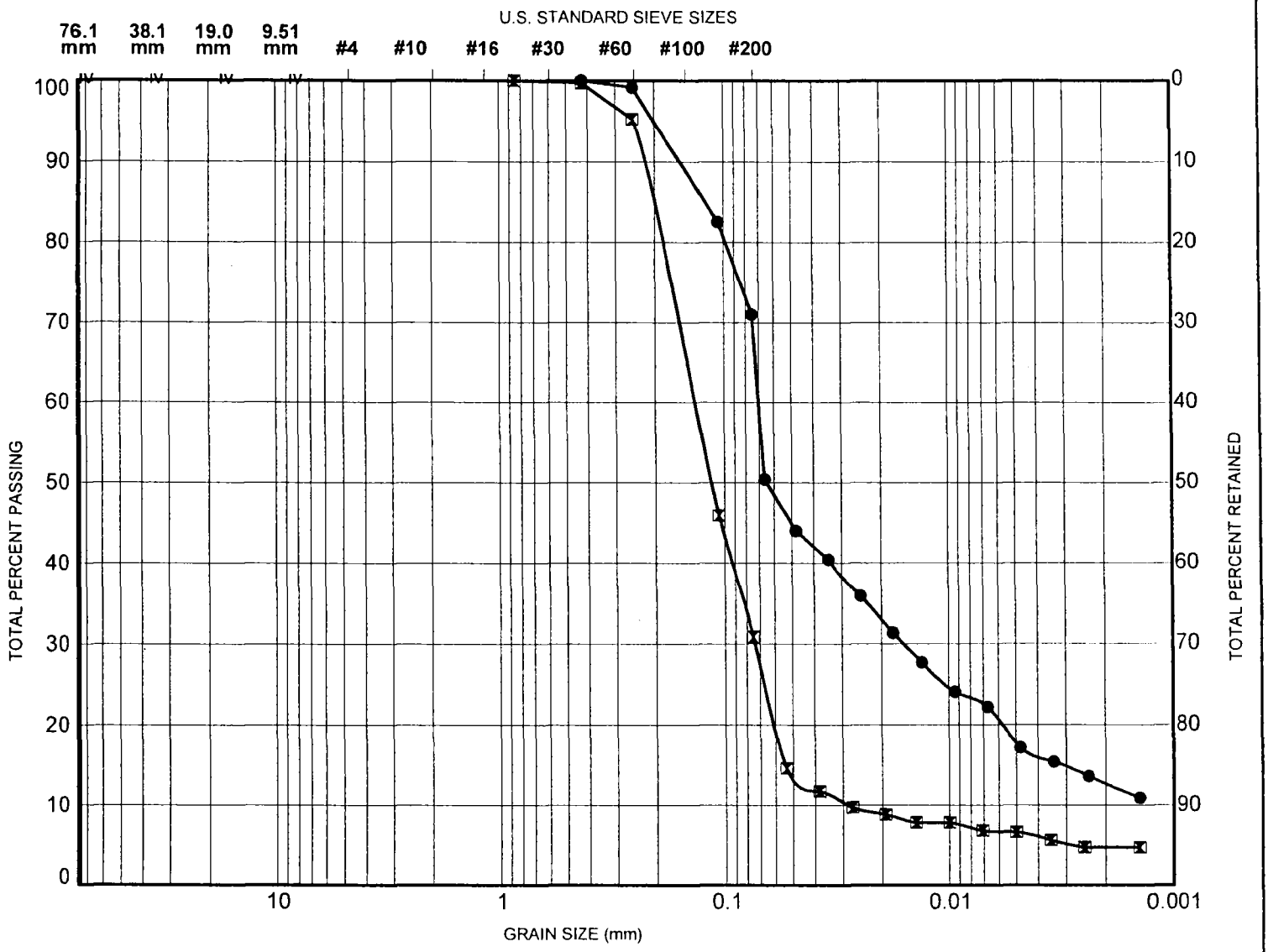
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-113

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-3-249	11.0		
⊠	SB-3-249	12.2		

KLEINFELDER

PROJECT NO. 35-8440-06

Legacy Parkway Design/Build

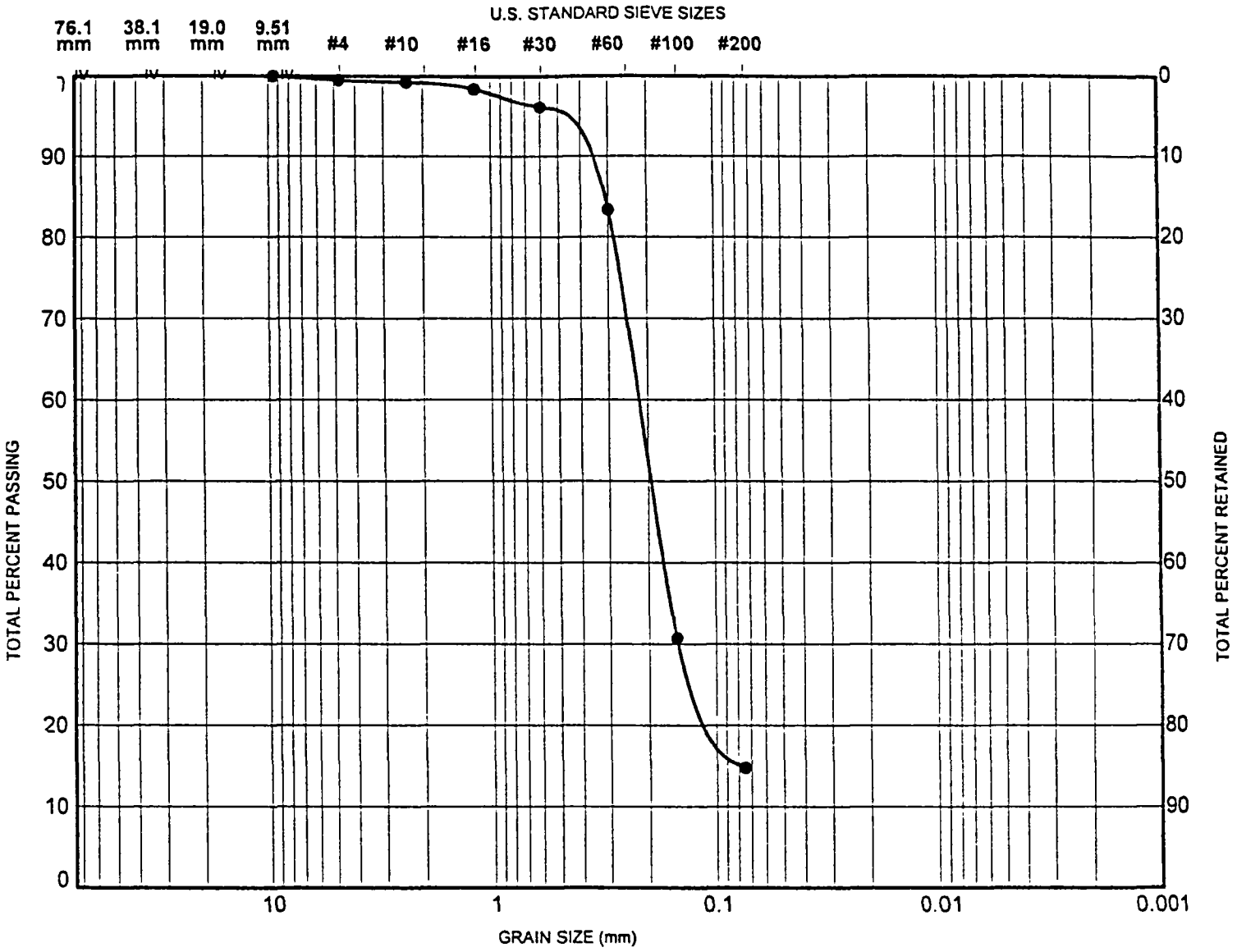
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-1

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB- 5-297	19.8	Poorly Graded SAND with silt	SP-SM

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

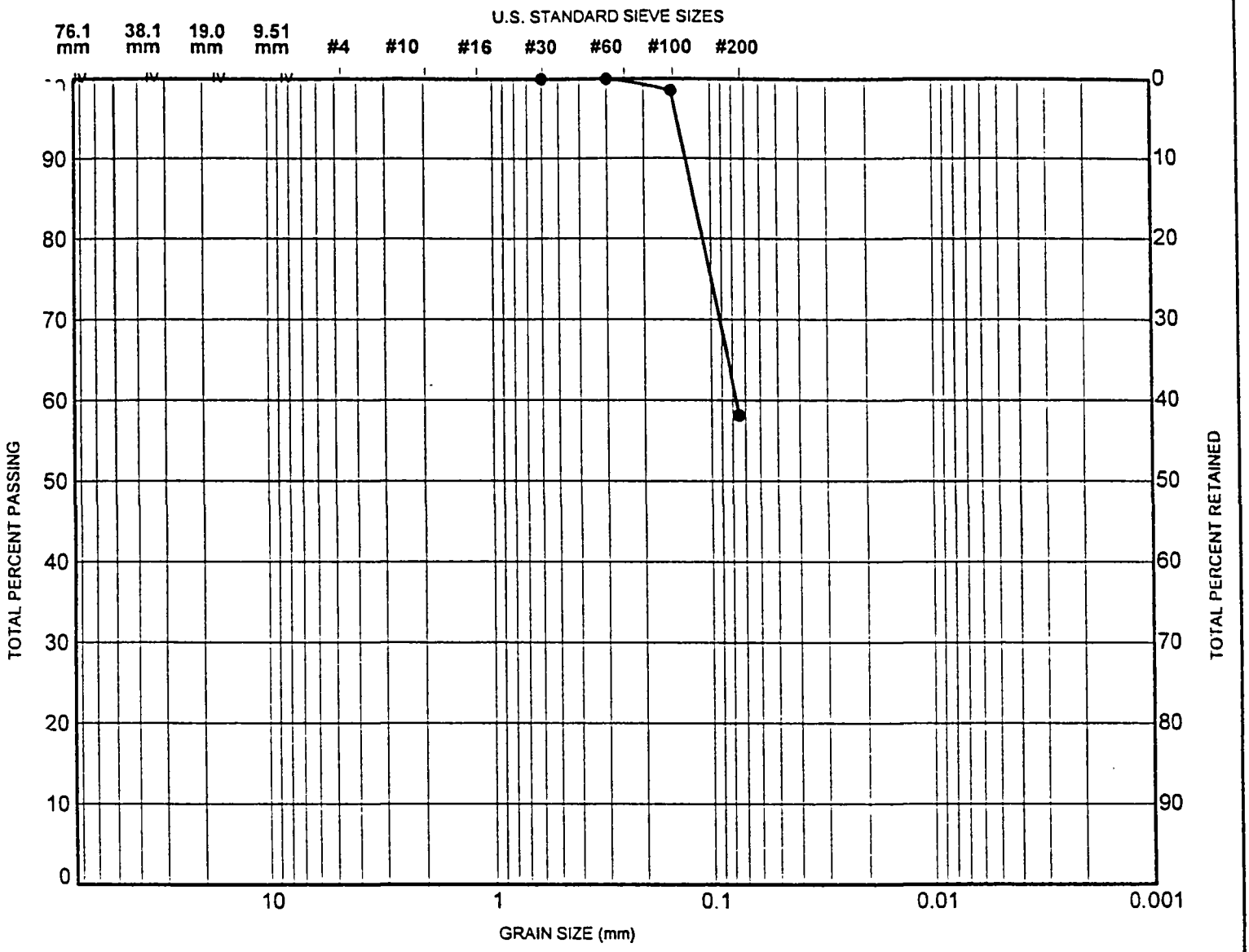
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-114

SIEVE ANALYSIS | HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB- 5-297	25.9	Sandy SILT	ML

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

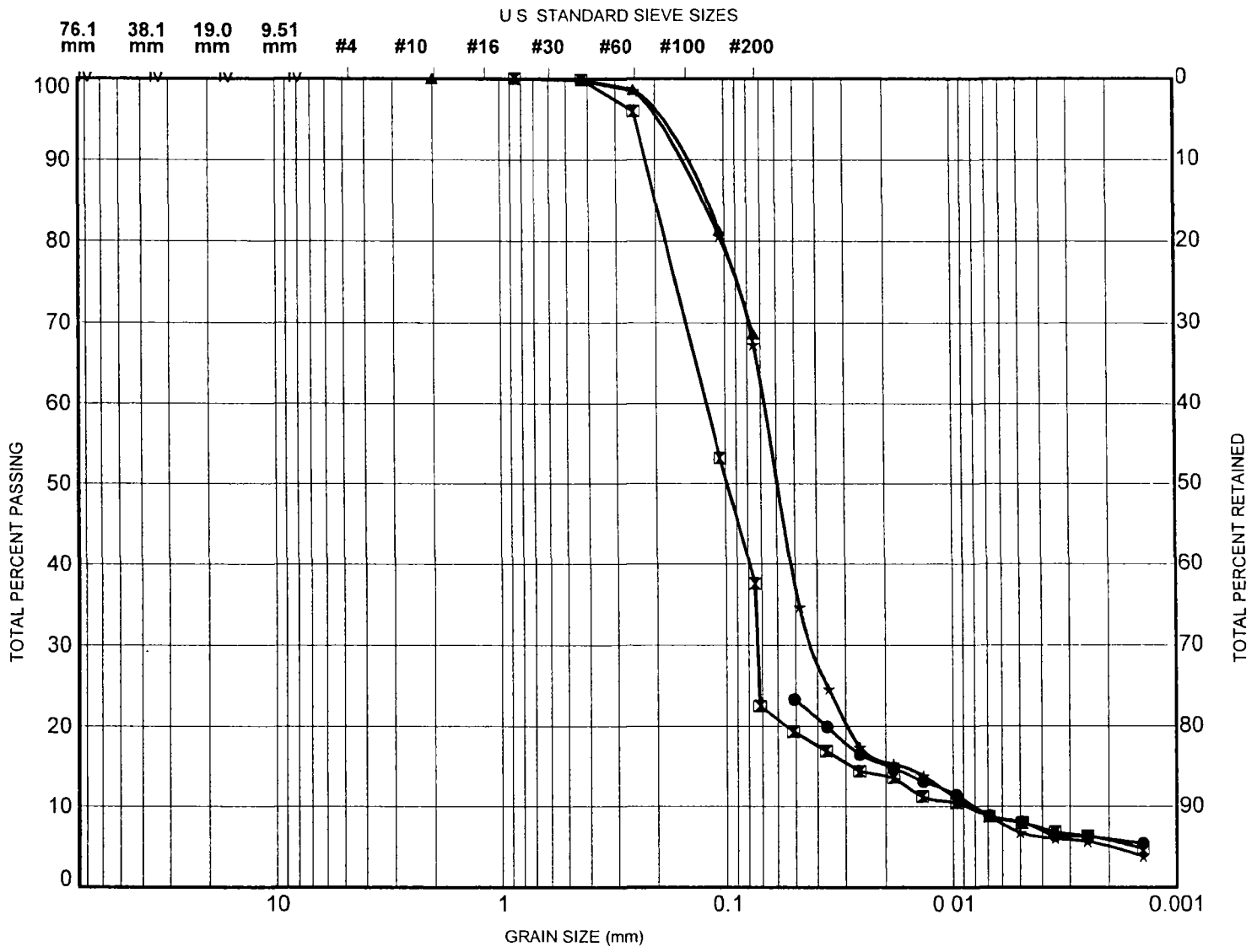
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-115

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	LSB-5-429	5.6	Sandy SILT	ML
⊠	LSB-5-429	6.1	Silty SAND	SM
▲	LSB-5-429	6.9	Sandy SILT	ML
★	LSB-5-429	7.6	Sandy SILT	ML

KLEINFELDER

PROJECT NO. 35-8440-06

Legacy Parkway Design/Build

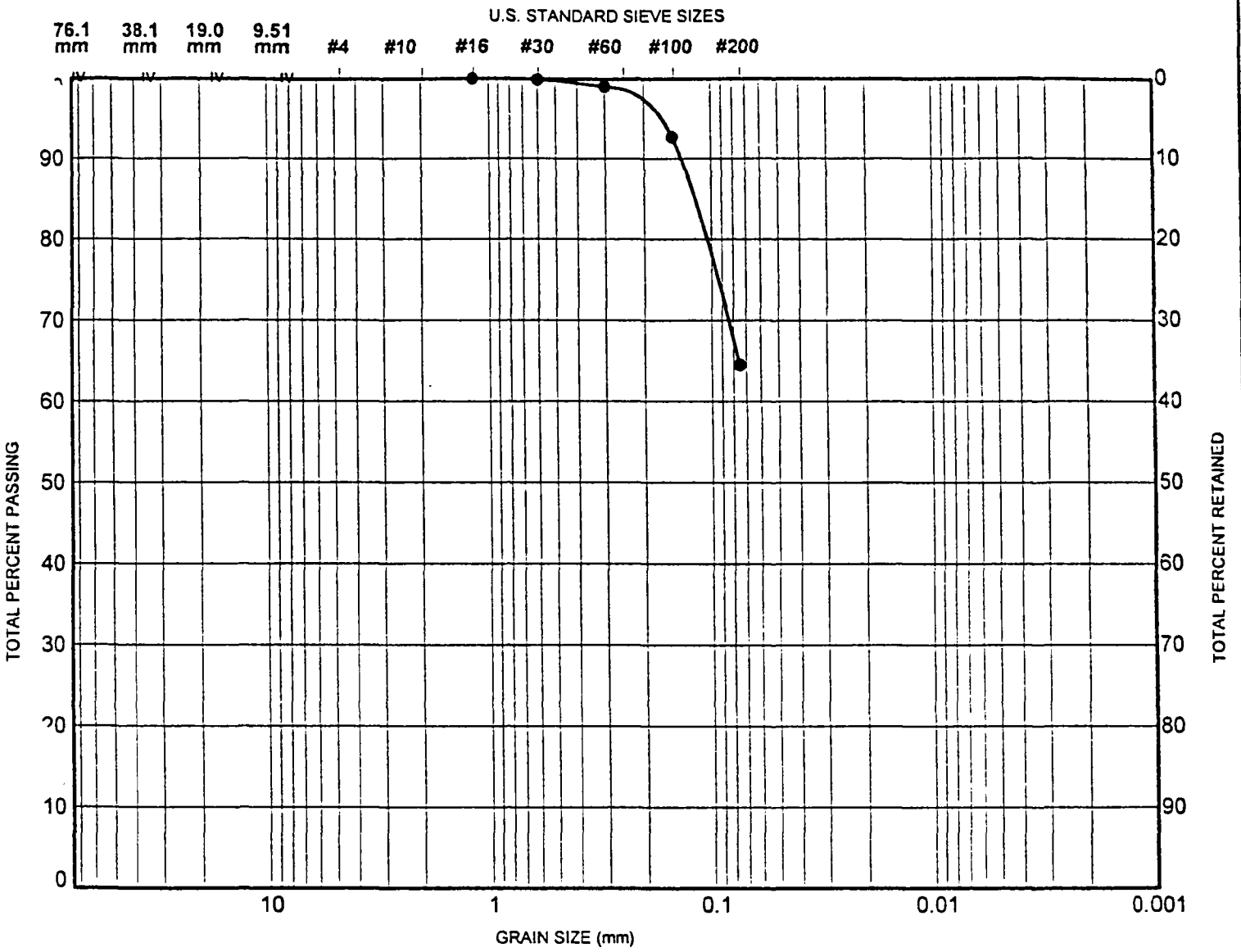
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

~~K-2~~

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-11-262	4.6	Sandy CLAY	CL

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

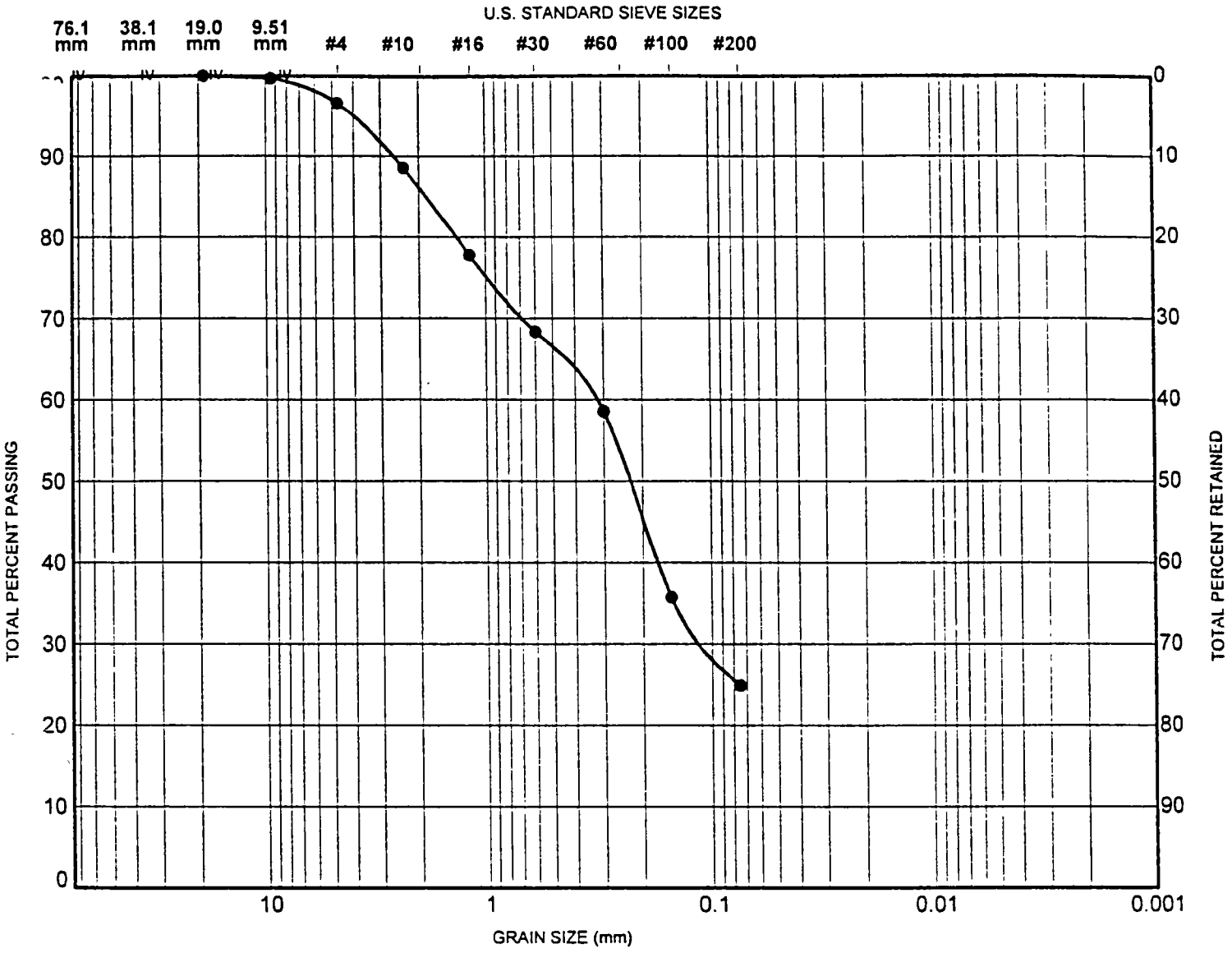
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-119

SIEVE ANALYSIS	HYDROMETER



GRAVEL		SAND			SILT	CLAY
coarse	fine	coarse	medium	fine		

Symbol	Sample	Depth (m)	Description	Classification
●	SB-32-357	41.1	Silty SAND	SM

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

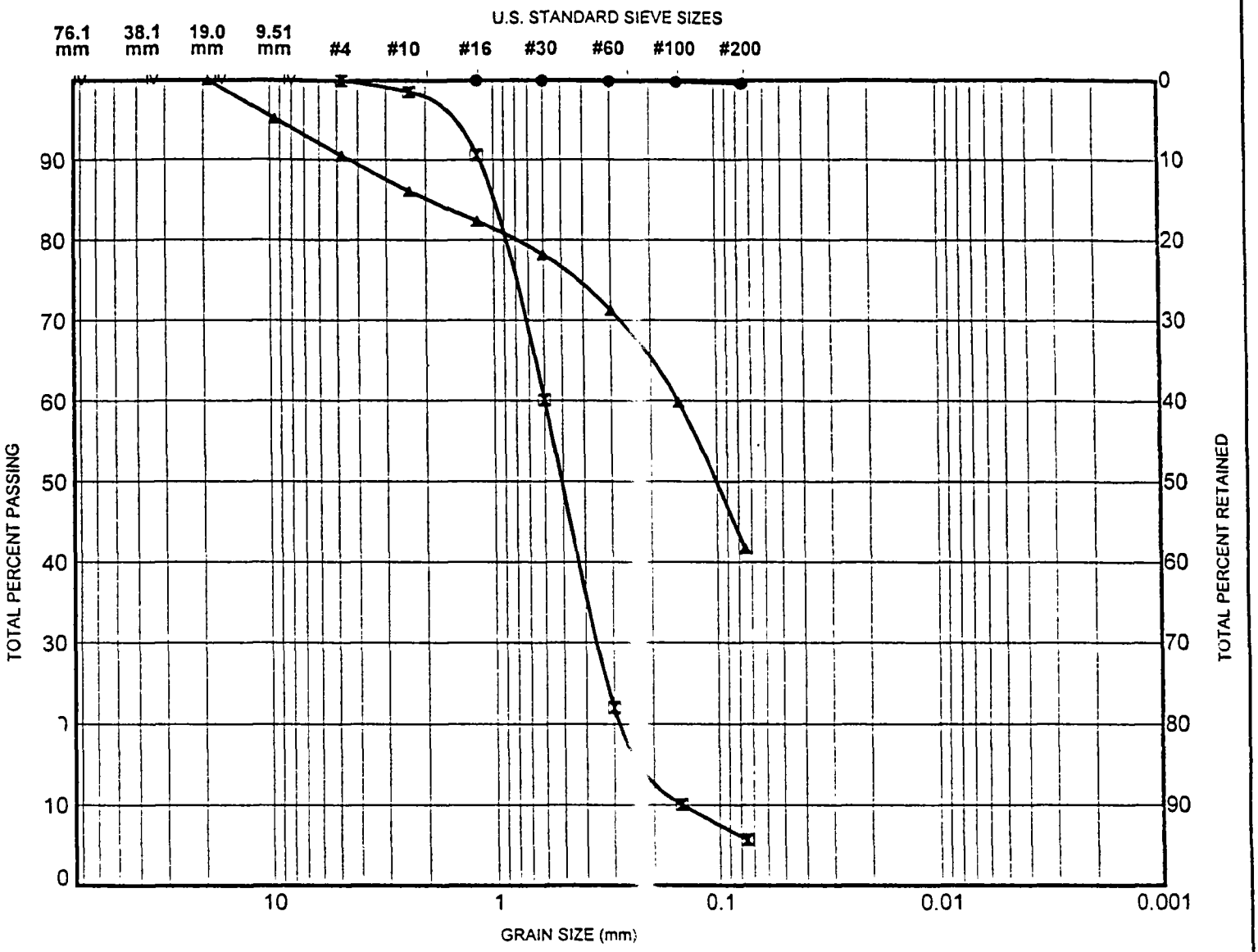
I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-135

SIEVE ANALYSIS | HYDROMETER



GRAVEL		SAND				SILT	CLAY
coarse	fine	coarse	medium		fine		

Symbol	Sample	Depth (m)	Description	Classification
●	WB-24-202	9.1	Fat CLAY	CH
⊠	WB-24-202	14.3	Well-graded SAND with silt	SW-SM
▲	WB-26-314	1.5	FILL: Silty SAND	

KLEINFELDER

PROJECT NO. 35-8163-05

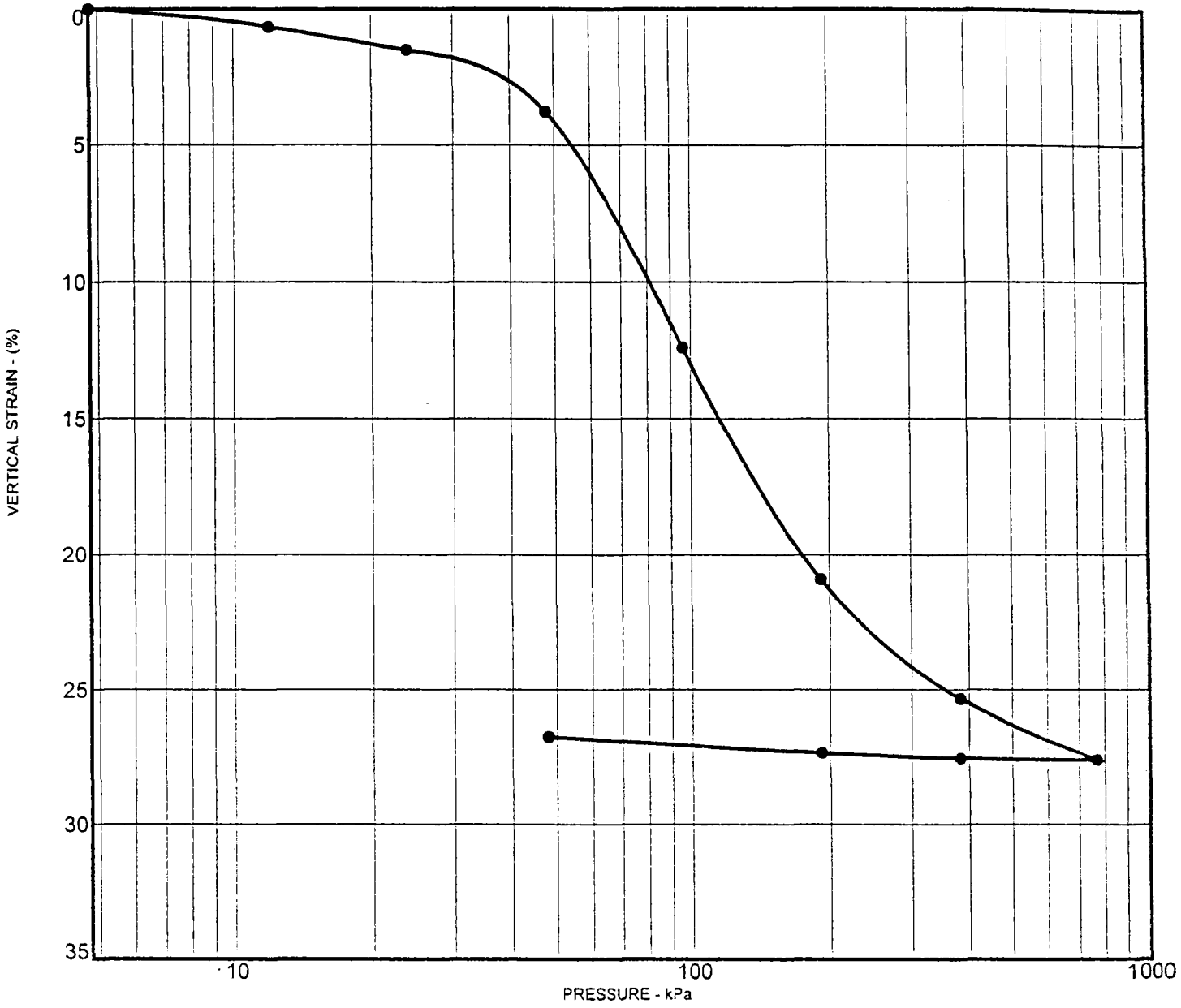
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

GRAIN SIZE DISTRIBUTION

PLATE

K-151



Sample	SB- 1-243
Depth	4.57 m
Classification	MH

	Initial	Final
Dry density, kN/m^3	8.4	11.4
Water content, %	82.6	51.7
Sample height, mm	25.4	18.5

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-160

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-1-243
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	160.8	
Ring Weight	45.2	
Wet Wt.	115.6	
Wet + Tare		149.5
Dry + Tare		116.8
Tare Wt.		8.3

	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/18/00	14:20:00			0212	
	15:50:00		4.8	0244	0.32
04/19/00	14:00:00		12.0	0309	0.97
	21:20:00		23.9	0396	1.84
04/20/00	16:40:00		47.9	0621	4.09
04/21/00	16:30:00		95.8	1484	12.72
04/22/00	13:00:00		191.5	2336	21.24
04/23/00	12:15:00		383.0	2778	25.66
04/24/00	11:00:00		766.1	3005	27.93
	19:00:00		383.0	2999	27.87
04/25/00	8:15:00		191.5	2979	27.67
	10:30:00		47.9	2920	27.08

PLATE K -161

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-1-246
Sample Depth:	12.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	193.7	
Ring Weight	45.5	
Wet Wt.	148.2	
Wet + Tare		197.9
Dry + Tare		169
Tare Wt.		8.6

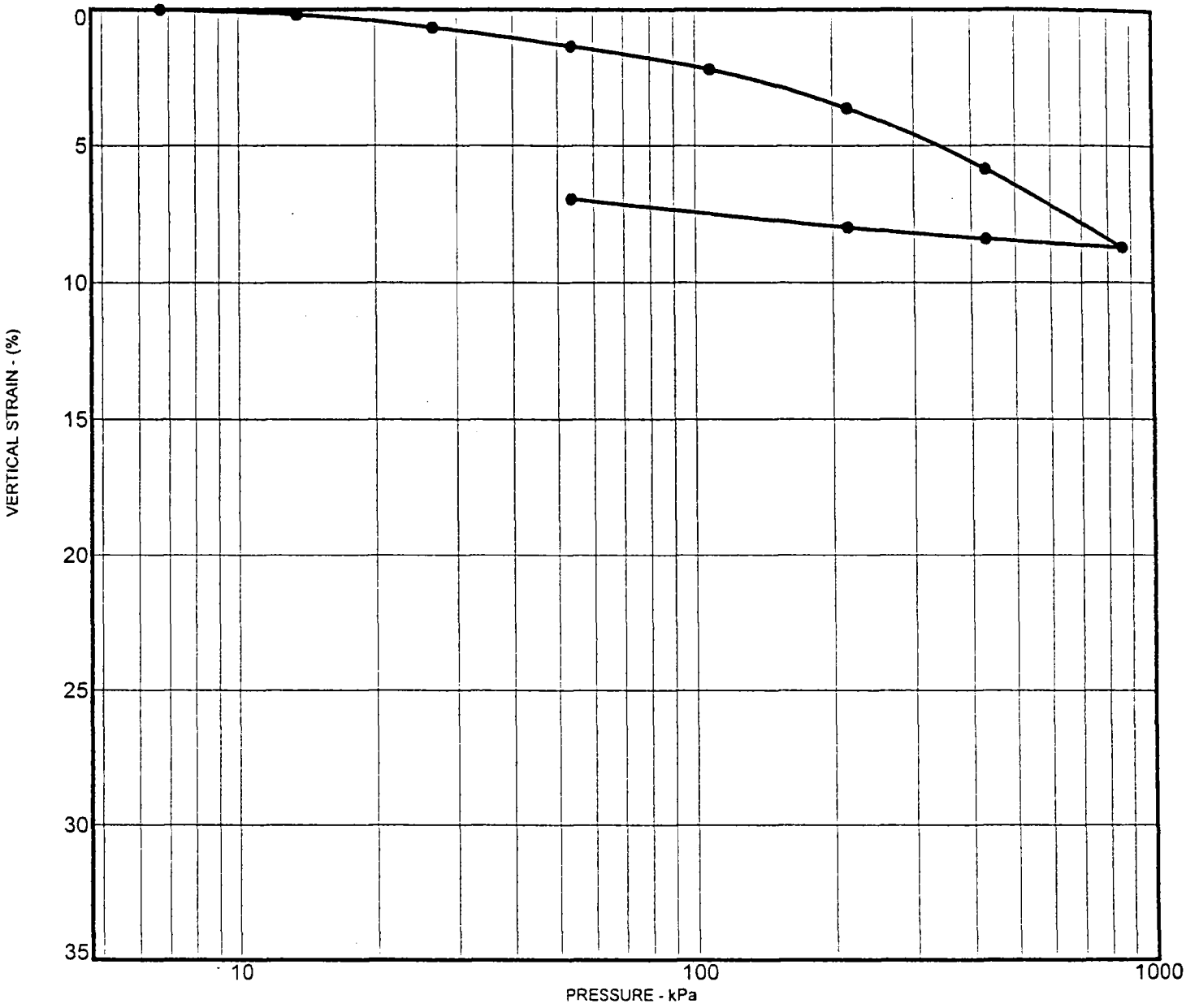
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.3
Sample Diameter	49.0	

Water added at 6.7 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/22/00	12:30:00			0206	
	13:45:00		6.7	0221	0.15
04/23/00	9:30:00		13.4	0240	0.34
	15:20:00		26.8	0287	0.81
04/24/00	7:40:00		53.6	0356	1.50
	19:00:00		107.7	0440	2.34
04/25/00	13:30:00		215.0	0583	3.77
04/26/00	11:45:00		430.0	0806	6.00
04/27/00	7:00:00		859.9	1094	8.88
	17:00:00		430.0	1061	8.55
04/28/00	8:45:00		215.0	1019	8.13
	13:25:00		53.6	0916	7.10

PLATE K-163



Sample	SB- 1-246
Depth	12.19 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	15.2	16.3
Water content, %	29.0	25.2
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

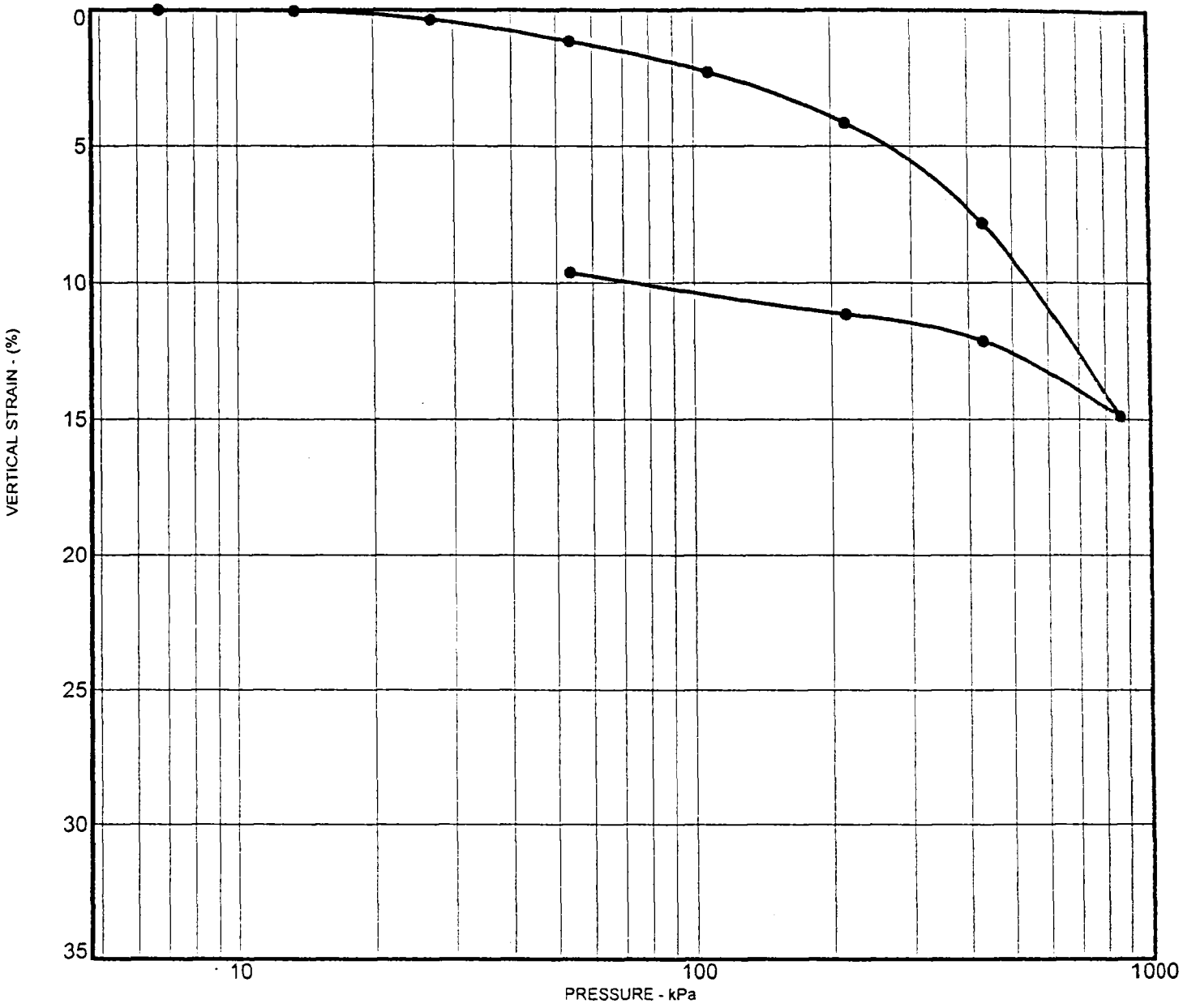
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-162



Sample	SB- 1-246
Depth	22.86 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.4	15.9
Water content, %	31.7	27.1
Sample height, mm	25.4	22.9

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-164

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-1-246
Sample Depth:	22.9 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	188.8	
Ring Weight	45.5	
Wet Wt.	143.3	
Wet + Tare		192.1
Dry + Tare		162.6
Tare Wt.		8.3

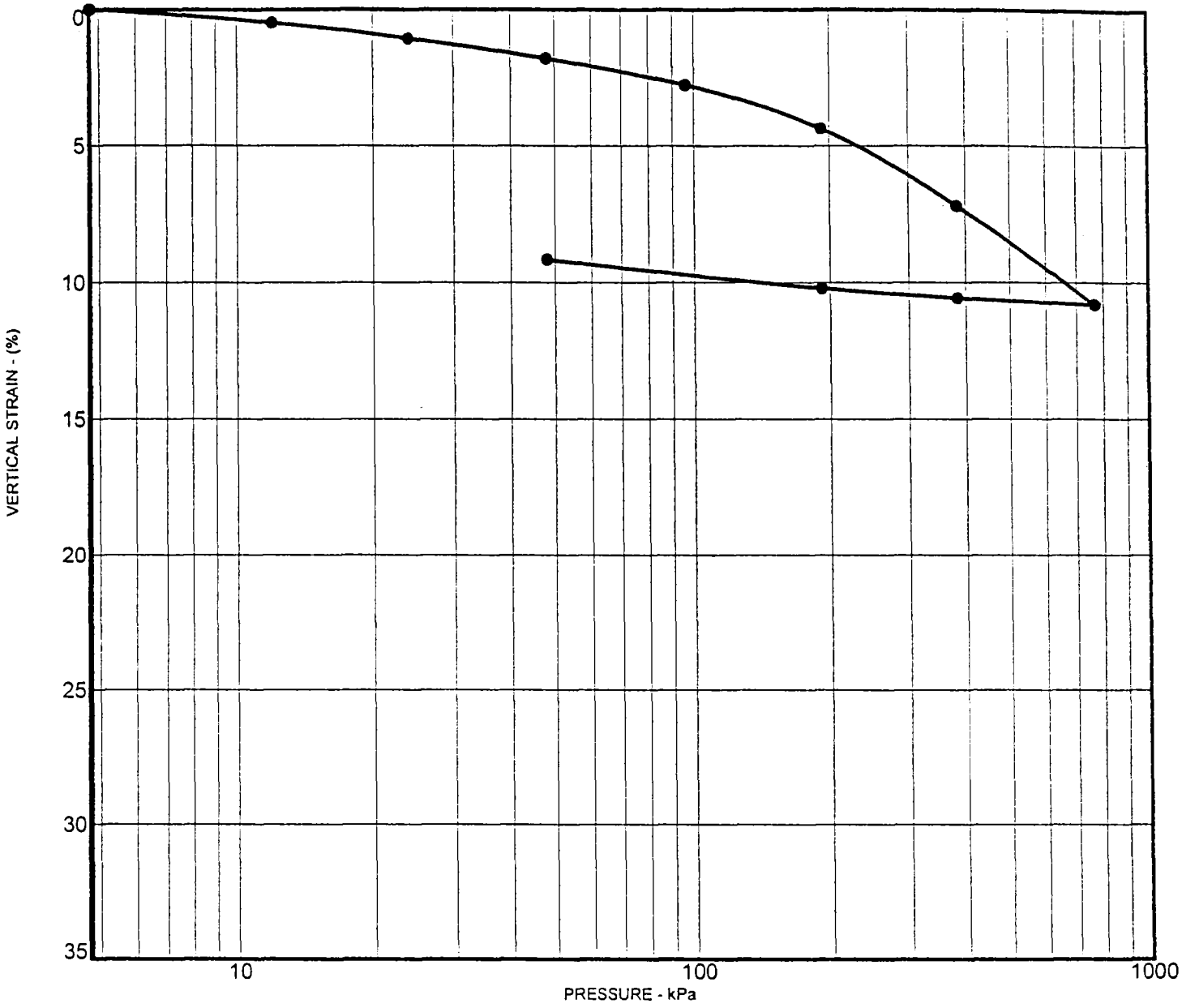
	Before Test (mm)	After Test (mm)
Sample Height	25.4	27.0
Sample Diameter	49.0	

Water added at 6.7 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/22/00	12:45:00			0628	
	13:40:00		6.7	0631	0.03
04/23/00	8:00:00		13.4	0634	0.06
	15:20:00		26.8	0666	0.38
04/24/00	7:40:00		53.6	0746	1.18
	19:00:00		107.7	0859	2.31
04/25/00	13:30:00		215.0	1045	4.17
04/26/00	11:45:00		430.0	1413	7.85
04/27/00	7:00:00		859.9	2121	14.93
	17:00:00		430.0	1844	12.16
04/28/00	8:45:00		215.0	1746	11.18
04/29/00	10:55:00		53.6	1593	9.65

PLATE K-165



Sample	SB- 2-247
Depth	4.57 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.7	15.0
Water content, %	34.0	28.5
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-166

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-2-247
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	183.8	
Ring Weight	45.1	
Wet Wt.	138.7	
Wet + Tare		186.6
Dry + Tare		157.1
Tare Wt.		8.5

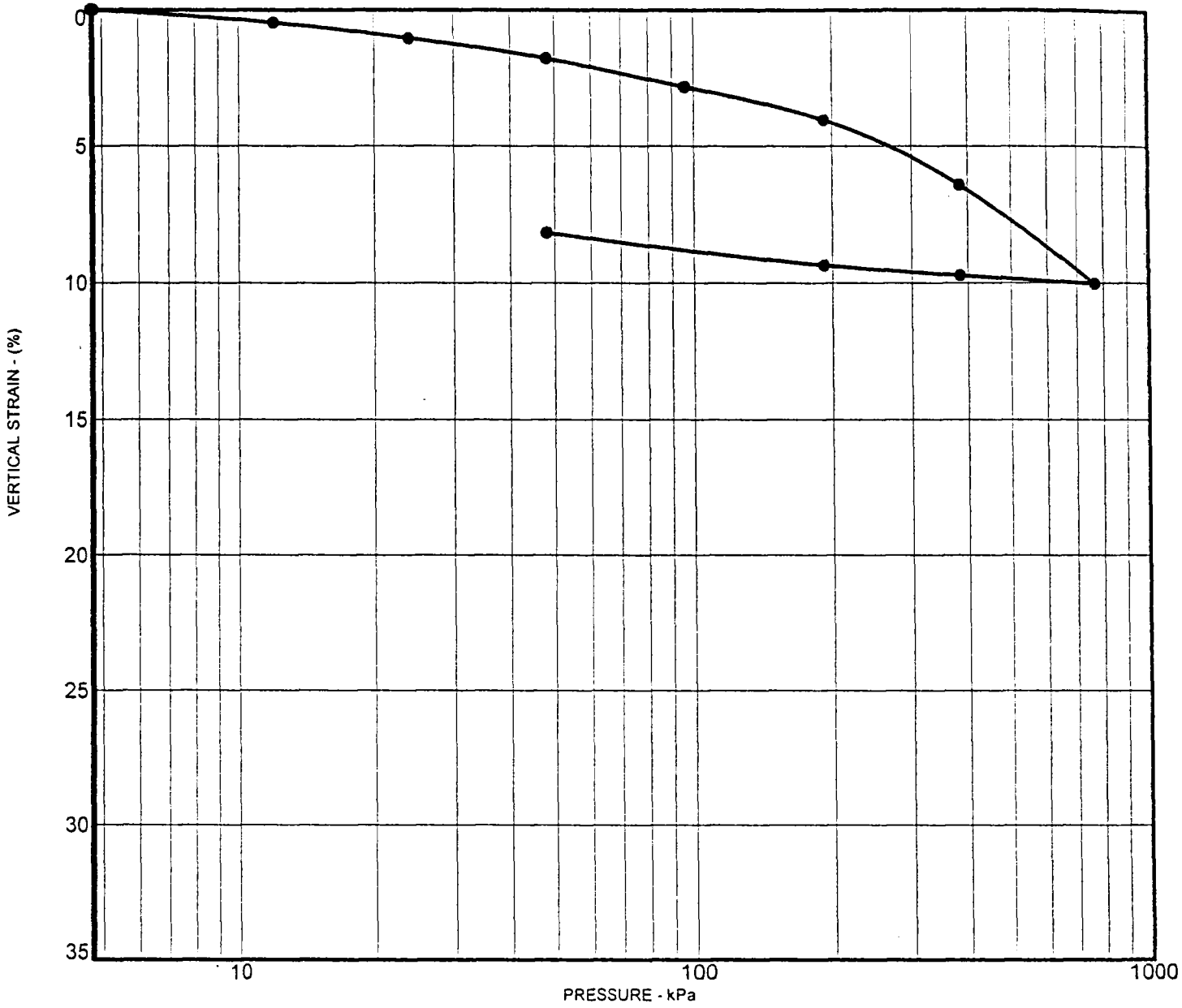
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/23/00	9:00:00			0203	
	12:00:00		4.8	0244	0.41
	16:50:00		12.0	0292	0.89
02/24/00	7:30:00		23.9	0351	1.48
	13:40:00		47.9	0424	2.21
02/25/00	7:45:00		95.8	0520	3.17
02/26/00	10:00:00		191.5	0680	4.77
02/27/00	8:30:00		383.0	0964	7.61
02/28/00	11:20:00		766.1	1325	11.22
	15:30:00		383.0	1301	10.98
	19:00:00		191.5	1265	10.62
02/29/00	8:00:00		47.9	1160	9.57

PLATE K-167



Sample	SB- 2-247
Depth	18.29 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.6	17.0
Water content, %	27.9	24.2
Sample height, mm	25.4	23.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-168

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-2-247
Sample Depth:	18.3 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	196.9	
Ring Weight	45.6	
Wet Wt.	151.3	
Wet + Tare		200.9
Dry + Tare		172.3
Tare Wt.		8.4

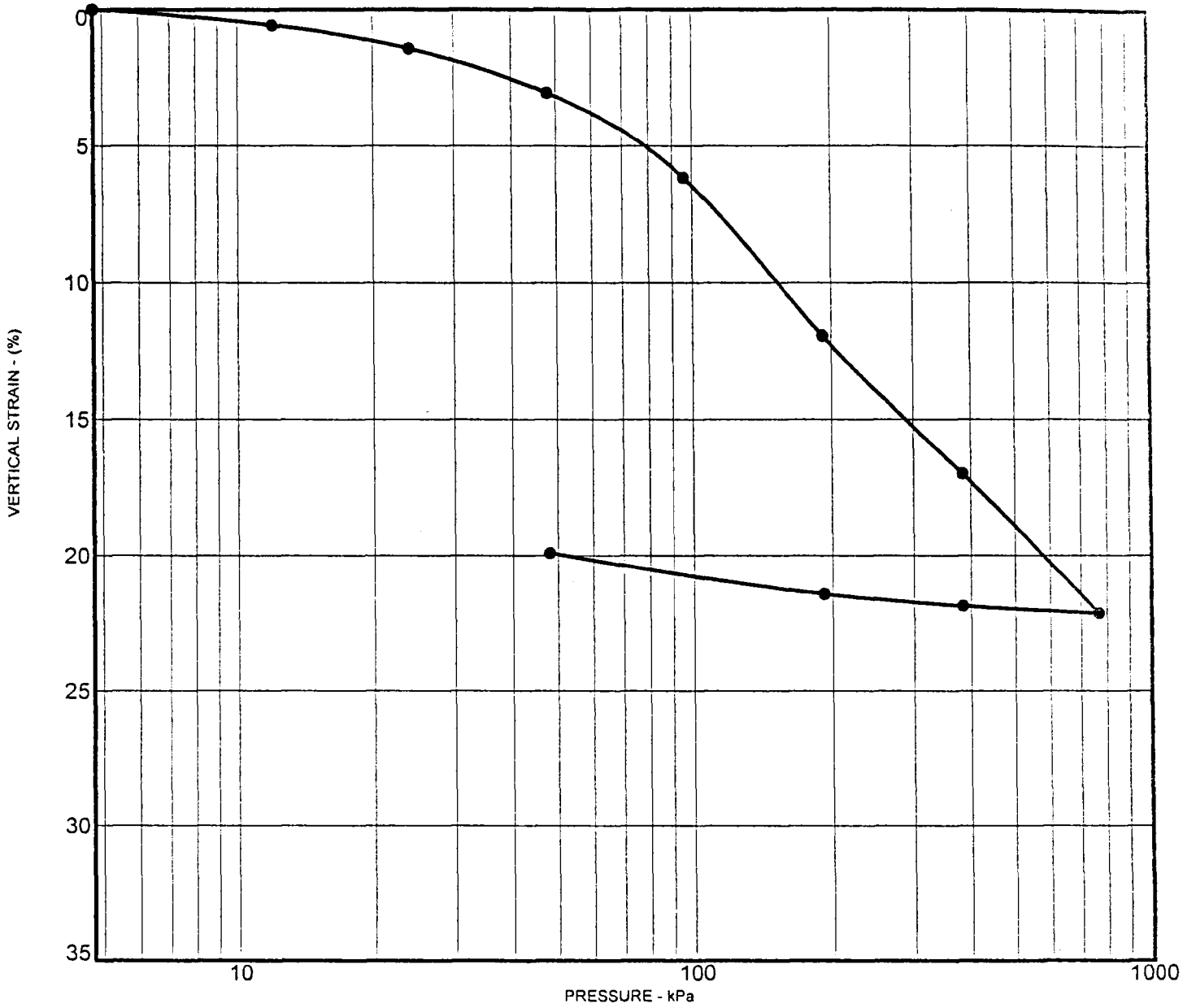
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/08/00	18:25:00			0205	
	19:00:00		4.8	0472	2.67
02/09/00	7:40:00		12.0	0519	3.14
	5:15:00		23.9	0576	3.71
	19:00:00		47.9	0650	4.45
02/10/00	11:30:00		95.8	0754	5.49
	19:00:00		191.5	0876	6.71
02/11/00	14:00:00		383.0	1113	9.08
02/12/00	9:30:00		766.1	1475	12.70
02/13/00	8:10:00		383.0	1444	12.39
	17:30:00		191.5	1407	12.02
02/14/00	7:00:00		47.9	1288	10.83

PLATE K-169



Sample	SB- 3-248
Depth	7.62 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	11.1	13.9
Water content, %	52.1	34.5
Sample height, mm	25.4	20.3

KLEINFELDER

PROJECT NO. 35-8163-05

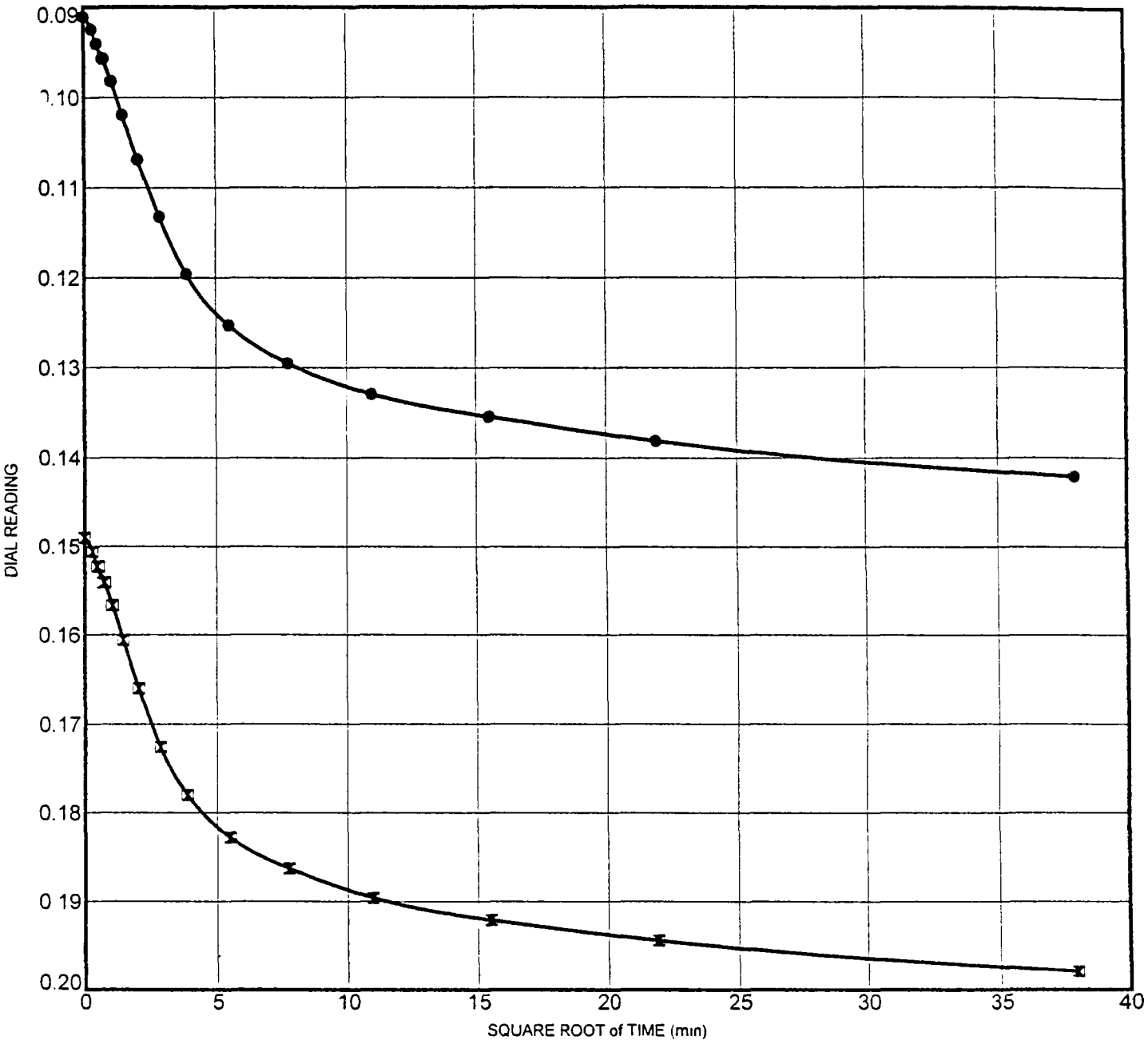
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-170



Sample	SB- 3-248	
Depth	7.6 m	
Pressure (MPa)	● 0.19	⧗ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

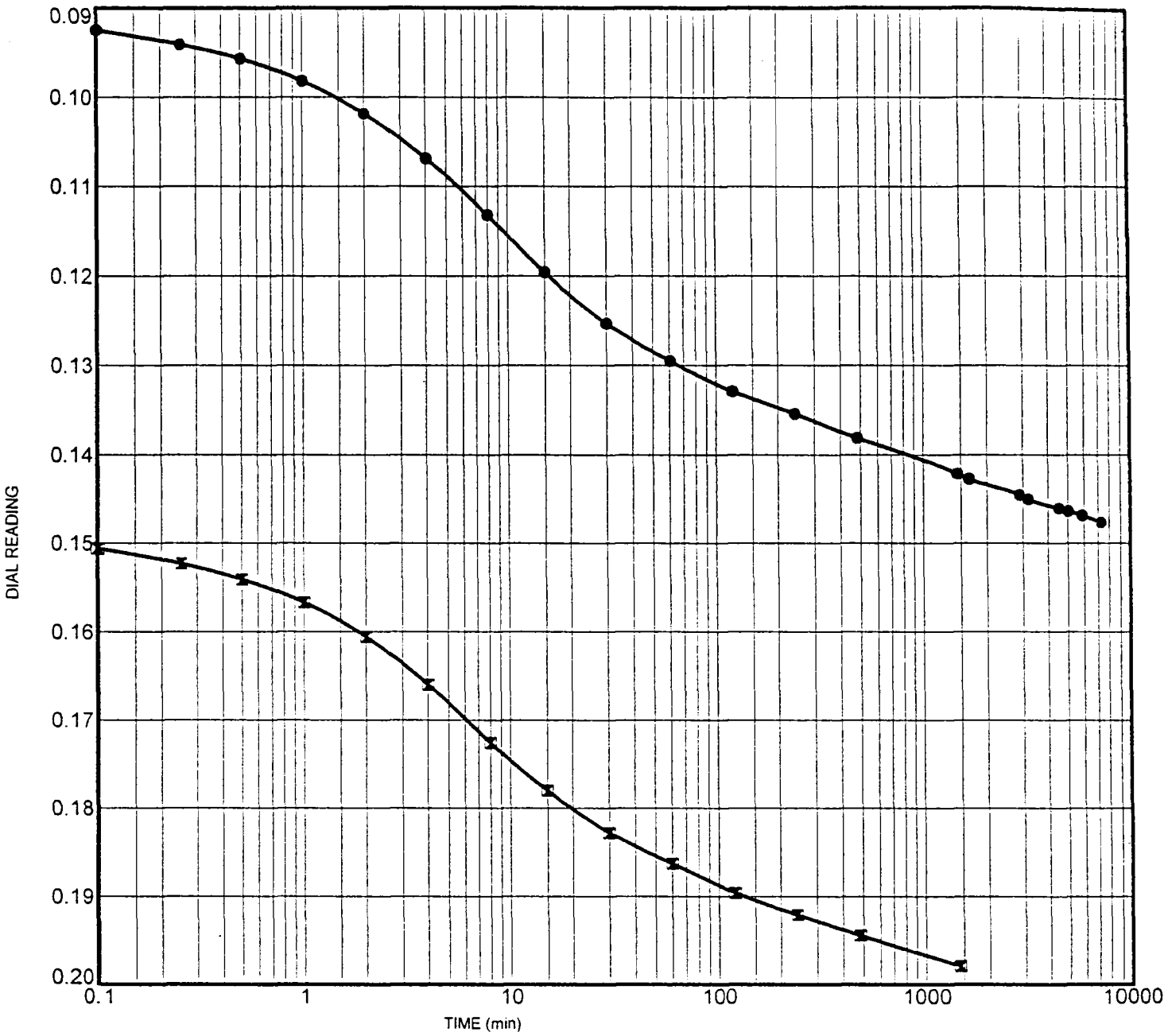
I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-171

TIME RATE (RTC) 2-M-B Z003SB1.GPJ 6/1/00



Sample	SB- 3-248	
Depth	7.6 m	
Pressure (kPa)	● 0.19	⧓ 0.38
Ca (m /day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

SECONDARY CONSOLIDATION

PLATE

K-172

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-2-248
Sample Depth:	7.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	173.2	
Ring Weight	45.3	
Wet Wt.	127.9	
Wet + Tare		167
Dry + Tare		138
Tare Wt.		8.6

	Before Test (mm)	After Test (mm)
Sample Height	25.4	21.5
Sample Diameter	49.0	

Water added at 4.8 kPa.

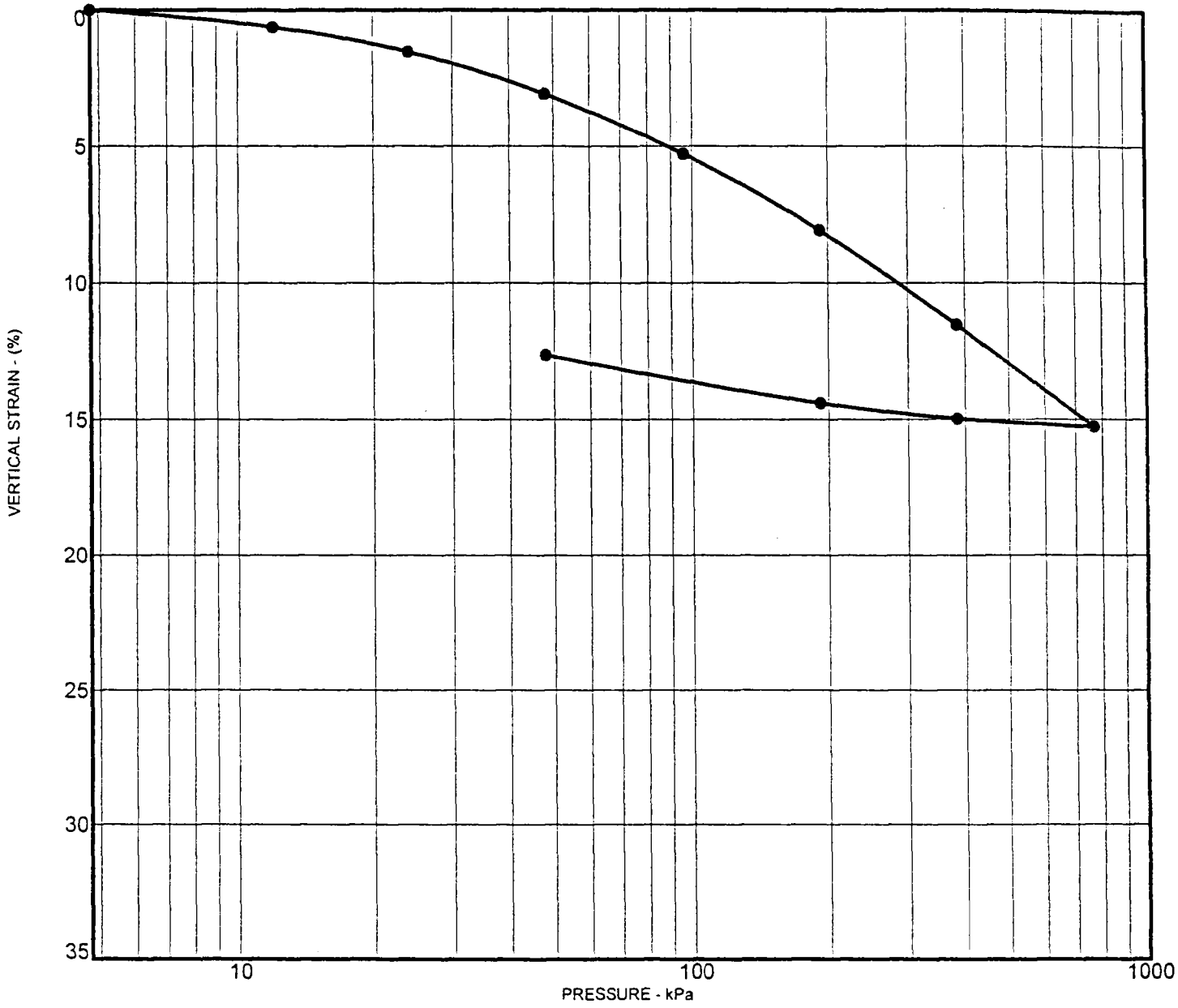
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/20/00	9:40:00			0247	
	17:15:00		4.8	0282	0.35
02/21/00	8:20:00		12.0	0339	0.92
	16:00:00		23.9	0426	1.79
02/22/00	10:25:00		47.9	0588	3.41
02/23/00	7:45:00		95.8	0899	6.52
	8:00:00	0:00:00	191.5	0911	6.64
	8:00:06	0:00:06		0925	
	8:00:15	0:00:15		0941	
	8:00:30	0:00:30		0957	
	8:01:00	0:01:00		0982	
	8:02:00	0:02:00		1019	
	8:04:00	0:04:00		1069	
	8:08:00	0:08:00		1132	
	8:15:00	0:15:00		1196	
	8:30:00	0:30:00		1253	
	9:00:00	1:00:00		1295	
	10:00:00	2:00:00		1329	
	12:00:00	4:00:00		1354	
	16:00:00	8:00:00		1381	
02/24/00	8:00:00	24:00:00		1421	
	11:15:00	27:15:00		1427	
02/25/00	8:00:00	48:00:00		1445	
	13:20:00	53:20:00		1450	

PLATE K-173

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/26/00	11:00:00	75:00:00		1460	
	19:30:00	82:30:00		1463	
02/27/00	8:30:00	96:30:00		1468	
02/28/00	7:50:00	119:50:00	191.5	1476	12.29
	8:03:00	0:00:00	383.0	1490	12.43
	8:03:06	0:00:06		1506	
	8:03:15	0:00:15		1523	
	8:03:30	0:00:30		1541	
	8:04:00	0:01:00		1567	
	8:05:00	0:02:00		1606	
	8:07:00	0:04:00		1660	
	8:11:00	0:08:00		1726	
	8:18:00	0:15:00		1780	
	8:33:00	0:30:00		1828	
	9:03:00	1:00:00		1863	
	10:03:00	2:00:00		1896	
	12:03:00	4:00:00		1921	
	16:03:00	8:00:00		1944	
02/29/00	8:03:00	24:00:00	383.0	1979	17.32
03/01/00	18:10:00		766.1	2496	22.49
03/02/00	7:50:00		383.0	2468	22.21
	14:25:00		191.5	2424	21.77
03/03/00	8:00:00		47.9	2275	20.28

PLATE K-174



Sample	SB- 3-248
Depth	24.38 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	12.3	14.1
Water content, %	42.3	32.5
Sample height, mm	25.4	22.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-175

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-2-248
Sample Depth:	24.4 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	177.1	
Ring Weight	45	
Wet Wt.	132.1	
Wet + Tare		176.5
Dry + Tare		146.3
Tare Wt.		8.5

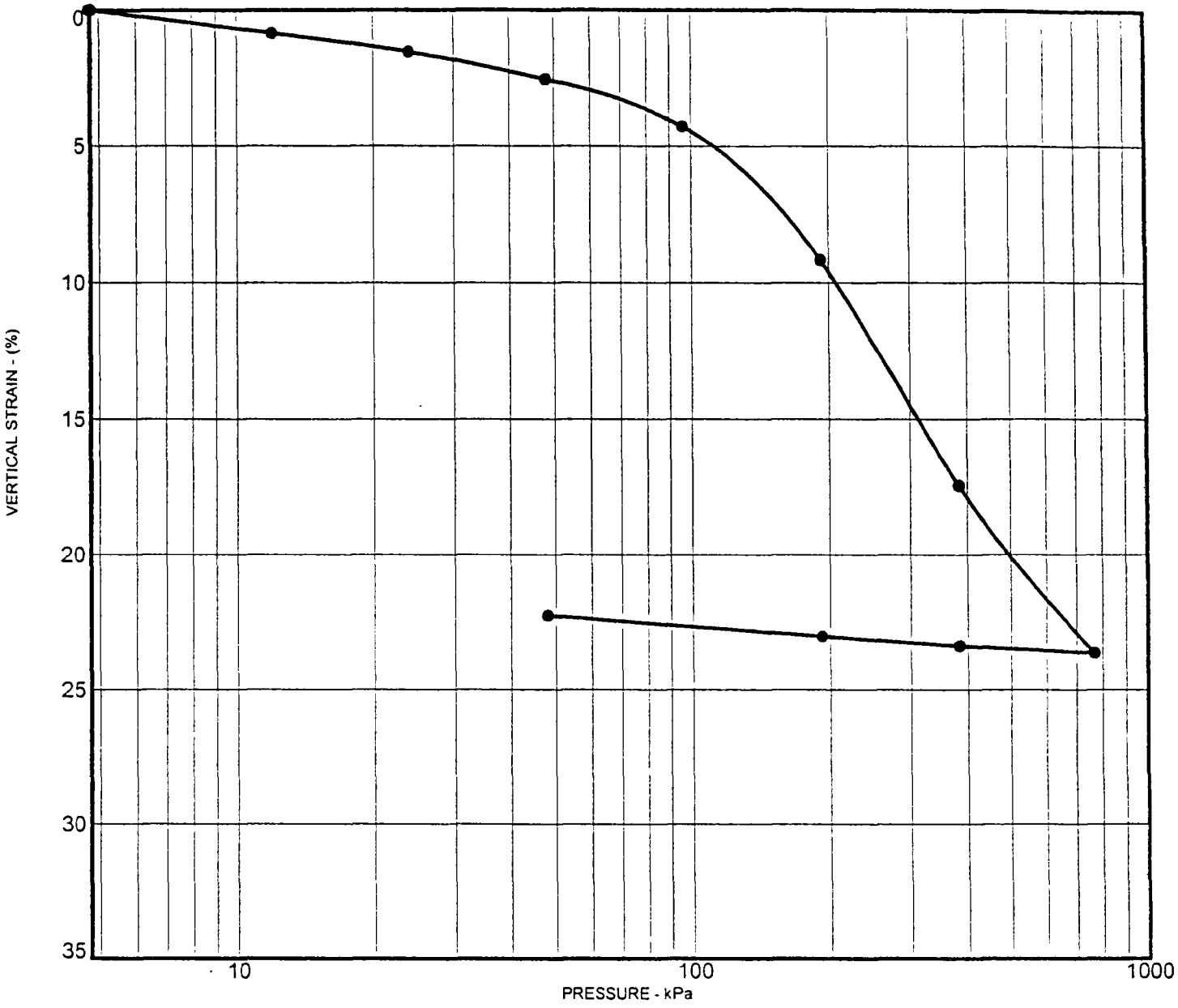
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/29/00	13:15:00			0196	
	15:50:00		4.8	0221	0.25
03/01/00	7:50:00		12.0	0284	0.88
	18:10:00		23.9	0375	1.79
03/02/00	7:50:00		47.9	0529	3.33
03/03/00	8:00:00		95.8	0749	5.53
03/04/00	9:45:00		191.5	1028	8.32
03/05/00	17:45:00		383.0	1374	11.78
03/06/00	19:30:00		766.1	1748	15.52
03/07/00	7:55:00		383.0	1718	15.22
	15:00:00		191.5	1661	14.65
03/08/00	7:30:00		47.9	1485	12.89

PLATE K-176



Sample	SB- 3-249
Depth	6.10 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	10.1	13.0
Water content, %	62.2	40.6
Sample height, mm	25.4	19.8

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-177

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-3-249
Sample Depth:	6.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	169.4	
Ring Weight	45.5	
Wet Wt.	123.9	
Wet + Tare		161.5
Dry + Tare		130.5
Tare Wt.		8.6

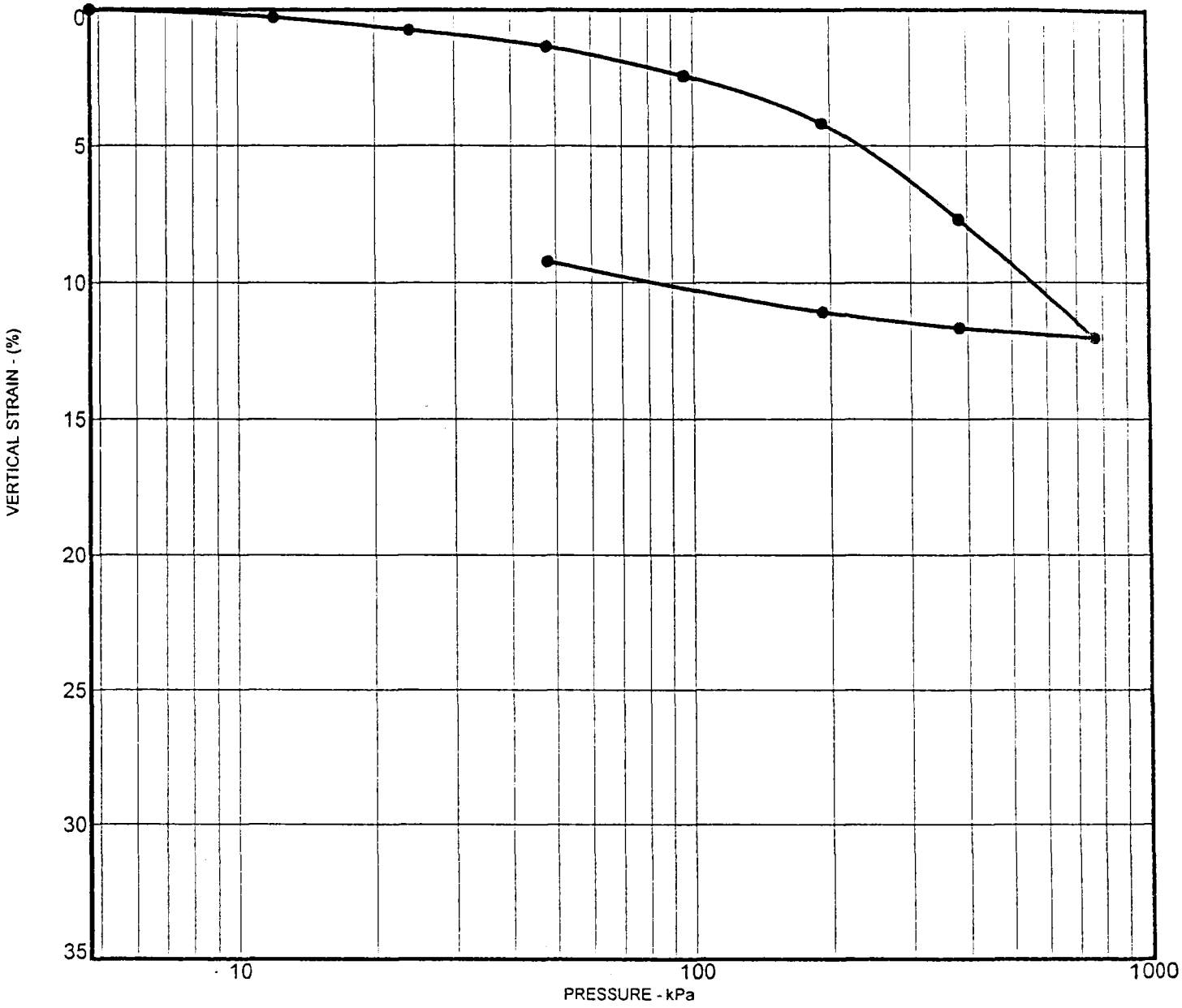
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/14/00	16:30:00			0204	
02/15/00	7:50:00		4.8	0319	1.15
	11:00:00		12.0	0404	2.00
	14:55:00		23.9	0474	2.70
	18:20:00		47.9	0574	3.70
02/16/00	8:30:00		95.8	0746	5.42
	19:00:00		191.5	1235	10.31
02/17/00	17:50:00		383.0	2062	18.58
02/19/00	11:00:00		766.1	2683	24.79
	17:30:00		383.0	2657	24.53
02/20/00	8:40:00		191.5	2622	24.18
	17:15:00		47.9	2545	23.41

PLATE K-178



Sample	SB- 3-249
Depth	15.24 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.5	15.9
Water content, %	31.2	27.0
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-179

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-3-249
Sample Depth:	15.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	189.4	
Ring Weight	45.9	
Wet Wt.	143.5	
Wet + Tare		193.1
Dry + Tare		163.6
Tare Wt.		8.3

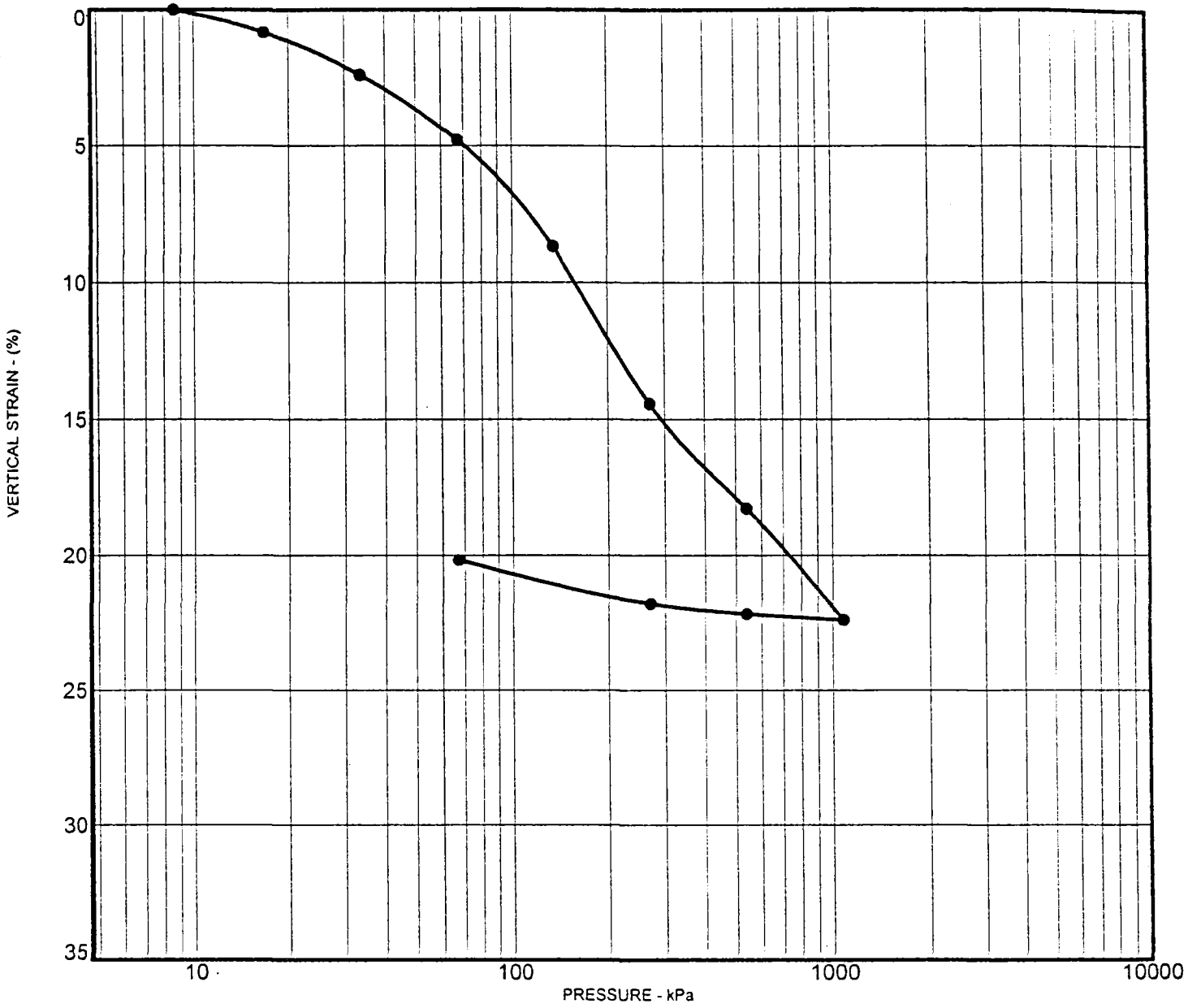
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/23/00	9:50:00			0215	
	12:00:00		4.8	0208	-0.07
	16:50:00		12.0	0236	0.21
02/24/00	7:30:00		23.9	0283	0.68
	13:40:00		47.9	0343	1.28
02/25/00	7:45:00		95.8	0450	2.35
02/26/00	10:00:00		191.5	0625	4.10
02/27/00	8:30:00		383.0	0977	7.62
02/28/00	7:50:00		766.1	1412	11.97
	11:00:00		383.0	1374	11.59
	16:00:00		191.5	1315	11.00
02/29/00	8:30:00		47.9	1130	9.15

PLATE K-180



Sample	SB- 3-250
Depth	9.14 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	12.5	15.6
Water content, %	39.1	23.0
Sample height, mm	25.4	20.3

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-181

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-3-250
Sample Depth:	9.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	176.7	
Ring Weight	45.4	
Wet Wt.	131.3	
Wet + Tare		169.8
Dry + Tare		148.1
Tare Wt.		8.3

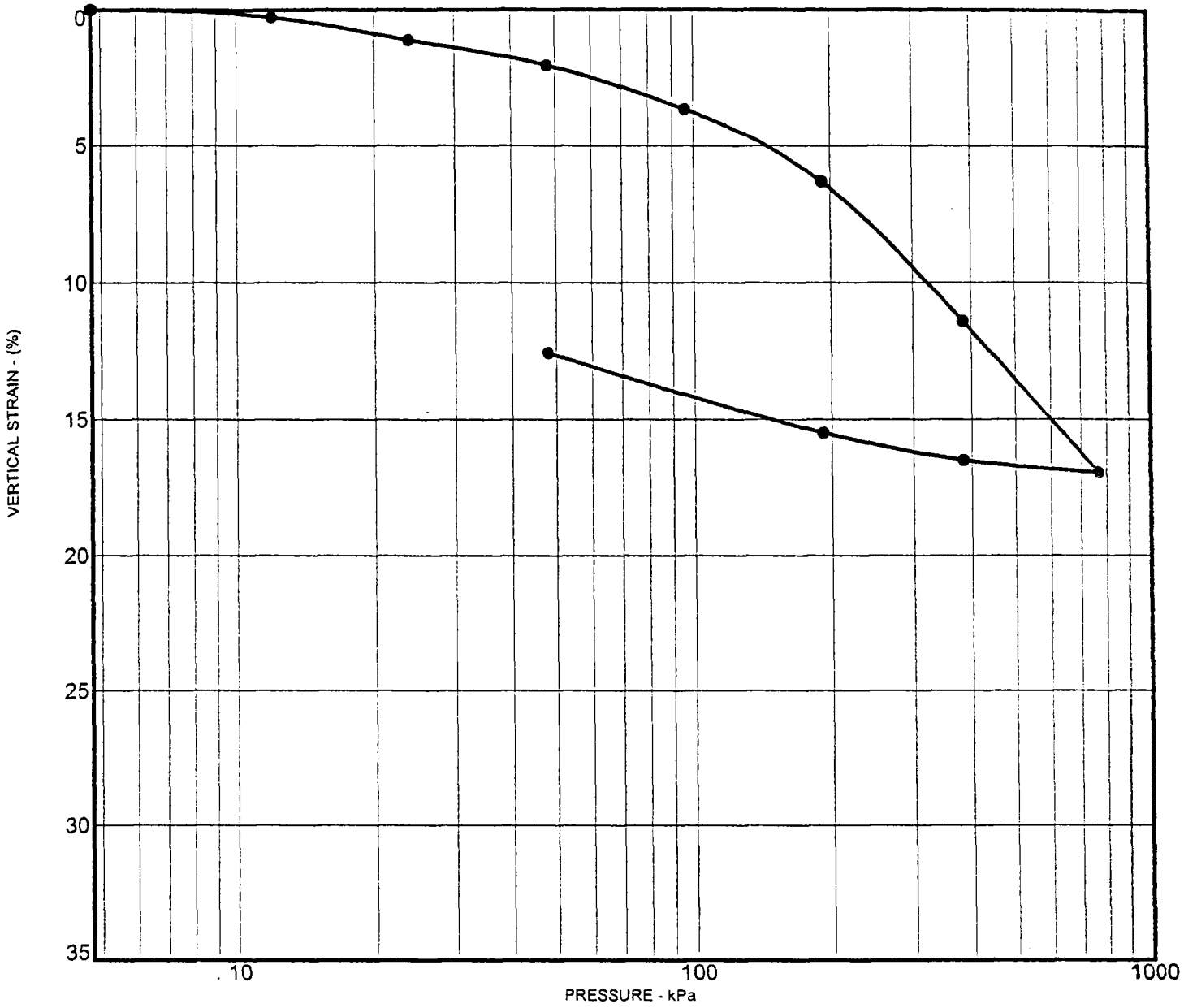
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 8.6 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/30/00	17:20:00			0214	
03/31/00	7:00:00		8.6	0344	1.30
	13:00:00		16.8	0427	2.13
	18:20:00		33.5	0584	3.70
04/01/00	10:00:00		67.0	0822	6.08
04/02/00	10:30:00		134.5	1212	9.98
04/03/00	8:50:00		268.6	1787	15.73
04/04/00	6:50:00		537.7	2171	19.57
04/05/00	7:10:00		1075.4	2584	23.70
	11:00:00		537.7	2562	23.48
	14:40:00		268.6	2524	23.10
04/06/00	9:00:00		67.0	2362	21.48

PLATE K-182



Sample	SB- 3-250
Depth	15.24 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	12.2	14.0
Water content, %	44.2	36.1
Sample height, mm	25.4	22.1

KLEINFELDER

PROJECT NO. 35-8163-05

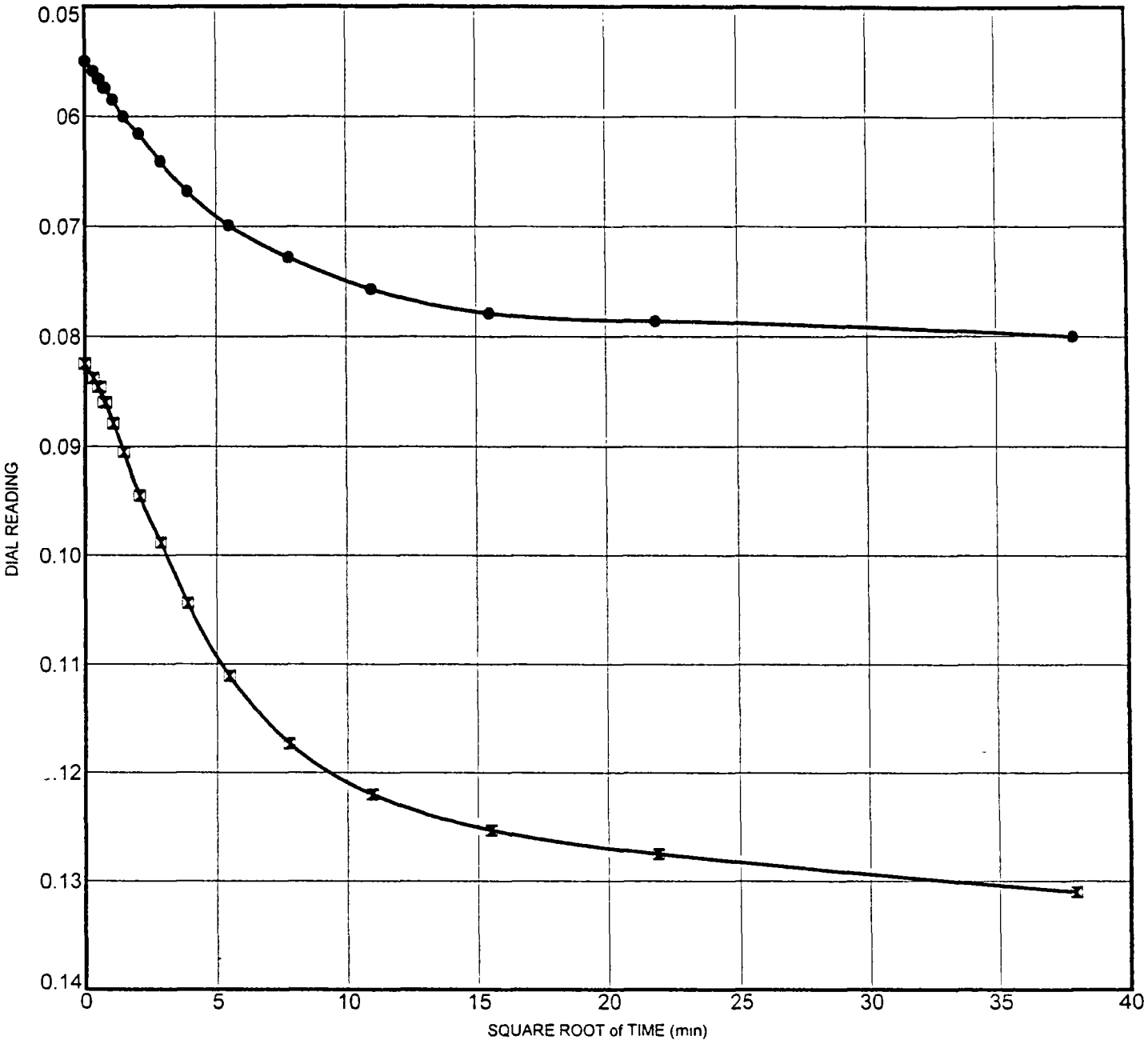
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-183



Sample	SB- 3-250	
Depth	15.2 m	
Pressure (MPa)	● 0.19	⊠ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-184

TIME RATE (RTC) 2-M-B Z003SB1.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-3-250
Sample Depth:	15.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	178.4	
Ring Weight	45.2	
Wet Wt.	133.2	
Wet + Tare		179.4
Dry + Tare		146
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	21.3
Sample Diameter	49.0	

Water added at 4.8 kPa.

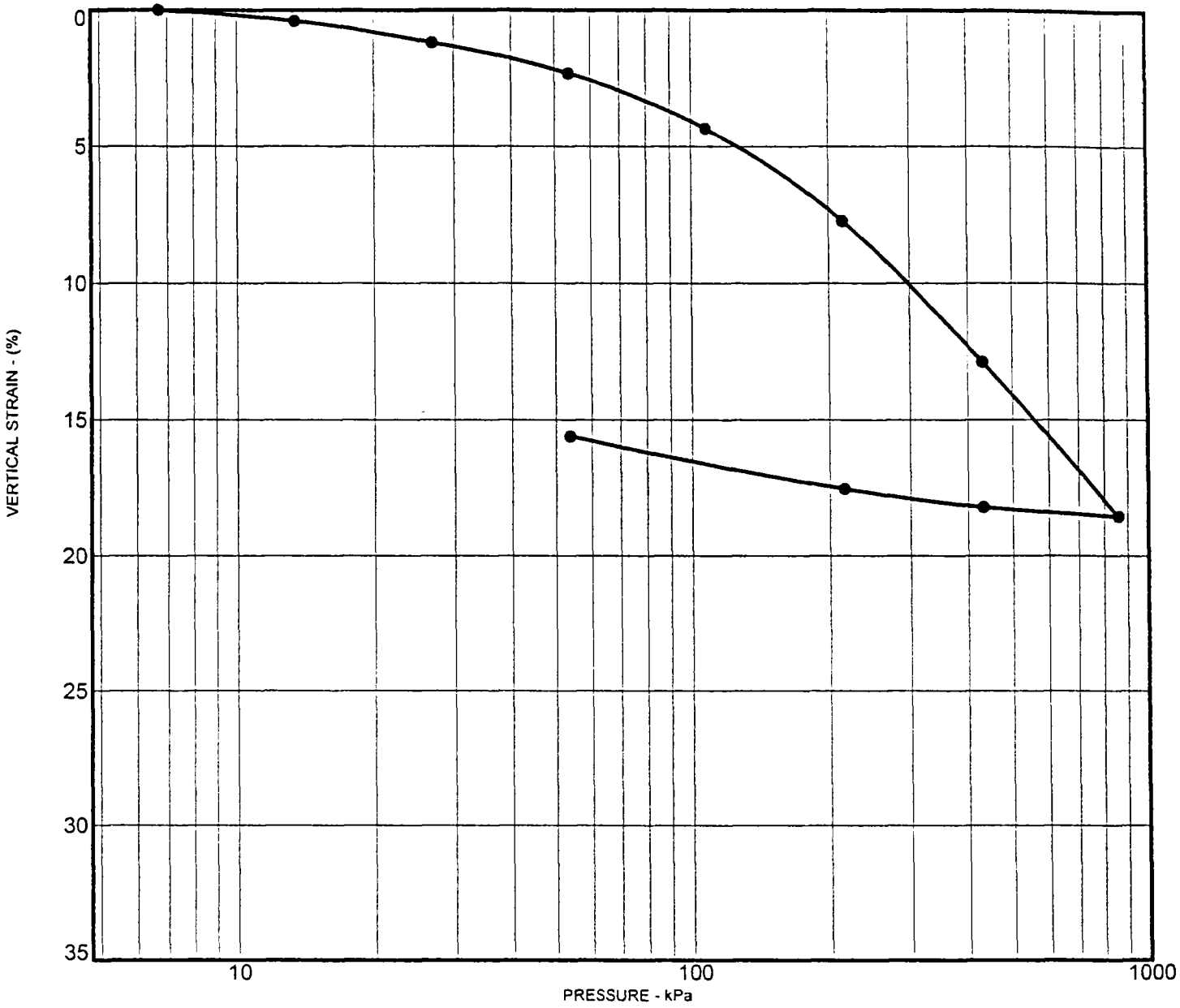
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/30/00	15:55:00			0200	
	17:20:00		4.8	0170	-0.30
03/31/00	7:00:00		12.0	0197	-0.03
	16:45:00		23.9	0282	0.82
04/01/00	17:00:00		47.9	0375	1.75
04/04/00	6:50:00		95.8	0535	3.35
	7:06:00	0:00:00	191.5	0550	
	7:06:06	0:00:06		0559	
	7:06:15	0:00:15		0566	
	7:06:30	0:00:30		0574	
	7:07:00	0:01:00		0585	
	7:08:00	0:02:00		0600	
	7:10:00	0:04:00		0616	
	7:14:00	0:08:00		0641	
	7:21:00	0:15:00		0668	
	7:36:00	0:30:00		0699	
	8:06:00	1:00:00		0728	
	9:06:00	2:00:00		0757	
	11:06:00	4:00:00		0779	
	15:06:00	8:00:00		0786	
04/05/00	7:06:00	24:00:00	191.5	0800	6.00
	7:00:00	0:00:00	383.0	0825	6.25
	7:00:06	0:00:06		0838	
	7:00:15	0:00:15		0846	

PLATE K-185

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	7:00:30	0:00:30		0860	
	7:01:00	0:01:00		0879	
	7:02:00	0:02:00		0905	
	7:04:00	0:04:00		0945	
	7:08:00	0:08:00		0988	
	7:15:00	0:15:00		1044	
	7:30:00	0:30:00		1111	
	8:00:00	1:00:00		1173	
	9:00:00	2:00:00		1220	
	11:00:00	4:00:00		1253	
	15:00:00	8:00:00		1275	
04/06/00	7:00:00	24:00:00	383.0	1310	11.10
04/07/00	7:00:00		766.1	1864	16.64
	11:30:00		383.0	1818	16.18
	15:40:00		191.5	1718	15.18
04/08/00	8:00:00		47.9	1426	12.26

PLATE K-186



Sample	SB- 4-251
Depth	3.05 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	12.3	14.6
Water content, %	43.0	32.2
Sample height, mm	25.4	21.3

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-187

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-4-251
Sample Depth:	3.0 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	178.7	
Ring Weight	45.1	
Wet Wt.	133.6	
Wet + Tare		177
Dry + Tare		146.9
Tare Wt.		8.4

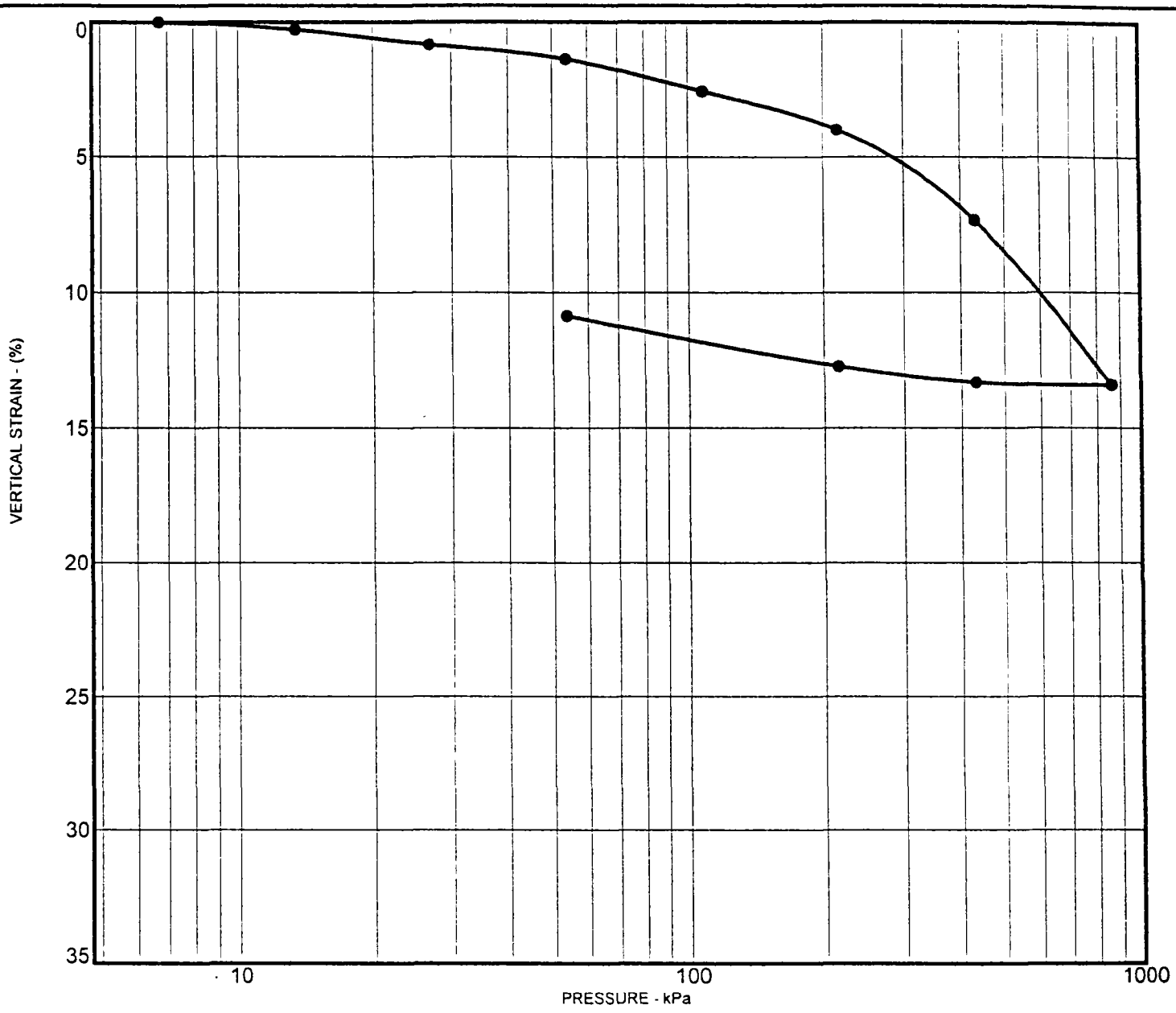
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 6.7 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/28/00	9:50:00			0200	
	12:30:00		6.7	0202	0.02
	19:00:00		13.4	0242	0.42
02/29/00	8:00:00		26.8	0321	1.21
	15:55:00		53.6	0434	2.34
03/01/00	16:40:00		107.7	0636	4.36
03/02/00	13:15:00		215.0	0974	7.74
03/04/00	9:40:00		430.0	1490	12.90
03/05/00	17:35:00		859.9	2057	18.57
03/06/00	8:15:00		430.0	2022	18.22
	19:30:00		215.0	1955	17.55
03/07/00	7:50:00		53.6	1762	15.62

PLATE K-188



Sample	SB- 4-251
Depth	25.91 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.1	14.7
Water content, %	38.8	31.7
Sample height, mm	25.4	22.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-189

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-4-251
Sample Depth:	25.9 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.9	
Ring Weight	45.2	
Wet Wt.	137.7	
Wet + Tare		183.9
Dry + Tare		152.5
Tare Wt.		8.1

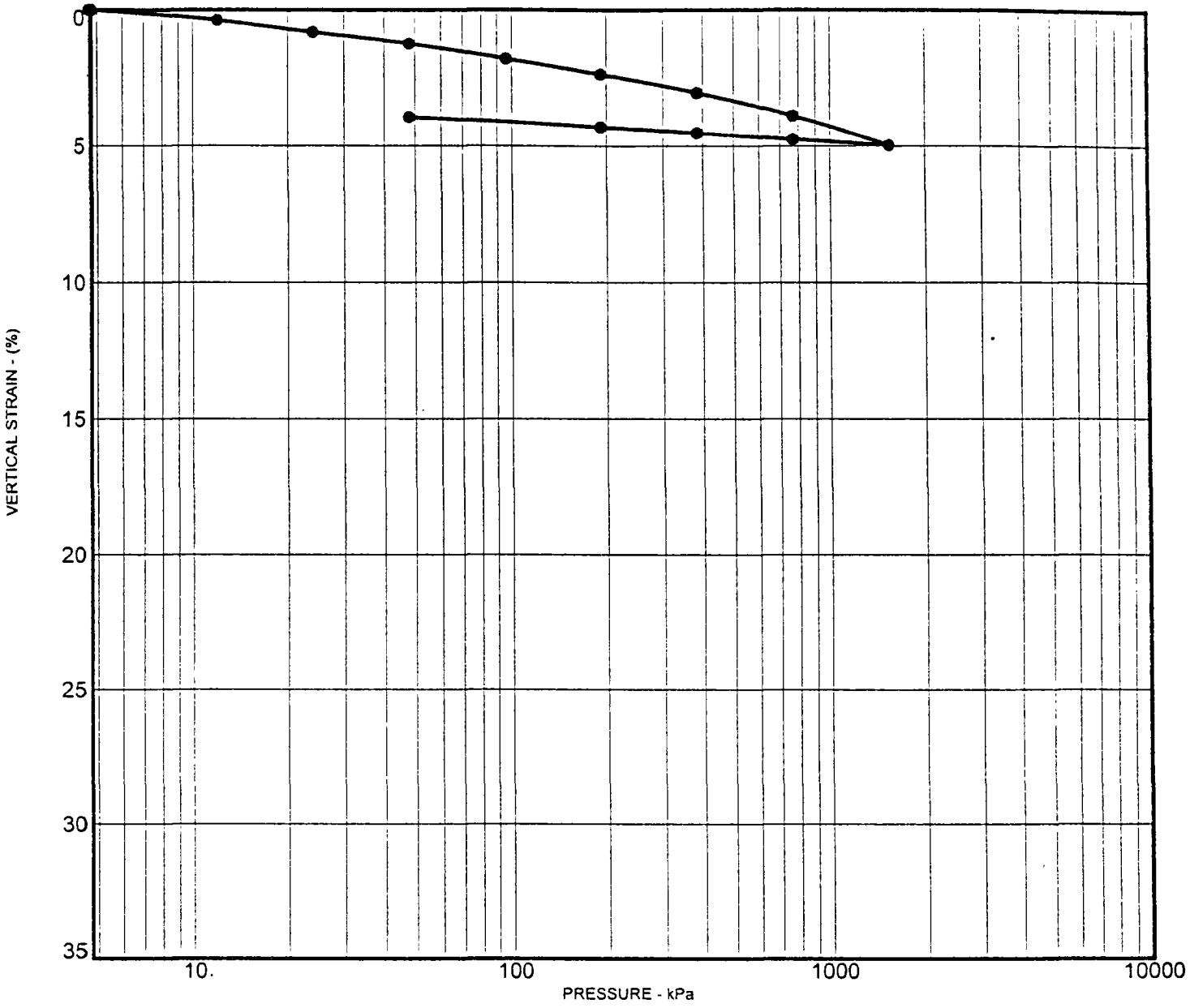
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 6.7 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/28/00	10:15:00			0172	
	12:30:00		6.7	0158	-0.14
	19:00:00		13.4	0186	0.14
02/29/00	8:00:00		26.8	0242	0.70
	11:05:00		53.6	0296	1.24
	17:35:00		107.7	0414	2.42
03/01/00	11:30:00		215.0	0556	3.84
03/02/00	13:15:00		430.0	0891	7.19
03/04/00	9:40:00		859.9	1498	13.26
	17:45:00		430.0	1489	13.17
03/05/00	17:35:00		215.0	1430	12.58
03/06/00	8:15:00		53.6	1244	10.72

PLATE K-190



Sample	SB- 4-251
Depth	32.00 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.8	15.4
Water content, %	26.8	26.4
Sample height, mm	25.4	24.4

KLEINFELDER

PROJECT NO. 35-8163-05

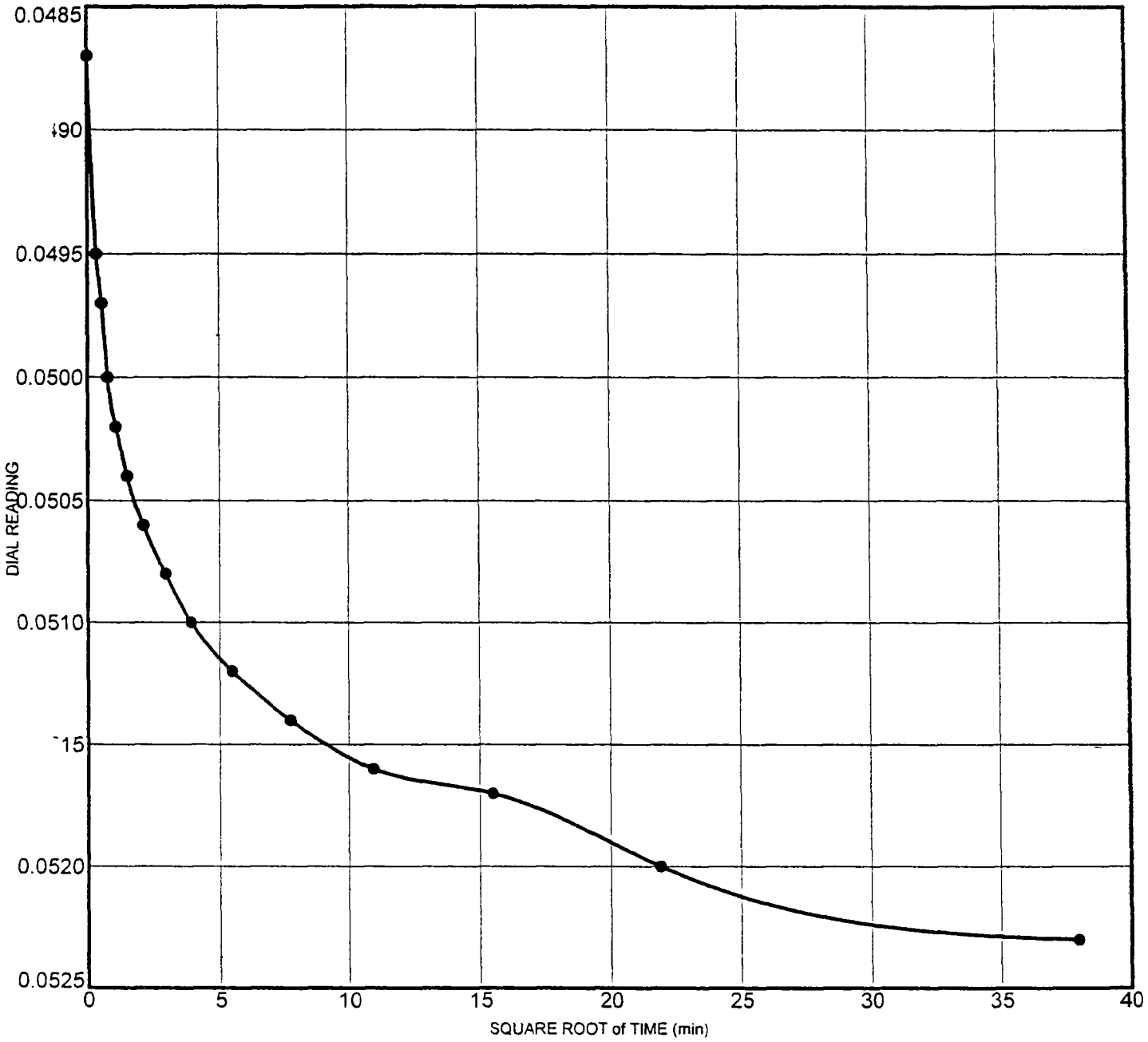
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-191



Sample	SB- 4-251	
Depth	32.0 m	
Pressure (MPa)	● 0.38	⧗
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-192

TIME RATE (RTC) 2-M-B Z003SB1.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-4-251
Sample Depth:	32.0 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	187.7	
Ring Weight	45.3	
Wet Wt.	142.4	
Wet + Tare		195.7
Dry + Tare		166.1
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	#VALUE!
Sample Diameter	49.0	

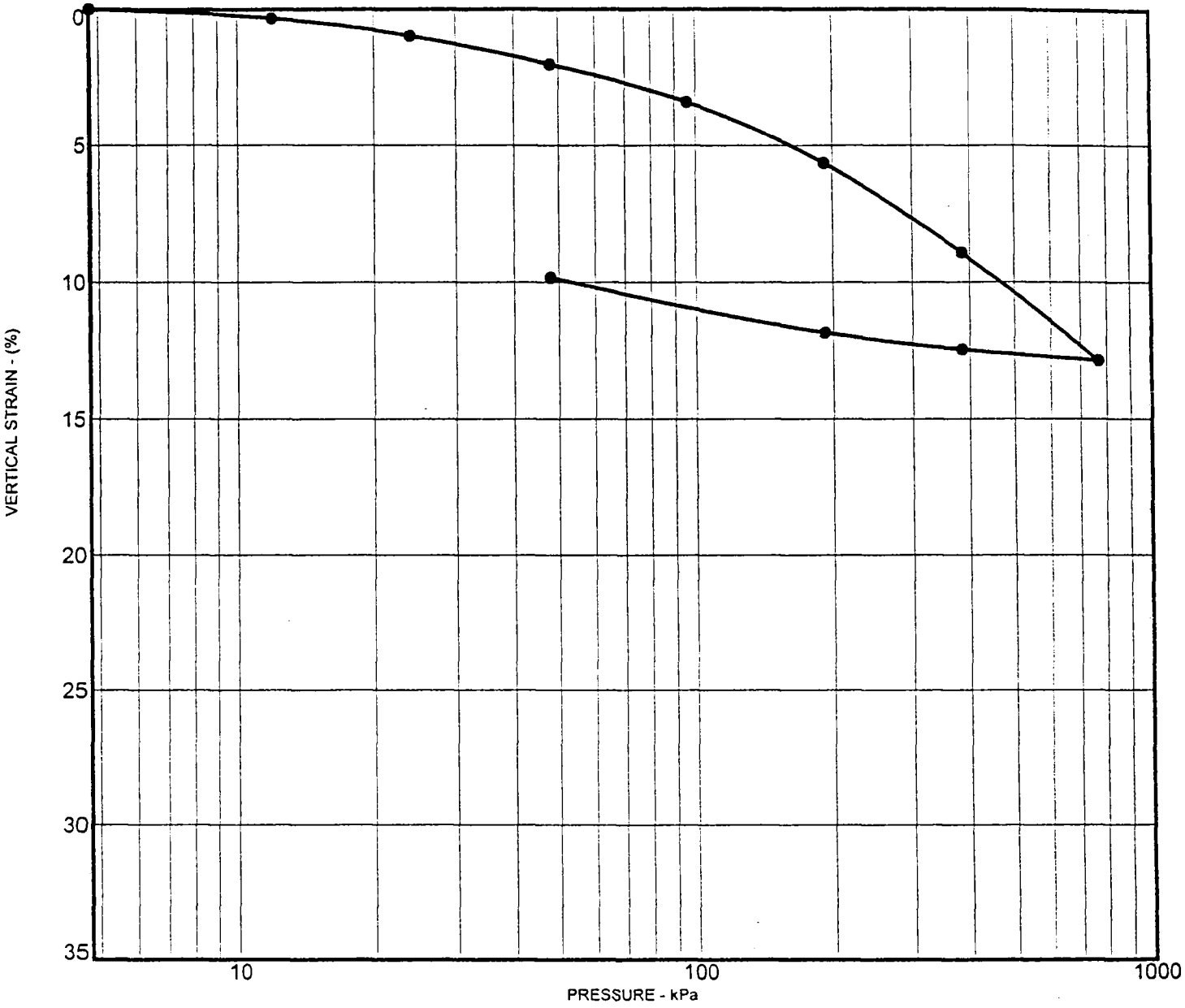
Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/28/00	12:00:00			0182	
	15:30:00		4.8	0218	0.36
	19:00:00		12.0	0256	0.74
02/29/00	8:00:00		23.9	0300	1.18
	14:30:00		47.9	0342	1.60
03/01/00	7:50:00		95.8	0398	2.16
	7:45:00		191.5	0455	2.73
	7:45:00	0:00:00	383.0	0487	3.05
	7:45:06	0:00:06		0495	
	7:45:15	0:00:15		0497	
	7:45:30	0:00:30		0500	
	7:46:00	0:01:00		0502	
	7:47:00	0:02:00		0504	
	7:49:00	0:04:00		0506	
	7:53:00	0:08:00		0508	
	8:00:00	0:15:00		0510	
	8:15:00	0:30:00		0512	
	8:45:00	1:00:00		0514	
	9:45:00	2:00:00		0516	
	11:45:00	4:00:00		0517	
	15:45:00	8:00:00		0520	
03/03/00	7:45:00	24:00:00	383.0	0523	3.41
03/04/00	9:40:00		766.1	0607	4.25
03/05/00	17:45:00		1532.2	0715	5.33

PLATE K-193

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/06/00	8:15:00		766.1	0693	5.11
	19:30:00		383.0	0670	4.88
03/07/00	9:20:00		191.5	0648	4.66
	13:05:00		47.9	0612	4.30



Sample	SB- 4-252
Depth	13.72 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.0	15.5
Water content, %	35.0	28.9
Sample height, mm	25.4	22.9

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-195

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-4-252
Sample Depth:	13.7 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	188.4	
Ring Weight	45.3	
Wet Wt.	143.1	
Wet + Tare		190.3
Dry + Tare		159.7
Tare Wt.		8.4

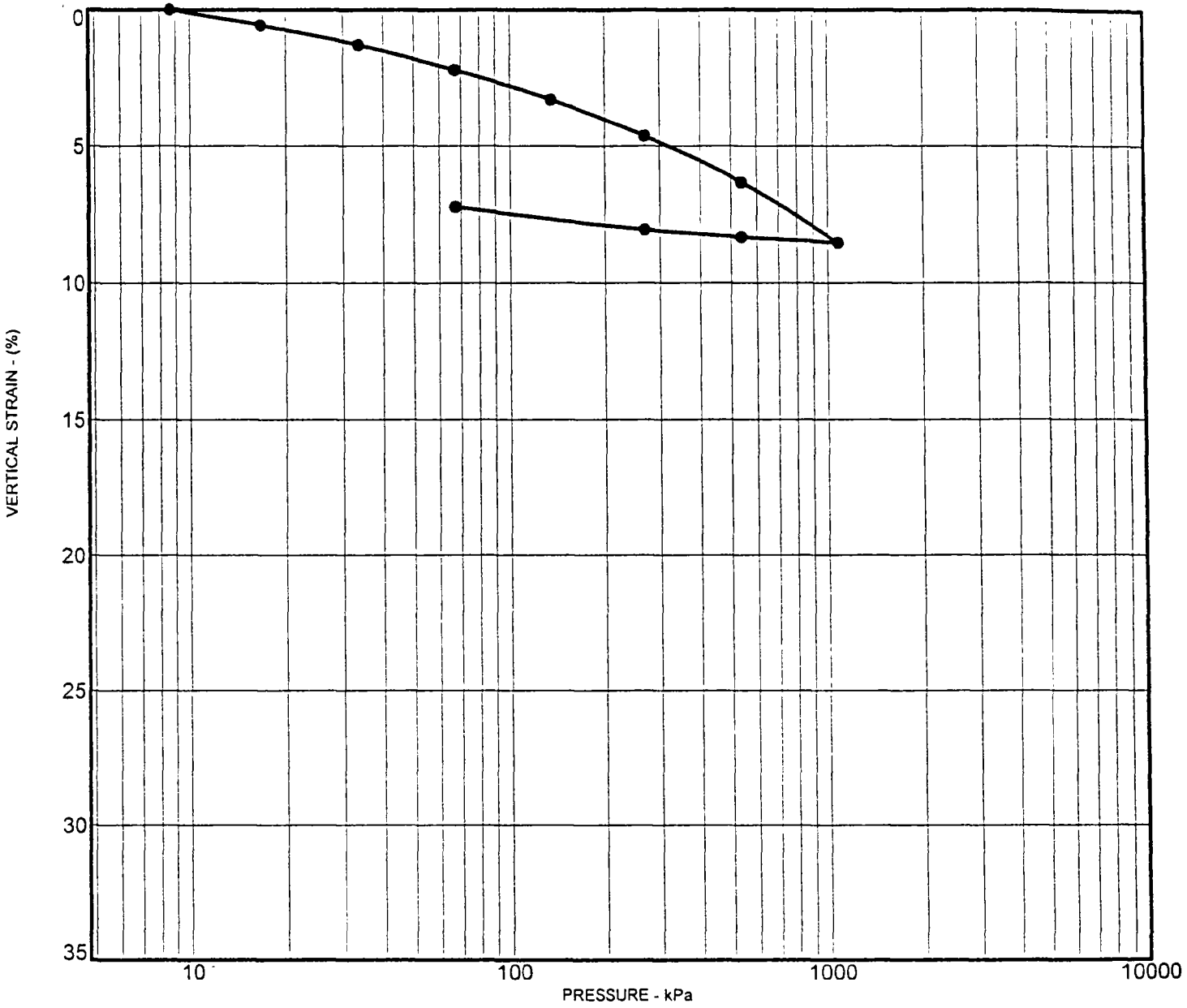
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/08/00	8:50:00			0204	
	13:00:00		4.8	0201	-0.03
	19:20:00		12.0	0234	0.30
03/09/00	12:40:00		23.9	0299	0.95
03/10/00	8:00:00		47.9	0404	2.00
	17:00:00		95.8	0541	3.37
03/11/00	18:00:00		191.5	0765	5.61
03/12/00	17:00:00		383.0	1093	8.89
03/13/00	16:00:00		766.1	1486	12.82
03/14/00	7:30:00		383.0	1447	12.43
	12:00:00		191.5	1385	11.81
	18:40:00		47.9	1184	9.80

PLATE K-196



Sample	SB- 4-252
Depth	24.38 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	16.1	17.4
Water content, %	24.2	21.3
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-197

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-4-252
Sample Depth:	24.4 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	196.8	
Ring Weight	45.1	
Wet Wt.	151.7	
Wet + Tare		201.9
Dry + Tare		175.9
Tare Wt.		8.7

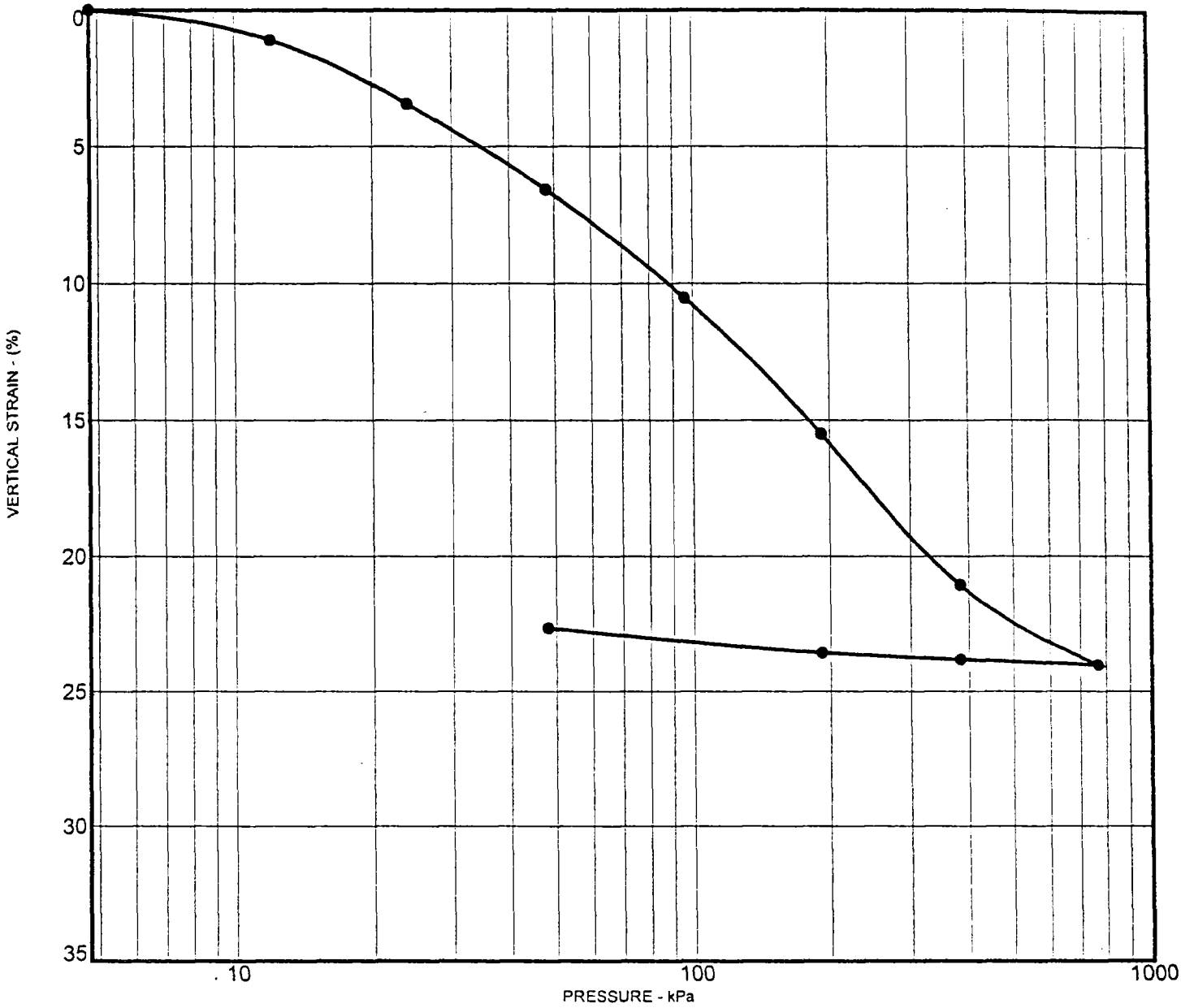
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 8.6 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/10/00	17:00:00			0197	
	21:15:00		8.6	0291	0.94
03/11/00	10:00:00		16.8	0348	1.51
	18:00:00		33.5	0420	2.23
03/12/00	8:45:00		67.0	0512	3.15
	17:00:00		134.5	0620	4.23
03/13/00	9:15:00		268.6	0754	5.57
03/14/00	7:30:00		537.7	0923	7.26
03/15/00	7:30:00		1075.4	1144	9.47
	15:00:00		537.7	1123	9.26
	16:50:00		268.6	1096	8.99
03/16/00	7:40:00		67.0	1013	8.16

PLATE K-198



Sample	SB- 5-293
Depth	1.52 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	9.9	12.7
Water content, %	63.5	40.9
Sample height, mm	25.4	19.6

KLEINFELDER

PROJECT NO. 35-8163-05

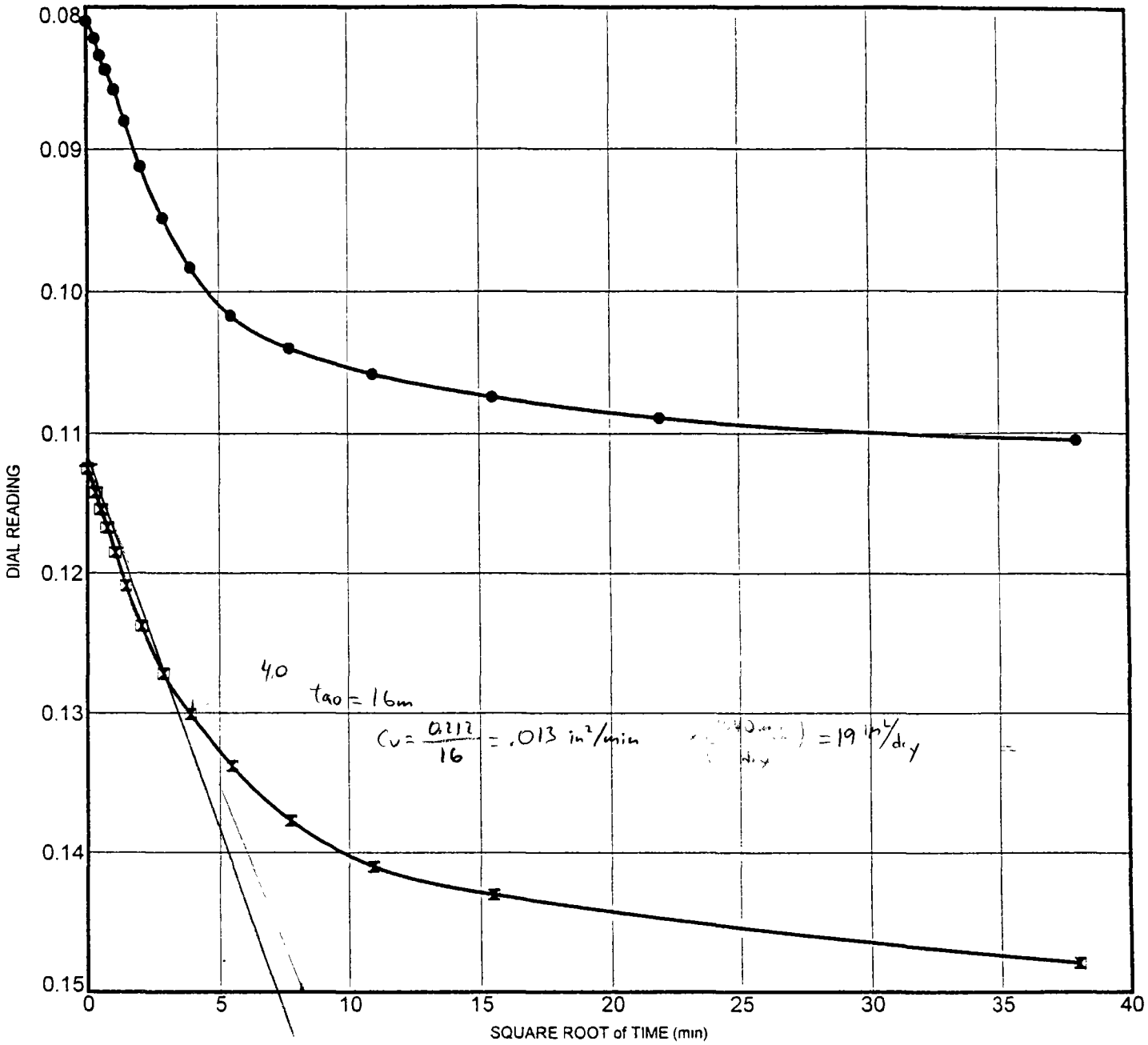
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-199



$\frac{5}{0.86} = \frac{X}{1.25}$ = 6.90 × 1.15 = 8.02 / 5.81 = 1.38

Sample	SB- 5-293	
Depth	1.5 m	
Pressure (MPa)	● 0.05	⧓ 0.10
Cv (m²/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

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

TIME RATE CONSOLIDATION

PLATE
K-200

TIME RATE (RTC) 2-M-B Z003SB1.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-5-293
Sample Depth:	1.5 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	167.0	
Ring Weight	45	
Wet Wt.	122.0	
Wet + Tare		158.4
Dry + Tare		127.9
Tare Wt.		8.3

	Before Test (mm)	After Test (mm)
Sample Height	25.4	19.4
Sample Diameter	49.0	

Water added at 4.8 kPa.

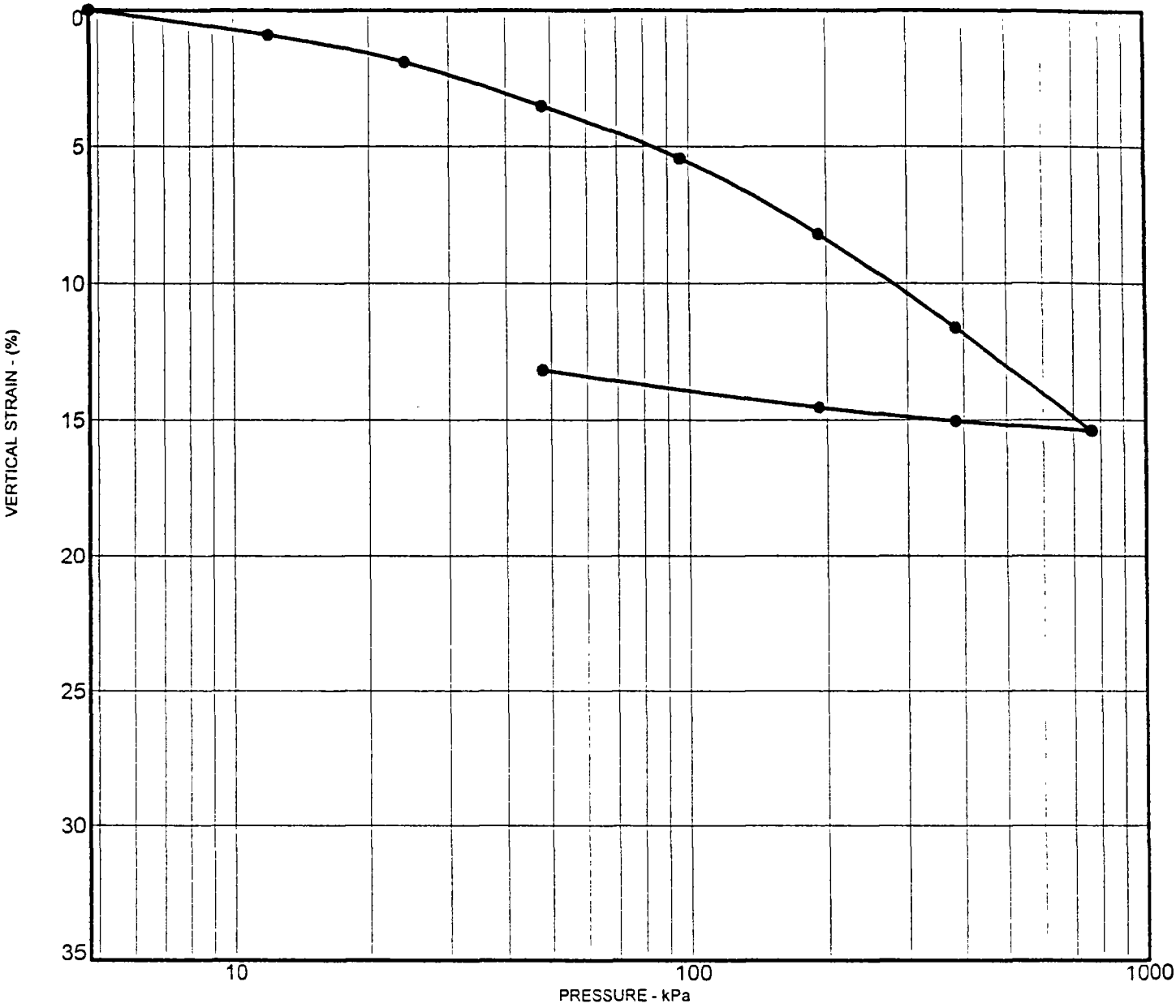
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/22/00	11:35:00			0201	
	16:10:00		4.8	0449	2.48
	15:10:00		12.0	0559	3.58
04/24/00	7:47:00		23.9	0792	5.91
	7:57:00	0:00:00	47.9	0810	6.09
	7:57:06	0:00:06		0822	
	7:57:15	0:00:15		0834	
	7:57:30	0:00:30		0844	
	7:58:00	0:01:00		0858	
	7:59:00	0:02:00		0880	
	8:01:00	0:04:00		0912	
	8:05:00	0:08:00		0948	
	8:12:00	0:15:00		0983	
	8:27:00	0:30:00		1017	
	8:57:00	1:00:00		1040	
	9:57:00	2:00:00		1058	
	11:57:00	4:00:00		1074	
	15:57:00	8:00:00		1089	
04/25/00	7:57:00	24:00:00	47.9	1105	9.04
	8:09:00	0:00:00	95.8	1125	9.24
	8:09:06	0:00:06		1142	
	8:09:15	0:00:15		1154	
	8:09:30	0:00:30		1167	
	8:10:00	0:01:00		1185	

PLATE K-201

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:11:00	0:02:00		1209	
	8:13:00	0:04:00		1238	
	8:17:00	0:08:00		1272	
	8:24:00	0:15:00		1301	
	8:39:00	0:30:00		1338	
	9:09:00	1:00:00		1377	
	10:09:00	2:00:00		1410	
	12:09:00	4:00:00		1430	
	16:09:00	8:00:00			
04/26/00	8:09:00	24:00:00		1479	
04/27/00	7:00:00	22:51:00	95.8	1502	13.01
04/28/00	8:00:00		191.5	1998	17.97
04/29/00	11:00:00		383.0	2556	23.55
04/30/00	10:15:00		766.1	2852	26.51
	12:00:00		383.0	2831	26.30
	14:00:00		191.5	2806	26.05
05/01/00	7:00:00		47.9	2715	25.14

PLATE K-202



Sample	SB- 5-293
Depth	9.14 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.0	15.0
Water content, %	39.1	30.4
Sample height, mm	25.4	22.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-203

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-5-293
Sample Depth:	9.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.3	
Ring Weight	45.4	
Wet Wt.	136.9	
Wet + Tare		182
Dry + Tare		152.1
Tare Wt.		8.3

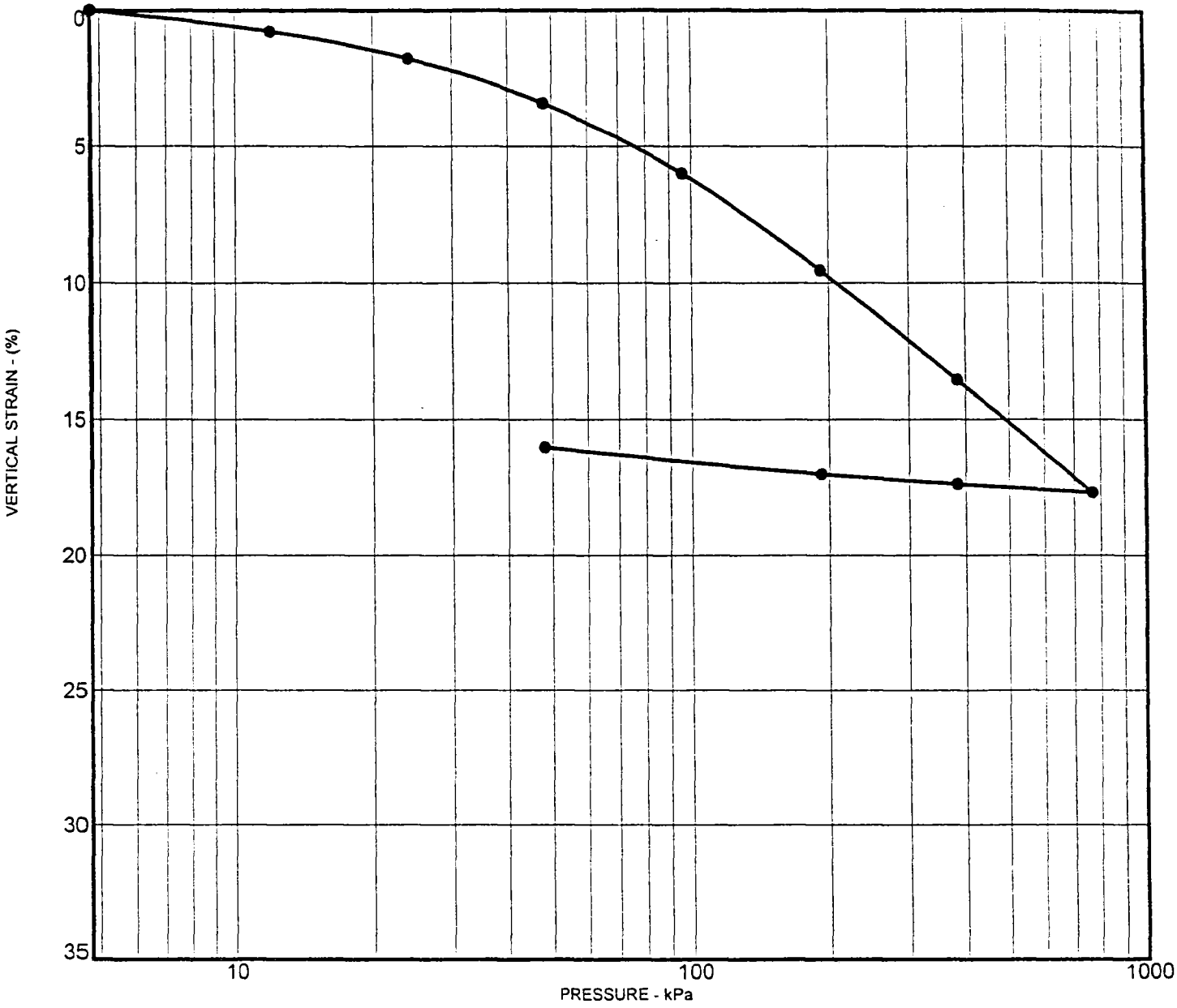
	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.0
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/22/00	12:05:00			0224	
	13:00:00		4.8	0247	0.23
04/23/00	9:30:00		12.0	0338	1.14
	17:05:00		23.9	0437	2.13
04/24/00	7:45:00		47.9	0597	3.73
	19:00:00		95.8	0790	5.66
04/25/00	13:30:00		191.5	1068	8.44
04/26/00	11:40:00		383.0	1409	11.85
04/27/00	7:00:00		766.1	1786	15.62
	17:00:00		383.0	1751	15.27
04/28/00	8:00:00		191.5	1701	14.77
	13:30:00		47.9	1564	13.40

PLATE K-204



Sample	SB- 5-297
Depth	4.57 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	13.0	15.5
Water content, %	39.4	28.0
Sample height, mm	25.4	21.3

KLEINFELDER

PROJECT NO. 35-8163-05

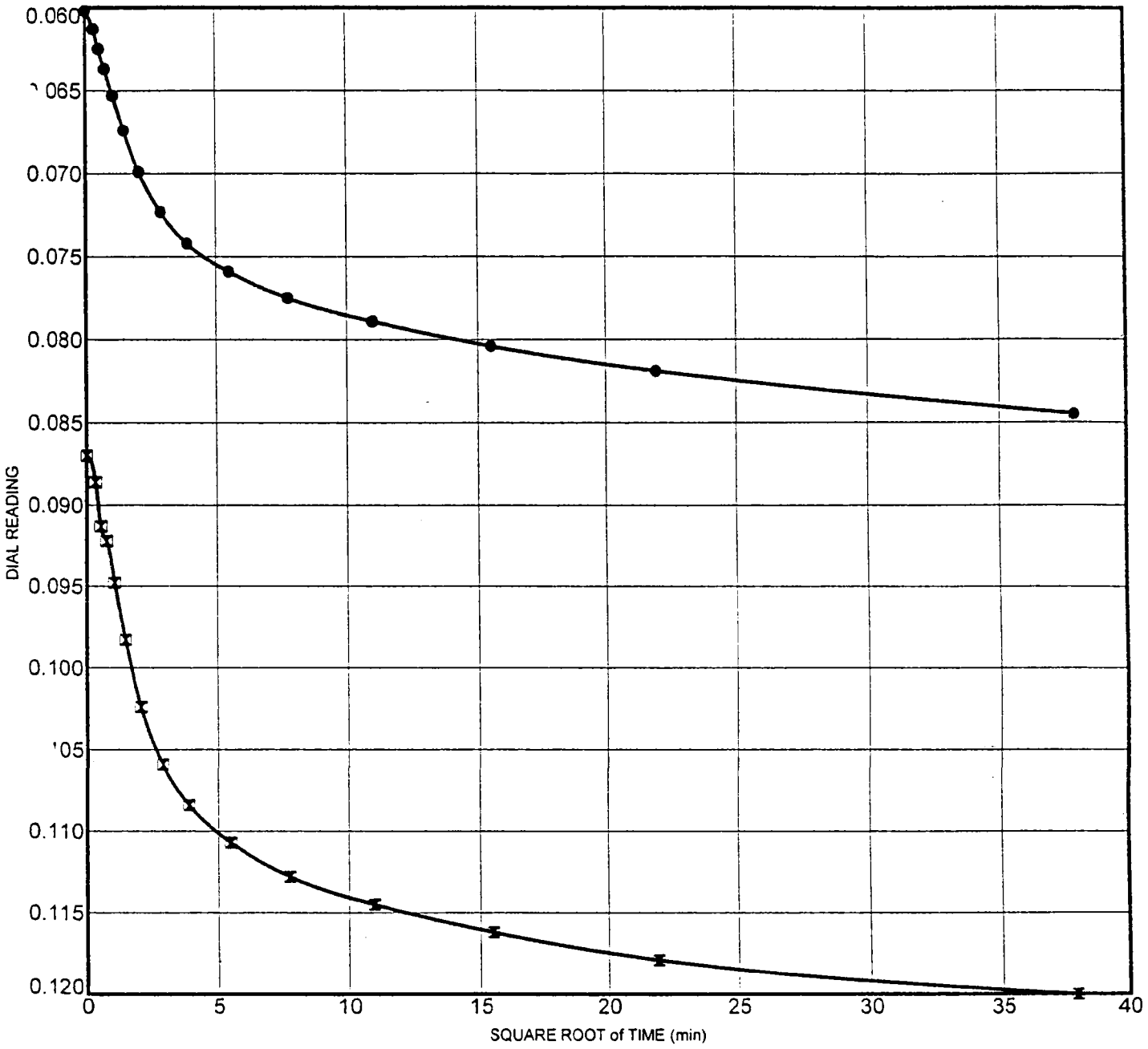
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-205



Sample	SB- 5-297	
Depth	4.6 m	
Pressure (MPa)	● 0.10	⧓ 0.19
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-206

TIME RATE (RTC) 2-M-B Z003SB1.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-5-297
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.9	
Ring Weight	45.6	
Wet Wt.	137.3	
Wet + Tare		180.1
Dry + Tare		152.5
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	20.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

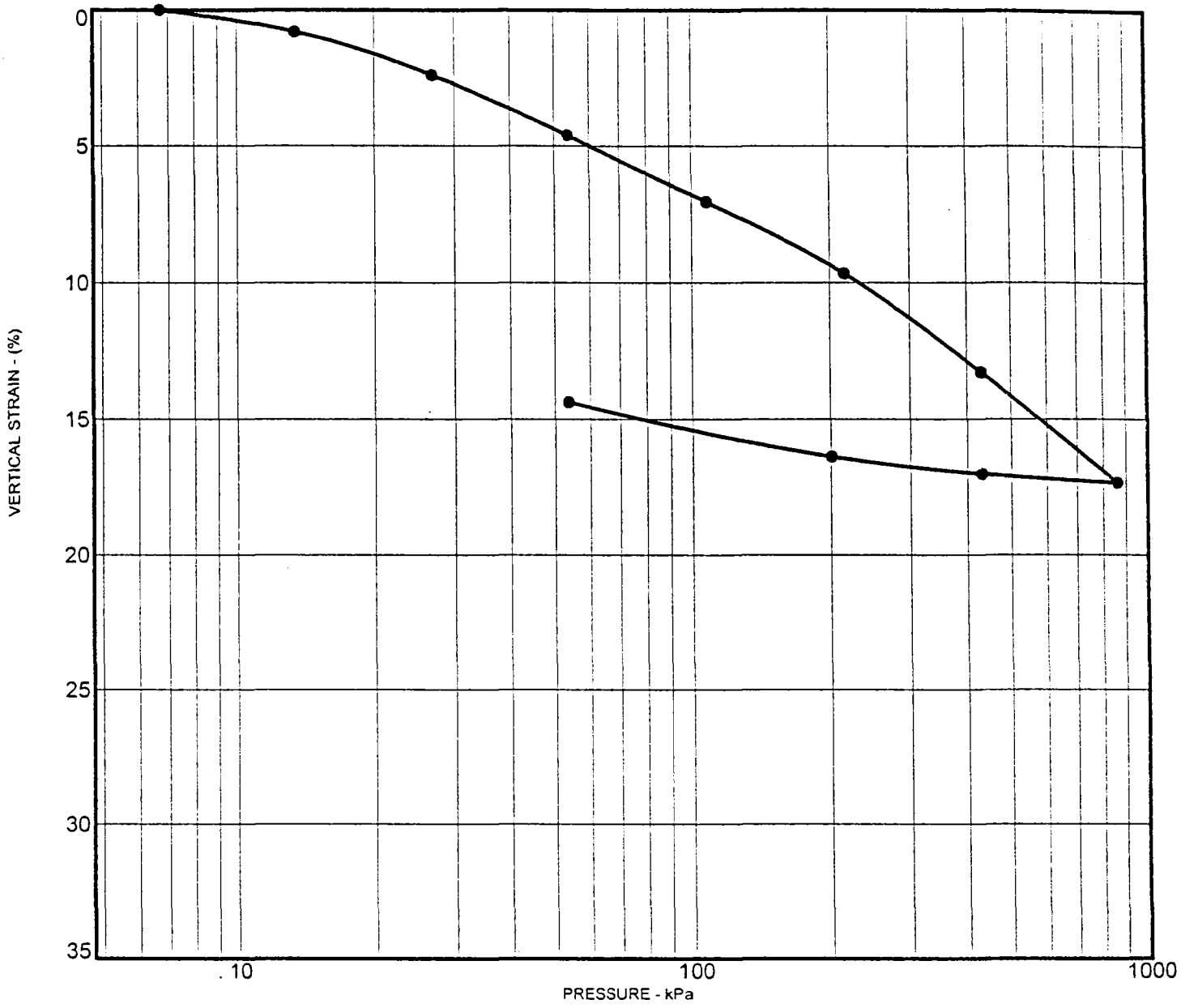
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/11/00	17:30:00			0191	
	22:00:00		4.8	0246	0.55
	7:30:00		12.0	0324	1.33
	16:20:00		23.9	0423	2.32
	8:00:00		47.9	0587	3.96
	8:06:00	0:00:00	95.8	0602	4.11
	8:06:06	0:00:06		0613	
	8:06:15	0:00:15		0625	
	8:06:30	0:00:30		0637	
	8:07:00	0:01:00		0653	
	8:08:00	0:02:00		0674	
	8:10:00	0:04:00		0699	
	8:14:00	0:08:00		0723	
	8:21:00	0:15:00		0742	
	8:36:00	0:30:00		0759	
	9:06:00	1:00:00		0775	
	10:06:00	2:00:00		0789	
	12:06:00	4:00:00		0804	
	16:06:00	8:00:00		0819	
04/15/00	8:06:00	24:00:00	95.8	0845	6.54
04/16/00	9:06:00	0:00:00	191.5	0870	6.79
	9:06:06	0:00:06		0886	
	9:06:15	0:00:15		0913	
	9:06:30	0:00:30		0922	

PLATE K-207

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	9:07:00	0:01:00		0948	
	9:08:00	0:02:00		0983	
	9:10:00	0:04:00		1024	
	9:14:00	0:08:00		1059	
	9:21:00	0:15:00		1084	
	9:36:00	0:30:00		1107	
	10:06:00	1:00:00		1128	
	11:06:00	2:00:00		1145	
	13:06:00	4:00:00		1162	
	17:06:00	8:00:00		1179	
04/17/00	9:06:00	24:00:00	191.5	1200	10.09
04/18/00	7:25:00		383.0	1600	14.09
04/19/00	15:45:00		766.1	2014	18.23
04/20/00	16:40:00		383.0	1983	17.92
04/21/00	7:00:00		191.5	1946	17.55
	10:25:00		47.9	1847	16.56

PLATE K-208



Sample	SB- 5-297
Depth	9.14 m
Classification	CL

	Initial	Final
Dry density, kN/m^3		
Water content, %		
Sample height, mm	25.4	

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-209

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-5-297
Sample Depth:	9.1 m

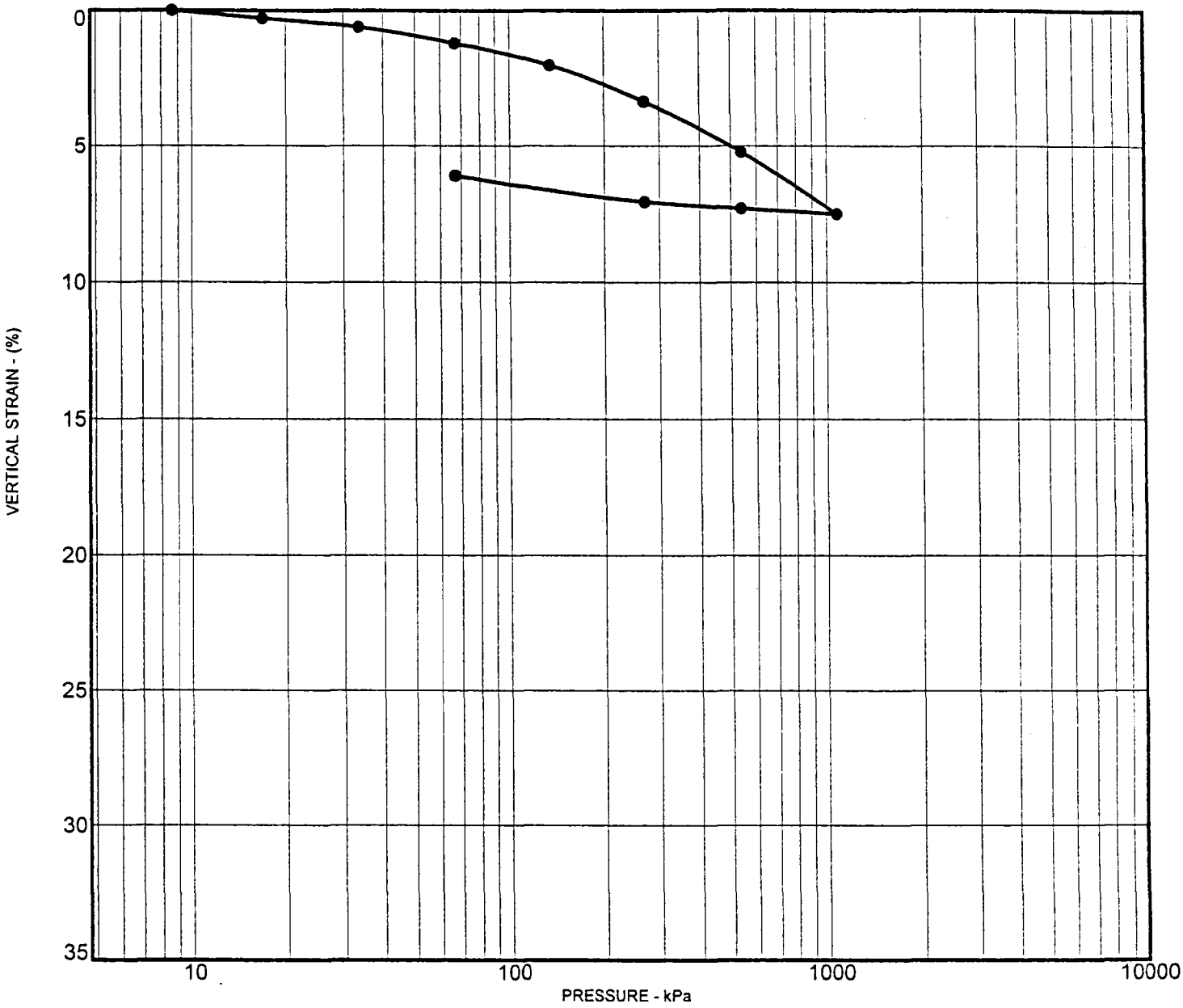
	Before Test (g)	After Test (g)
Wet Wt. + Ring	0.0	
Ring Weight	45.2	
Wet Wt.	-45.2	
Wet + Tare		186.9
Dry + Tare		158.6
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 6.7 kPa.
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/11/00	17:40:00			0167	
	18:30:00		6.7	0167	0.00
04/12/00	7:30:00		13.4	0247	0.80
	16:20:00		26.8	0406	2.39
04/13/00	12:15:00		53.6	0627	4.60
04/14/00	7:44:00		107.7	0871	7.04
	17:00:00		215.0	1133	9.66
04/15/00	18:15:00		430.0	1495	13.28
04/17/00	7:00:00		859.9	1901	17.34
	12:50:00		430.0	1868	17.01
	16:25:00		215.0	1804	16.37
04/18/00	7:20:00		53.6	1604	14.37

PLATE K-210



Sample	SB-11-259
Depth	8.84 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	14.2	15.1
Water content, %	31.2	28.9
Sample height, mm	25.4	23.9

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-264

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-11-259
Sample Depth:	8.8 m

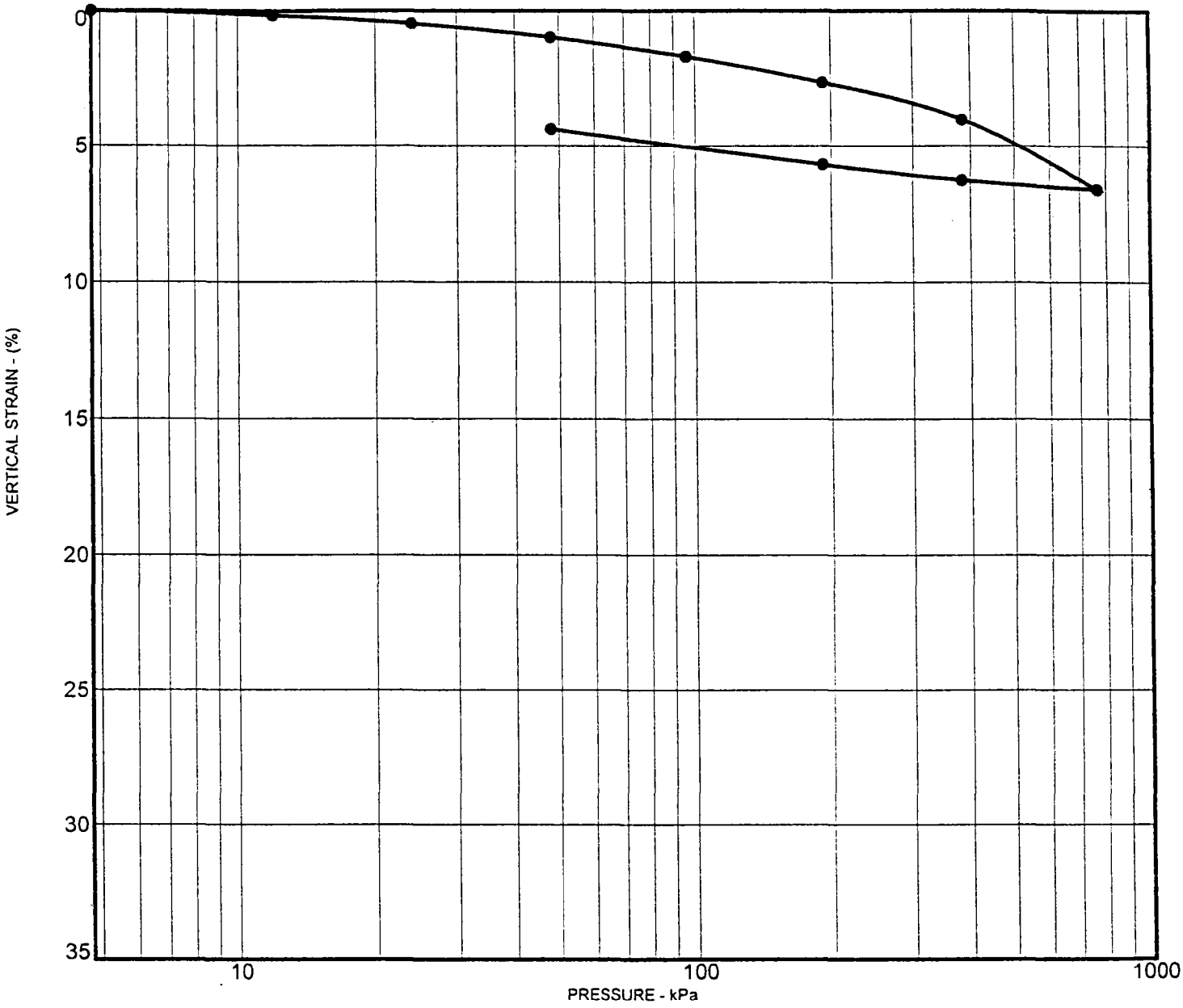
	Before Test (g)	After Test (g)
Wet Wt. + Ring	186.0	
Ring Weight	45.5	
Wet Wt.	140.5	
Wet + Tare		191.9
Dry + Tare		161
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.7
Sample Diameter	49.0	

Water added at 8.6 kPa.
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/15/00	13:45:00			0100	
	15:50:00		8.6	0135	0.35
03/16/00	7:40:00		16.8	0164	0.64
	11:45:00		33.5	0197	0.97
03/17/00	10:30:00		67.0	0257	1.57
03/18/00	9:30:00		134.5	0339	2.39
03/19/00	9:50:00		268.6	0472	3.72
03/20/00	10:00:00		537.7	0658	5.58
03/21/00	12:10:00		1075.4	0885	7.85
	18:00:00		537.7	0865	7.65
	21:00:00		268.6	0841	7.41
03/22/00	8:00:00		67.0	0746	6.46

PLATE K-265



Sample	SB-11-259
Depth	27.13 m
Classification	SC

	Initial	Final
Dry density, kN/m^3	15.1	15.7
Water content, %	28.9	27.3
Sample height, mm	25.4	24.4

KLEINFELDER

PROJECT NO. 35-8163-05

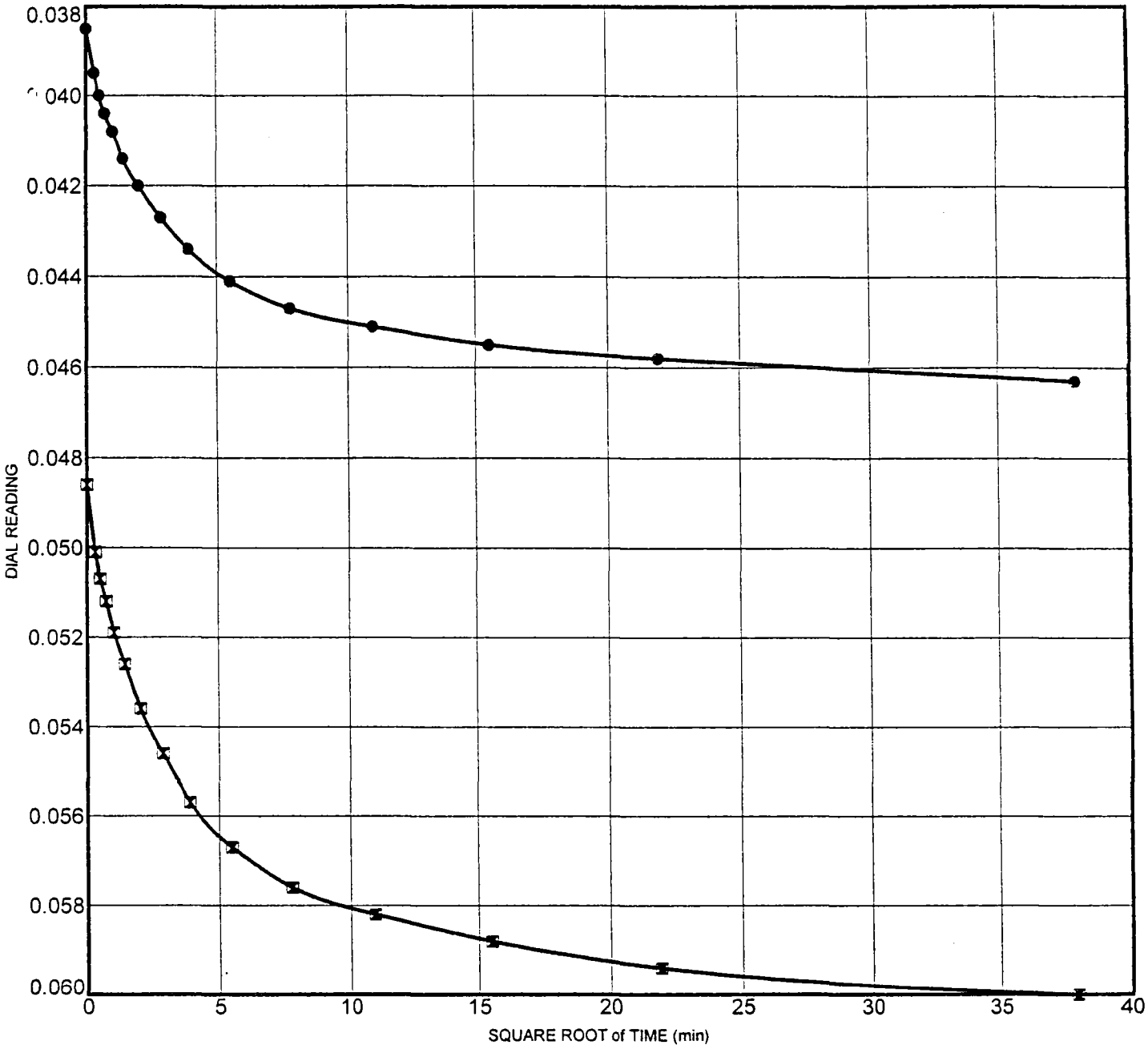
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-266



Sample	SB-11-259	
Depth	27.1 m	
Pressure (MPa)	● 0.19	⧓ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-267

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-11-259
Sample Depth:	27.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	192.2	
Ring Weight	45.4	
Wet Wt.	146.8	
Wet + Tare		198.7
Dry + Tare		167.6
Tare Wt.		8.3

	Before Test (mm)	After Test (mm)
Sample Height	25.4	23.7
Sample Diameter	49.0	

Water added at 4.8 kPa.

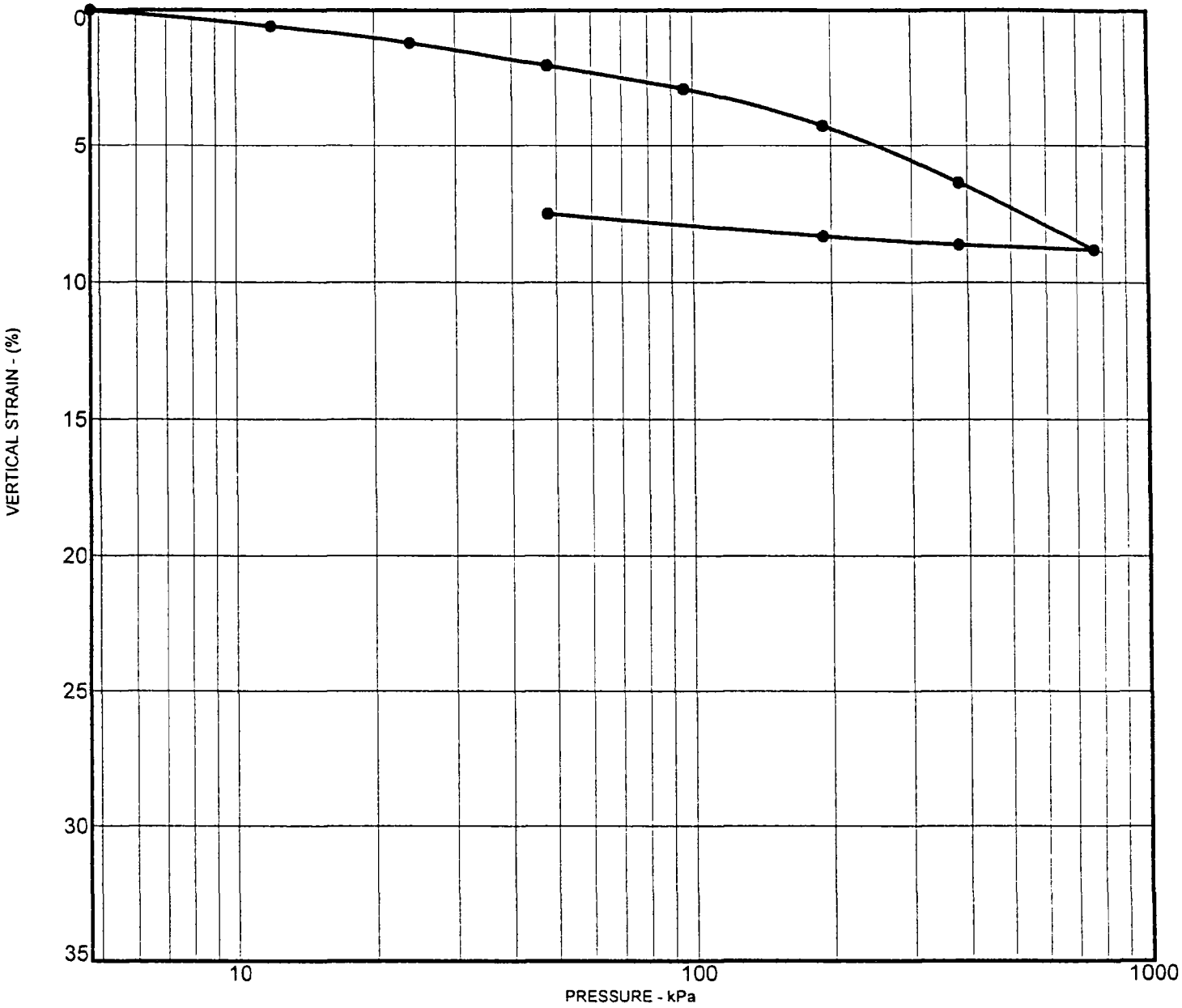
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/21/00	14:30:00			0199	
	15:30:00		4.8	0196	-0.03
	17:20:00		12.0	0213	0.14
	21:00:00		23.9	0244	0.45
	8:15:00		47.9	0295	0.96
03/24/00	8:00:00		95.8	0369	1.70
	8:06:00	0:00:00	191.5	0385	
	8:06:06	0:00:06		0395	
	8:06:15	0:00:15		0400	
	8:06:30	0:00:30		0404	
	8:07:00	0:01:00		0408	
	8:08:00	0:02:00		0414	
	8:10:00	0:04:00		0420	
	8:14:00	0:08:00		0427	
	8:21:00	0:15:00		0434	
	8:36:00	0:30:00		0441	
	9:06:00	1:00:00		0447	
	10:06:00	2:00:00		0451	
	12:06:00	4:00:00		0455	
	16:06:00	8:00:00		0458	
03/25/00	8:06:00	24:00:00	191.5	0463	2.64
	9:06:00	0:00:00	383.0	0486	2.87
	9:06:06	0:00:06		0501	
	9:06:15	0:00:15		0507	

PLATE K-268

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	9:06:30	0:00:30		0512	
	9:07:00	0:01:00		0519	
	9:08:00	0:02:00		0526	
	9:10:00	0:04:00		0536	
	9:14:00	0:08:00		0546	
	9:21:00	0:15:00		0557	
	9:36:00	0:30:00		0567	
	10:06:00	1:00:00		0576	
	11:06:00	2:00:00		0582	
	13:06:00	4:00:00		0588	
	17:06:00	8:00:00		0594	
03/26/00	9:06:00	24:00:00	383.0	0600	4.01
03/27/00	14:35:00		766.1	0857	6.58
	19:30:00		383.0	0823	6.24
03/28/00	8:15:00		191.5	0765	5.66
	13:40:00		47.9	0635	4.36

PLATE K-269



Sample	SB-11-262
Depth	7.62 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.9	16.1
Water content, %	28.5	25.3
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-270

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-11-262
Sample Depth:	7.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	189.7	
Ring Weight	45	
Wet Wt.	144.7	
Wet + Tare		194.5
Dry + Tare		166
Tare Wt.		8.4

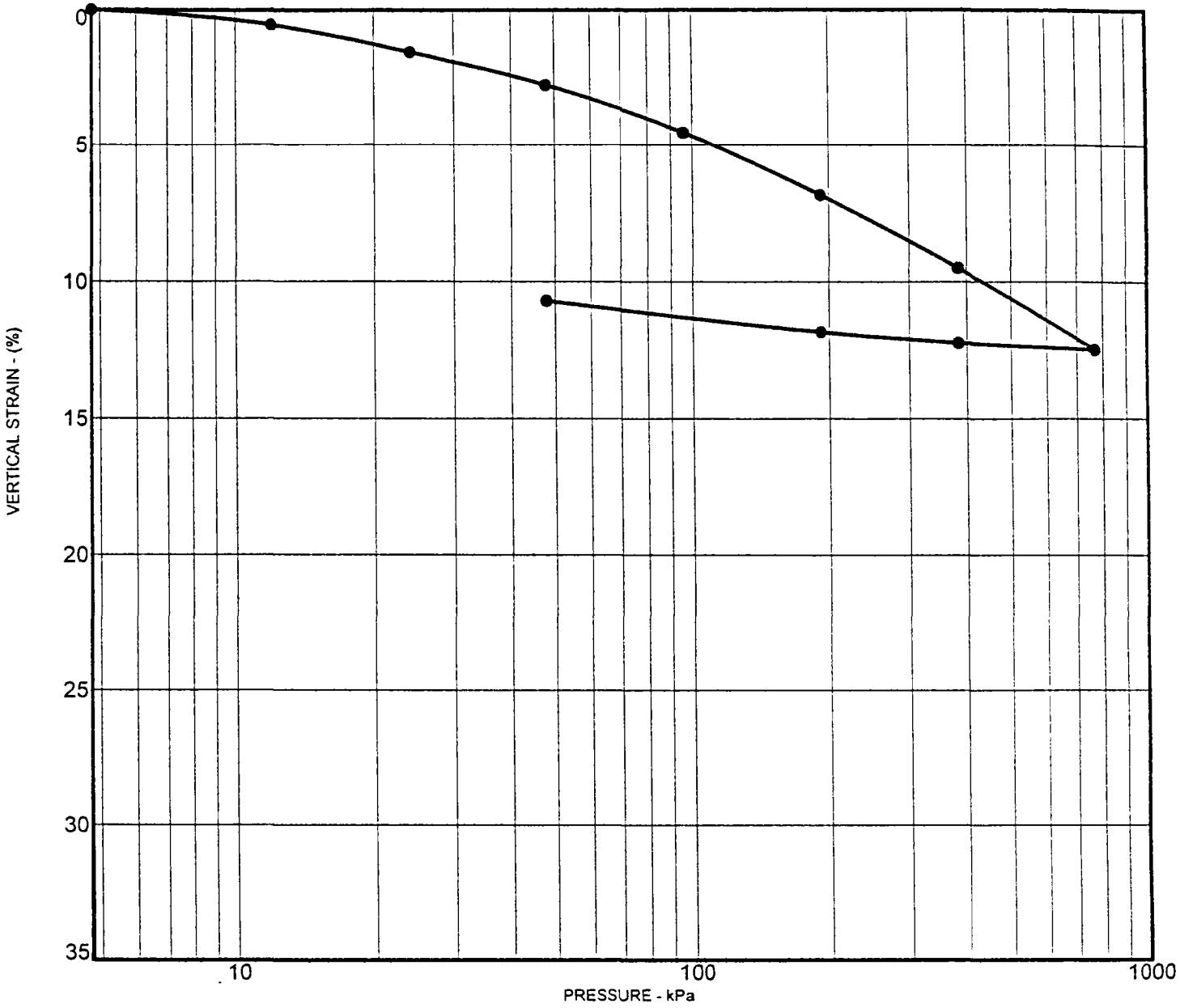
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/15/00	8:10:00			0215	
	11:00:00		4.8	0263	0.48
	14:55:00		12.0	0323	1.08
	18:20:00		23.9	0385	1.70
02/16/00	7:30:00		47.9	0468	2.53
	13:05:00		95.8	0555	3.40
	19:00:00		191.5	0690	4.75
02/17/00	15:15:00		383.0	0899	6.84
02/18/00	13:00:00		766.1	1144	9.29
	17:10:00		383.0	1125	9.10
02/19/00	11:00:00		191.5	1094	8.79
	17:30:00		47.9	1013	7.98

PLATE K-271



Sample	SB-11-262
Depth	16.76 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	13.9	15.5
Water content, %	35.0	27.7
Sample height, mm	25.4	22.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-272

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	SB-11-262
Sample Depth:	16.8 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	186.9	
Ring Weight	45.2	
Wet Wt.	141.7	
Wet + Tare		187.9
Dry + Tare		158.8
Tare Wt.		8.6

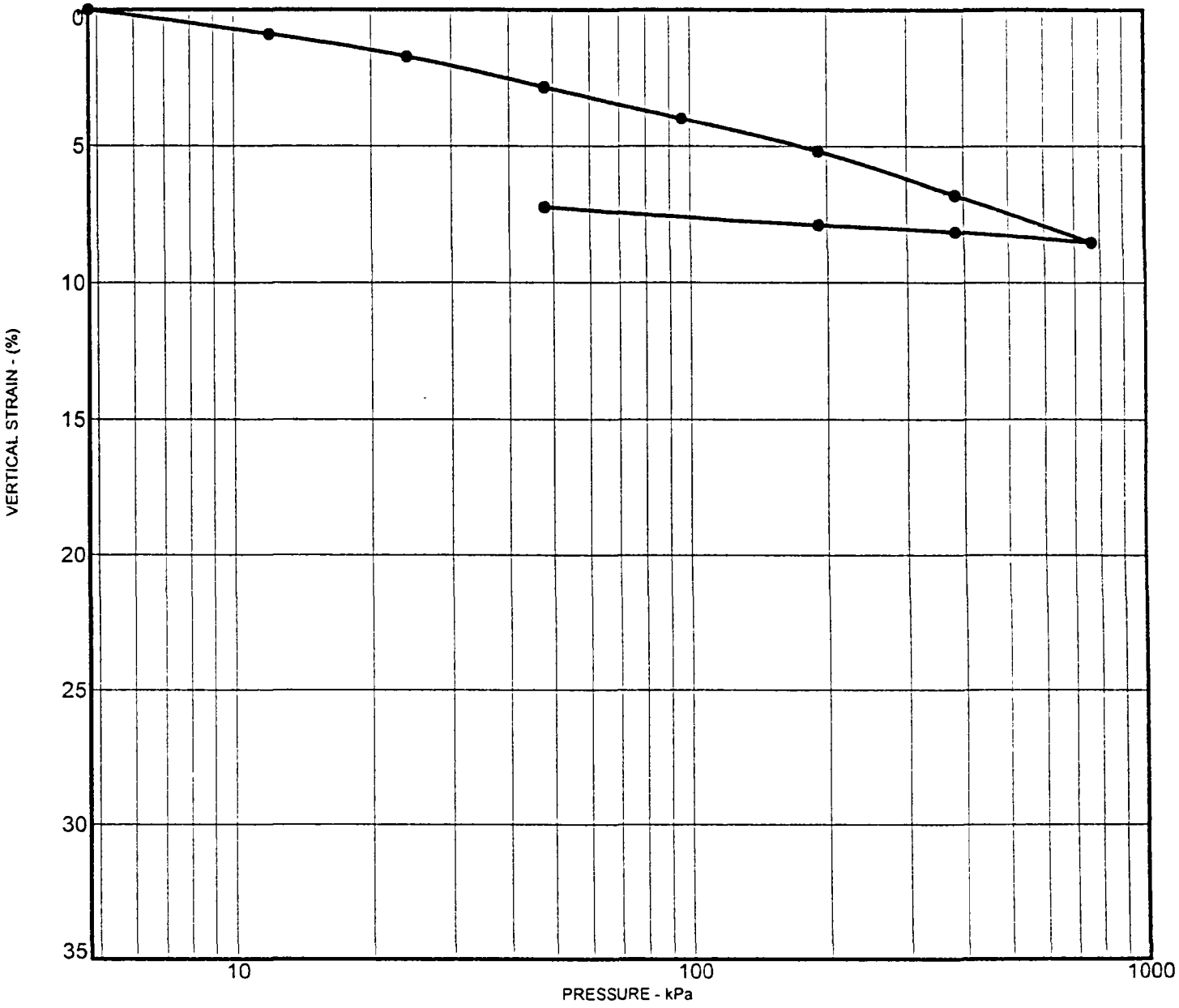
	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.4
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/15/00	8:30:00			0408	
	11:00:00		4.8	0435	0.27
	17:25:00		12.0	0498	0.90
02/16/00	7:30:00		23.9	0593	1.85
	17:35:00		47.9	0715	3.07
02/17/00	7:40:00		95.8	0890	4.82
02/18/00	8:30:00		191.5	1118	7.10
02/19/00	11:00:00		383.0	1384	9.76
02/20/00	8:40:00		766.1	1682	12.74
	17:15:00		383.0	1657	12.49
02/21/00	8:20:00		191.5	1618	12.10
	14:30:00		47.9	1505	10.97

PLATE K-273



Sample	SB-32-357
Depth	9.14 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	14.7	15.9
Water content, %	27.8	24.9
Sample height, mm	25.4	23.4

KLEINFELDER

PROJECT NO. 35-8163-05

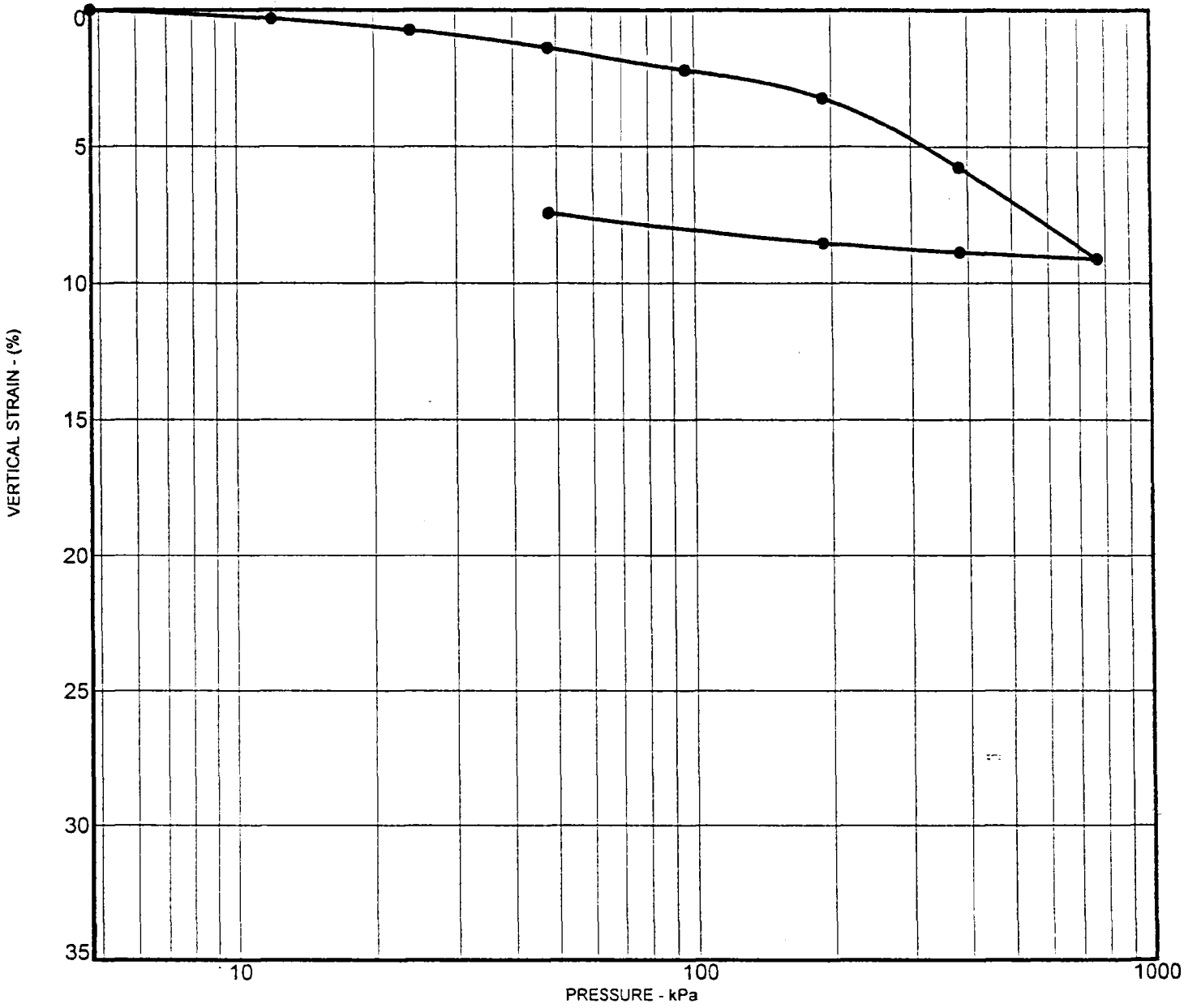
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-505



Sample	SB-32-357
Depth	15.24 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.1	16.3
Water content, %	28.1	25.2
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

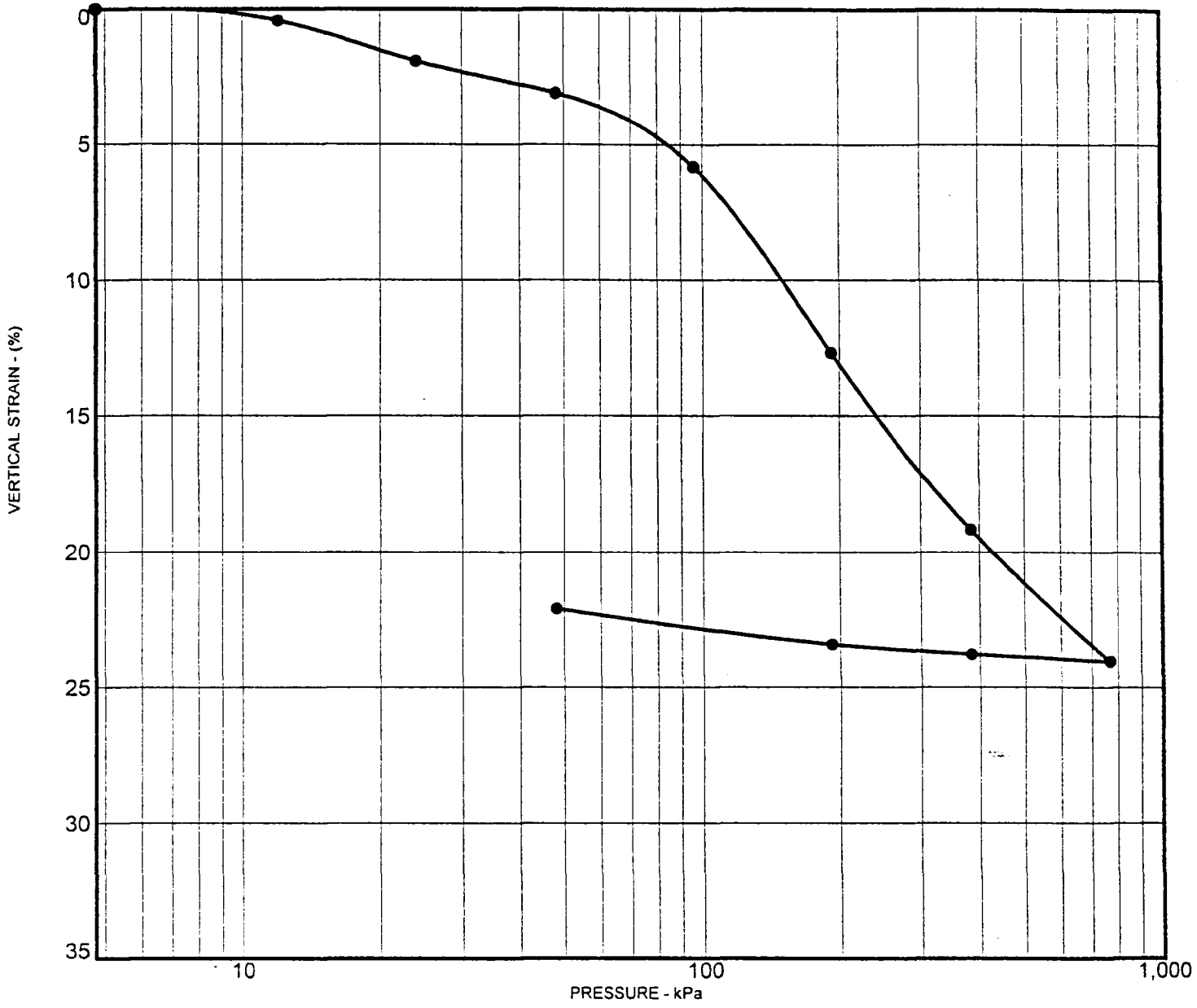
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-507



Sample	WB-26-314
Depth	6.10 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	10.5	13.4
Water content, %	59.2	39.8
Sample height, mm	25.4	19.8

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-615

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	WB-26-314
Sample Depth:	6.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	171.1	
Ring Weight	45	
Wet Wt.	126.1	
Wet + Tare		164.4
Dry + Tare		132.9
Tare Wt.		8.7

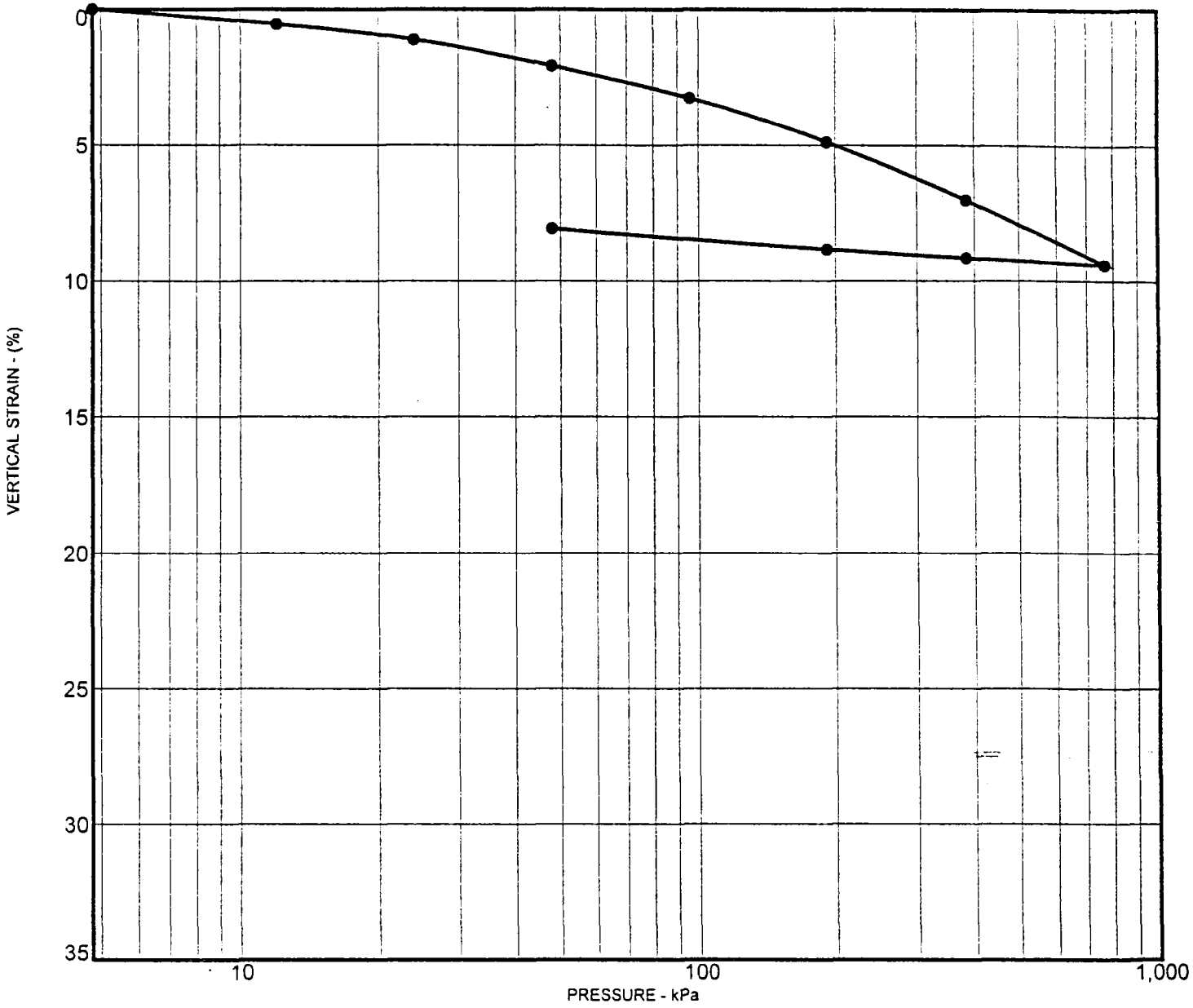
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/02/00	10:45:00			0152	
	15:40:00		4.8	0195	0.43
02/03/00	11:15:00		23.9	0345	1.93
	19:00:00		47.9	0462	3.10
02/04/00	7:30:00		95.8	0734	5.82
02/05/00	8:30:00		191.5	1421	12.69
02/06/00	15:50:00		383.0	2068	19.16
02/07/00	19:00:00		766.1	2557	24.05
02/08/00	8:00:00		383.0	2531	23.79
	13:45:00		191.5	2494	23.42
	17:45:00		47.9	2361	22.09

PLATE K-616



Sample	WB-26-314
Depth	12.19 m
Classification	CL-ML

	Initial	Final
Dry density, kN/m^3	14.7	16.0
Water content, %	29.3	23.5
Sample height, mm	25.4	23.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-617

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	WB-26-314
Sample Depth:	12.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	189.0	
Ring Weight	45.5	
Wet Wt.	143.5	
Wet + Tare		190.9
Dry + Tare		164.8
Tare Wt.		8.3

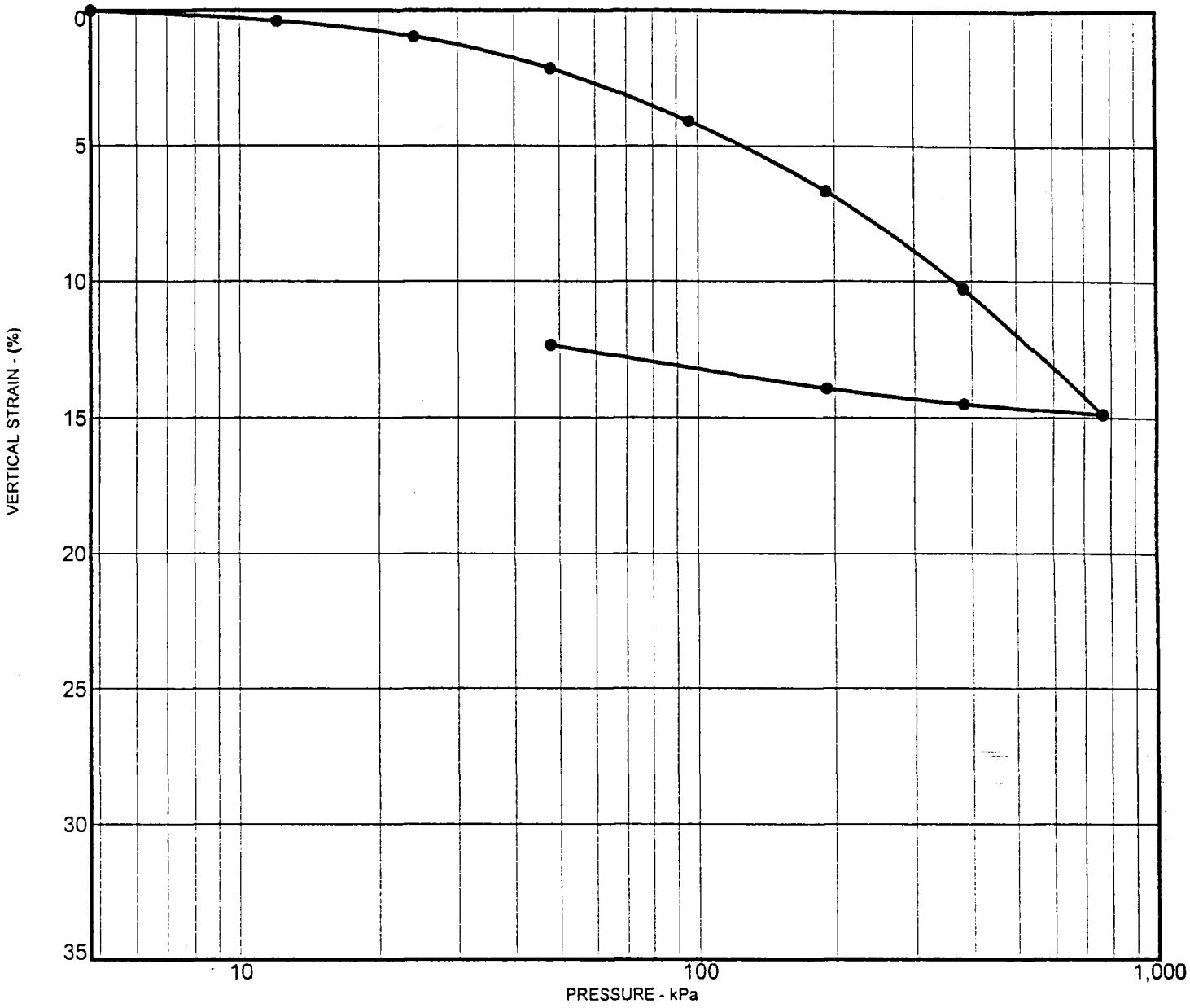
	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.0
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
02/02/00	16:24:00			0250	
	19:00:00		4.8	0502	2.52
02/03/00	11:15:00		12.0	0556	3.06
	17:15:00		23.9	0613	3.63
02/04/00	7:30:00		47.9	0709	4.59
	16:00:00		95.8	0828	5.78
02/05/00	8:30:00		191.5	0990	7.40
02/06/00	15:45:00		383.0	1204	9.54
02/07/00	14:00:00		766.1	1443	11.93
	19:00:00		383.0	1418	11.68
02/08/00	8:00:00		191.5	1386	11.36
	13:40:00		47.9	1308	10.58

PLATE K-618



Sample	WB-29-320
Depth	12.19 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.1	14.9
Water content, %	39.4	31.8
Sample height, mm	25.4	22.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-627

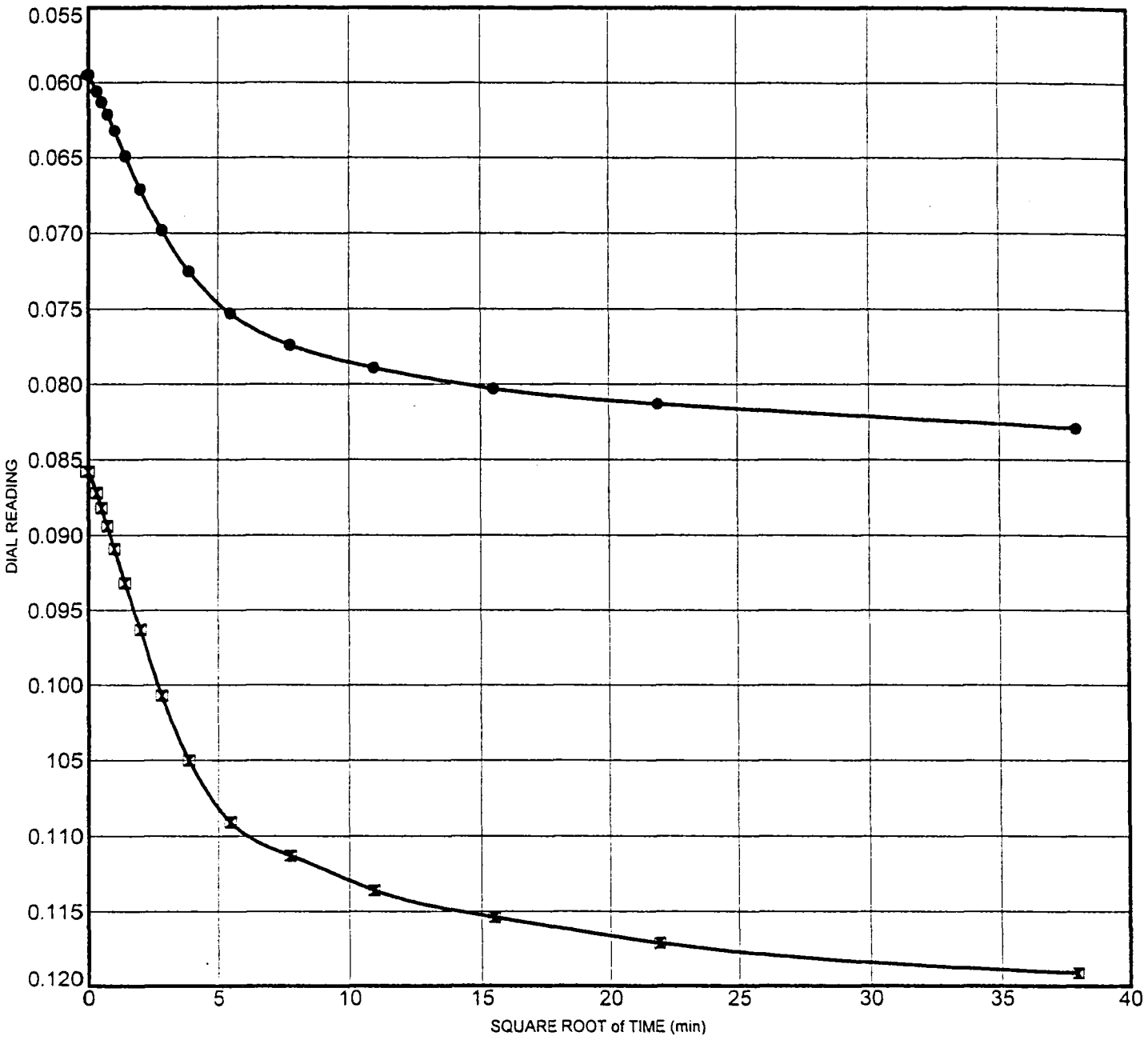
ect Number: 35-8163-05

Before Test (mm)		After Test (mm)
25.4		25.9
49.0		

Water added at 4.8 kPa.
sed Time shown only for time rates.

Dial Reading		Strain (%)
0200		
0293		0.93
0365		1.65
0529		3.29
0708		5.08
0926		7.26
1289		10.89
1592		13.92
1954		17.54
1931		17.31
1929		17.29
1844		16.44

PLATE K-628



Sample	WB-29-320	
Depth	12.2 m	
Pressure (MPa)	● 0.19	⧓ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-630

TIME RATE (RTC) 2-M-B Z003WB.GPJ 5/31/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	WB-29-320
Sample Depth:	12.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	183.9	
Ring Weight	45.8	
Wet Wt.	138.1	
Wet + Tare		184.9
Dry + Tare		153.4
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	21.7
Sample Diameter	49.0	

Water added at 4.8 kPa.

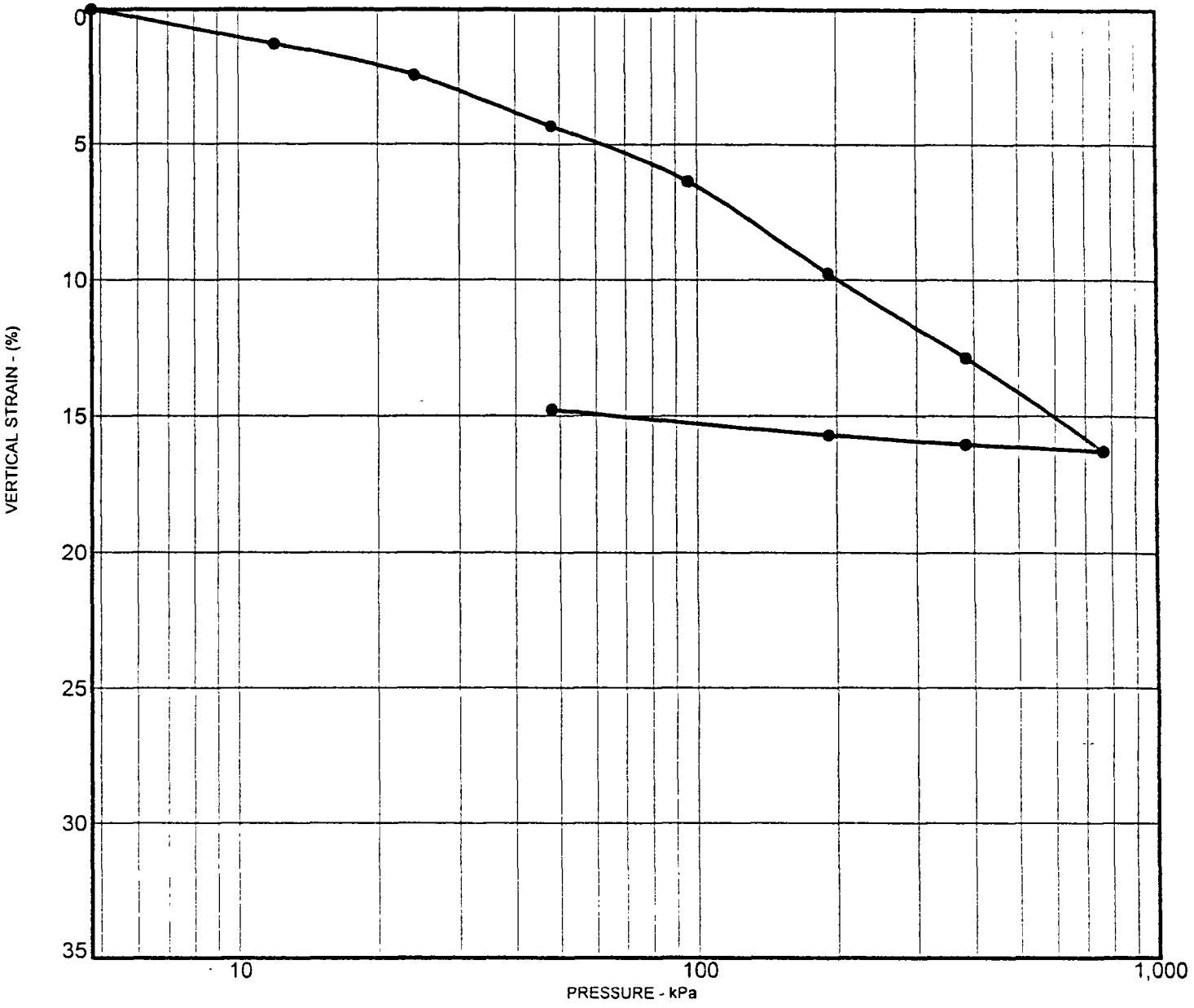
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/20/00	18:05:00			0185	
04/21/00	7:00:00		4.8	0162	-0.23
	10:25:00		12.0	0201	0.16
	16:30:00		23.9	0259	0.74
04/22/00	9:20:00		47.9	0377	1.92
04/23/00	8:00:00		95.8	0571	3.86
	8:00:00	0:00:00	191.5	0595	
	8:00:06	0:00:06		0606	
	8:00:15	0:00:15		0613	
	8:00:30	0:00:30		0621	
	8:01:00	0:01:00		0632	
	8:02:00	0:02:00		0649	
	8:04:00	0:04:00		0671	
	8:08:00	0:08:00		0698	
	8:15:00	0:15:00		0725	
	8:30:00	0:30:00		0753	
	9:00:00	1:00:00		0774	
	10:00:00	2:00:00		0789	
	12:00:00	4:00:00		0803	
	16:00:00	8:00:00		0813	
04/24/00	8:00:00	24:00:00	191.5	0829	6.44
	8:09:00	0:00:00	383.0	0858	6.73
	8:09:06	0:00:06		0872	
	8:09:15	0:00:15		0882	

PLATE K-631

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:09:30	0:00:30		0894	
	8:10:00	0:01:00		0909	
	8:11:00	0:02:00		0932	
	8:13:00	0:04:00		0963	
	8:17:00	0:08:00		1007	
	8:24:00	0:15:00		1050	
	8:39:00	0:30:00		1091	
	9:09:00	1:00:00		1113	
	10:09:00	2:00:00		1136	
	12:09:00	4:00:00		1154	
	16:09:00	8:00:00		1171	
04/25/00	8:09:00	24:00:00	383.0	1191	10.06
04/27/00	7:00:00		766.1	1650	14.65
	17:00:00		383.0	1613	14.28
04/28/00	8:20:00		191.5	1555	13.70
	13:30:00		47.9	1396	12.11

PLATE K-632



Sample	WB-29-322
Depth	4.57 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.3	15.6
Water content, %	35.8	28.2
Sample height, mm	25.4	21.6

KLEINFELDER

PROJECT NO. 35-8163-05

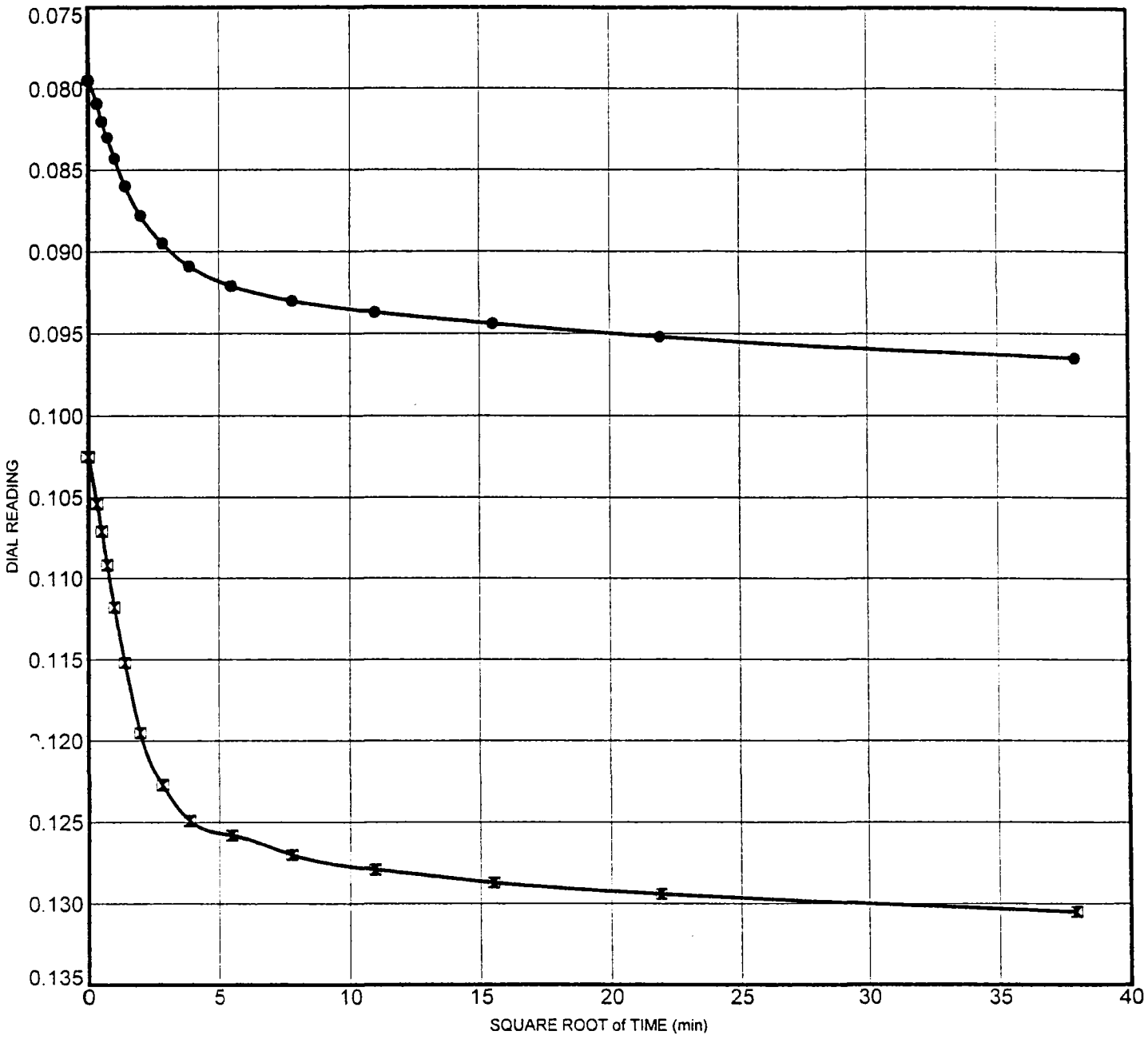
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-633



Sample	WB-29-322	
Depth	4.6 m	
Pressure (MPa)	● 0.10	⊠ 0.19
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-634

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	WB-29-322
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.1	
Ring Weight	45.2	
Wet Wt.	136.9	
Wet + Tare		182.8
Dry + Tare		154.4
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	20.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

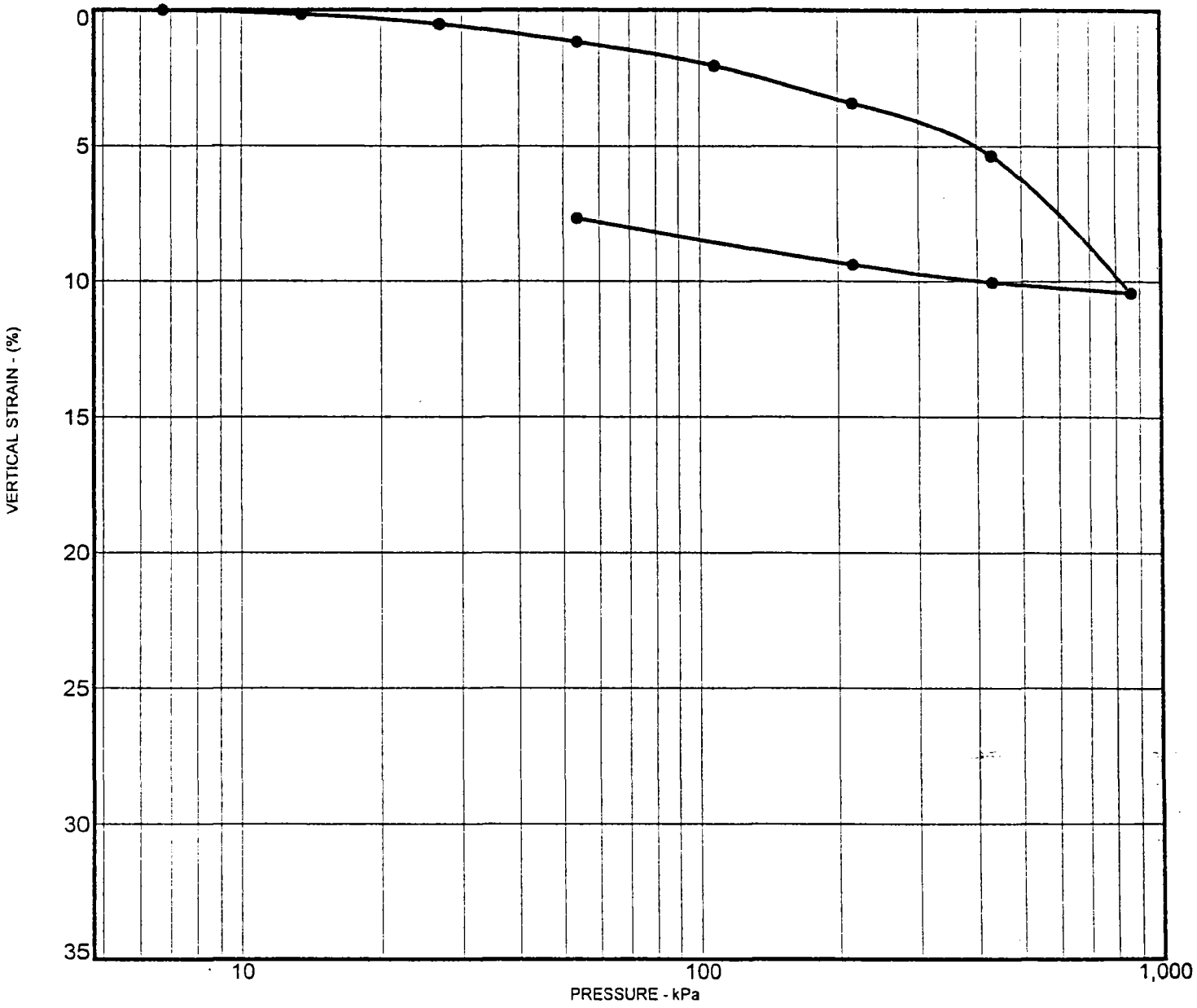
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/11/00	14:30:00			0123	
	18:30:00		4.8	0329	2.06
04/12/00	7:30:00		12.0	0457	3.34
	16:20:00		23.9	0573	4.50
04/13/00	8:00:00		47.9	0761	6.38
04/14/00	7:57:00	0:00:00	95.8	0795	6.72
	7:57:06	0:00:06		0809	
	7:57:15	0:00:15		0820	
	7:57:30	0:00:30		0830	
	7:58:00	0:01:00		0843	
	7:59:00	0:02:00		0860	
	8:01:00	0:04:00		0878	
	8:05:00	0:08:00		0895	
	8:12:00	0:15:00		0909	
	8:27:00	0:30:00		0921	
	8:57:00	1:00:00		0930	
	9:57:00	2:00:00		0937	
	11:57:00	4:00:00		0944	
	15:57:00	8:00:00		0952	
04/15/00	7:57:00	24:00:00	95.8	0965	8.42
04/16/00	9:00:00	0:00:00	191.5	1025	9.02
	9:00:06	0:00:06		1054	
	9:00:15	0:00:15		1071	
	9:00:30	0:00:30		1092	

PLATE K-635

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	9:01:00	0:01:00		1118	
	9:02:00	0:02:00		1152	
	9:04:00	0:04:00		1195	
	9:08:00	0:08:00		1227	
	9:15:00	0:15:00		1249	
	9:30:00	0:30:00		1258	
	10:00:00	1:00:00		1270	
	11:00:00	2:00:00		1279	
	13:00:00	4:00:00		1287	
	17:00:00	8:00:00		1294	
04/17/00	9:00:00	24:00:00	191.5	1305	11.82
04/18/00	7:25:00		383.0	1618	14.95
04/19/00	21:20:00		766.1	1957	18.34
04/20/00	16:40:00		383.0	1932	18.09
04/21/00	7:00:00		191.5	1898	17.75
	10:25:00		47.9	1807	16.84

PLATE K-636



Sample	WB-29-322
Depth	10.67 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.2	15.4
Water content, %	29.7	28.3
Sample height, mm	25.4	23.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-637

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	WB-29-322
Sample Depth:	10.7 m

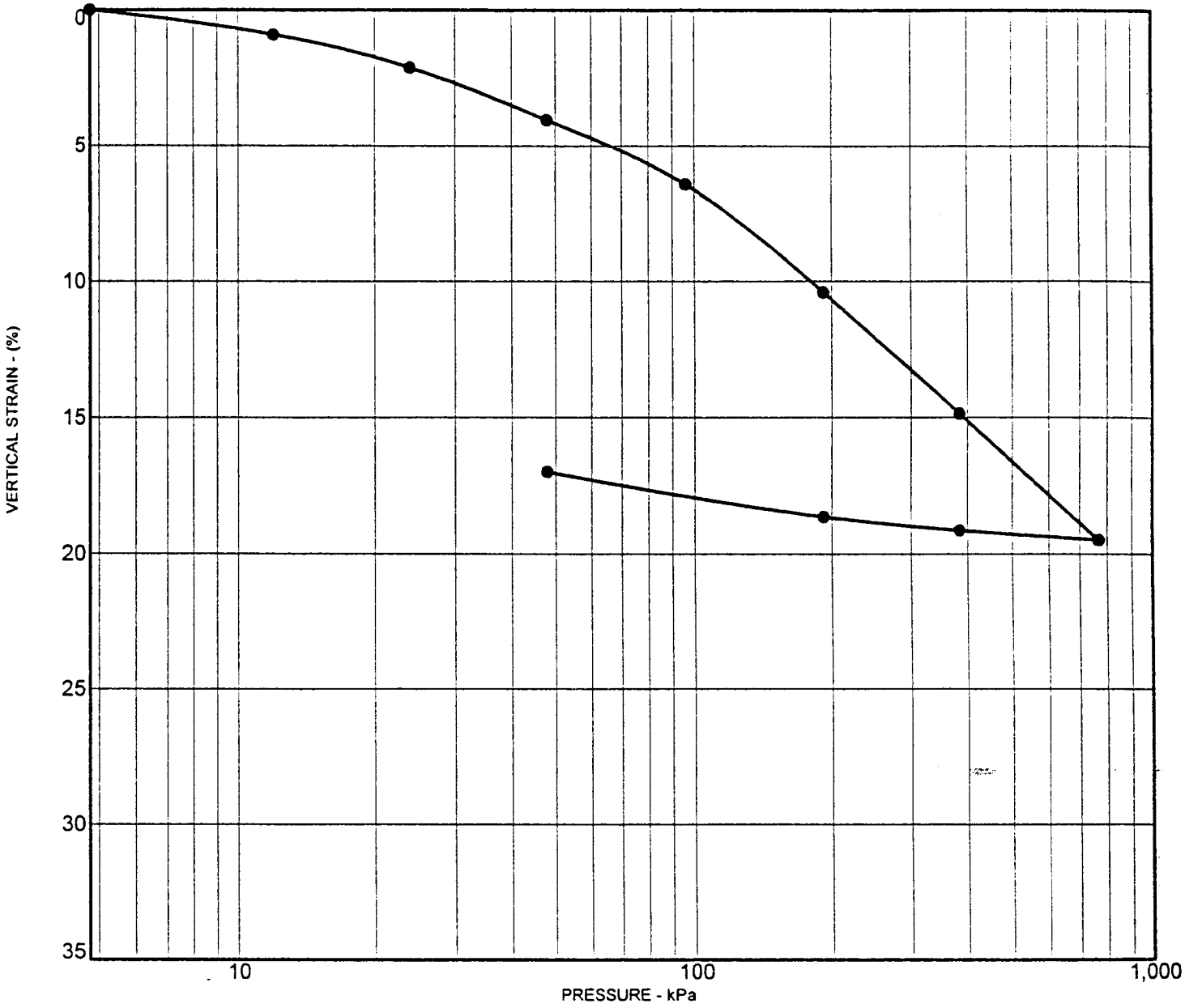
	Before Test (g)	After Test (g)
Wet Wt. + Ring	189.9	
Ring Weight	45.2	
Wet Wt.	144.7	
Wet + Tare		191.8
Dry + Tare		161.3
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.1
Sample Diameter	49.0	

Water added at 6.7 kPa.
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/11/00	15:18:00			0283	
	18:30:00		6.7	0279	-0.04
04/13/00	8:30:00		13.4	0295	0.12
	16:20:00		26.8	0331	0.48
04/14/00	12:15:00		53.6	0397	1.14
04/15/00	7:45:00		107.7	0483	2.00
	17:00:00		215.0	0619	3.36
04/16/00	18:15:00		430.0	0814	5.31
04/17/00	14:30:00		859.9	1322	10.39
04/18/00	7:00:00		430.0	1283	10.00
	12:50:00		215.0	1217	9.34
	16:25:00		53.6	1045	7.62

PLATE K-638



Sample	RB-357
Depth	10.67 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	12.1	14.6
Water content, %	45.6	33.4
Sample height, mm	25.4	21.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-639

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-357
Sample Depth:	10.7 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	178.3	
Ring Weight	45.2	
Wet Wt.	133.1	
Wet + Tare		175.5
Dry + Tare		145
Tare Wt.		8.4

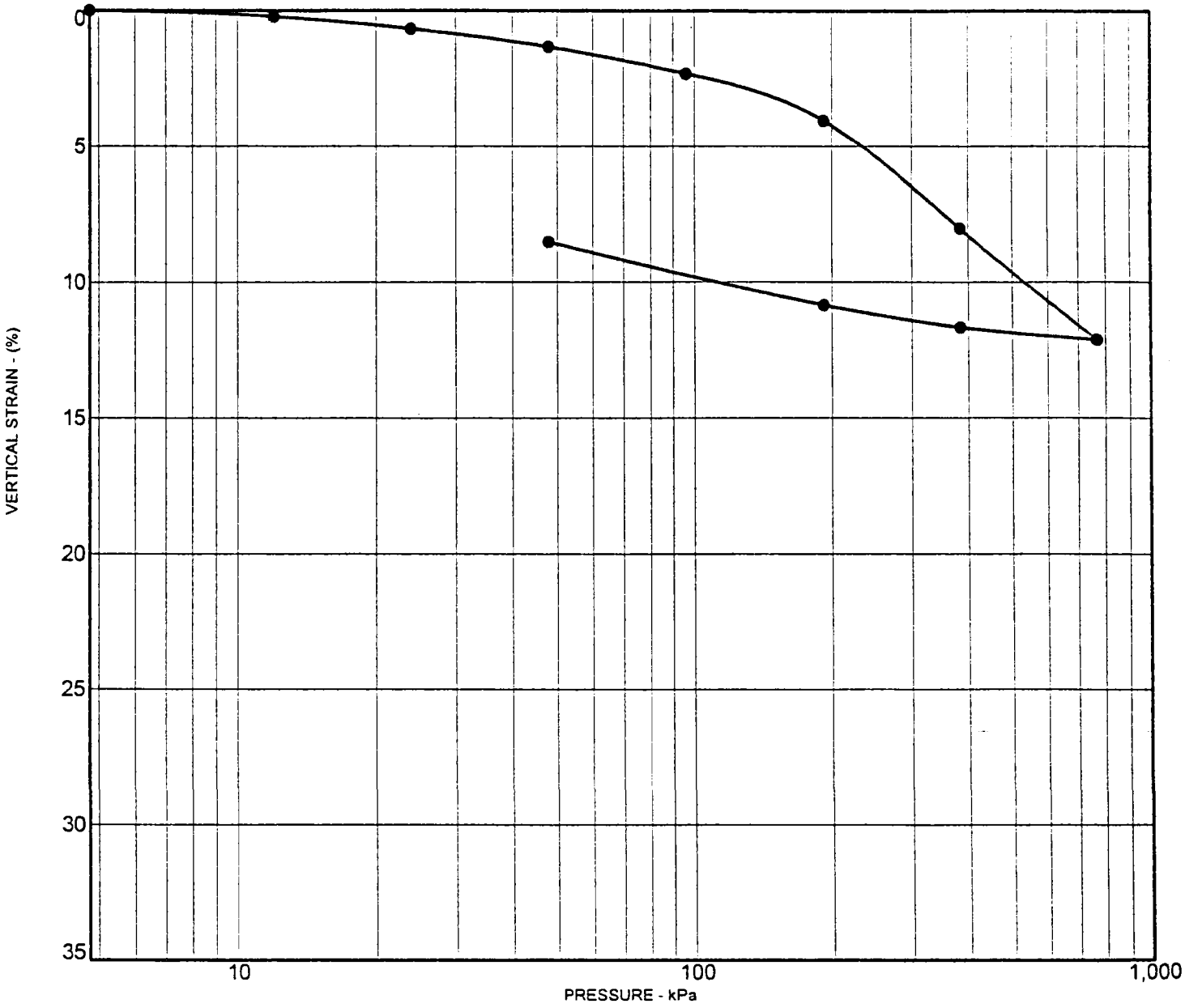
	Before Test (mm)	After Test (mm)
Sample Height	25.4	21.0
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/07/00	17:15:00			0193	
	21:00:00		4.8	0226	0.33
	7:30:00		12.0	0318	1.25
	19:20:00		23.9	0440	2.47
	8:05:00		47.9	0631	4.38
	17:00:00		95.8	0868	6.75
	18:00:00		191.5	1267	10.74
03/12/00	17:00:00		383.0	1712	15.19
03/13/00	18:30:00		766.1	2174	19.81
03/14/00	7:30:00		383.0	2139	19.46
	11:00:00		191.5	2089	18.96
	14:50:00		47.9	1924	17.31

PLATE K-640



Sample	RB-357
Depth	16.76 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	13.6	14.3
Water content, %	36.1	31.0
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

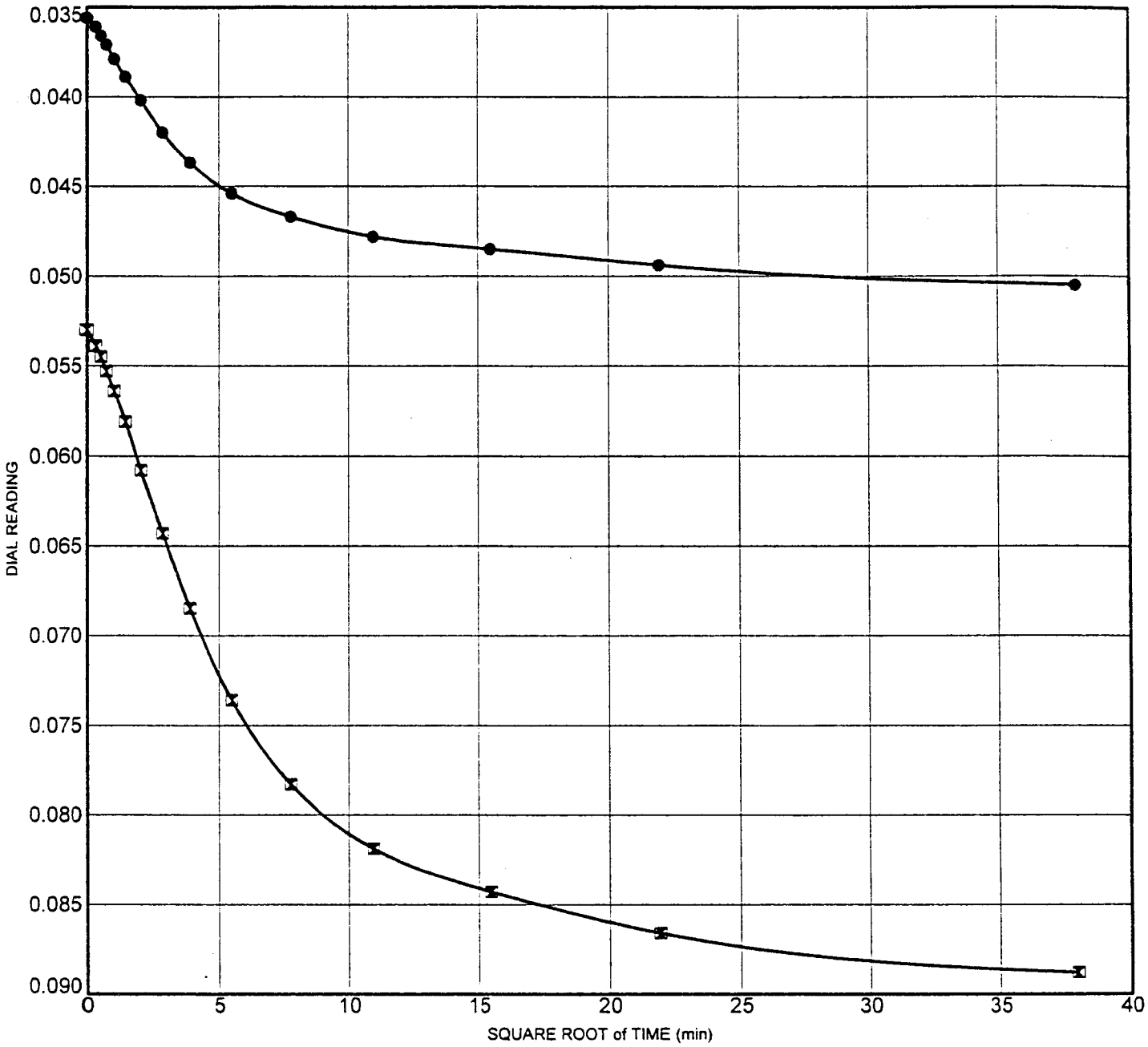
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-641



Sample	RB-357	
Depth	16.8 m	
Pressure (MPa)	● 0.19	⧓ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-642

TIME RATE (RTC) 2-M-B Z003RB.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-357
Sample Depth:	16.8 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	185.5	
Ring Weight	45	
Wet Wt.	140.5	
Wet + Tare		188.7
Dry + Tare		156.7
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	22.5
Sample Diameter	49.0	

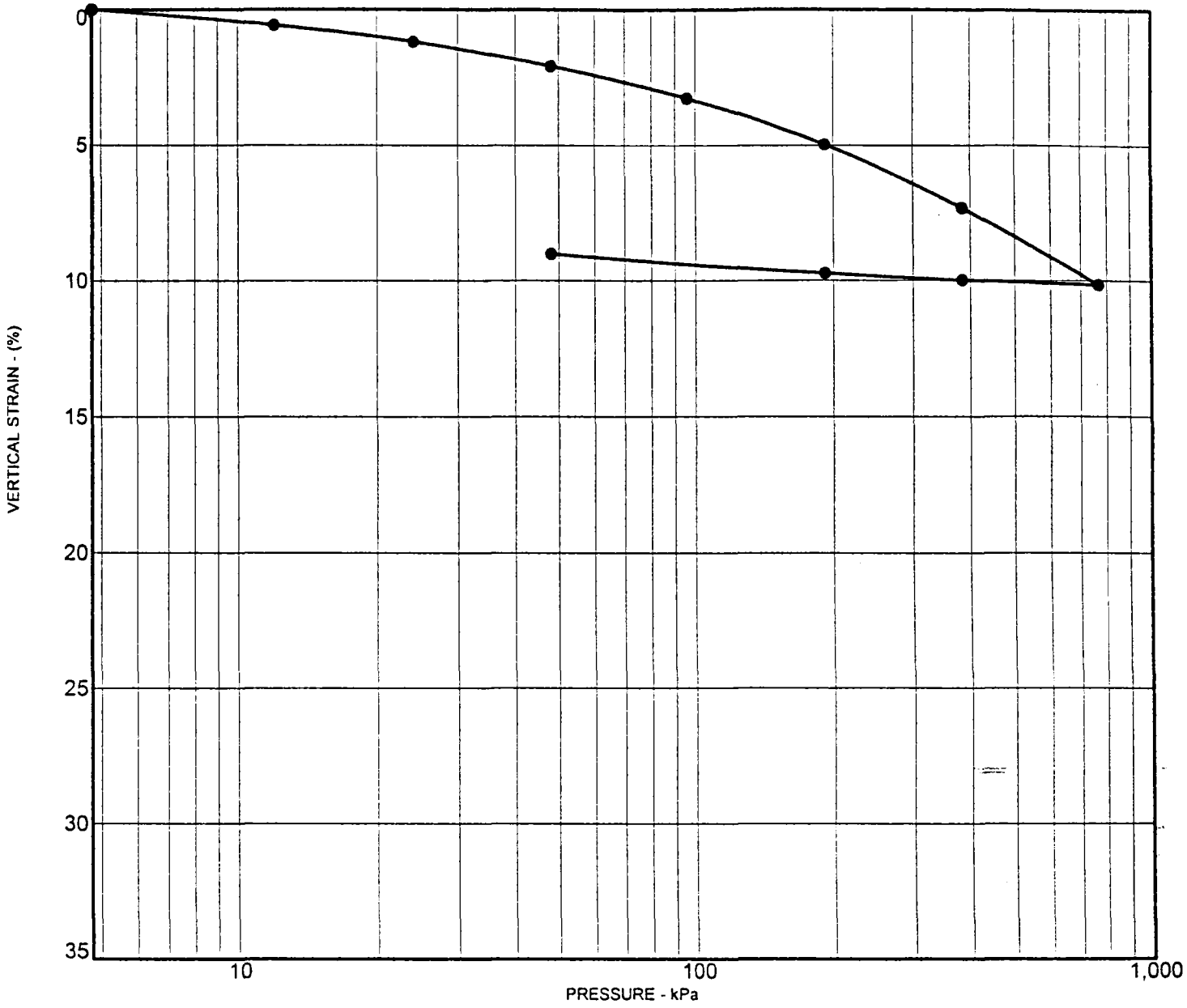
Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/13/00	9:20:00			0161	
	11:40:00		4.8	0100	-0.61
	15:55:00		12.0	0123	-0.38
03/14/00	7:30:00		23.9	0168	0.07
	17:00:00		47.9	0234	0.73
	19:40:00		95.8	0332	1.71
03/15/00	8:00:00	0:00:00	191.5	0356	
	8:00:06	0:00:06		0361	
	8:00:15	0:00:15		0366	
	8:00:30	0:00:30		0371	
	8:01:00	0:01:00		0379	
	8:02:00	0:02:00		0389	
	8:04:00	0:04:00		0402	
	8:08:00	0:08:00		0420	
	8:15:00	0:15:00		0437	
	8:30:00	0:30:00		0454	
	9:00:00	1:00:00		0467	
	10:00:00	2:00:00		0478	
	12:00:00	4:00:00		0485	
	16:00:00	8:00:00		0494	
03/16/00	8:00:00	24:00:00	191.5	0505	3.44
	8:00:00	0:00:00	383.0	0530	3.69
	8:00:06	0:00:06		0539	
	8:00:15	0:00:15		0545	

PLATE K-643

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:00:30	0:00:30		0553	
	8:01:00	0:01:00		0564	
	8:02:00	0:02:00		0581	
	8:04:00	0:04:00		0608	
	8:08:00	0:08:00		0643	
	8:15:00	0:15:00		0685	
	8:30:00	0:30:00		0736	
	9:00:00	1:00:00		0783	
	10:00:00	2:00:00		0819	
	12:00:00	4:00:00		0843	
	16:00:00	8:00:00		0866	
03/17/00	8:00:00	24:00:00		0888	7.27
03/18/00	9:30:00	25:30:00	383.0	0902	7.41
03/19/00	10:00:00		766.1	1313	11.52
	18:00:00		383.0	1267	11.06
03/20/00	13:30:00		191.5	1185	10.24
03/21/00	7:55:00		47.9	0952	7.91



Sample	RB-358
Depth	3.05 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	14.7	16.2
Water content, %	30.7	24.9
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-645

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-358
Sample Depth:	3.0 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	190.9	
Ring Weight	45.2	
Wet Wt.	145.7	
Wet + Tare		192.9
Dry + Tare		165.1
Tare Wt.		8.4

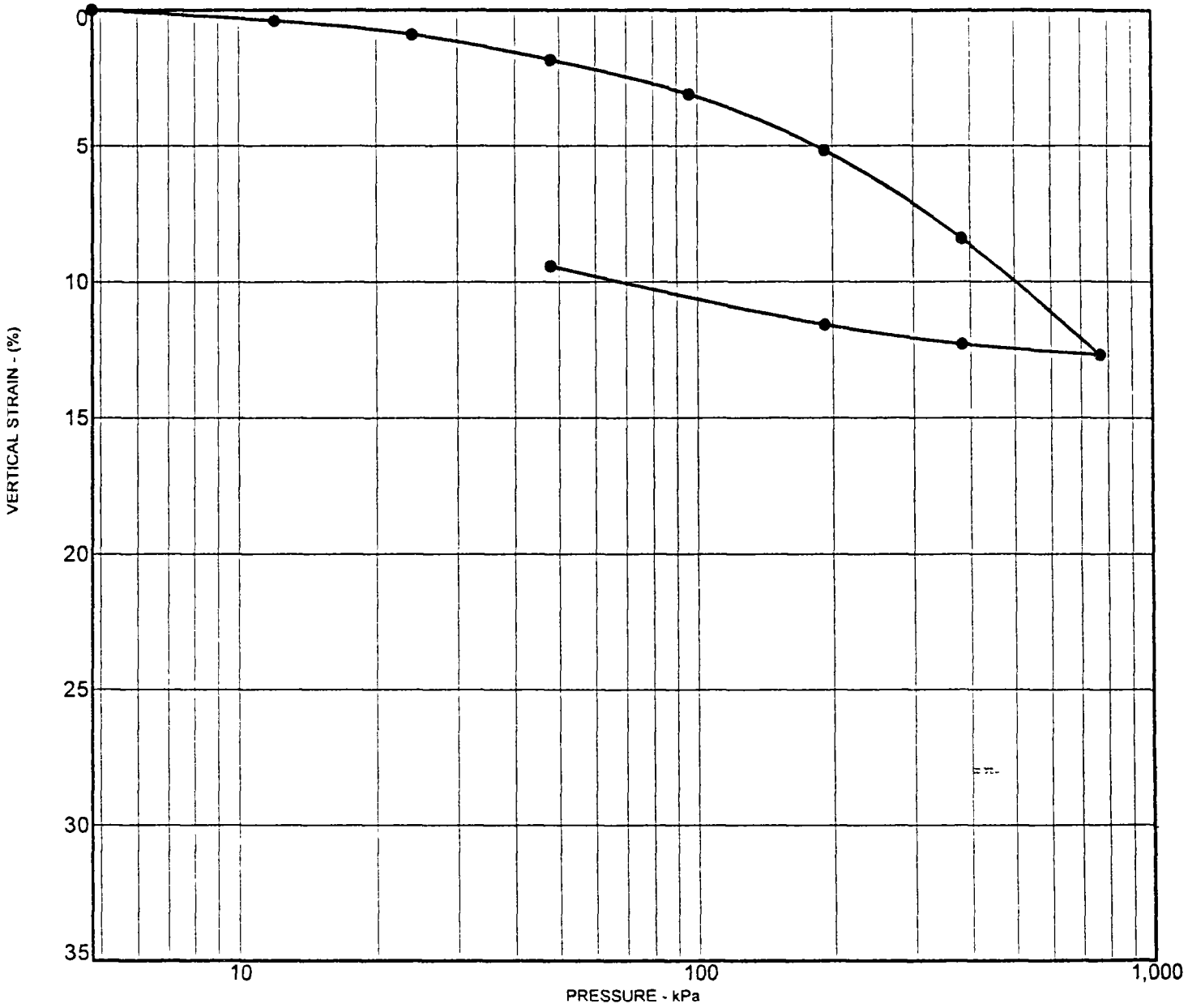
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/18/00	13:15:00			0211	
	15:00:00		4.8	0229	0.18
04/19/00	14:00:00		12.0	0287	0.76
	21:20:00		23.9	0349	1.38
04/20/00	16:40:00		47.9	0438	2.27
04/21/00	7:00:00		95.8	0555	3.44
04/22/00	9:20:00		191.5	0727	5.16
04/23/00	9:30:00		383.0	0962	7.51
04/24/00	7:45:00		766.1	1245	10.34
	13:00:00		383.0	1228	10.17
	19:00:00		191.5	1203	9.92
04/25/00	8:10:00		47.9	1131	9.20

PLATE K-646



Sample	RB-358
Depth	15.24 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.0	14.4
Water content, %	39.1	32.8
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-647

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-358
Sample Depth:	15.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.2	
Ring Weight	45.2	
Wet Wt.	137.0	
Wet + Tare		184.5
Dry + Tare		152.2
Tare Wt.		8.5

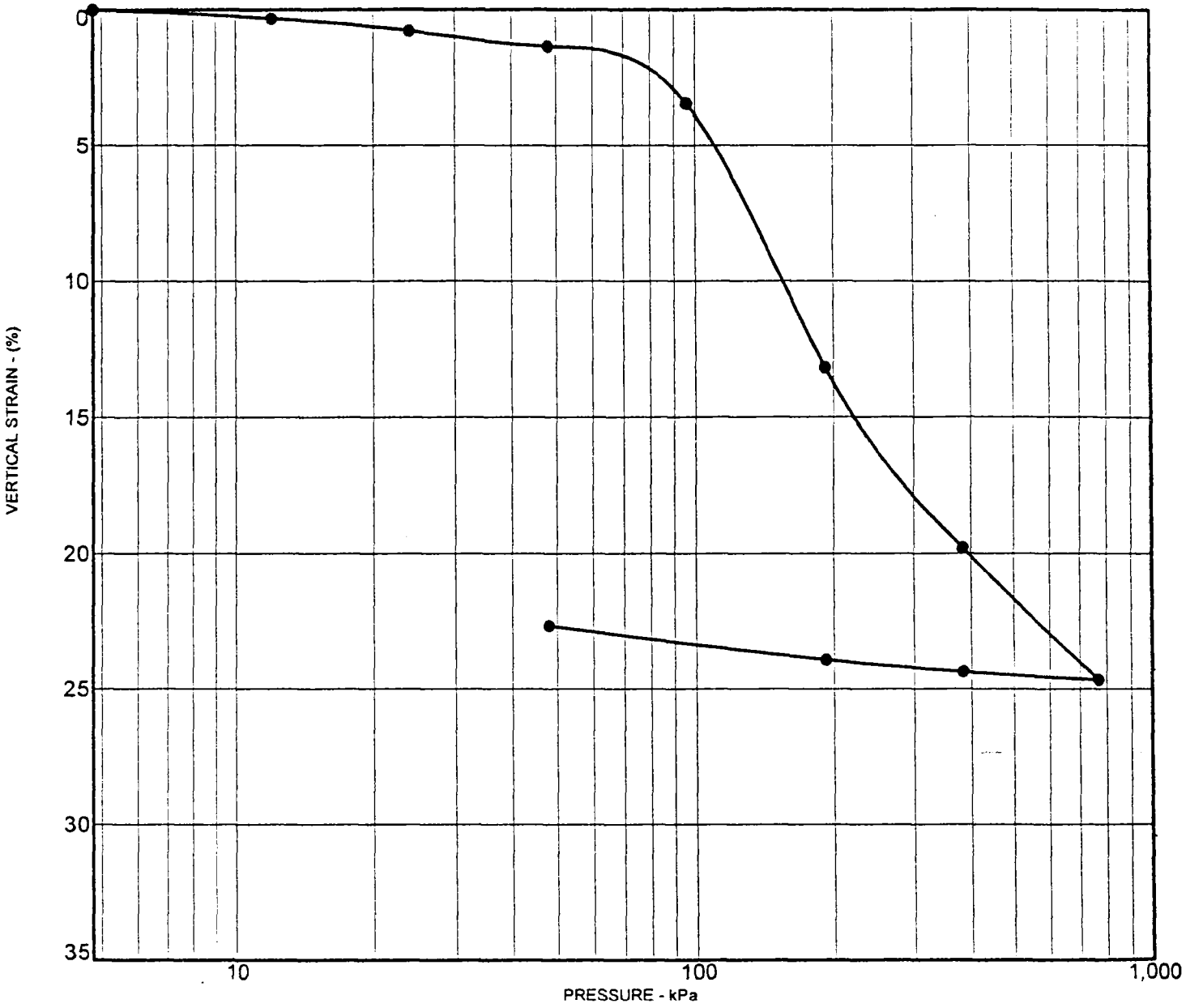
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/18/00	13:30:00			0206	
	15:00:00		4.8	0206	0.00
04/19/00	14:00:00		12.0	0241	0.35
	21:20:00		23.9	0291	0.85
04/20/00	16:40:00		47.9	0385	1.79
04/21/00	7:00:00		95.8	0511	3.05
04/22/00	9:20:00		191.5	0717	5.11
04/23/00	9:30:00		383.0	1041	8.35
04/24/00	7:45:00		766.1	1471	12.65
	13:00:00		383.0	1430	12.24
	19:00:00		191.5	1359	11.53
04/25/00	8:10:00		47.9	1143	9.37

PLATE K-648



Sample	RB-359
Depth	4.57 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	10.8	13.9
Water content, %	55.3	35.5
Sample height, mm	25.4	19.6

KLEINFELDER

PROJECT NO. 35-8163-05

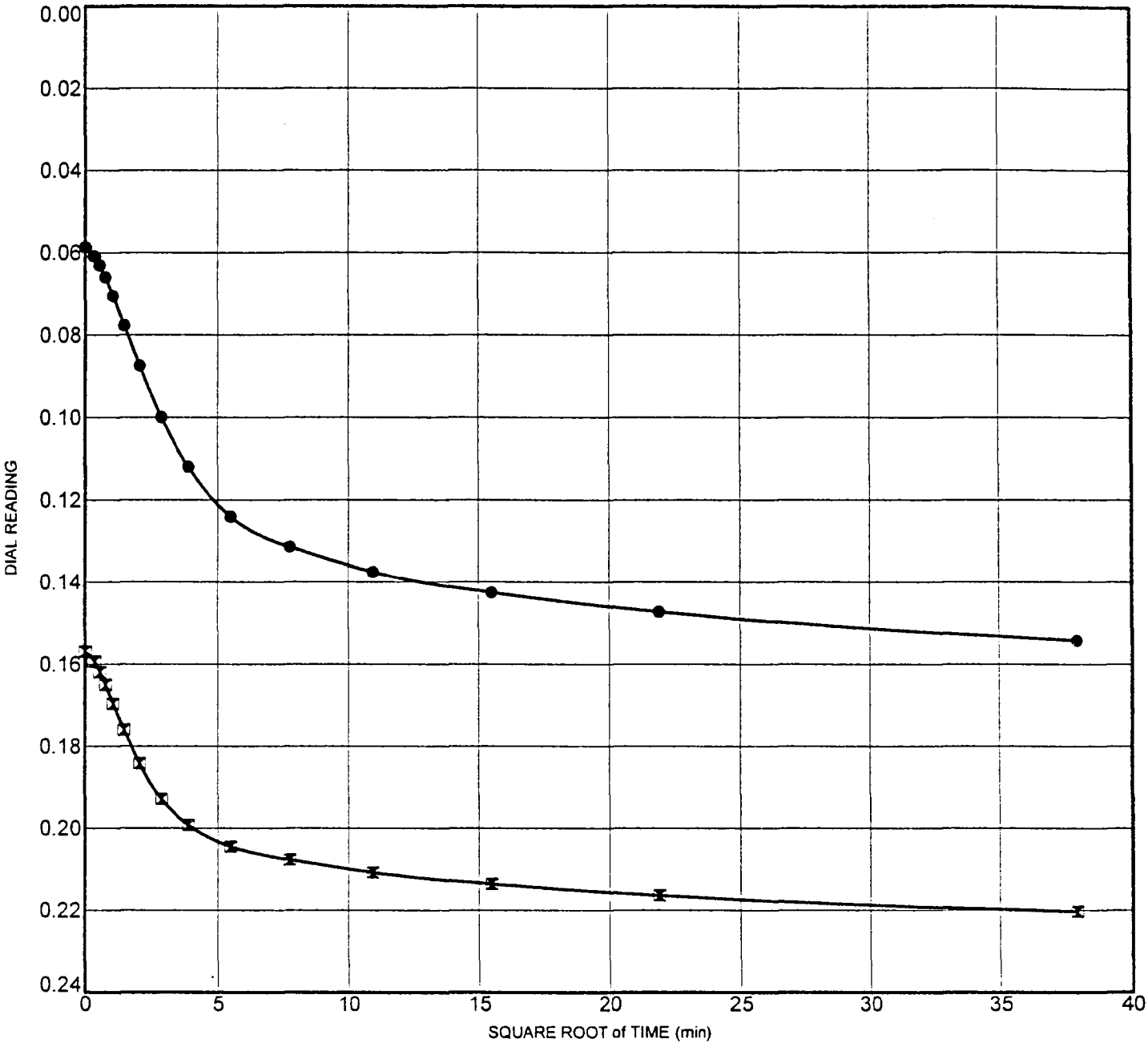
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-649



Sample	RB-359	
Depth	4.6 m	
Pressure (MPa)	● 0.19	⧓ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-650

TIME RATE (RTC) 2-M-B Z003RB.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-359
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	171.7	
Ring Weight	45.1	
Wet Wt.	126.6	
Wet + Tare		163.9
Dry + Tare		135
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	19.1
Sample Diameter	49.0	

Water added at 4.8 kPa.

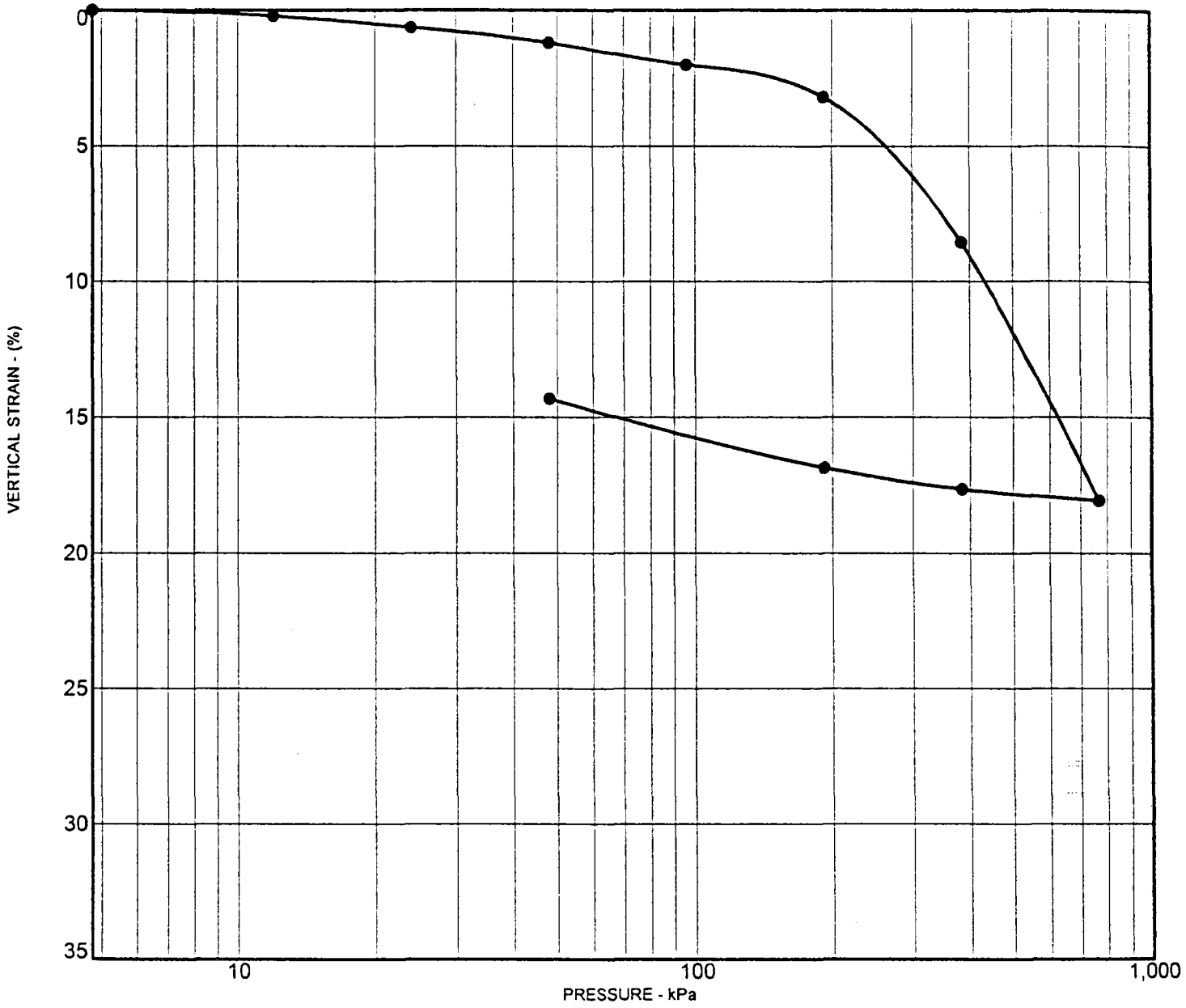
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/28/00	11:55:00			0204	
	13:40:00		4.8	0224	0.20
	17:15:00		12.0	0257	0.53
03/29/00	7:15:00		23.9	0303	0.99
	19:30:00		47.9	0360	1.56
03/31/00	7:05:00		95.8	0569	3.65
	7:15:00	0:00:00	191.5	0587	
	7:15:06	0:00:06		0609	
	7:15:15	0:00:15		0631	
	7:15:30	0:00:30		0660	
	7:16:00	0:01:00		0706	
	7:17:00	0:02:00		0777	
	7:19:00	0:04:00		0875	
	7:23:00	0:08:00		1000	
	7:30:00	0:15:00		1120	
	7:45:00	0:30:00		1241	
	8:15:00	1:00:00		1314	
	9:15:00	2:00:00		1376	
	11:15:00	4:00:00		1426	
	15:15:00	8:00:00		1473	
04/01/00	7:15:00	24:00:00	191.5	1543	13.39
	9:03:00	0:00:00	383.0	1570	13.66
	9:03:06	0:00:06		1594	
	9:03:15	0:00:15		1620	

PLATE K-651

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	9:03:30	0:00:30		1651	
	9:04:00	0:01:00		1697	
	9:05:00	0:02:00		1760	
	9:07:00	0:04:00		1842	
	9:11:00	0:08:00		1929	
	9:18:00	0:15:00		1993	
	9:33:00	0:30:00		2045	
	10:03:00	1:00:00		2077	
	11:03:00	2:00:00		2108	
	13:03:00	4:00:00		2136	
	17:03:00	8:00:00		2164	
04/02/00	9:03:00	24:00:00	383.0	2203	19.99
04/03/00	8:50:00		766.1	2691	24.87
	15:40:00		383.0	2661	24.57
04/04/00	7:00:00		191.5	2617	24.13
	10:45:00		47.9	2492	22.88

PLATE K-652



Sample	RB-359
Depth	19.81 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	11.4	13.3
Water content, %	50.2	40.3
Sample height, mm	25.4	21.8

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-653

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-359
Sample Depth:	19.8 m

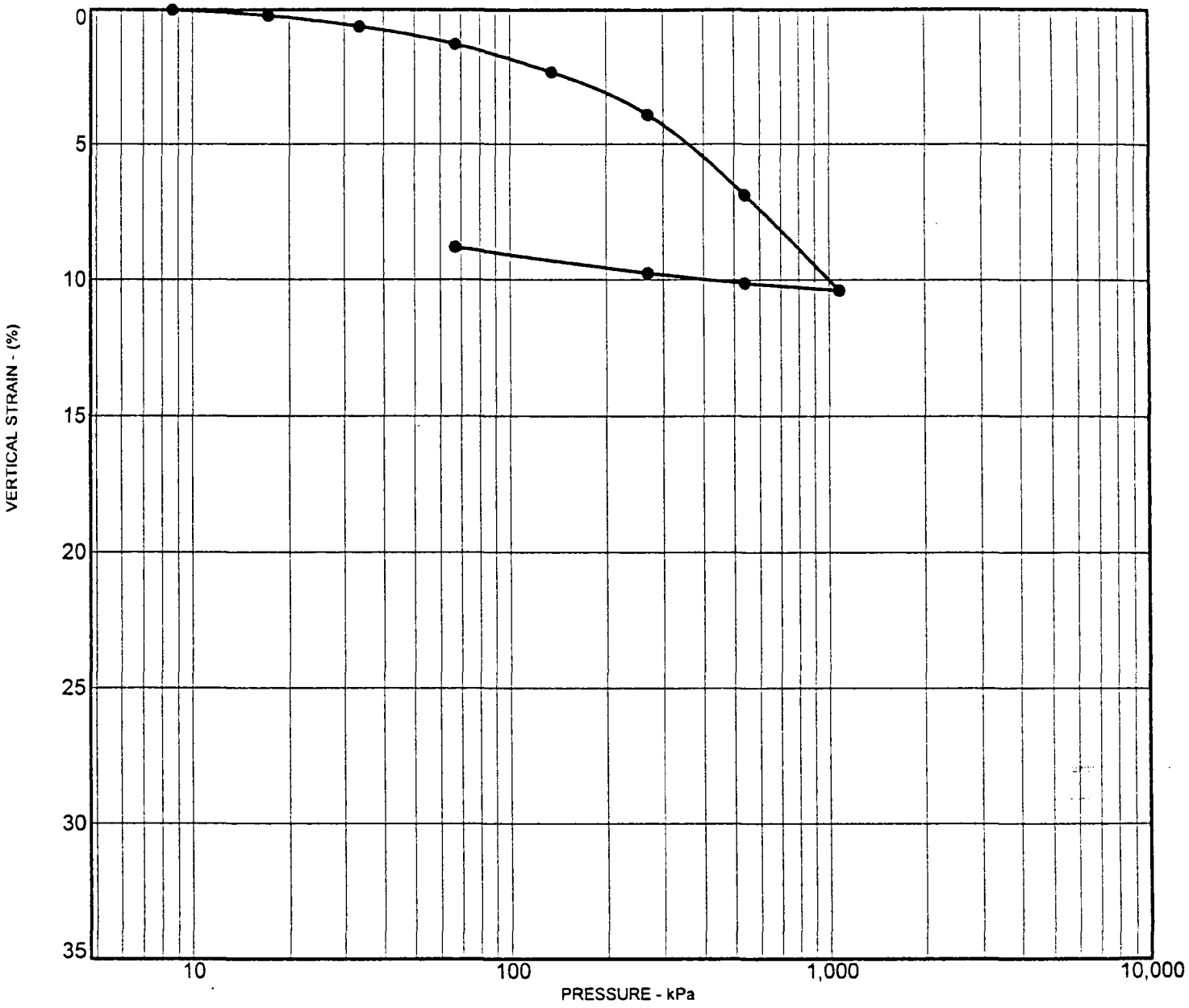
	Before Test (g)	After Test (g)
Wet Wt. + Ring	174.3	
Ring Weight	45.1	
Wet Wt.	129.2	
Wet + Tare		174.2
Dry + Tare		139.5
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.0
Sample Diameter	49.0	

Water added at 4.8 kPa.
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/28/00	12:25:00			0218	
	13:40:00		4.8	0237	0.19
	17:15:00		12.0	0259	0.41
03/29/00	7:18:00		23.9	0301	0.83
	19:00:00		47.9	0358	1.40
03/30/00	10:05:00		95.8	0439	2.21
03/31/00	7:30:00		191.5	0557	3.39
04/01/00	9:00:00		383.0	1094	8.76
04/02/00	10:30:00		766.1	2043	18.25
	18:00:00		383.0	2001	17.83
04/03/00	8:50:00		191.5	1922	17.04
04/04/00	7:15:00		47.9	1669	14.51

PLATE K-654



Sample	RB-360
Depth	10.67 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.1	16.6
Water content, %	27.6	23.6
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-655

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-360
Sample Depth:	10.7 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	191.7	
Ring Weight	46	
Wet Wt.	145.7	
Wet + Tare		195.5
Dry + Tare		168.5
Tare Wt.		8.3

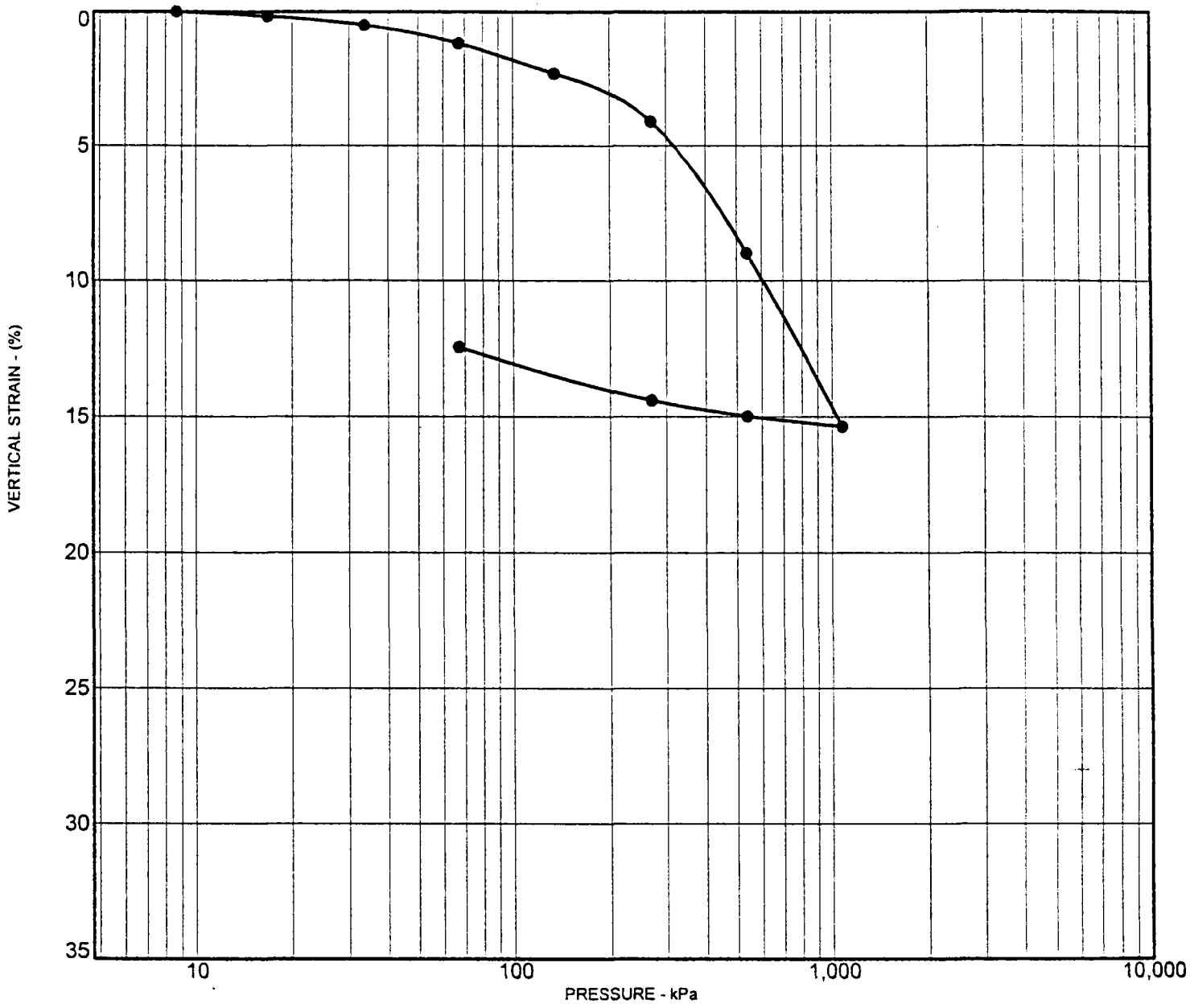
	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.0
Sample Diameter	49.0	

Water added at 8.6 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/21/00	16:30:00			0223	
	19:35:00		8.6	0228	0.05
04/22/00	9:17:00		16.8	0251	0.28
	12:30:00		33.5	0292	0.69
	14:40:00		67.0	0357	1.34
04/23/00	9:30:00		134.5	0462	2.39
	17:10:00		268.6	0621	3.98
04/24/00	14:00:00		537.7	0917	6.94
04/25/00	13:30:00		1075.4	1267	10.44
	15:15:00		537.7	1241	10.18
04/26/00	11:45:00		268.6	1204	9.81
04/27/00	9:50:00		67.0	1109	8.86

PLATE K-656



Sample	RB-360
Depth	22.86 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.1	14.9
Water content, %	38.5	30.9
Sample height, mm	25.4	22.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-657

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-360
Sample Depth:	22.9 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	182.5	
Ring Weight	45.4	
Wet Wt.	137.1	
Wet + Tare		183.5
Dry + Tare		152.9
Tare Wt.		8.5

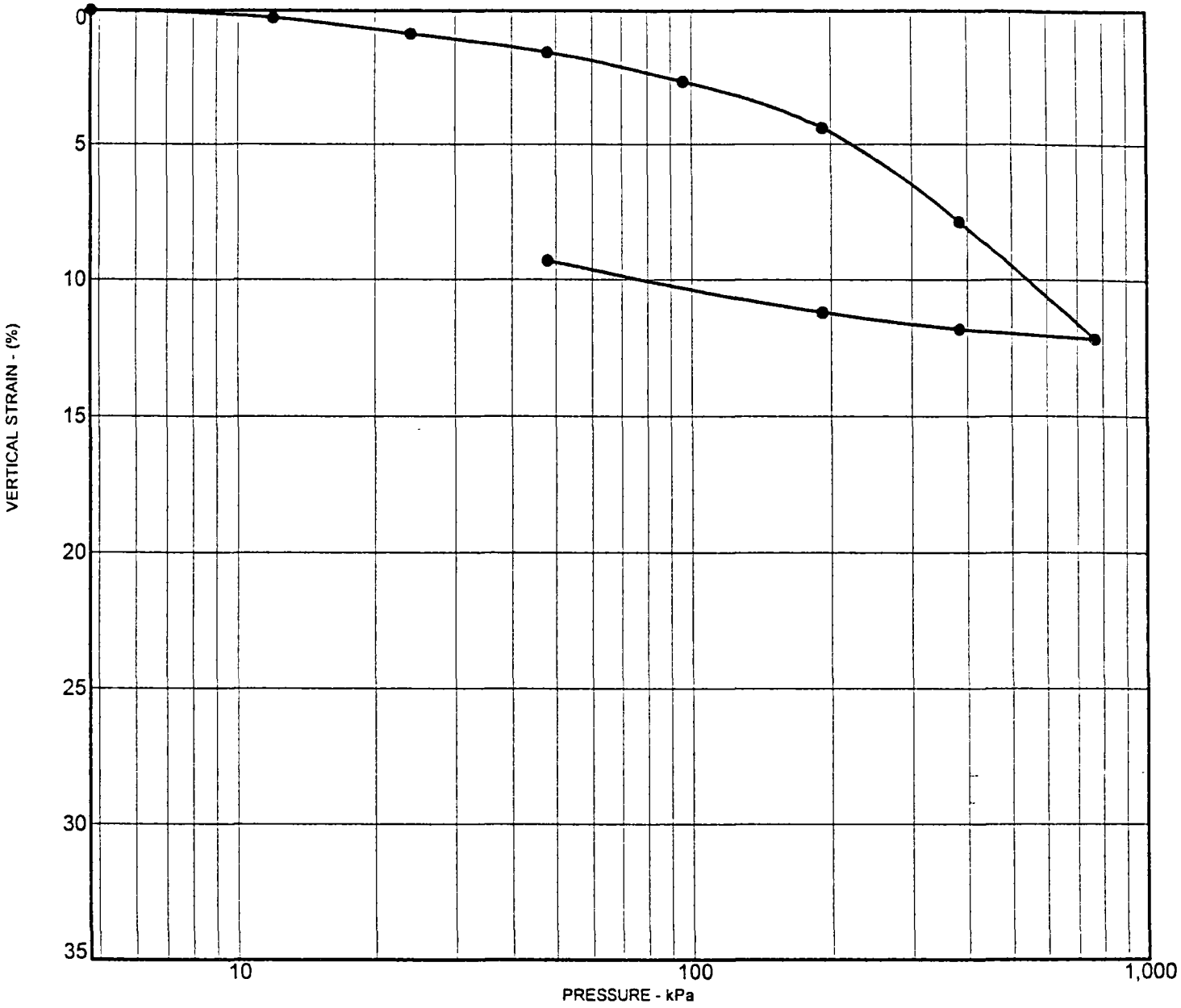
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 8.6 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/21/00	16:50:00			0209	
	17:00:00		8.6	0180	-0.29
04/22/00	9:17:00		16.8	0198	-0.11
	12:30:00		33.5	0231	0.22
	14:40:00		67.0	0299	0.90
04/23/00	9:30:00		134.5	0411	2.02
04/24/00	7:40:00		268.6	0590	3.81
04/25/00	8:25:00		537.7	1079	8.70
04/26/00	11:45:00		1075.4	1716	15.07
04/27/00	7:00:00		537.7	1678	14.69
	17:00:00		268.6	1620	14.11
04/28/00	8:40:00		67.0	1425	12.16

PLATE K-658



Sample	RB-361
Depth	10.67 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.8	15.2
Water content, %	34.9	30.2
Sample height, mm	25.4	23.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-659

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-361
Sample Depth:	10.7 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	186.1	
Ring Weight	44.9	
Wet Wt.	141.2	
Wet + Tare		189.7
Dry + Tare		158.1
Tare Wt.		8.5

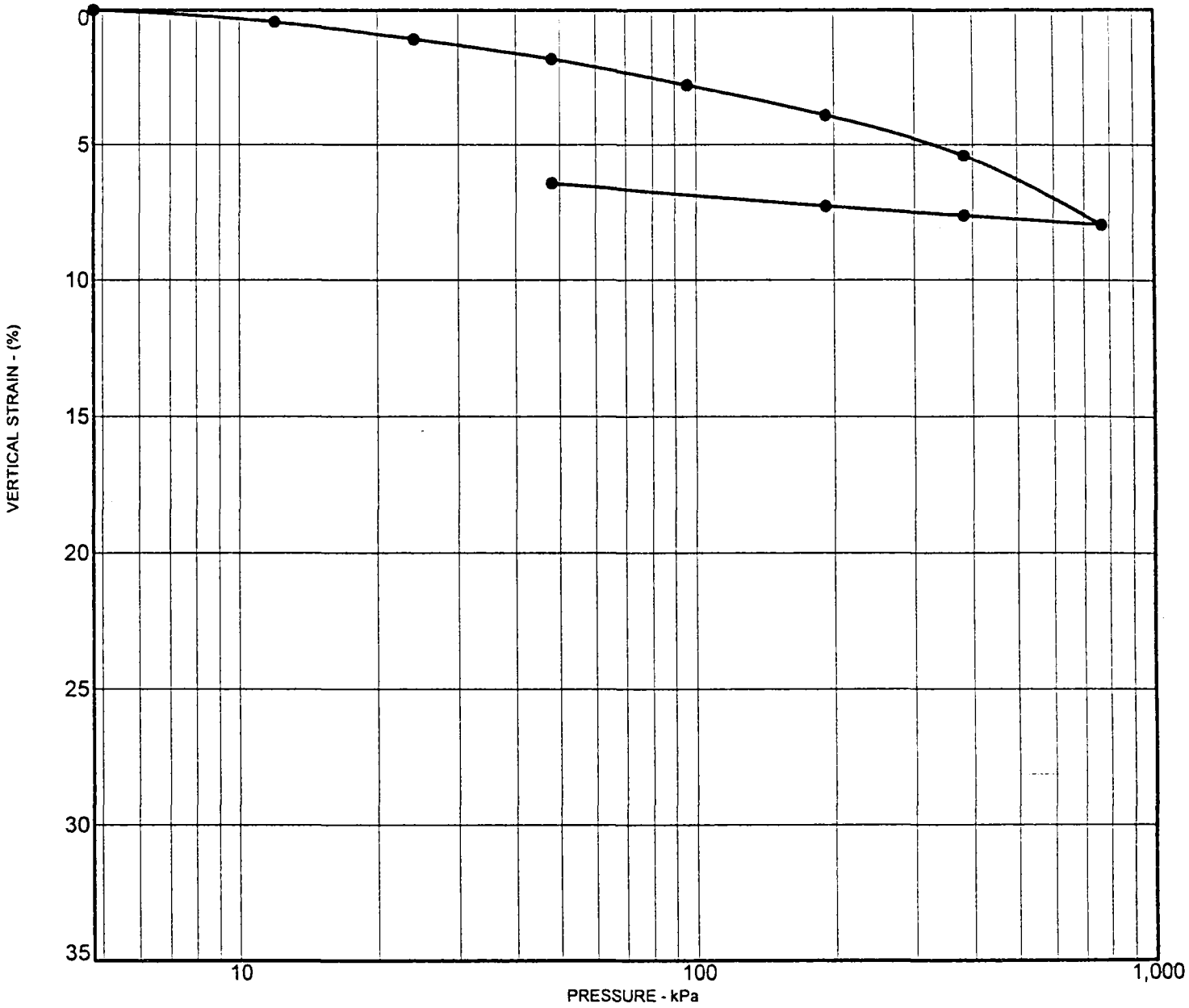
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/04/00	13:50:00			0143	
	15:00:00		4.8	0133	-0.10
	17:00:00		12.0	0161	0.18
04/05/00	7:00:00		23.9	0221	0.78
	13:15:00		47.9	0291	1.48
04/06/00	9:00:00		95.8	0401	2.58
04/07/00	7:00:00		191.5	0574	4.31
04/08/00	8:08:00		383.0	0922	7.79
04/09/00	8:50:00		766.1	1351	12.08
04/10/00	8:50:00		383.0	1315	11.72
	18:35:00		191.5	1253	11.10
04/11/00	14:40:00		47.9	1064	9.21

PLATE K-660



Sample	RB-361
Depth	21.34 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.2	16.2
Water content, %	29.2	25.8
Sample height, mm	25.4	23.9

KLEINFELDER

PROJECT NO. 35-8163-05

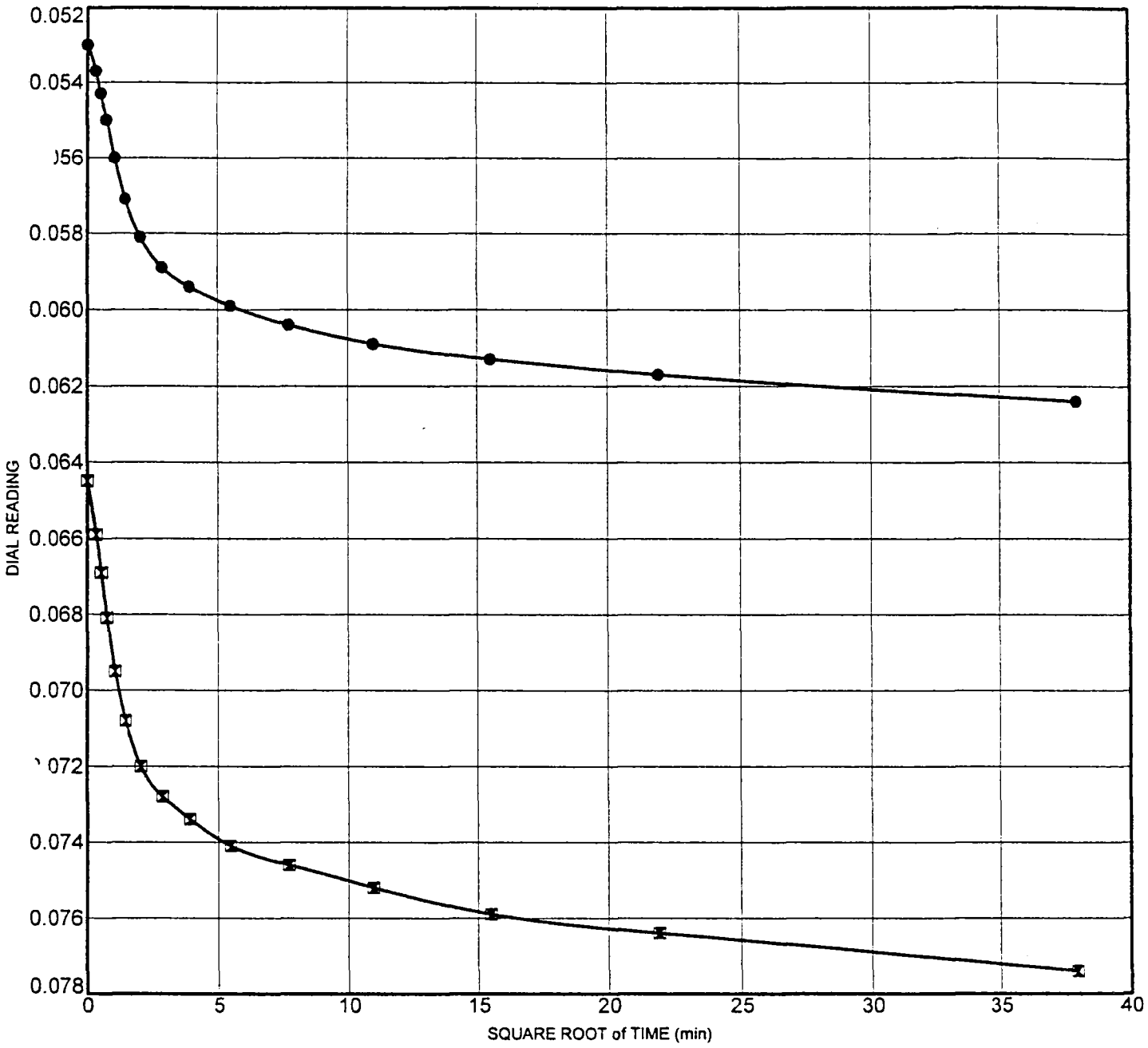
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-661



Sample	RB-361	
Depth	21.3 m	
Pressure (MPa)	● 0.19	⊠ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-662

TIME RATE (RTC) 2-M-B Z003RB.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-361
Sample Depth:	21.3 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	193.6	
Ring Weight	45.2	
Wet Wt.	148.4	
Wet + Tare		198.2
Dry + Tare		168.6
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	23.4
Sample Diameter	49.0	

Water added at 4.8 kPa.

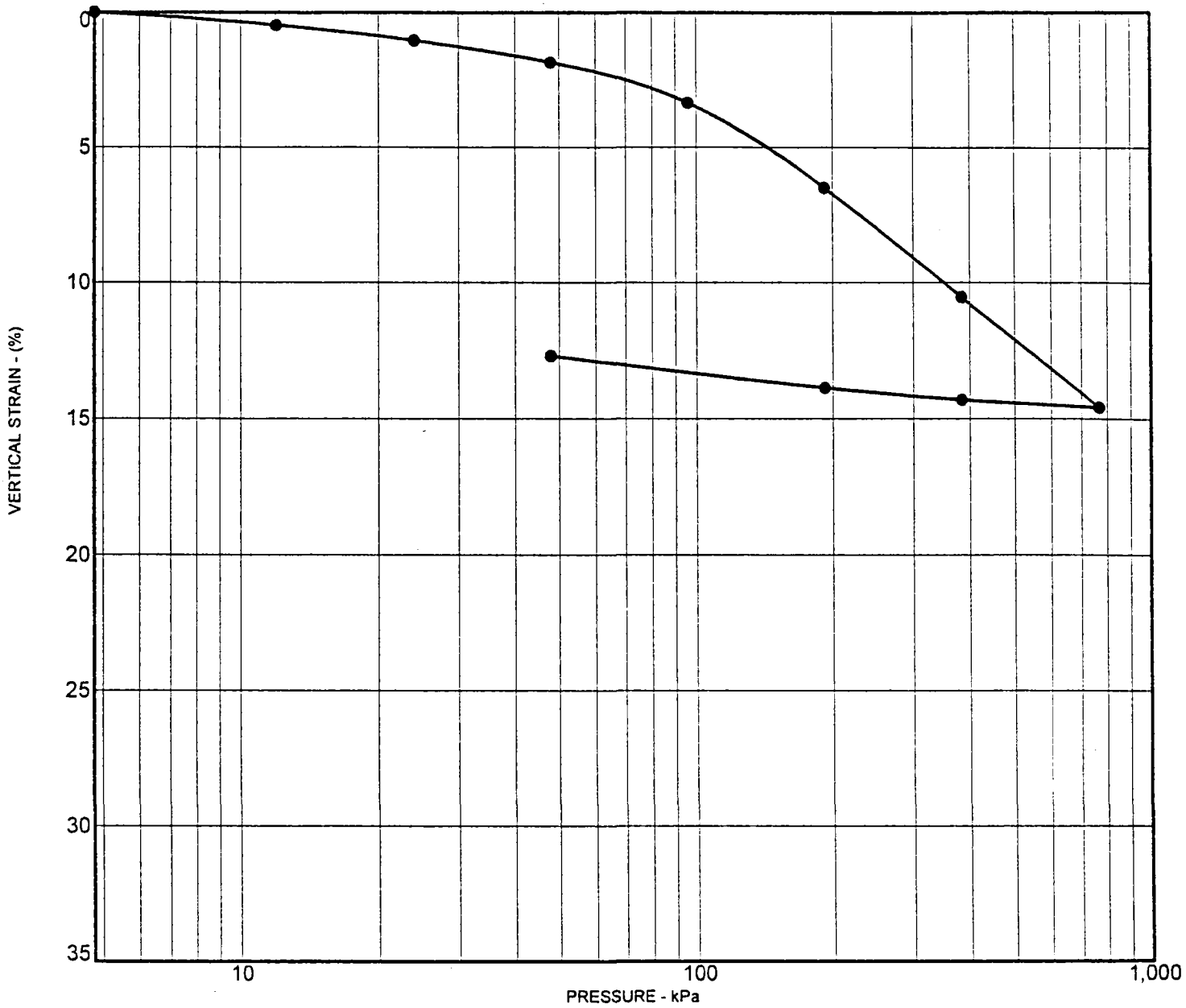
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/04/00	11:45:00			0202	
	15:00:00		4.8	0232	0.30
	17:00:00		12.0	0277	0.75
04/05/00	7:00:00		23.9	0341	1.39
	18:00:00		47.9	0415	2.13
04/07/00	7:00:00		95.8	0512	3.10
	8:00:00	0:00:00	191.5	0530	3.28
	8:00:06	0:00:06		0537	
	8:00:15	0:00:15		0543	
	8:00:30	0:00:30		0550	
	8:01:00	0:01:00		0560	
	8:02:00	0:02:00		0571	
	8:04:00	0:04:00		0581	
	8:08:00	0:08:00		0589	
	8:15:00	0:15:00		0594	
	8:30:00	0:30:00		0599	
	9:00:00	1:00:00		0604	
	10:00:00	2:00:00		0609	
	12:00:00	4:00:00		0613	
	16:00:00	8:00:00		0617	
04/08/00	8:00:00	24:00:00	191.5	0624	4.22
	8:03:00	0:00:00	383.0	0645	4.43
	8:03:06	0:00:06		0659	
	8:03:15	0:00:15		0669	

PLATE K-663

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:03:30	0:00:30		0681	
	8:04:00	0:01:00		0695	
	8:05:00	0:02:00		0708	
	8:07:00	0:04:00		0720	
	8:11:00	0:08:00		0728	
	8:18:00	0:15:00		0734	
	8:33:00	0:30:00		0741	
	9:03:00	1:00:00		0746	
	10:03:00	2:00:00		0752	
	12:03:00	4:00:00		0759	
	16:03:00	8:00:00		0764	
04/09/00	8:03:00	24:00:00	383.0	0974	7.72
04/10/00	8:50:00		766.1	1028	8.26
	18:35:00		383.0	0996	7.94
04/11/00	12:25:00		191.5	0961	7.59
	16:30:00		47.9	0876	6.74

PLATE K-664



Sample	RB-368
Depth	4.57 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.4	15.4
Water content, %	37.3	29.3
Sample height, mm	25.4	22.1

KLEINFELDER

PROJECT NO. 35-8163-05

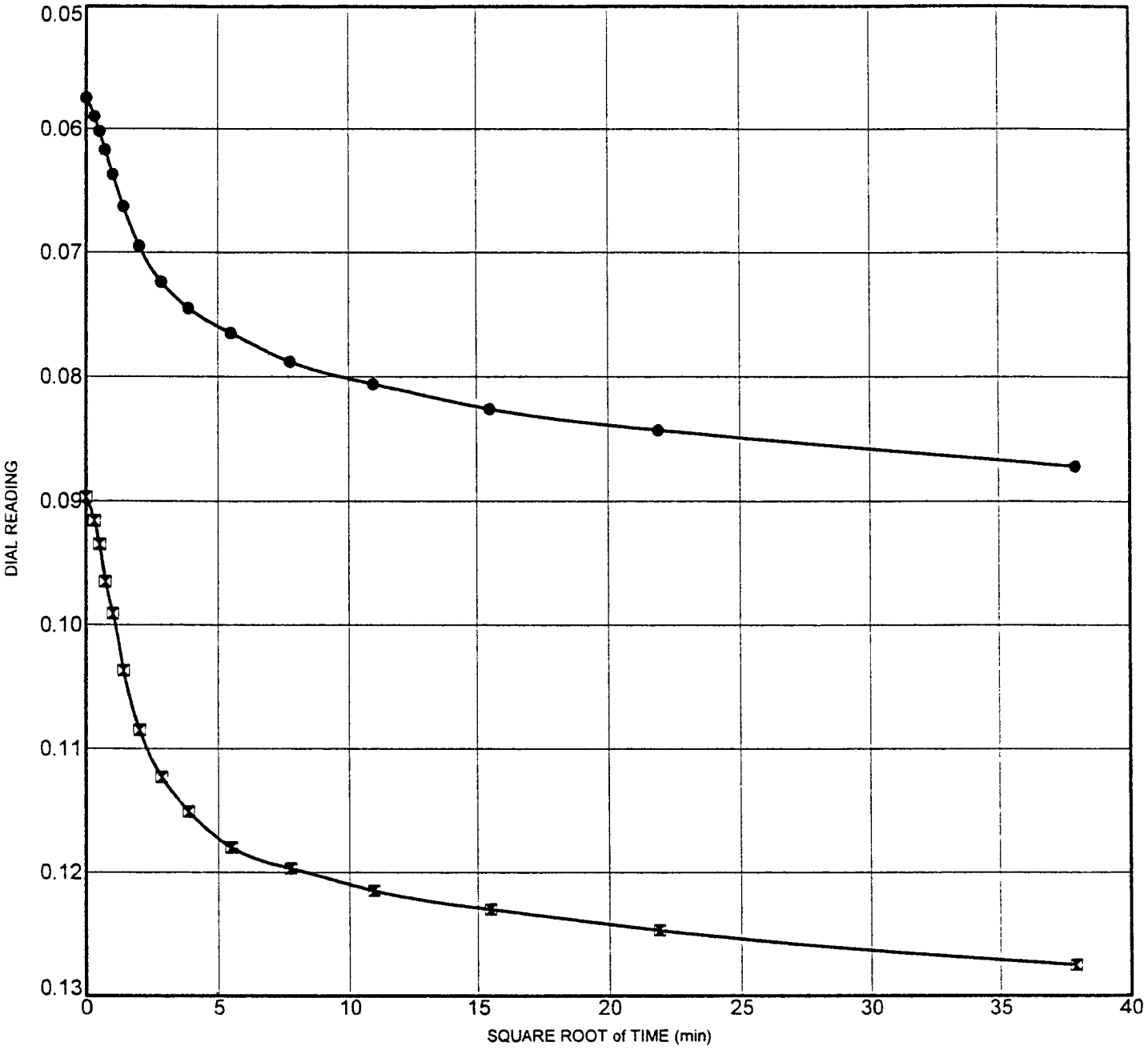
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-697



Sample	RB-368	
Depth	4.6 m	
Pressure (MPa)	● 0.19	⊠ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-698

TIME RATE (RTC) 2-M-B Z003RB.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-368
Sample Depth:	4.6 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	184.6	
Ring Weight	45.1	
Wet Wt.	139.5	
Wet + Tare		185
Dry + Tare		155.2
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	21.7
Sample Diameter	49.0	

Water added at 4.8 kPa.

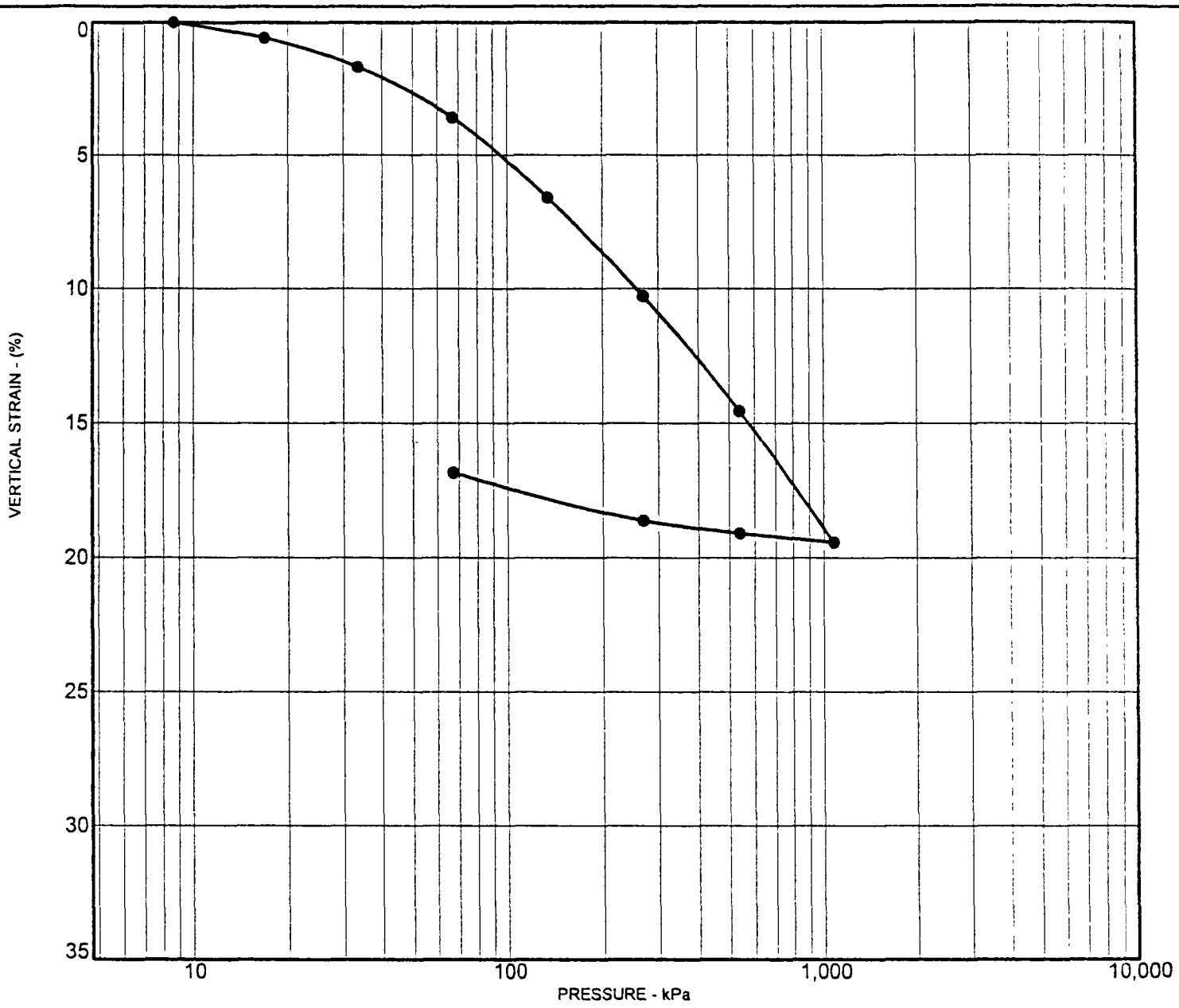
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/28/00	8:50:00			0196	
	10:55:00		4.8	0221	0.25
	17:15:00		12.0	0269	0.73
03/29/00	7:20:00		23.9	0326	1.30
	19:20:00		47.9	0407	2.11
	7:00:00		95.8	0557	3.61
03/30/00	7:08:00	0:00:00	191.5	0575	3.79
	7:08:06	0:00:06		0590	
	7:08:15	0:00:15		0602	
	7:08:30	0:00:30		0617	
	7:09:00	0:01:00		0637	
	7:10:00	0:02:00		0663	
	7:12:00	0:04:00		0695	
	7:16:00	0:08:00		0724	
	7:23:00	0:15:00		0745	
	7:38:00	0:30:00		0765	
	8:08:00	1:00:00		0788	
	9:08:00	2:00:00		0806	
	11:08:00	4:00:00		0826	
	15:08:00	8:00:00		0843	
04/01/00	7:08:00	24:00:00	191.5	0872	6.76
	8:58:00	0:00:00	383.0	0897	7.01
	8:58:06	0:00:06		0916	
	8:58:15	0:00:15		0935	

PLATE K-699

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:58:30	0:00:30		0965	
	8:59:00	0:01:00		0991	
	9:00:00	0:02:00		1037	
	9:02:00	0:04:00		1085	
	9:06:00	0:08:00		1123	
	9:13:00	0:15:00		1151	
	9:28:00	0:30:00		1180	
	9:58:00	1:00:00		1197	
	10:58:00	2:00:00		1215	
	12:58:00	4:00:00		1230	
	16:58:00	8:00:00		1247	
04/02/00	8:58:00	24:00:00	383.0	1275	10.79
04/03/00	8:50:00		766.1	1680	14.84
	15:40:00		383.0	1652	14.56
04/04/00	7:00:00		191.5	1608	14.12
	10:45:00		47.9	1491	12.95

PLATE K-700



Sample	RB-368
Depth	13.72 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.0	15.6
Water content, %	39.2	28.7
Sample height, mm	25.4	21.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-701

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-368
Sample Depth:	13.7 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	181.8	
Ring Weight	45.2	
Wet Wt.	136.6	
Wet + Tare		180
Dry + Tare		151.8
Tare Wt.		8.5

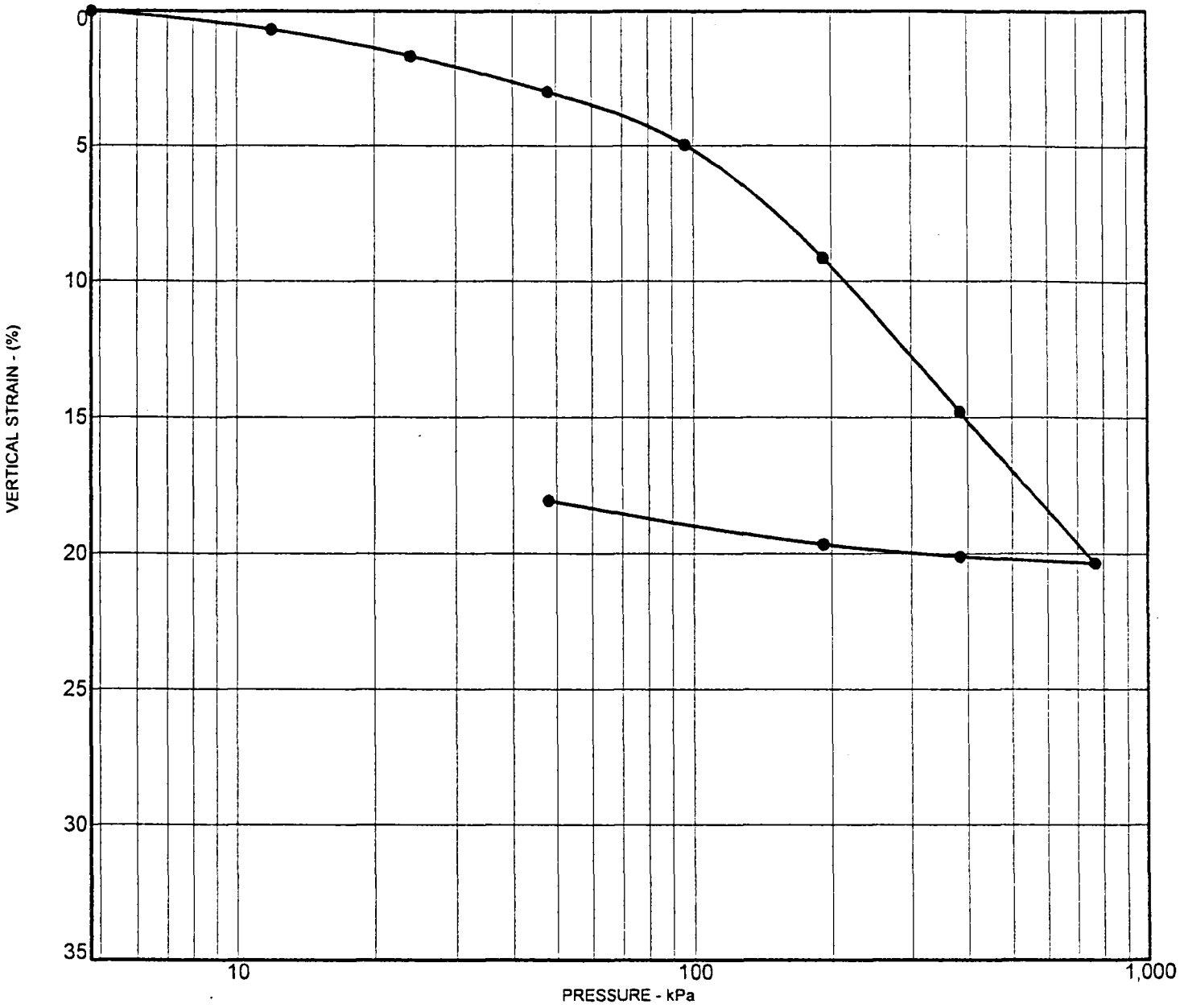
	Before Test (mm)	After Test (mm)
Sample Height	25.4	26.0
Sample Diameter	49.0	

Water added at 8.6 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/27/00	16:55:00			0230	
	19:00:00		8.6	0235	0.05
03/28/00	8:20:00		16.8	0294	0.64
	13:40:00		33.5	0405	1.75
	18:30:00		67.0	0596	3.66
03/29/00	13:30:00		134.5	0896	6.66
03/30/00	11:40:00		268.6	1263	10.33
03/31/00	7:00:00		537.7	1690	14.60
04/01/00	17:00:00		1075.4	2178	19.48
	10:30:00		537.7	2144	19.14
	18:00:00		268.6	2097	18.67
04/04/00	7:30:00		67.0	1919	16.89

PLATE K-702



Sample	RB-369
Depth	1.52 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	11.5	14.0
Water content, %	47.9	35.2
Sample height, mm	25.4	20.8

KLEINFELDER

PROJECT NO. 35-8163-05

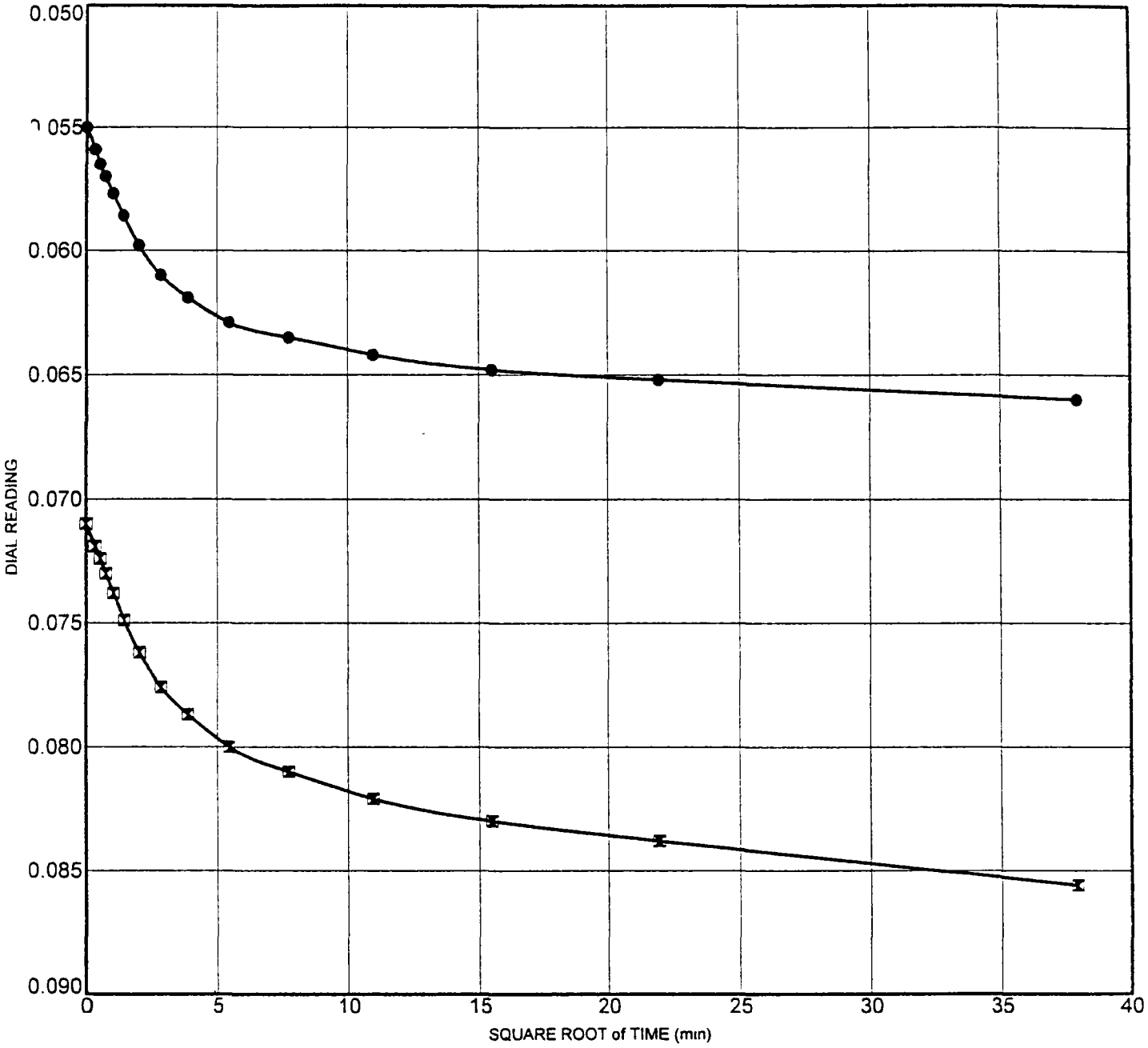
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-703



Sample	RB-369	
Depth	1.5 m	
Pressure (MPa)	● 0.05	⊠ 0.10
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-704

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-369
Sample Depth:	1.5 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	173.2	
Ring Weight	44.5	
Wet Wt.	128.7	
Wet + Tare		170.5
Dry + Tare		139.9
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	19.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

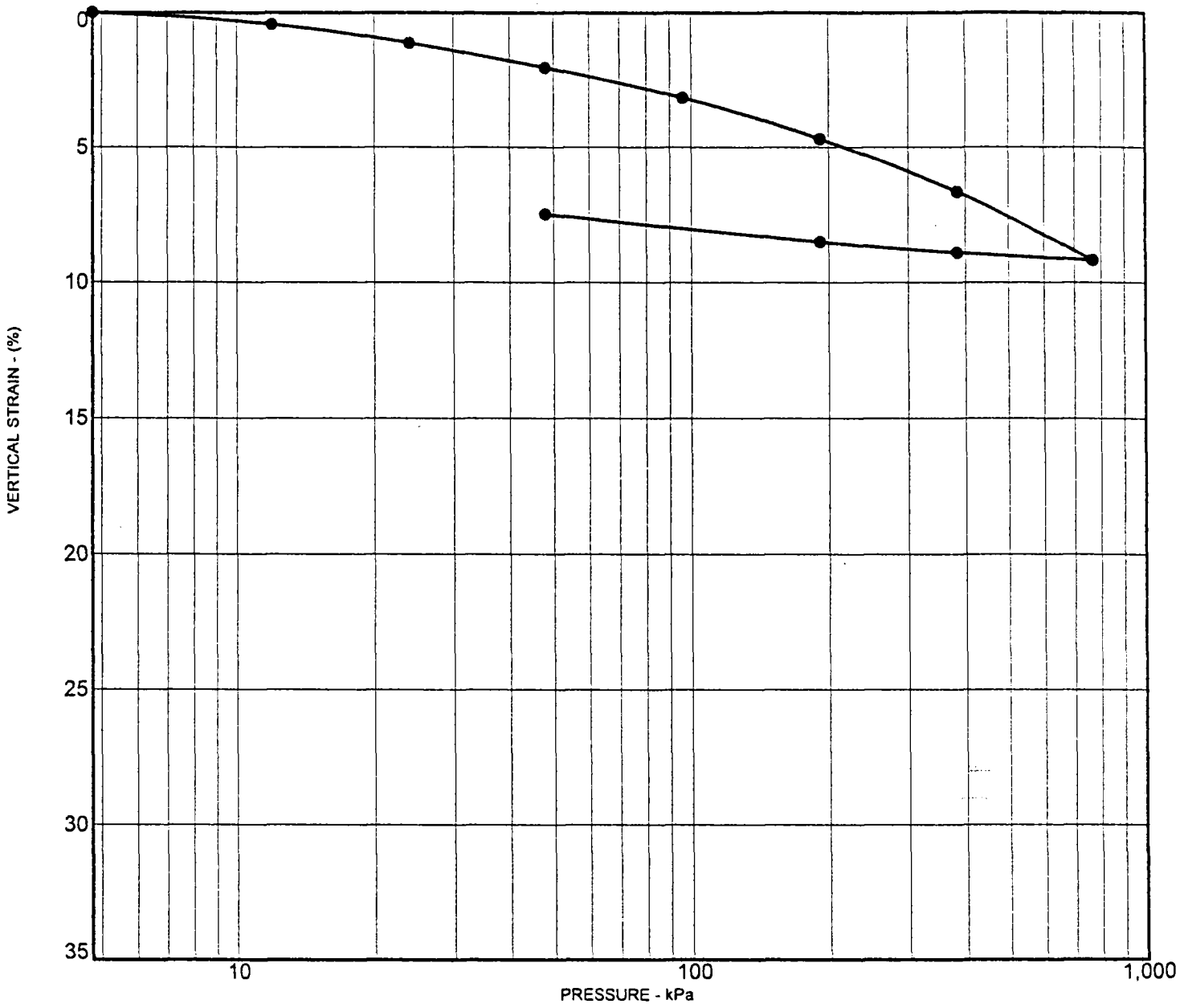
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/08/00	9:00:00			0162	
	12:40:00		4.8	0359	1.97
04/09/00	8:45:00		12.0	0429	2.67
04/11/00	14:20:00		23.9	0528	3.66
	14:33:00	0:00:00	47.9	0550	3.88
	14:33:06	0:00:06		0559	
	14:33:15	0:00:15		0565	
	14:33:30	0:00:30		0570	
	14:34:00	0:01:00		0577	
	14:35:00	0:02:00		0586	
	14:37:00	0:04:00		0598	
	14:41:00	0:08:00		0610	
	14:48:00	0:15:00		0619	
	15:03:00	0:30:00		0629	
	15:33:00	1:00:00		0635	
	16:33:00	2:00:00		0642	
	18:33:00	4:00:00		0648	
	22:33:00	8:00:00		0652	
04/12/00	14:33:00	24:00:00	47.9	0660	4.98
04/14/00	7:54:00	0:00:00	95.8	0710	5.48
	7:54:06	0:00:06		0719	
	7:54:15	0:00:15		0724	
	7:54:30	0:00:30		0730	
	7:55:00	0:01:00		0738	

PLATE K-705

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	7:56:00	0:02:00		0749	
	7:58:00	0:04:00		0762	
	8:02:00	0:08:00		0776	
	8:09:00	0:15:00		0787	
	8:24:00	0:30:00		0800	
	8:54:00	1:00:00		0810	
	9:54:00	2:00:00		0821	
	11:54:00	4:00:00		0830	
	15:54:00	8:00:00		0838	
04/15/00	7:54:00	24:00:00	95.8	0856	6.94
04/16/00	14:25:00		191.5	1274	11.12
04/17/00	7:00:00		383.0	1839	16.77
04/18/00	7:25:00		383.0	2394	22.32
	11:45:00		383.0	2370	22.08
	14:00:00		191.5	2325	21.63
04/19/00	15:35:00		47.9	2165	20.03

PLATE K-706



Sample	RB-369
Depth	16.76 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.3	16.5
Water content, %	27.6	24.8
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-707

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-369
Sample Depth:	16.8 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	192.8	
Ring Weight	45.2	
Wet Wt.	147.6	
Wet + Tare		198.1
Dry + Tare		169.4
Tare Wt.		8.5

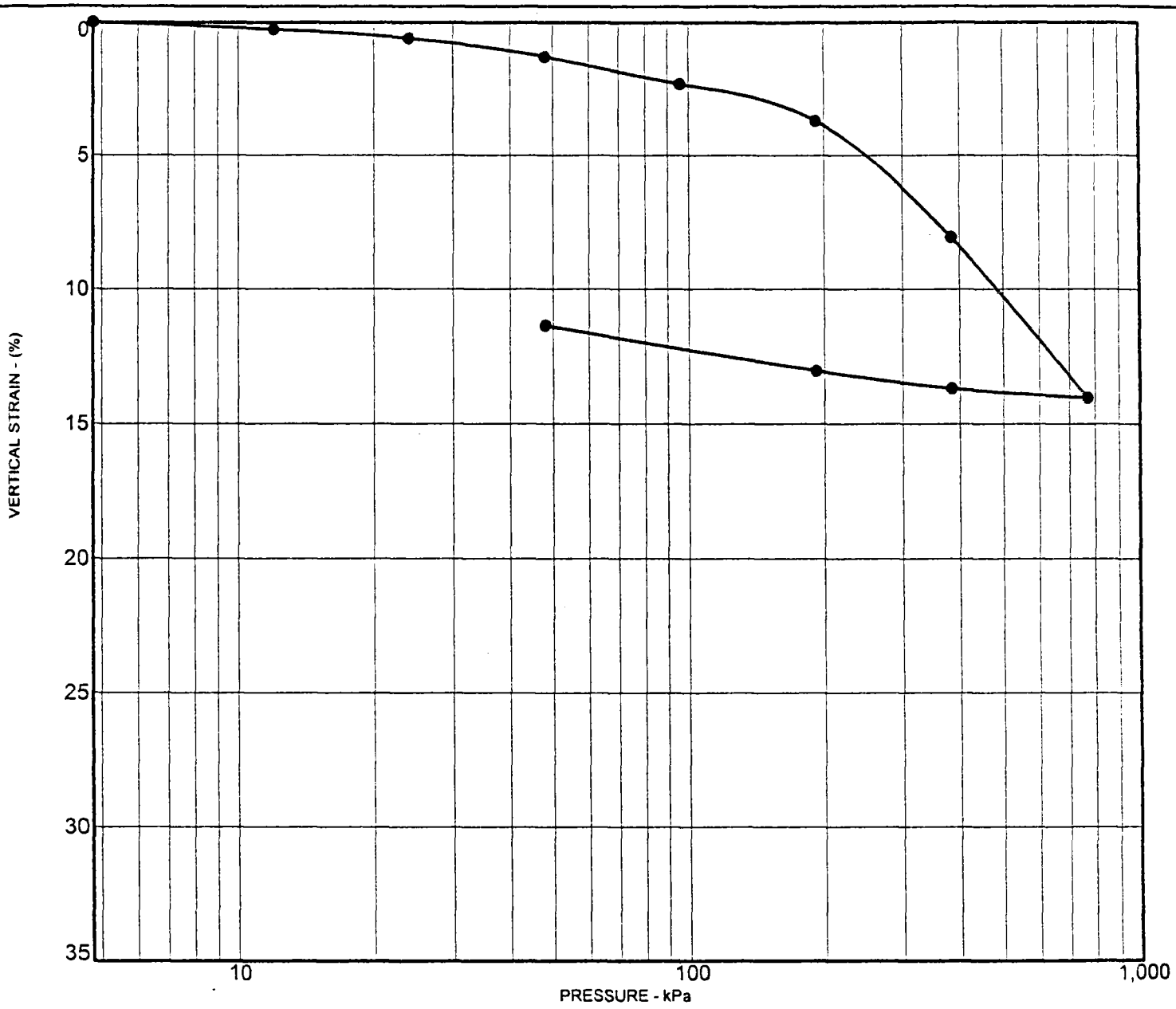
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/08/00	9:20:00			0176	
	10:10:00		4.8	0171	-0.05
	16:10:00		12.0	0215	0.39
04/09/00	8:45:00		23.9	0285	1.09
04/10/00	8:50:00		47.9	0377	2.01
	18:35:00		95.8	0489	3.13
04/11/00	12:25:00		191.5	0641	4.65
04/12/00	8:30:00		383.0	0838	6.62
04/13/00	17:45:00		766.1	1089	9.13
04/14/00	14:55:00		383.0	1062	8.86
04/15/00	18:15:00		191.5	1022	8.46
04/17/00	7:00:00		47.9	0920	7.44

PLATE K-708



Sample	RB-370
Depth	18.29 m
Classification	ML

	Initial	Final
Dry density, kN/m^3	12.4	14.0
Water content, %	43.3	36.1
Sample height, mm	25.4	22.6

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

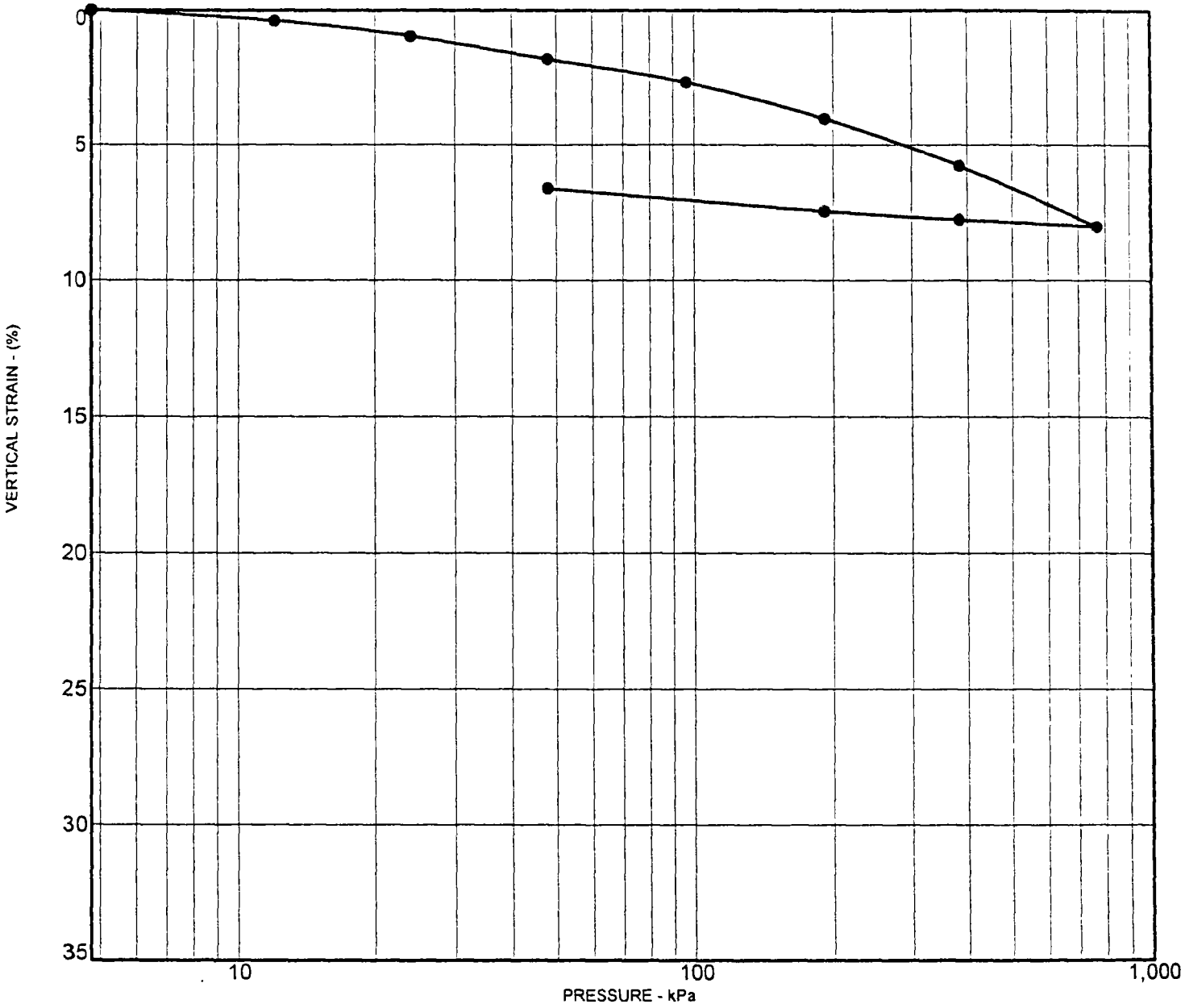
CONSOLIDATION TEST RESULTS

PLATE

K-709

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:00:30	0:00:30		0810	
	8:01:00	0:01:00		0822	
	8:02:00	0:02:00		0832	
	8:04:00	0:04:00		0841	
	8:08:00	0:08:00		0849	
	8:15:00	0:15:00		0856	
	8:30:00	0:30:00		0864	
	9:00:00	1:00:00		0872	
	10:00:00	2:00:00		0880	
	12:00:00	4:00:00		0889	
	16:00:00	8:00:00		0896	
04/15/00	8:00:00	24:00:00	383.0	0910	8.10
04/16/00	14:25:00		766.1	1155	10.55
04/17/00	7:00:00		383.0	1129	10.29
	9:00:00		191.5	1099	9.99
	14:00:00		47.9	1025	9.25

PLATE K-736



Sample	RB-376
Depth	6.10 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	15.5	16.6
Water content, %	26.7	23.9
Sample height, mm	25.4	23.6

KLEINFELDER

PROJECT NO. 35-8163-05

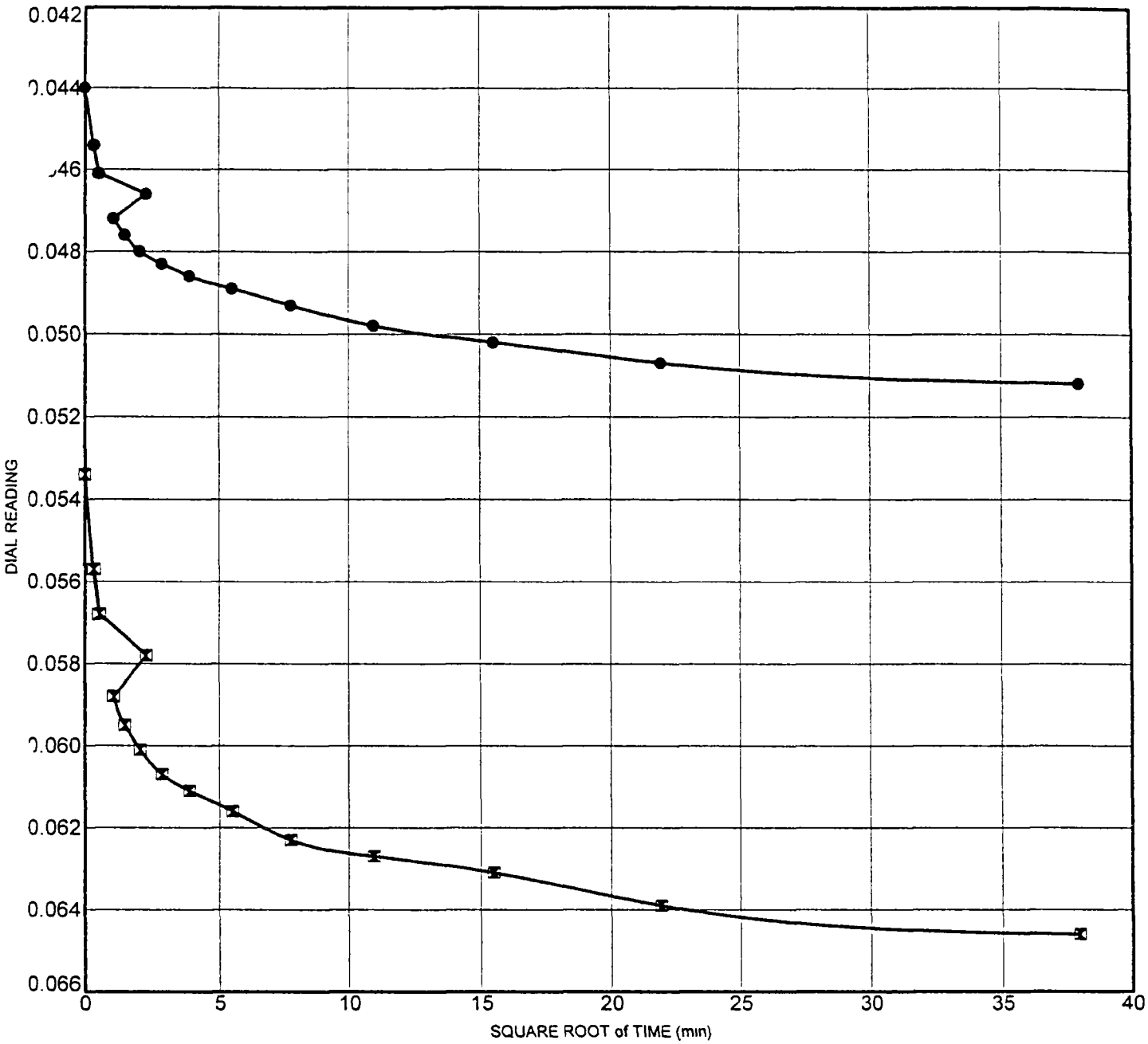
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-737



Sample	RB-376	
Depth	6.1 m	
Pressure (MPa)	● 0.10	⊠ 0.19
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-738

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-376
Sample Depth:	6.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	193.8	
Ring Weight	45.1	
Wet Wt.	148.7	
Wet + Tare		199
Dry + Tare		171
Tare Wt.		8.5

	Before Test (mm)	After Test (mm)
Sample Height	25.4	23.2
Sample Diameter	49.0	

Water added at 4.8 kPa.

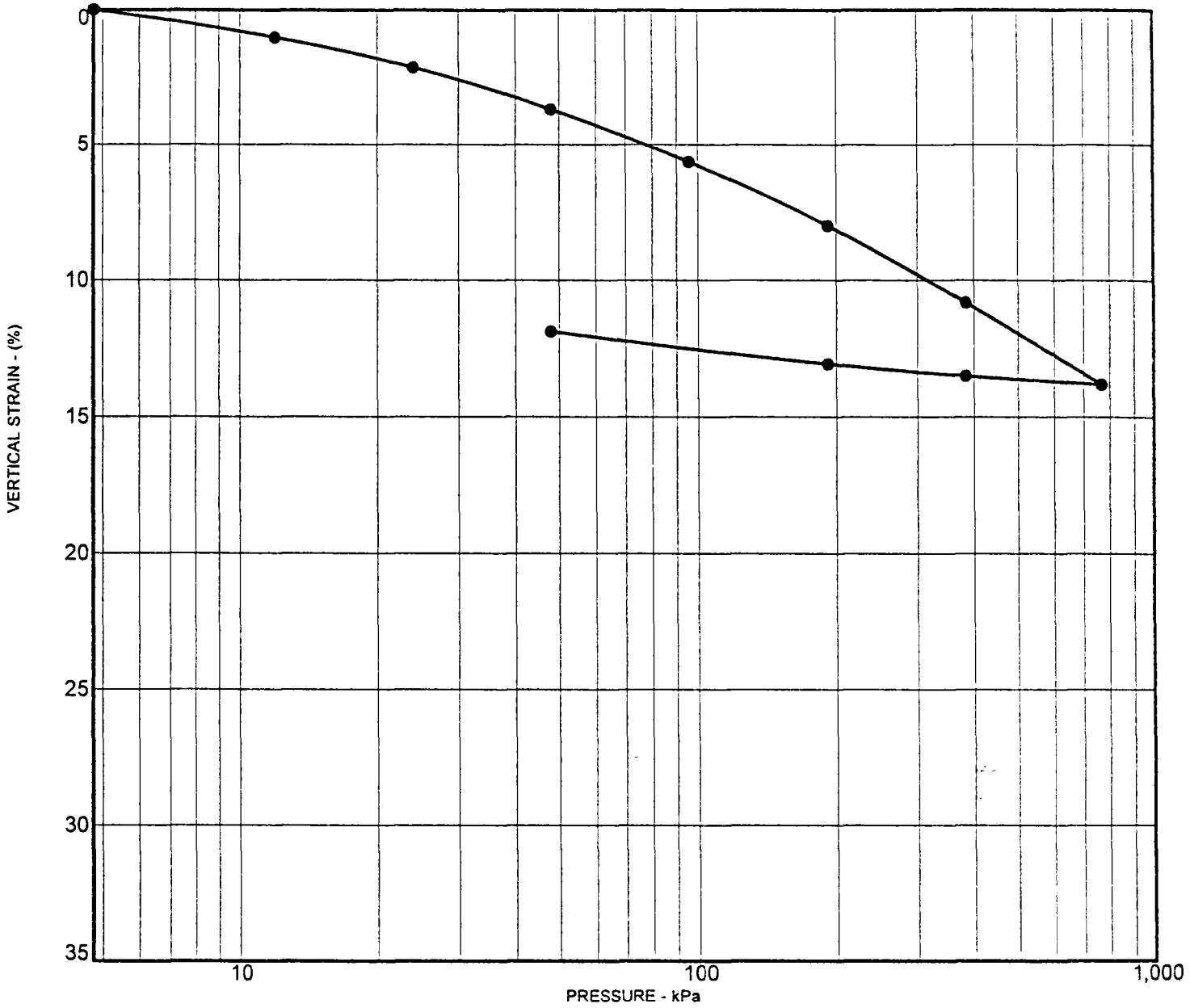
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
05/03/00	9:05:00			0193	
	10:20:00		4.8	0242	0.49
	15:30:00		12.0	0281	0.88
05/04/00	8:00:00		23.9	0339	1.46
05/08/00	7:55:00		47.9	0425	2.32
	8:06:00	0:00:00	95.8	0440	2.47
	8:06:06	0:00:06		0454	
	8:06:15	0:00:15		0461	
	8:06:30	0:00:30		0466	
	8:07:00	0:01:00		0472	
	8:08:00	0:02:00		0476	
	8:10:00	0:04:00		0480	
	8:14:00	0:08:00		0483	
	8:21:00	0:15:00		0486	
	8:36:00	0:30:00		0489	
	9:06:00	1:00:00		0493	
	10:06:00	2:00:00		0498	
	12:06:00	4:00:00		0502	
	16:06:00	8:00:00		0507	
05/09/00	8:06:00	24:00:00	95.8	0512	3.19
	8:19:00	0:00:00	191.5	0534	3.41
	8:19:06	0:00:06		0557	
	8:19:15	0:00:15		0568	
	8:19:30	0:00:30		0578	

PLATE K-739

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:20:00	0:01:00		0588	
	8:21:00	0:02:00		0595	
	8:23:00	0:04:00		0601	
	8:27:00	0:08:00		0607	
	8:34:00	0:15:00		0611	
	8:49:00	0:30:00		0616	
	9:19:00	1:00:00		0623	
	10:19:00	2:00:00		0627	
	12:19:00	4:00:00		0631	
	16:19:00	8:00:00		0639	
05/10/00	8:19:00	24:00:00	191.5	0646	4.53
05/11/00	9:30:00		383.0	0821	6.28
05/12/00	6:50:00		766.1	1045	8.52
	14:30:00		383.0	1020	8.27
05/13/00	9:45:00		191.5	0988	7.95
05/15/00	7:30:00		47.9	0905	7.12

PLATE K-740



Sample	RB-376
Depth	12.19 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.4	15.2
Water content, %	38.1	29.1
Sample height, mm	25.4	22.4

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-741

Kleinfelder, Inc.
Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-376
Sample Depth:	12.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	184.8	
Ring Weight	45.2	
Wet Wt.	139.6	
Wet + Tare		184.1
Dry + Tare		154.7
Tare Wt.		8.4

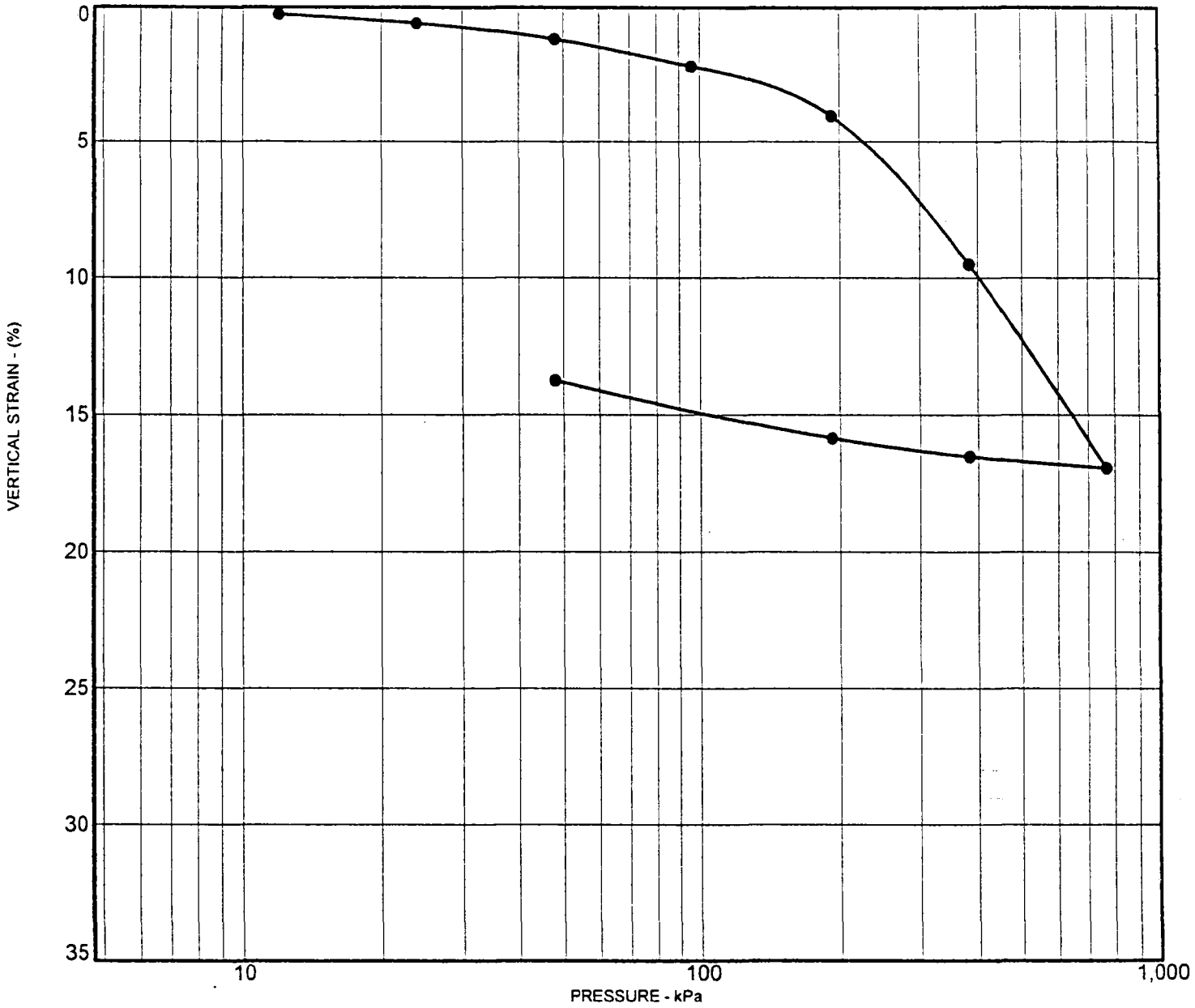
	Before Test (mm)	After Test (mm)
Sample Height	25.4	#VALUE!
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
05/03/00	9:20:00			0197	
	16:45:00		4.8	0345	1.48
05/04/00	8:00:00		12.0	0448	2.51
05/05/00	8:10:00		23.9	0560	3.63
05/06/00	10:30:00		47.9	0715	5.18
05/07/00	11:30:00		95.8	0910	7.13
05/08/00	8:10:00		191.5	1145	9.48
05/09/00	8:50:00		383.0	1427	12.30
05/10/00	5:50:00		766.1	1726	15.29
	9:00:00		383.0	1695	14.98
	16:10:00		191.5	1652	14.55
05/11/00	9:30:00		47.9	1534	13.37

PLATE K-742



Sample	RB-377
Depth	6.10 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	11.6	13.4
Water content, %	52.7	39.7
Sample height, mm	25.4	21.8

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-743

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-377
Sample Depth:	6.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	179.0	
Ring Weight	45.4	
Wet Wt.	133.6	
Wet + Tare		175.9
Dry + Tare		141.2
Tare Wt.		8.3

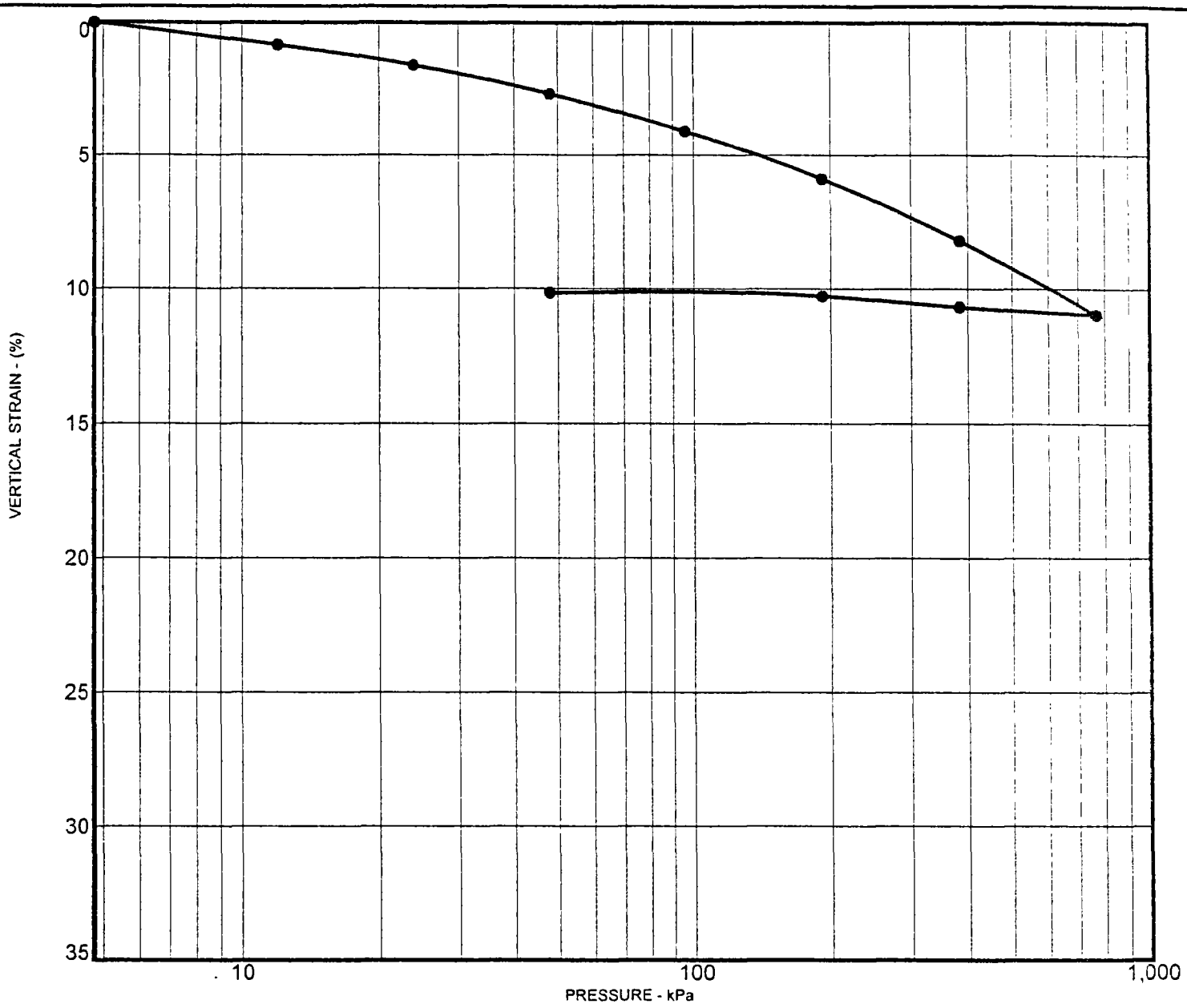
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.8
Sample Diameter	49.0	

Water added at 4.8 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/04/00	17:00:00			0150	
	18:20:00		4.8	0153	0.03
04/05/00	7:00:00		12.0	0180	0.30
	11:00:00		23.9	0214	0.64
	14:20:00		47.9	0273	1.23
04/06/00	9:00:00		95.8	0375	2.25
04/07/00	7:00:00		191.5	0559	4.09
04/08/00	8:00:00		383.0	1104	9.54
04/09/00	8:50:00		766.1	1847	16.97
04/10/00	8:50:00		383.0	1805	16.55
04/10/00	18:40:00		191.5	1738	15.88
04/11/00	14:40:00		47.9	1528	13.78

PLATE K-744



Sample	RB-377
Depth	12.19 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.2	15.9
Water content, %	33.8	27.8
Sample height, mm	25.4	22.9

KLEINFELDER

PROJECT NO. 35-8163-05

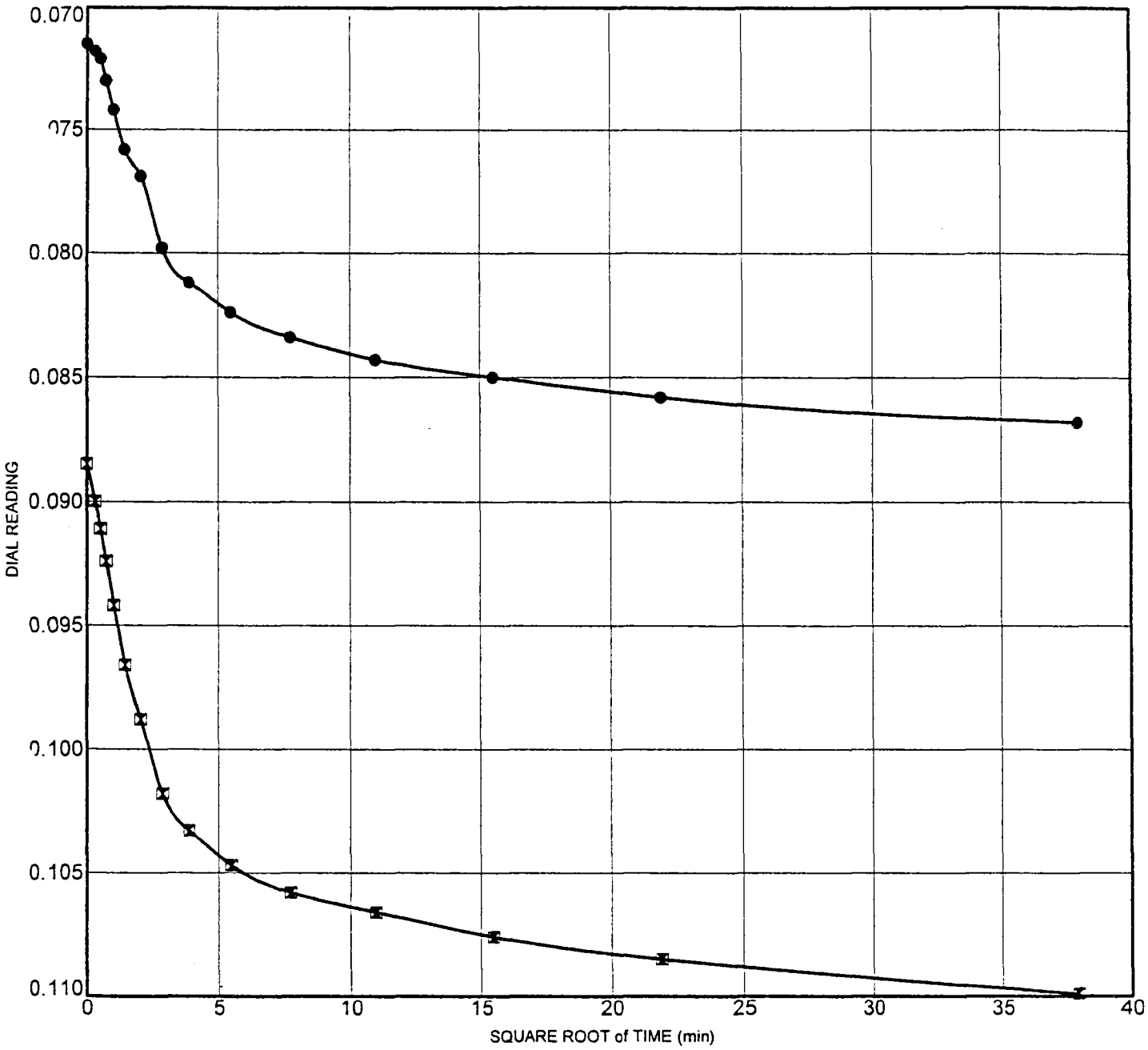
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-745



Sample	RB-377	
Depth	12.2 m	
Pressure (MPa)	● 0.19	⊠ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-746

TIME RATE (RTC) 2-M-B Z003RB.GPJ 6/1/00

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-377
Sample Depth:	12.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	189.9	
Ring Weight	45.8	
Wet Wt.	144.1	
Wet + Tare		191.7
Dry + Tare		161.8
Tare Wt.		8.3

	Before Test (mm)	After Test (mm)
Sample Height	25.4	22.5
Sample Diameter	49.0	

Water added at 4.8 kPa.

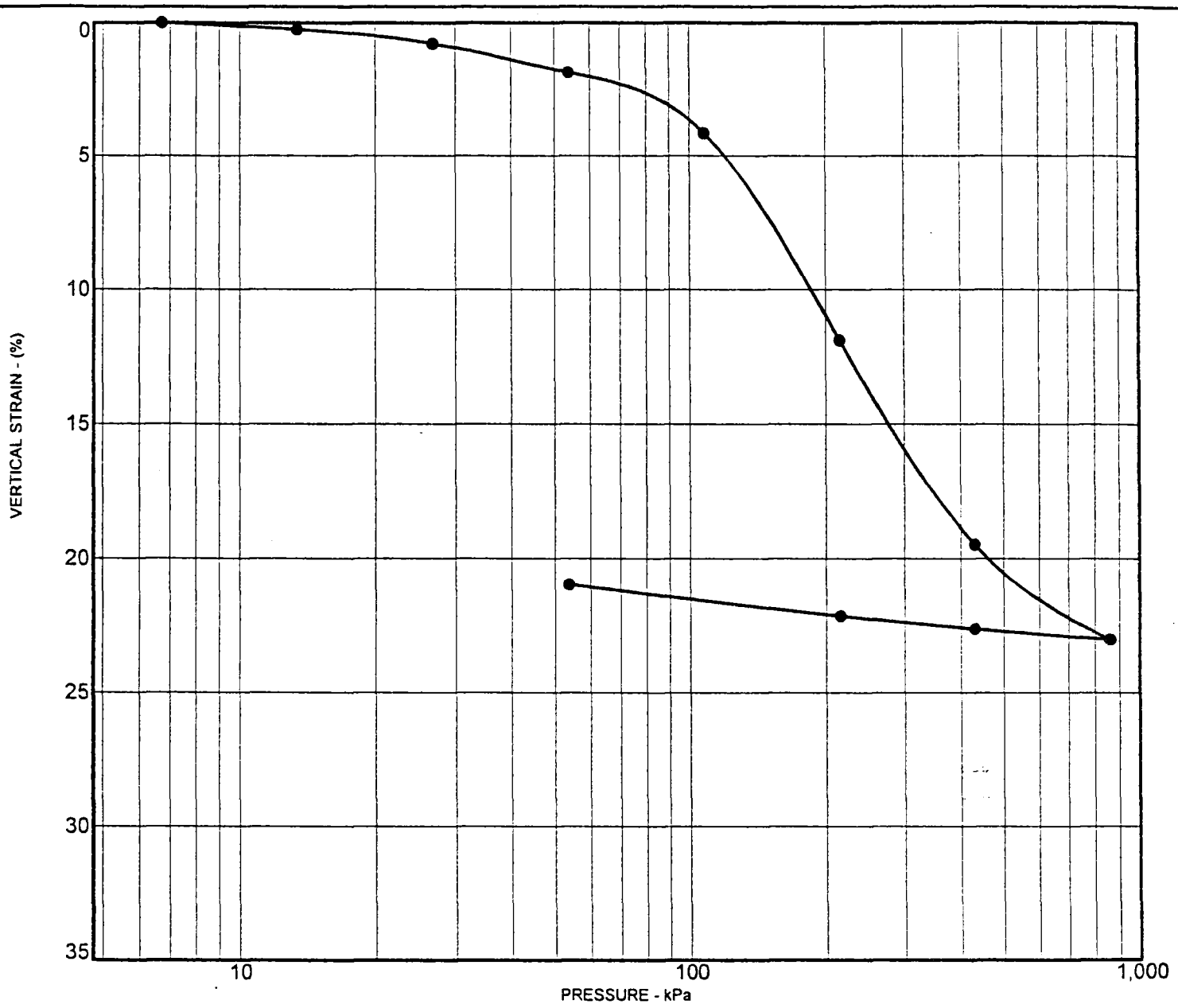
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
04/04/00	16:35:00			0217	
	18:20:00		4.8	0279	0.62
04/05/00	7:00:00		12.0	0364	1.47
	15:00:00		23.9	0440	2.23
04/06/00	9:00:00		47.9	0548	3.31
04/07/00	7:00:00		95.8	0689	4.72
	7:57:00	0:00:00	191.5	0715	
	7:57:06	0:00:06		0718	
	7:57:15	0:00:15		0721	
	7:57:30	0:00:30		0730	
	7:58:00	0:01:00		0742	
	7:59:00	0:02:00		0758	
	8:01:00	0:04:00		0769	
	8:05:00	0:08:00		0798	
	8:12:00	0:15:00		0812	
	8:27:00	0:30:00		0824	
	8:57:00	1:00:00		0834	
	9:57:00	2:00:00		0843	
	11:57:00	4:00:00		0850	
	15:57:00	8:00:00		0858	
04/08/00	7:57:00	24:00:00	191.5	0868	6.51
	8:00:00	0:00:00	383.0	0885	6.68
	8:00:06	0:00:06		0900	
	8:00:15	0:00:15		0911	

PLATE K-747

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	8:00:30	0:00:30		0924	
	8:01:00	0:01:00		0942	
	8:02:00	0:02:00		0966	
	8:04:00	0:04:00		0988	
	8:08:00	0:08:00		1018	
	8:15:00	0:15:00		1033	
	8:30:00	0:30:00		1047	
	9:00:00	1:00:00		1058	
	10:00:00	2:00:00		1066	
	12:00:00	4:00:00		1076	
	16:00:00	8:00:00		1085	
04/09/00	8:00:00	24:00:00	383.0	1099	8.82
04/10/00	8:50:00		766.1	1375	11.58
	13:40:00		383.0	1346	11.29
04/11/00	12:30:00		191.5	1306	10.89
	16:00:00		47.9	1295	10.78

PLATE K-748



Sample	RB-378
Depth	6.10 m
Classification	CH

	Initial	Final
Dry density, kN/m^3	10.5	13.3
Water content, %	57.3	39.5
Sample height, mm	25.4	20.1

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-749

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-378
Sample Depth:	6.1 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	170.7	
Ring Weight	45.2	
Wet Wt.	125.5	
Wet + Tare		164.8
Dry + Tare		133.3
Tare Wt.		8.3

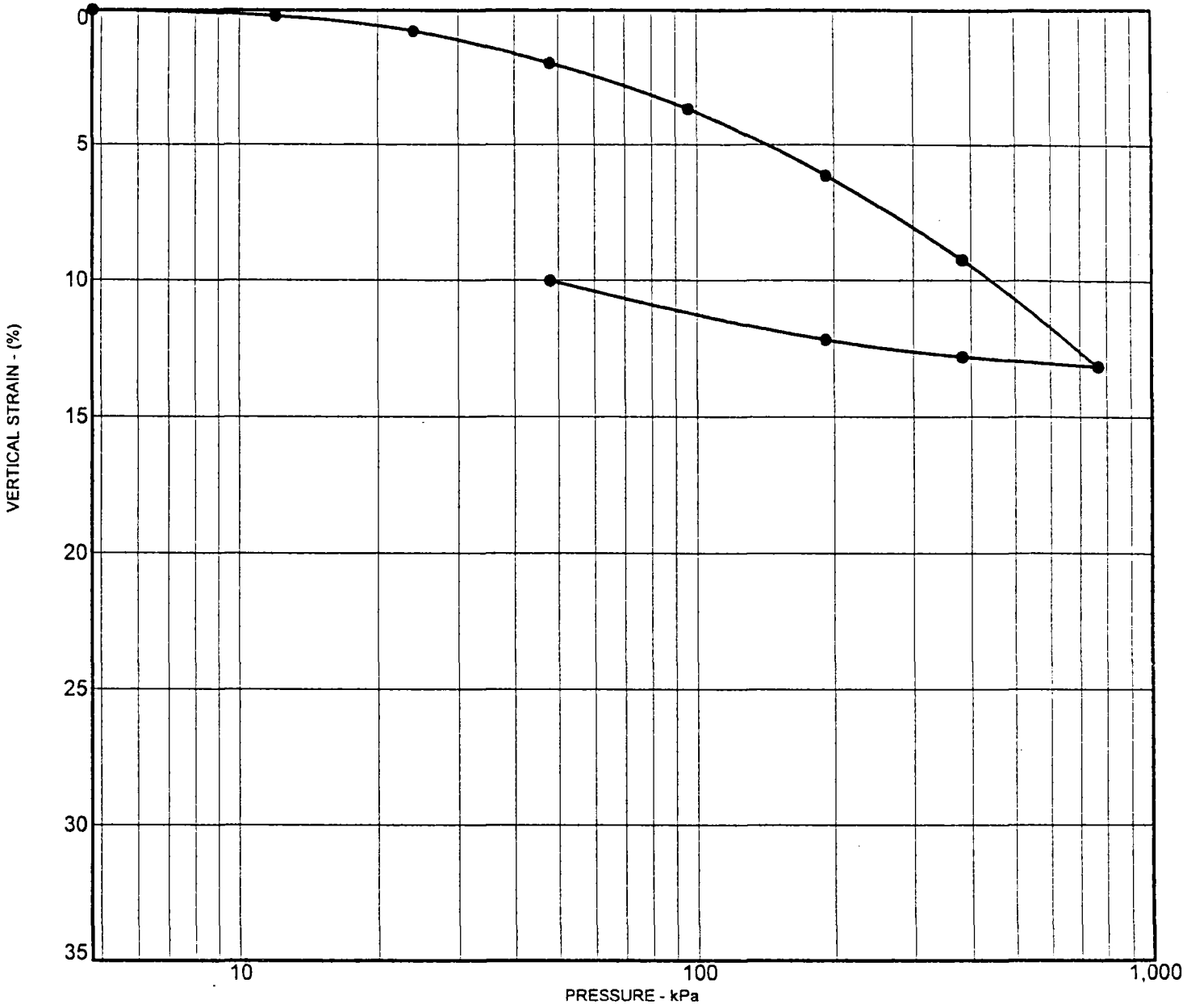
	Before Test (mm)	After Test (mm)
Sample Height	25.4	25.9
Sample Diameter	49.0	

Water added at 6.7 kPa.

* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/24/00	15:59:00			0198	
	18:00:00		6.7	0178	-0.20
03/25/00	9:20:00		13.4	0204	0.06
	11:20:00		26.8	0257	0.59
	18:00:00		53.6	0366	1.68
03/26/00	8:55:00		107.7	0594	3.96
	19:15:00		215.0	1367	11.69
03/27/00	19:00:00		430.0	2126	19.28
03/28/00	17:15:00		859.9	2480	22.82
	18:37:00		430.0	2441	22.43
03/29/00	7:20:00		215.0	2393	21.95
	13:25:00		53.6	2275	20.77

PLATE K-750



Sample	RB-378
Depth	15.24 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	13.8	15.3
Water content, %	35.1	29.4
Sample height, mm	25.4	22.9

KLEINFELDER

PROJECT NO. 35-8163-05

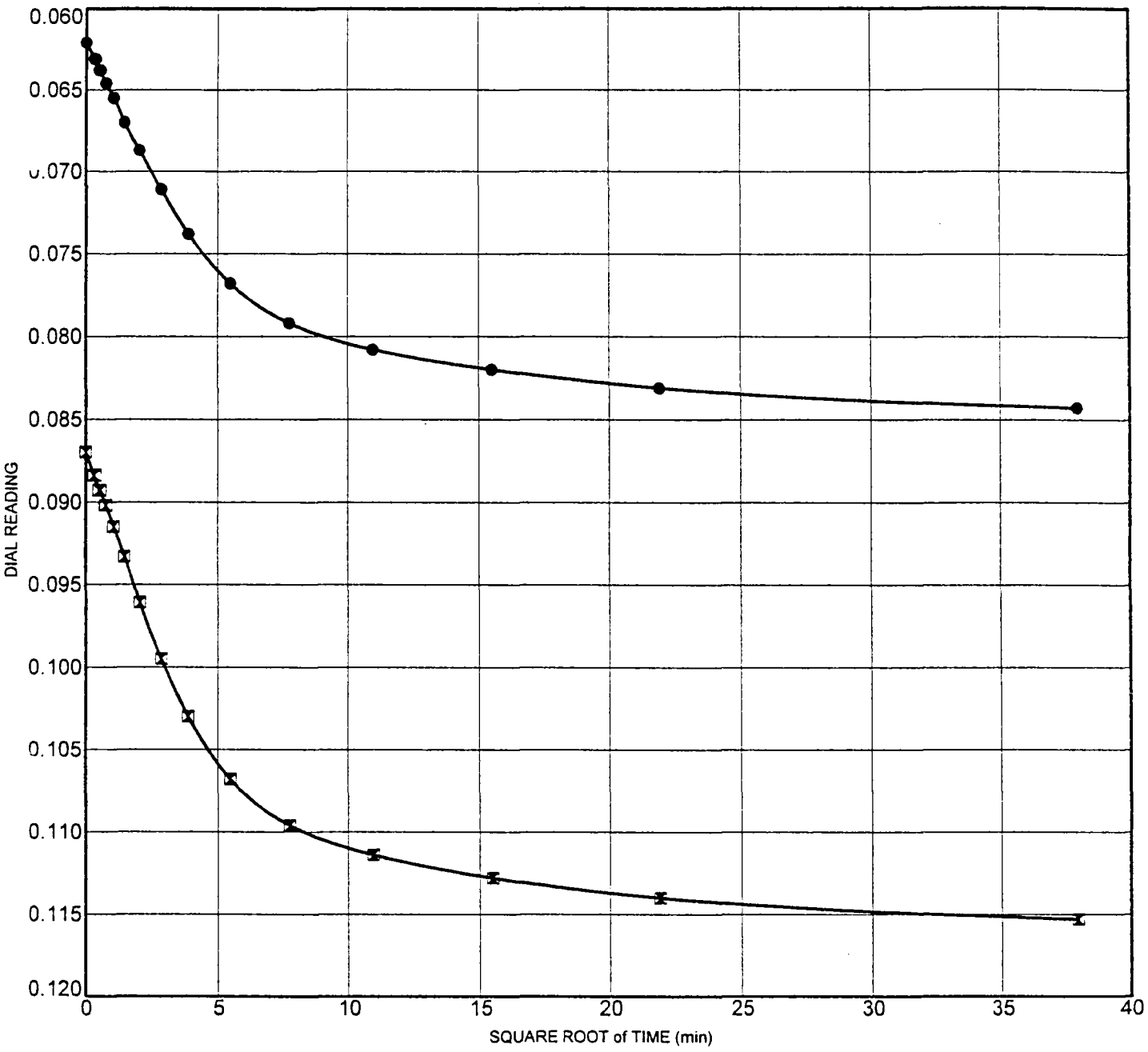
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-751



Sample	RB-378	
Depth	15.2 m	
Pressure (MPa)	● 0.19	⊠ 0.38
Cv (m^2/day)		

KLEINFELDER

PROJECT NO. 35-8163-05

Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

TIME RATE CONSOLIDATION

PLATE

K-752

Kleinfelder, Inc.

Consolidation Test Data

Legacy Parkway **Project Number: 35-8163-05**

Boring Number:	RB-378
Sample Depth:	15.2 m

	Before Test (g)	After Test (g)
Wet Wt. + Ring	186.4	
Ring Weight	45.5	
Wet Wt.	140.9	
Wet + Tare		188.9
Dry + Tare		158.2
Tare Wt.		8.4

	Before Test (mm)	After Test (mm)
Sample Height	25.4	22.0
Sample Diameter	49.0	

Water added at 4.8 kPa.

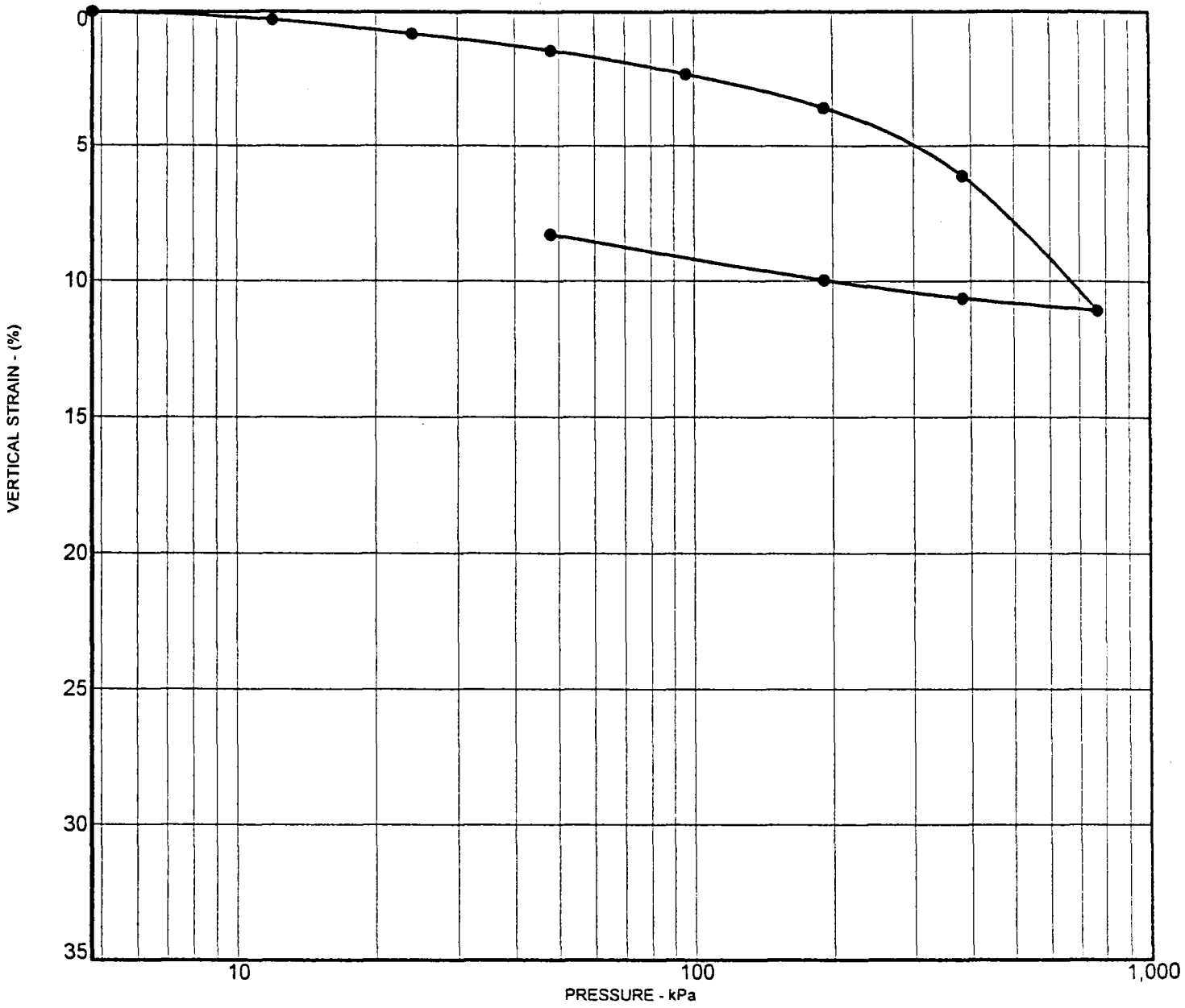
* Elapsed Time shown only for time rates.

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
03/24/00	17:20:00			0217	
	18:00:00		4.8	0227	0.10
03/25/00	8:50:00		12.0	0249	0.32
	18:20:00		23.9	0306	0.89
03/26/00	19:17:00		47.9	0426	2.09
03/28/00	8:00:00		95.8	0596	3.79
	8:03:00	0:00:00	191.5	0621	
	8:03:06	0:00:06		0631	
	8:03:15	0:00:15		0638	
	8:03:30	0:00:30		0646	
	8:04:00	0:01:00		0655	
	8:05:00	0:02:00		0670	
	8:07:00	0:04:00		0687	
	8:11:00	0:08:00		0711	
	8:18:00	0:15:00		0738	
	8:33:00	0:30:00		0768	
	9:03:00	1:00:00		0792	
	10:03:00	2:00:00		0808	
	12:03:00	4:00:00		0820	
	16:03:00	8:00:00		0831	
03/29/00	8:03:00	24:00:00	191.5	0843	6.26
	7:11:00	0:00:00	383.0	0870	6.53
	7:11:06	0:00:06		0884	
	7:11:15	0:00:15		0893	

PLATE K-753

Date	Time (HH:MM:SS)	Elapsed Time* (HH:MM:SS)	Applied Stress (kPa)	Dial Reading	Strain (%)
	7:11:30	0:00:30		0902	
	7:12:00	0:01:00		0915	
	7:13:00	0:02:00		0933	
	7:15:00	0:04:00		0961	
	7:19:00	0:08:00		0995	
	7:26:00	0:15:00		1030	
	7:41:00	0:30:00		1068	
	8:11:00	1:00:00		1096	
	9:11:00	2:00:00		1114	
	11:11:00	4:00:00		1128	
	15:11:00	8:00:00		1140	
03/30/00	7:11:00	24:00:00	383.0	1153	9.36
03/31/00	7:00:00		766.1	1543	13.26
	13:00:00		383.0	1508	12.91
	16:45:00		191.5	1445	12.28
04/01/00	9:00:00		47.9	1229	10.12

PLATE K-754



Sample	RB-379
Depth	4.57 m
Classification	CL

	Initial	Final
Dry density, kN/m^3	14.1	15.3
Water content, %	33.6	29.5
Sample height, mm	25.4	23.4

KLEINFELDER

PROJECT NO. 35-8163-05

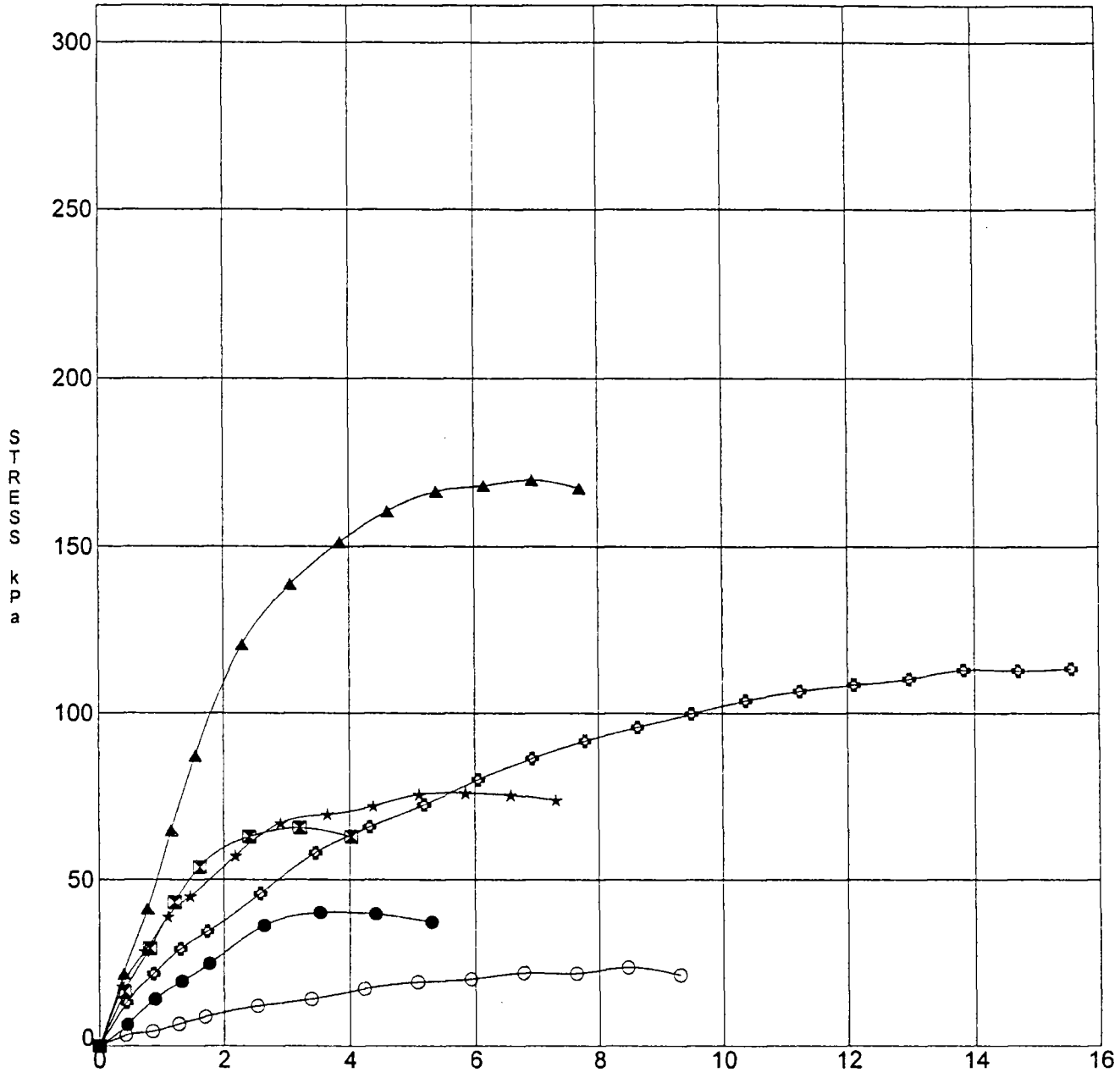
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

CONSOLIDATION TEST RESULTS

PLATE

K-755



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	SB- 1-243	4.6	Elastic SILT (MH)	40	9.2	69
⊠	SB- 1-246	12.2	SILT (ML)	66	12.4	48
▲	SB- 1-246	22.9	Lean CLAY (CL)	170	14.2	34
★	SB- 2-247	13.7	Lean CLAY (CL)	76	15.9	23
○	SB- 3-248	7.6	Lean CLAY (CL)	24	11.7	49
✿	SB- 3-248	30.5	Sandy Lean CLAY (CL)	113	15.7	26

KLEINFELDER

PROJECT NO. 35-8163-05

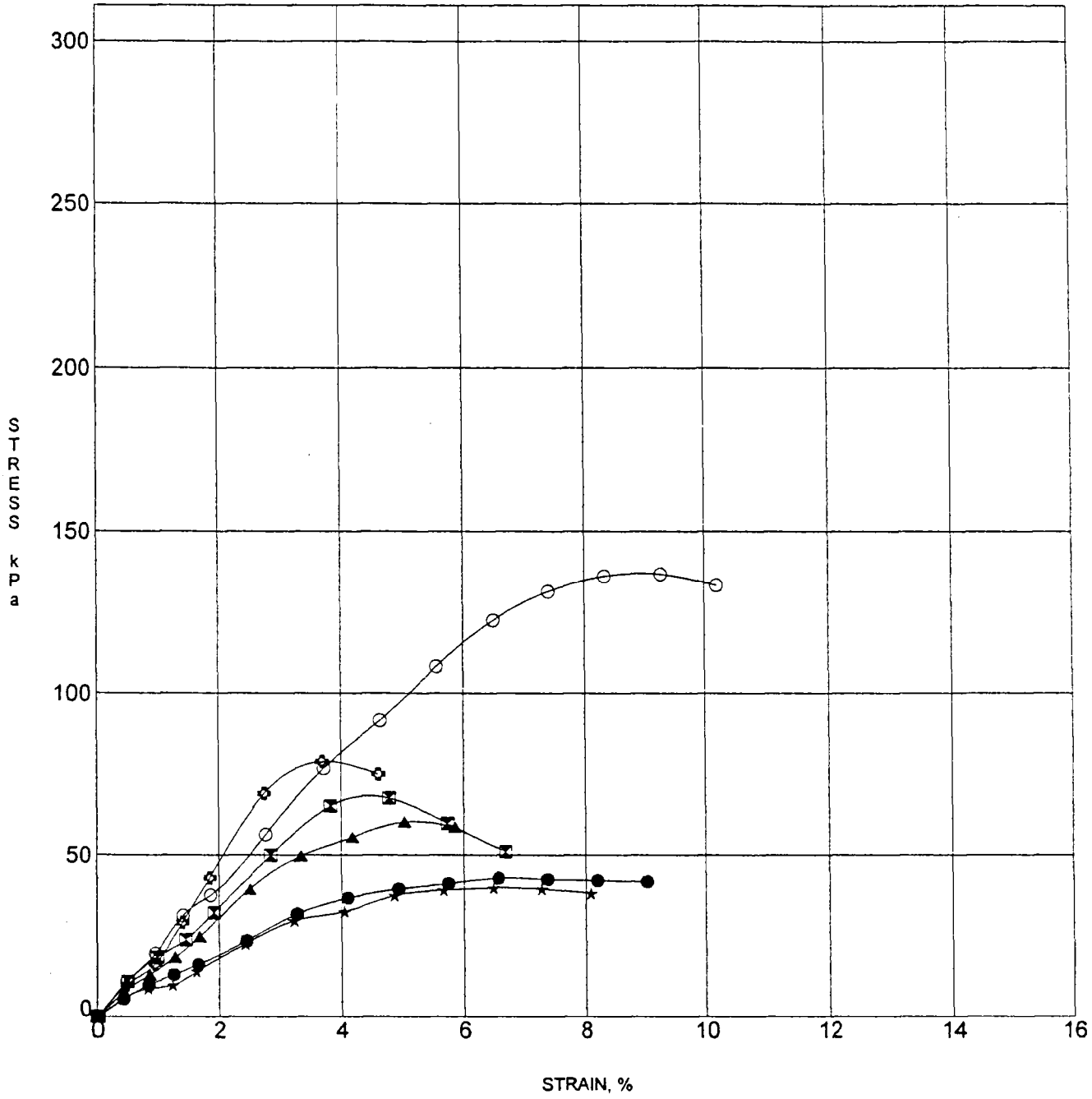
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-904



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	SB- 3-249	6.1	SILT (ML)	43	10.4	58
⊠	SB- 3-249	15.2	Lean CLAY (CL)	68	13.9	35
▲	SB- 3-250	15.2	Lean CLAY (CL)	60	13.7	33
★	SB- 4-251	3.0	Lean CLAY (CL)	40	1.5	1218
○	SB- 4-251	25.9	Lean CLAY (CL)	137	12.7	41
⊙	SB- 4-251	32.0	Lean CLAY (CL)	79	15.5	26

KLEINFELDER

PROJECT NO. 35-8163-05

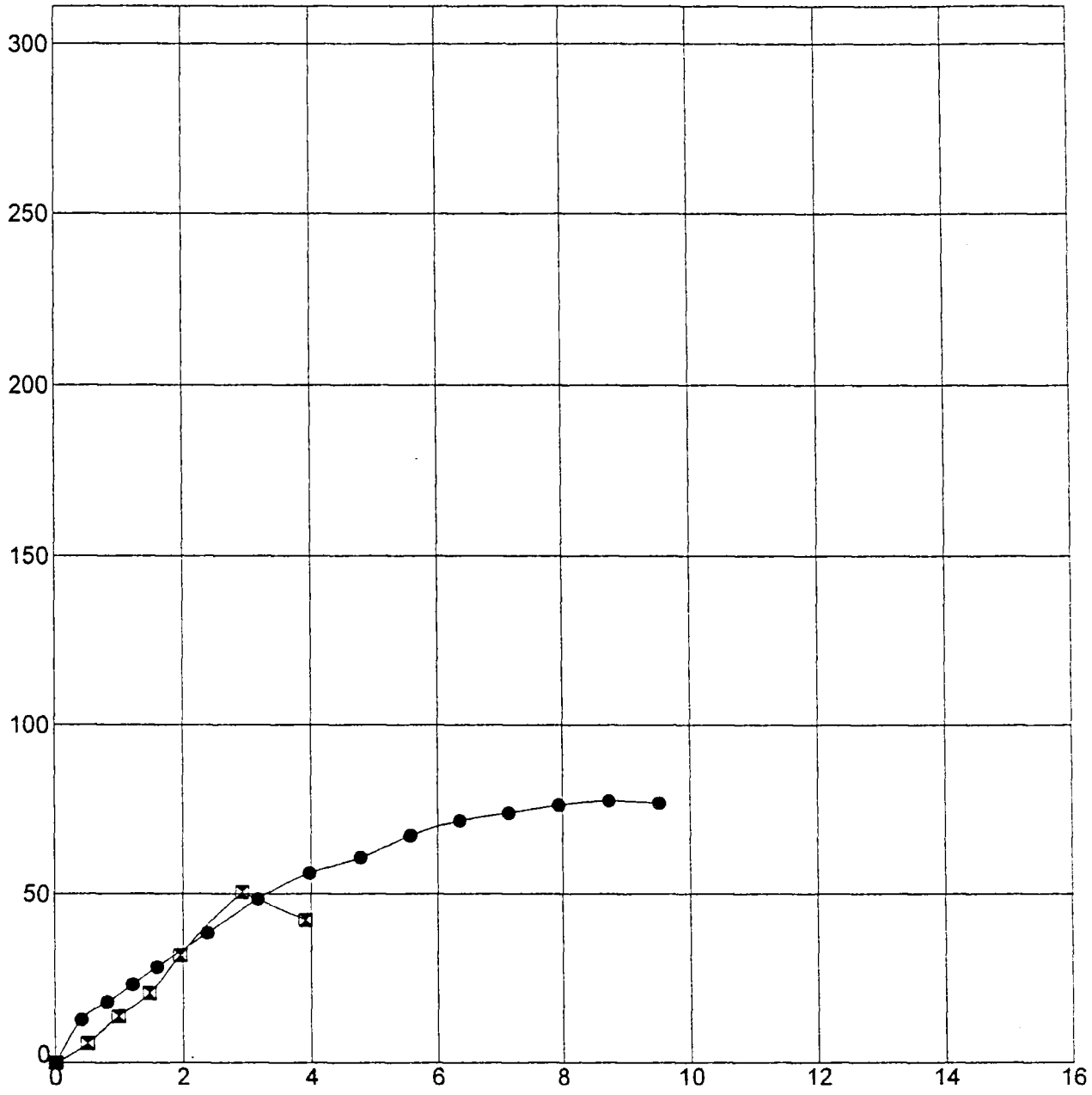
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-905



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● SB- 4-252 13.7		Lean CLAY (CL)	78	14.0	31
⊠ SB- 4-252 24.4		Sandy SILT (ML)	50	17.4	26

KLEINFELDER

PROJECT NO. 35-8163-05

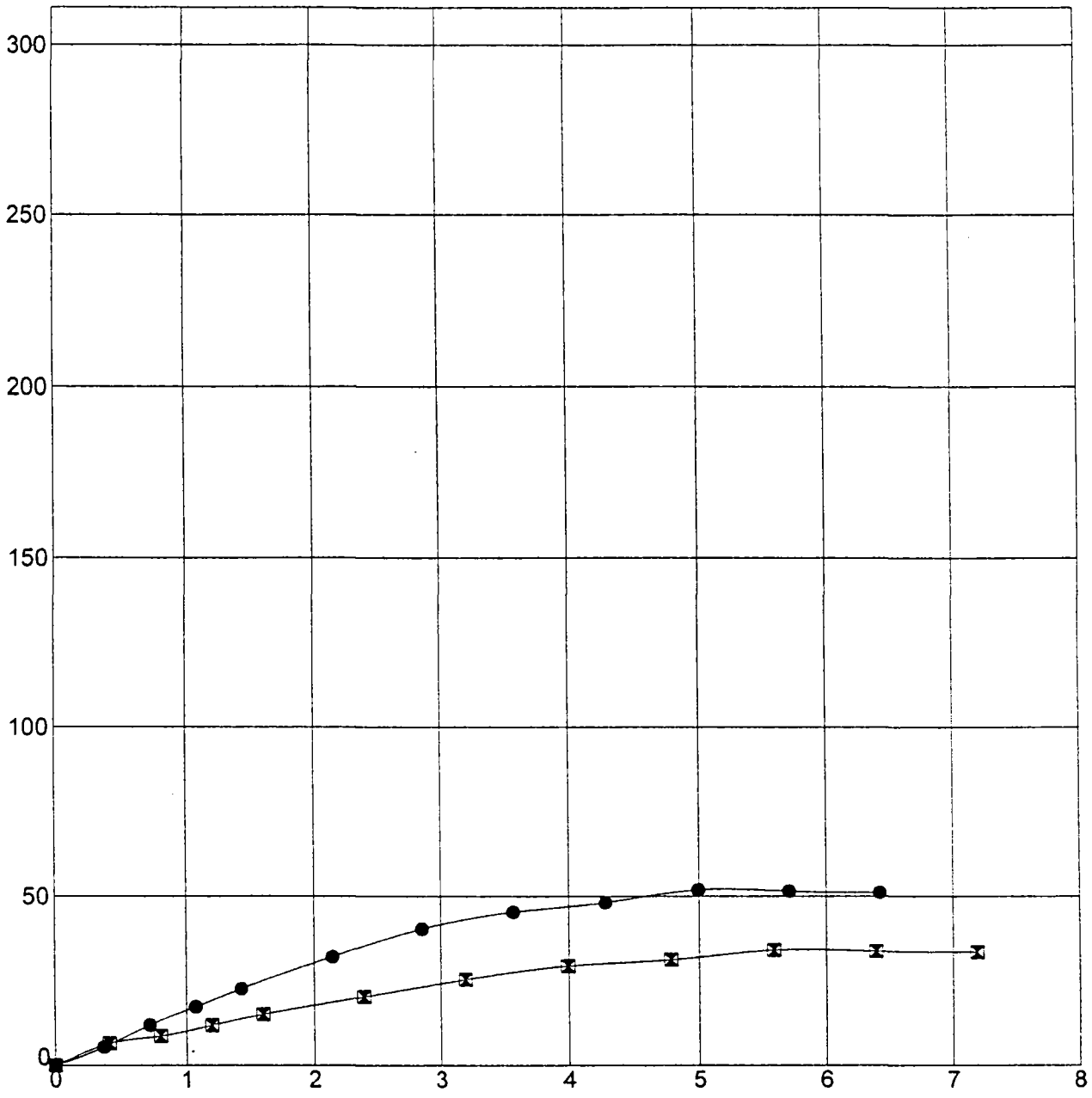
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-906



	Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	SB- 5-293	9.1	Lean CLAY (CL)	52	12.7	41
⊠	SB- 5-297	4.6	SILT (ML)	34	11.9	47

KLEINFELDER

PROJECT NO. 35-8163-05

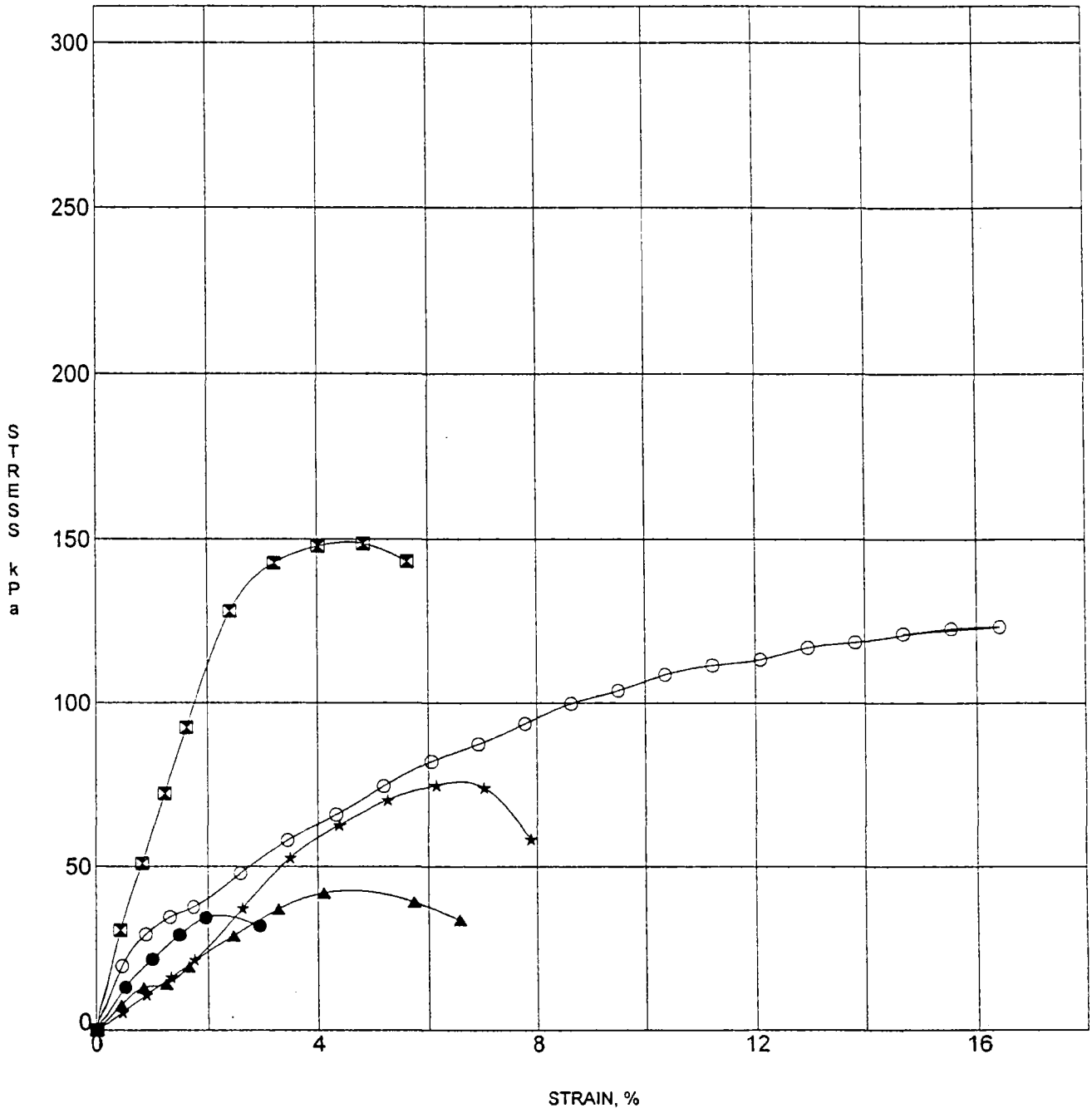
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-907



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	SB-11-259	8.8	Sandy SILT (ML)	34	15.3	27
⊠	SB-11-259	27.1	Clayey SAND (SC)	149	16.8	23
▲	SB-11-262	7.6	Sandy Lean CLAY (CL)	42	17.3	10
★	SB-11-262	10.7	Lean CLAY (CL)	75	15.0	29
○	SB-11-262	16.8	Fat CLAY (CH)	123	13.6	33

KLEINFELDER

PROJECT NO. 35-8163-05

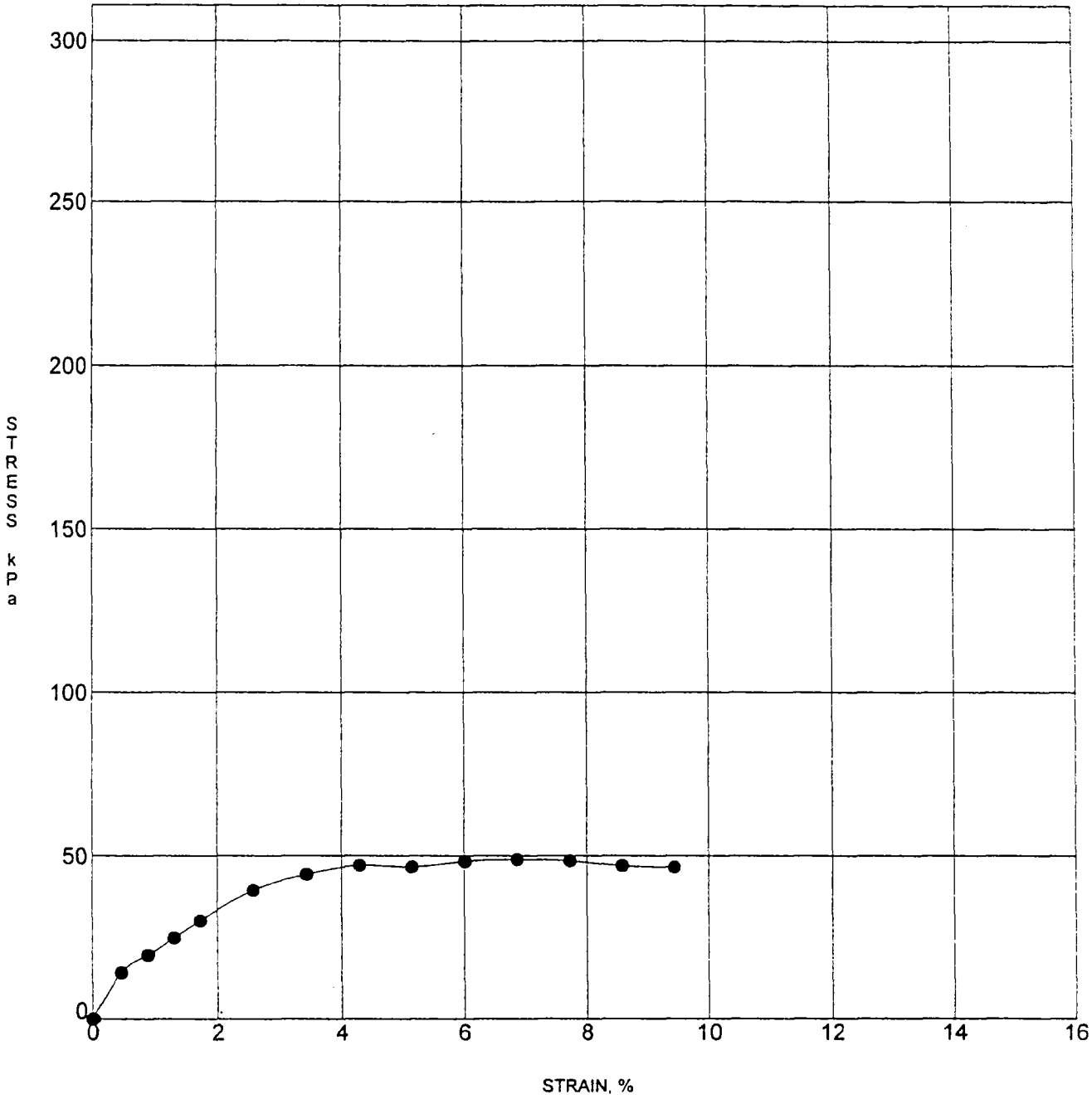
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-913



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● WB-26-314 6.1		Fat CLAY (CH)	49	10.2	62

KLEINFELDER

PROJECT NO. 35-8163-05

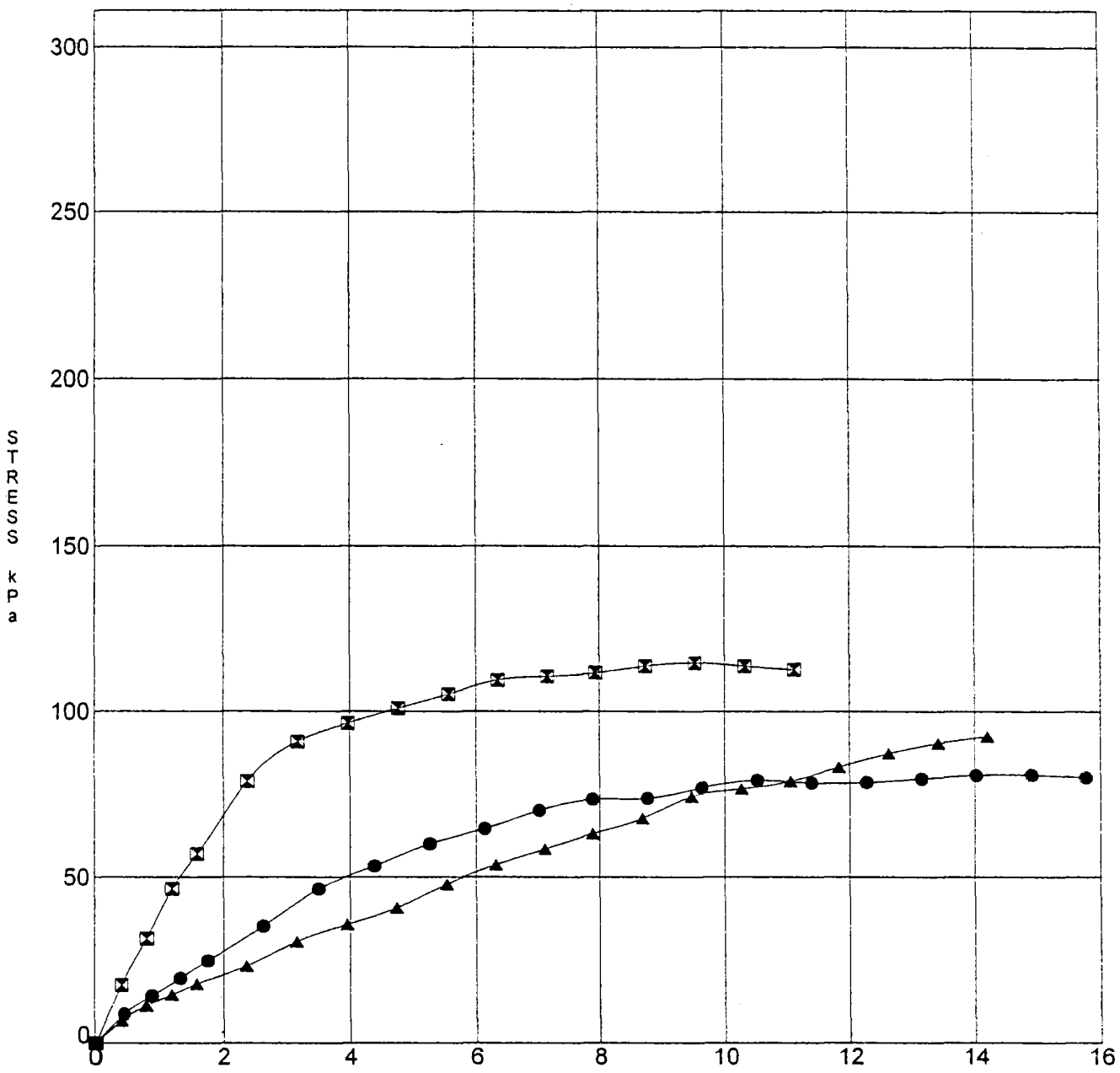
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-948



	Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	WB-29-320	9.1	Lean CLAY (CL)	81	14.5	32
⊠	WB-29-320	12.2	Lean CLAY (CL)	115	14.0	36
▲	WB-29-322	10.7	Lean CLAY (CL)	93	16.9	24

KLEINFELDER

PROJECT NO. 35-8163-05

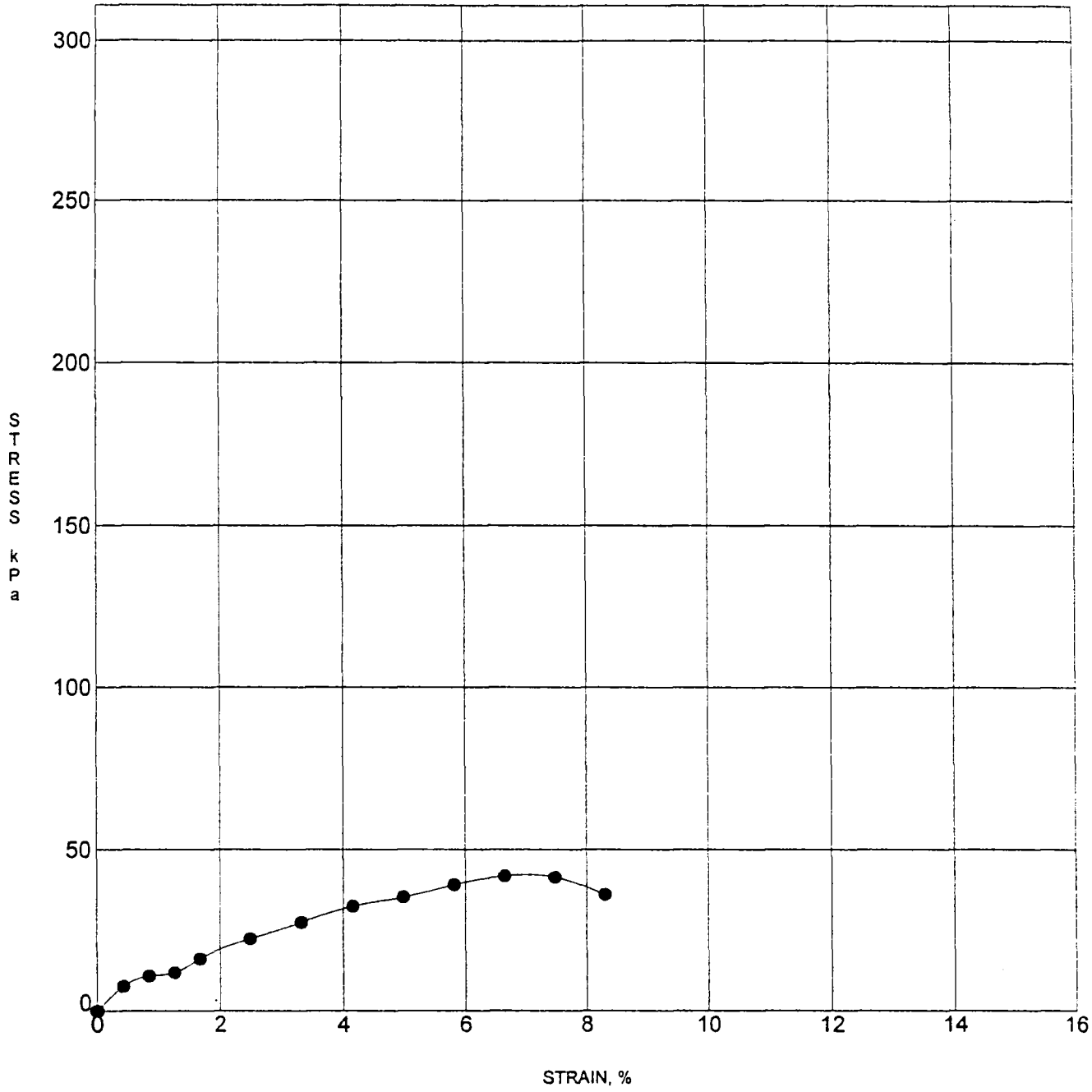
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-951



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-357 10.7		Lean CLAY with sand (CL)	42	15.5	26

KLEINFELDER

Legacy Parkway - Preferred Alternative

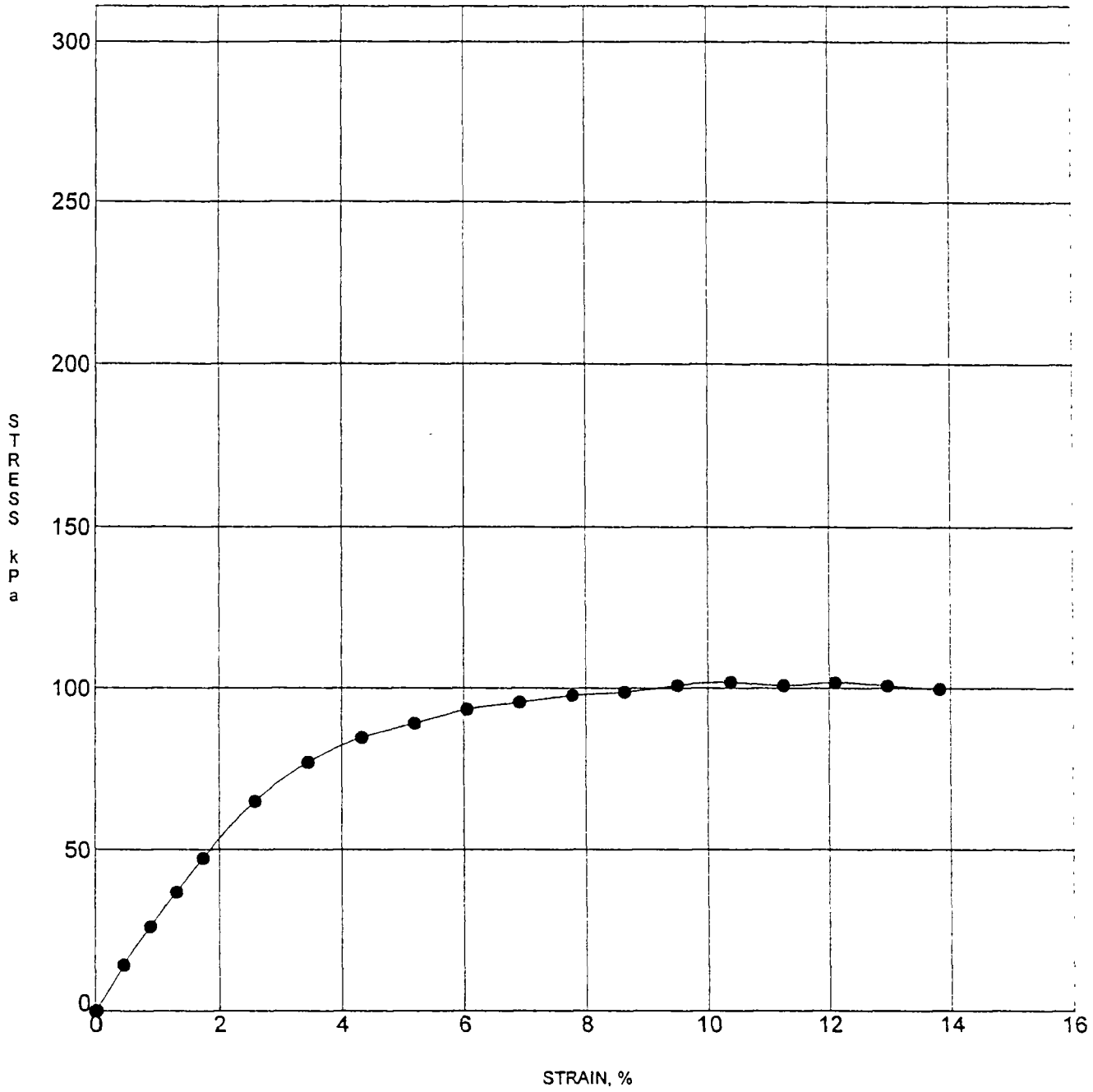
I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-953

PROJECT NO. 35-8163-05



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-358 15.2		Lean CLAY (CL)	102	14.2	32

KLEINFELDER

PROJECT NO. 35-8163-05

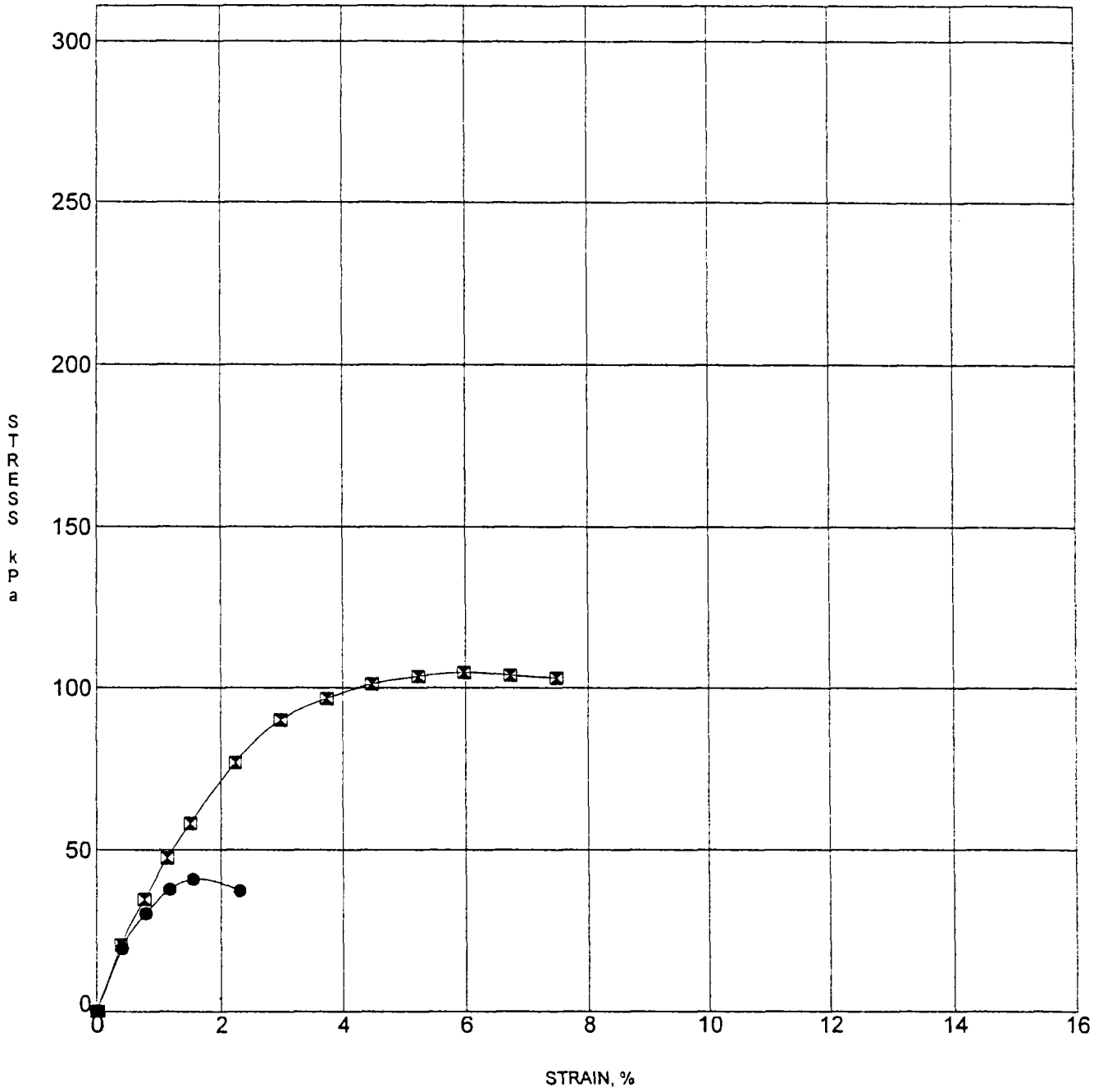
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-954



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	RB-359	4.6	Fat CLAY (CH)	41	11.1	54
⊠	RB-359	16.8	Fat CLAY (CH)	105	12.3	42

KLEINFELDER

PROJECT NO. 35-8163-05

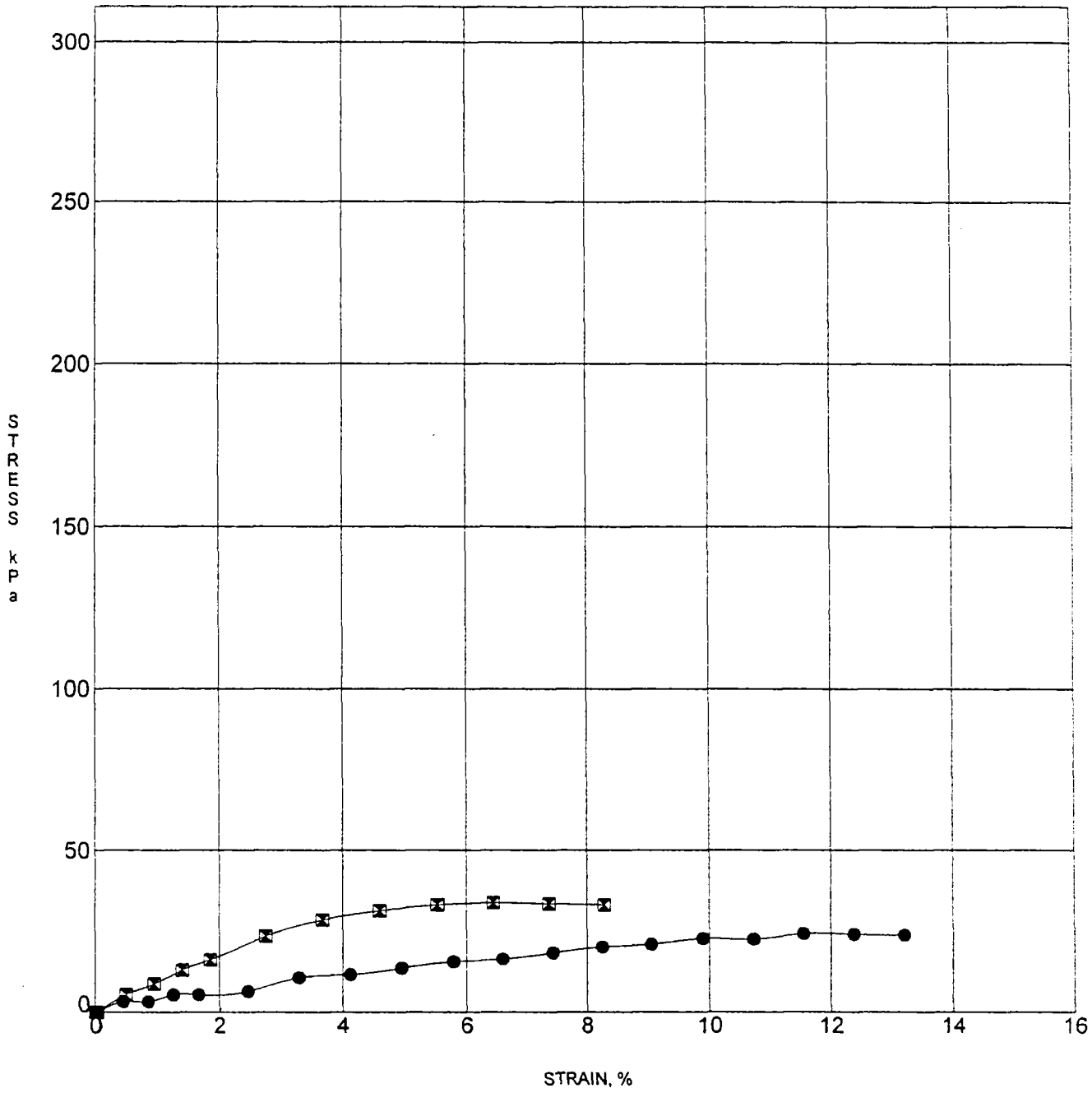
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-955



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-360	4.6	Lean CLAY (CL)	24	12.7	42
⊠ RB-360	7.6	Lean CLAY (CL)	34	12.0	41

KLEINFELDER

PROJECT NO. 35-8163-05

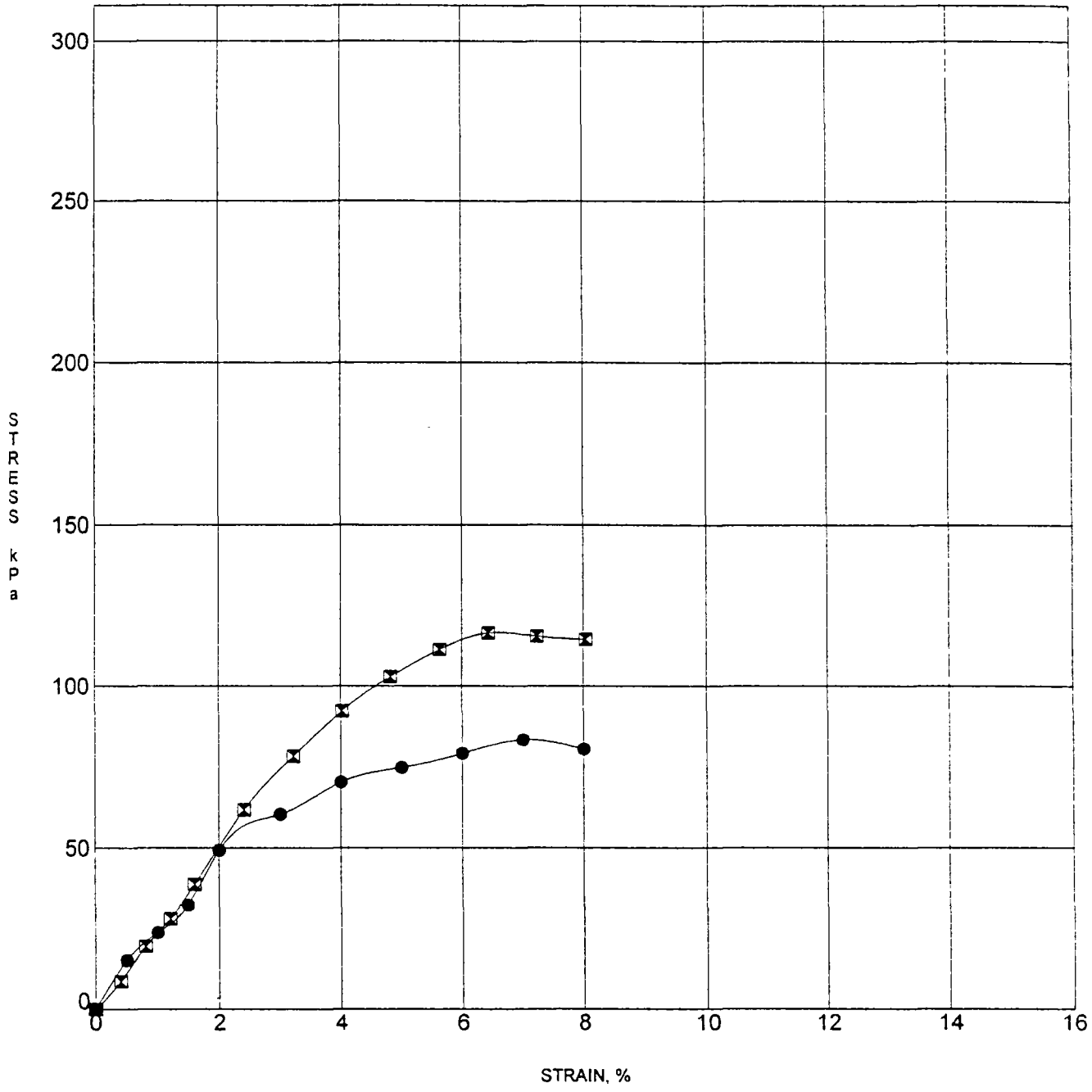
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-956



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	RB-361	10.7	Lean CLAY (CL)	83	15.8	24
⊠	RB-361	21.3	Lean CLAY (CL)	117	15.1	29	

KLEINFELDER

PROJECT NO. 35-8163-05

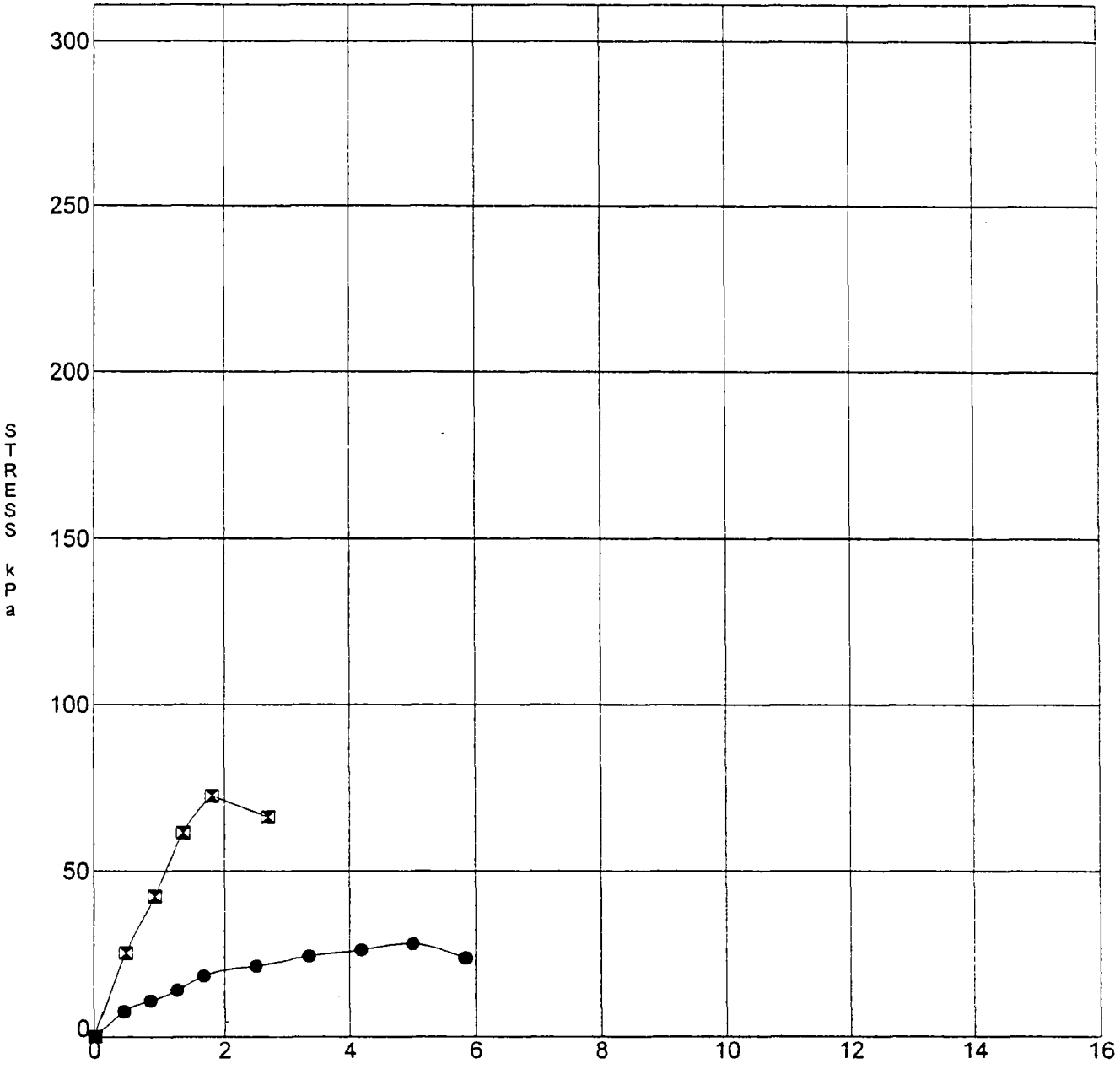
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-957



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	RB-368	4.6	Lean CLAY (CL)	28	13.3	38
⊠	RB-368	16.8	SILT with sand (ML)	73	17.2	24

KLEINFELDER

PROJECT NO. 35-8163-05

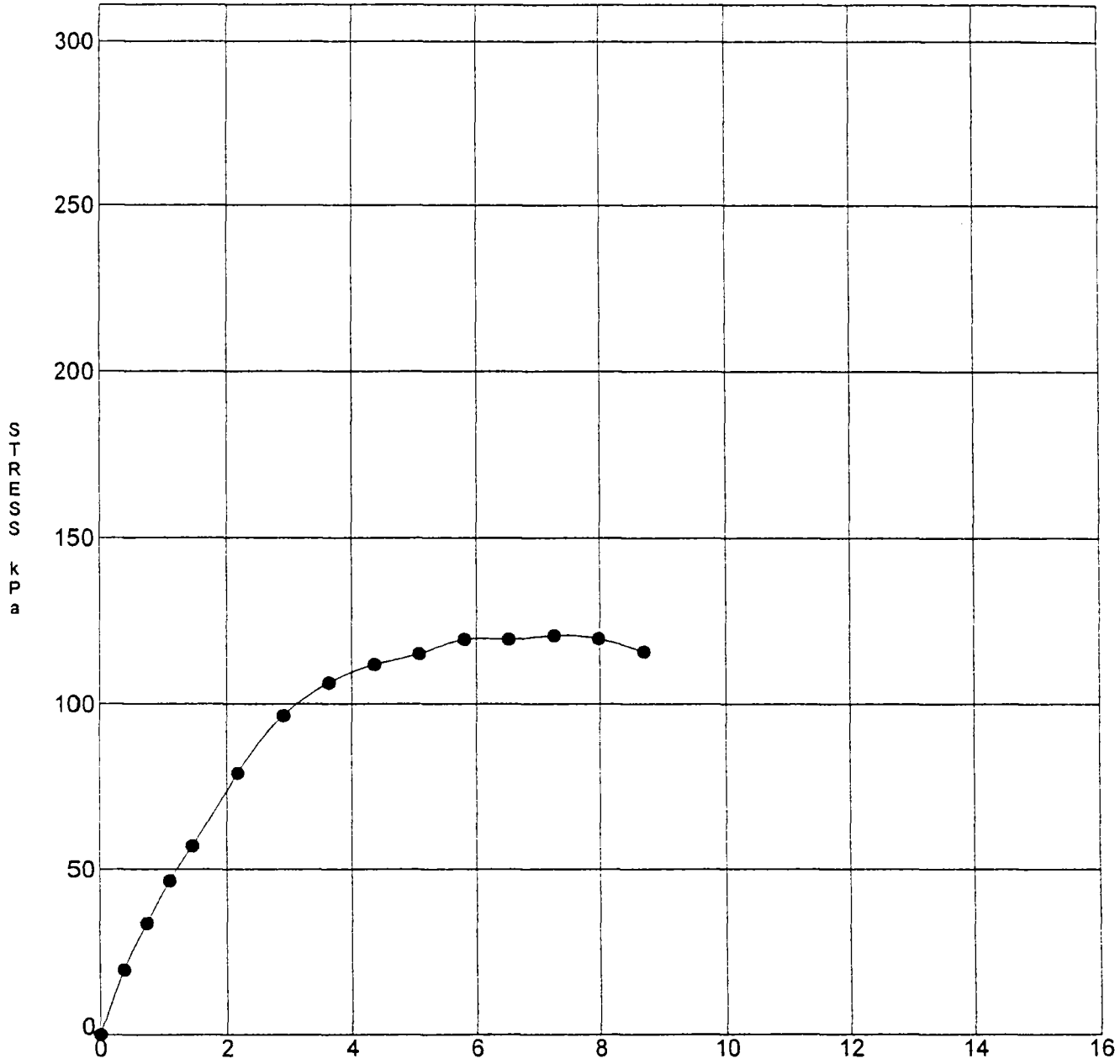
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-964



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-369	13.7	Lean CLAY (CL)	121	15.3	28

KLEINFELDER

PROJECT NO. 35-8163-05

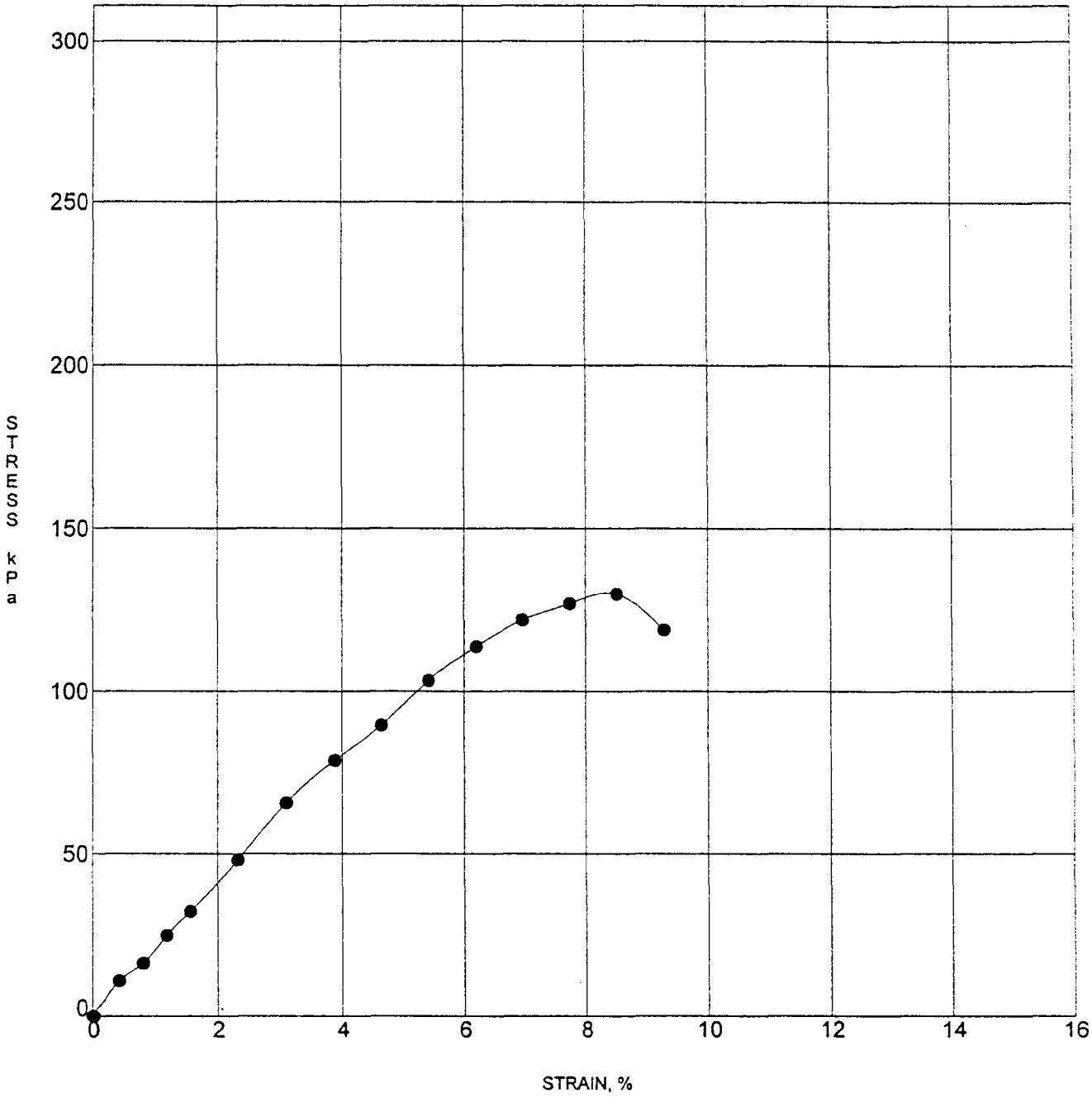
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-965



	Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	RB-376	6.1	Lean CLAY (CL)	130	15.7	27

KLEINFELDER

PROJECT NO. 35-8163-05

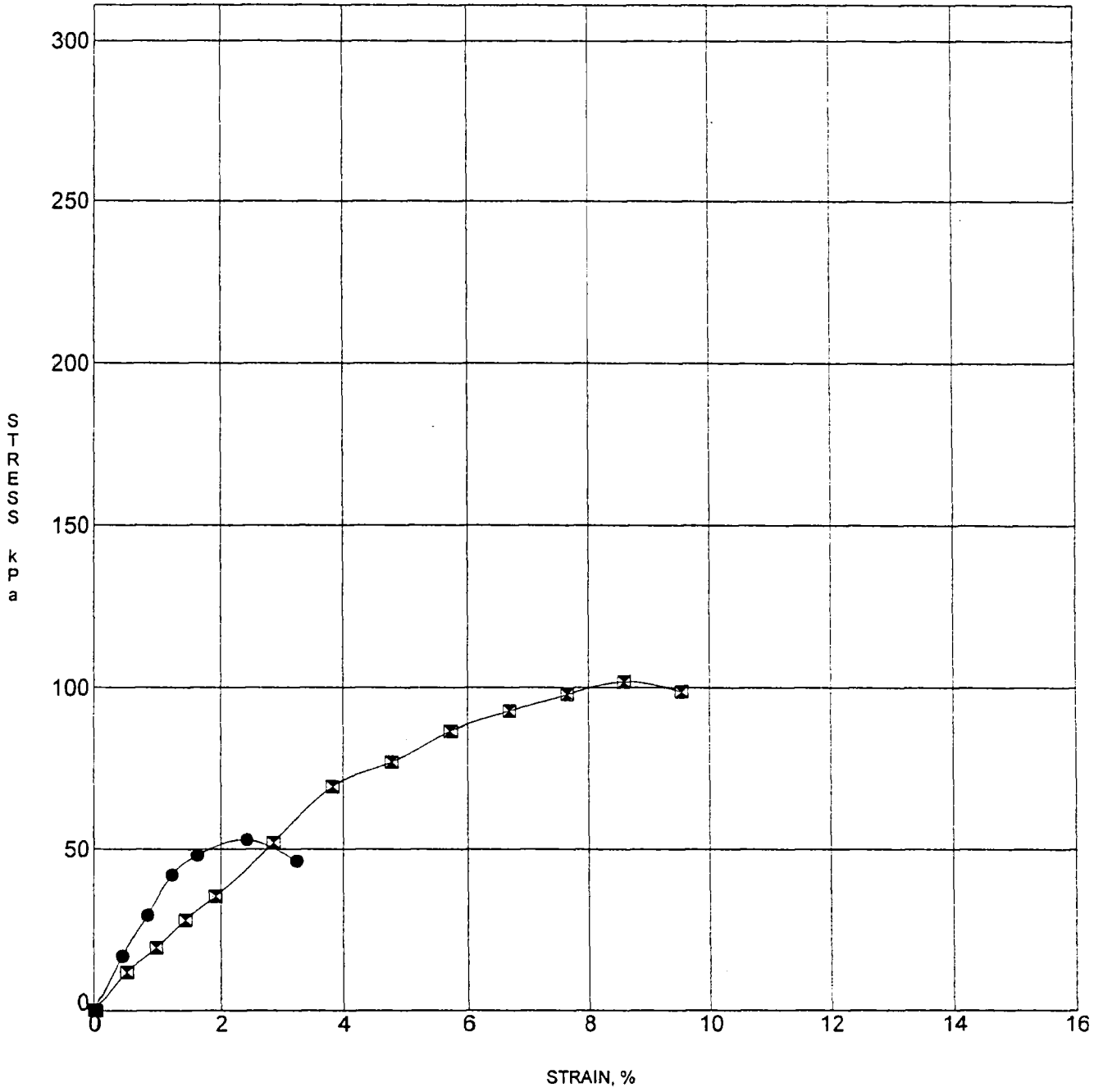
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-972



Specimen Identification		USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-377	6.1	Fat CLAY (CH)	53	11.3	51
⊠ RB-377	16.8	Lean CLAY (CL)	102	14.1	31

KLEINFELDER

PROJECT NO. 35-8163-05

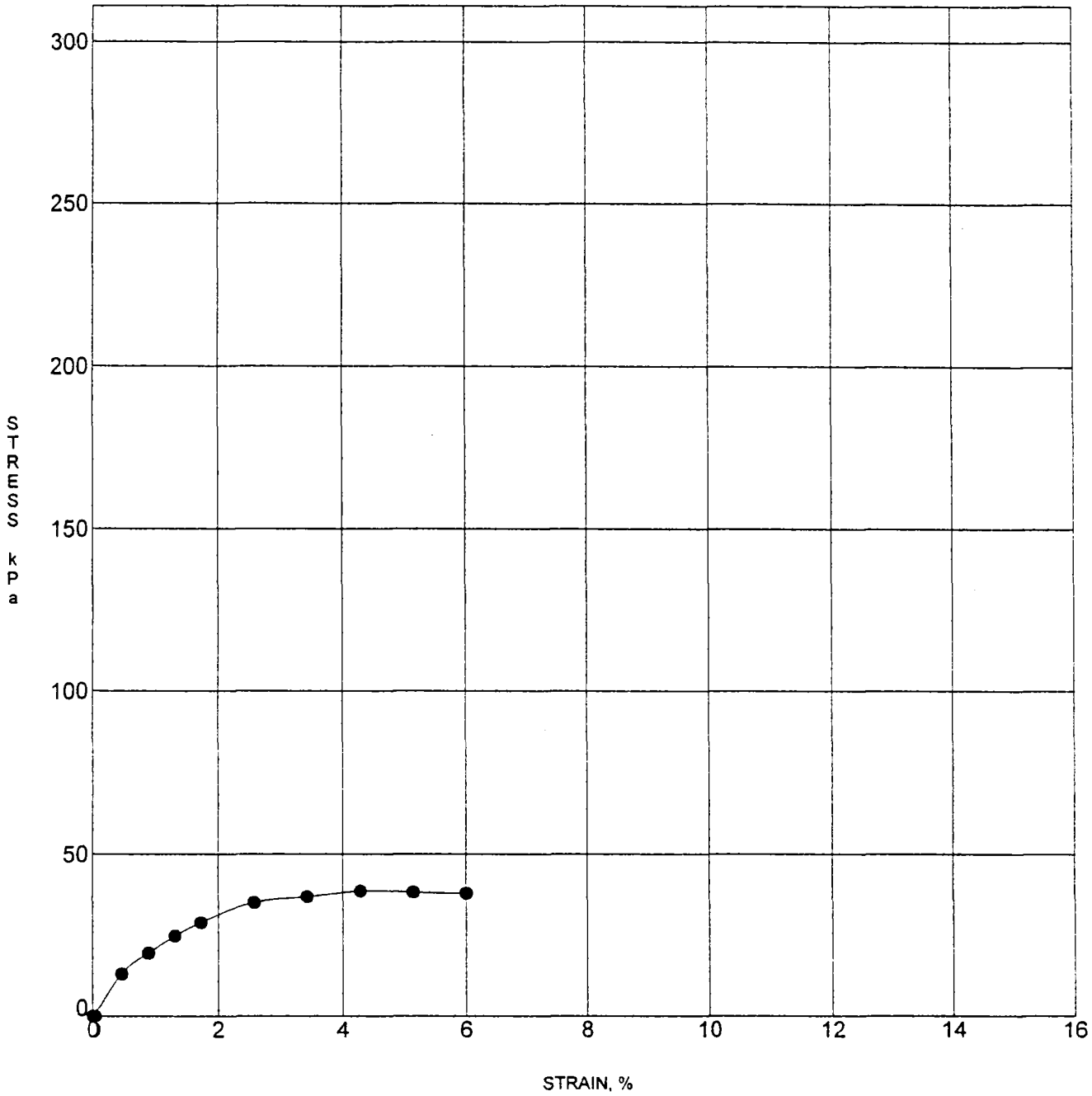
Legacy Parkway - Preferred Alternative

I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-973



Specimen Identification	USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
● RB-378 6.1	Fat CLAY (CH)	39	11.5	50

KLEINFELDER

Legacy Parkway - Preferred Alternative

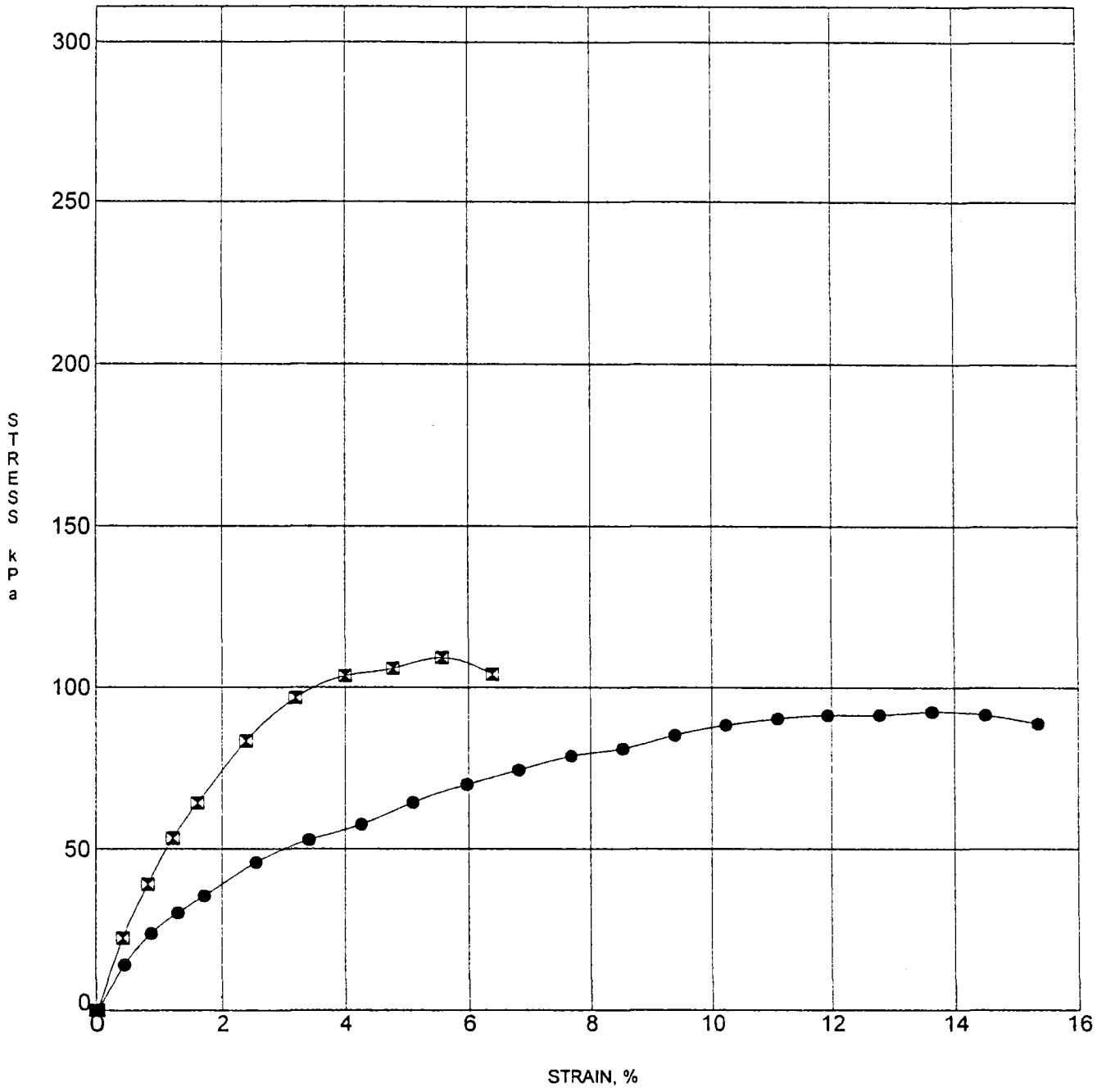
I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-974

PROJECT NO. 35-8163-05



Specimen Identification			USCS Classification	q_u (kPa)	DD (kN/m^3)	MC%
●	RB-379	4.6	Lean CLAY (CL)	92	15.6	26
⊠	RB-379	10.7	Clayey SAND (SC)	109	14.5	35

KLEINFELDER

PROJECT NO. 35-8163-05

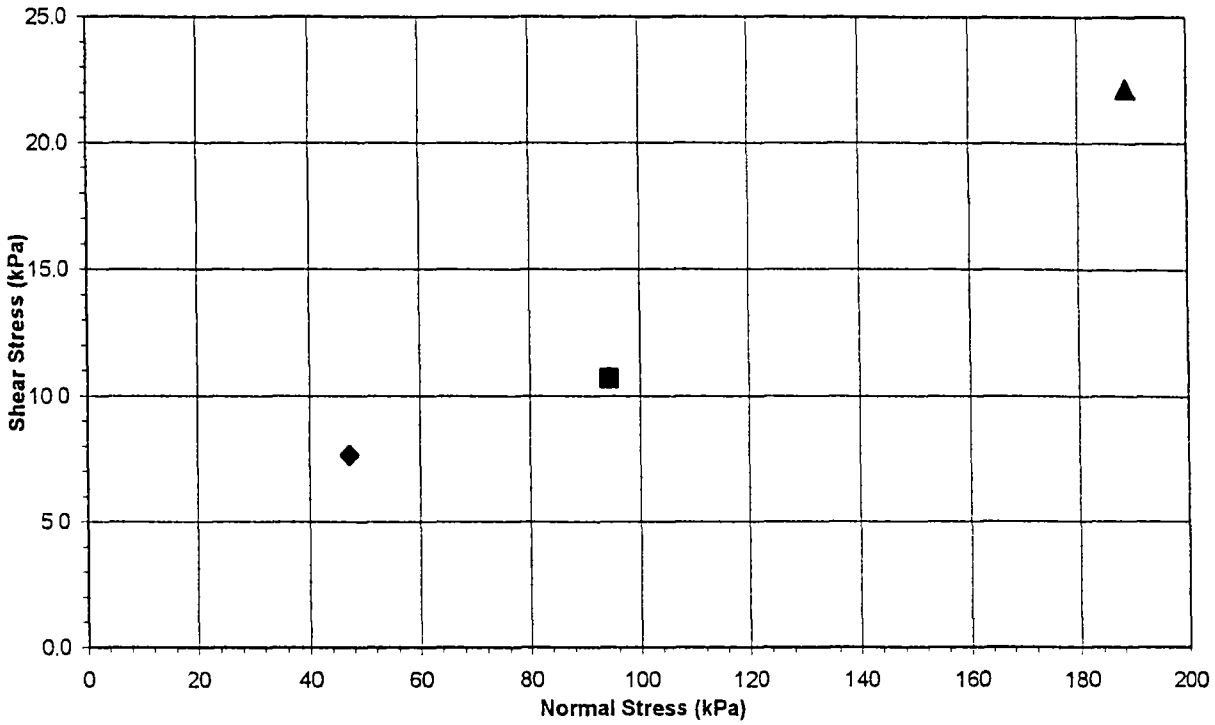
Legacy Parkway - Preferred Alternative

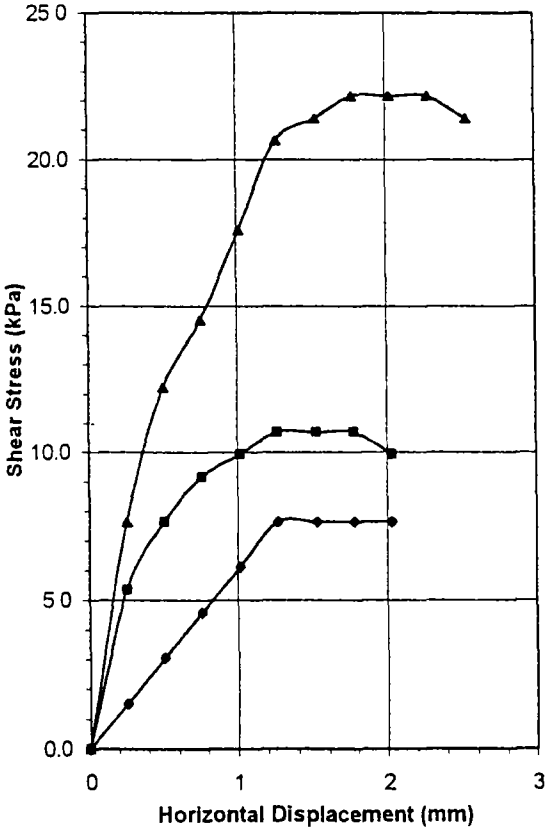
I-215 to I-15/US 89 Interchange

UNCONFINED COMPRESSION TEST

PLATE

K-975





Boring: SB-5-293	Depth: 9.1 m
Type of Test::	Unconsolidated-Undrained

Test No (Symbol)	1	2	3
Sample Type	Undisturbed		
Height, mm	20	20	20
Diameter, mm	63	63	63
Dry Density, KN/m^3	11.2	11.0	10.8
Water Content, %	52.1	53.0	54.1
Normal Stress, kPa	47	94	189
Shear Stress, kPa	8	11	22
Strain Rate	1.25 mm/min		

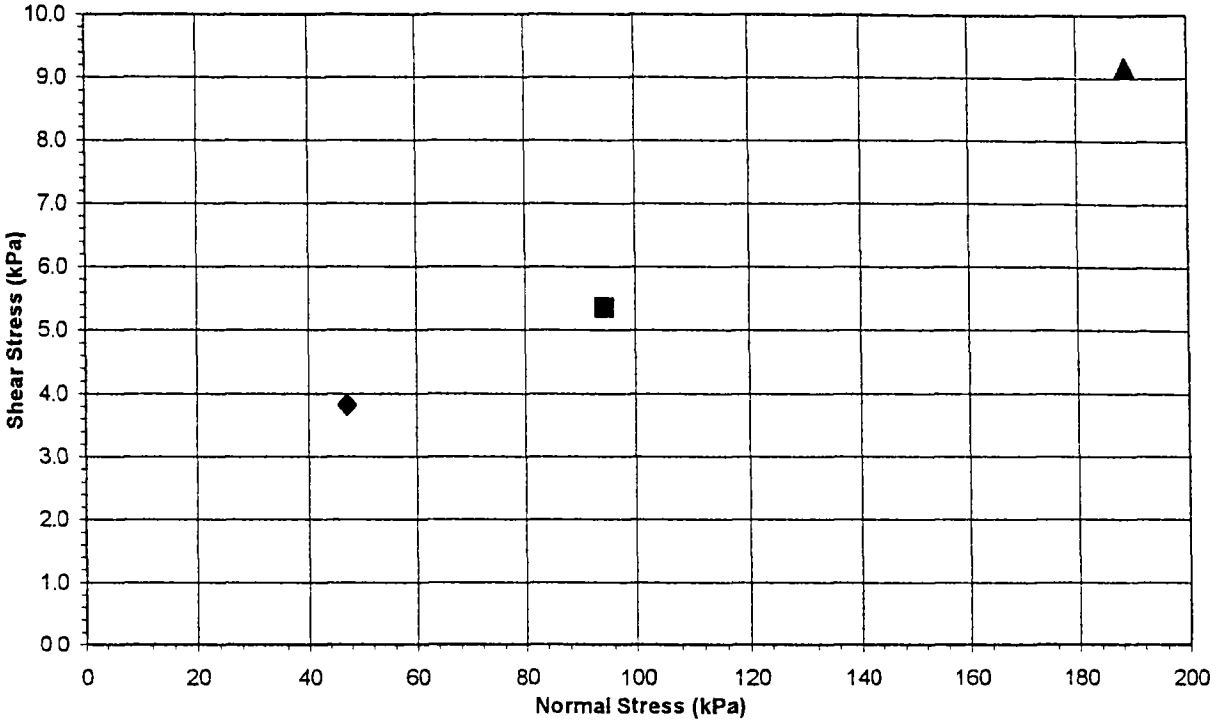
KLEINFELDER

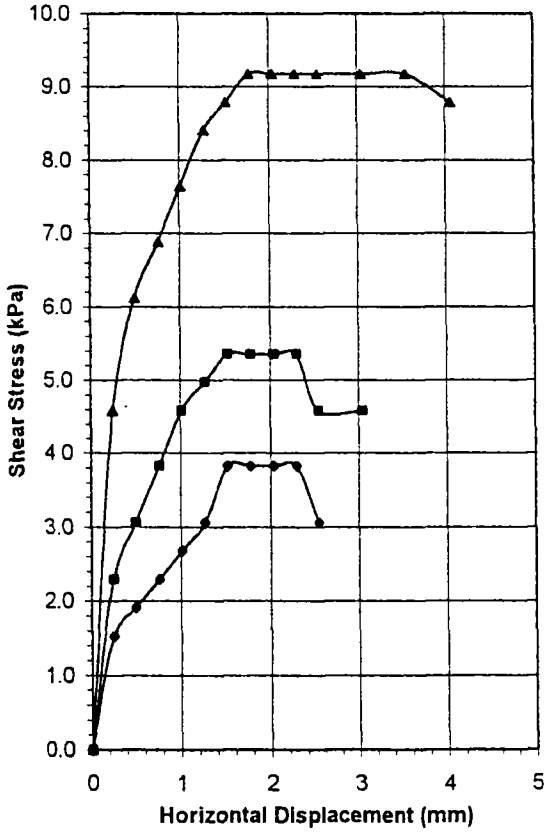
Project No. 35-8163-05

Legacy Highway - Peferred Alternative
I-215 to I-15/US 89 Interchange

DIRECT SHEAR TEST

PLATE
K-1014





Boring: RB-360	Depth: 7.6 m
Type of Test::	Unconsolidated-Undrained

Test No (Symbol)	1	2	3
Sample Type	Undisturbed		
Height, mm	20	20	20
Diameter, mm	63	63	63
Dry Density, KN/m^3	11.7	12 0	12.2
Water Content, %	43.1	40.2	41 7
Normal Stress, kPa	47	94	189
Shear Stress, kPa	4	5	9
Strain Rate	1 25 mm/min		

KLEINFELDER

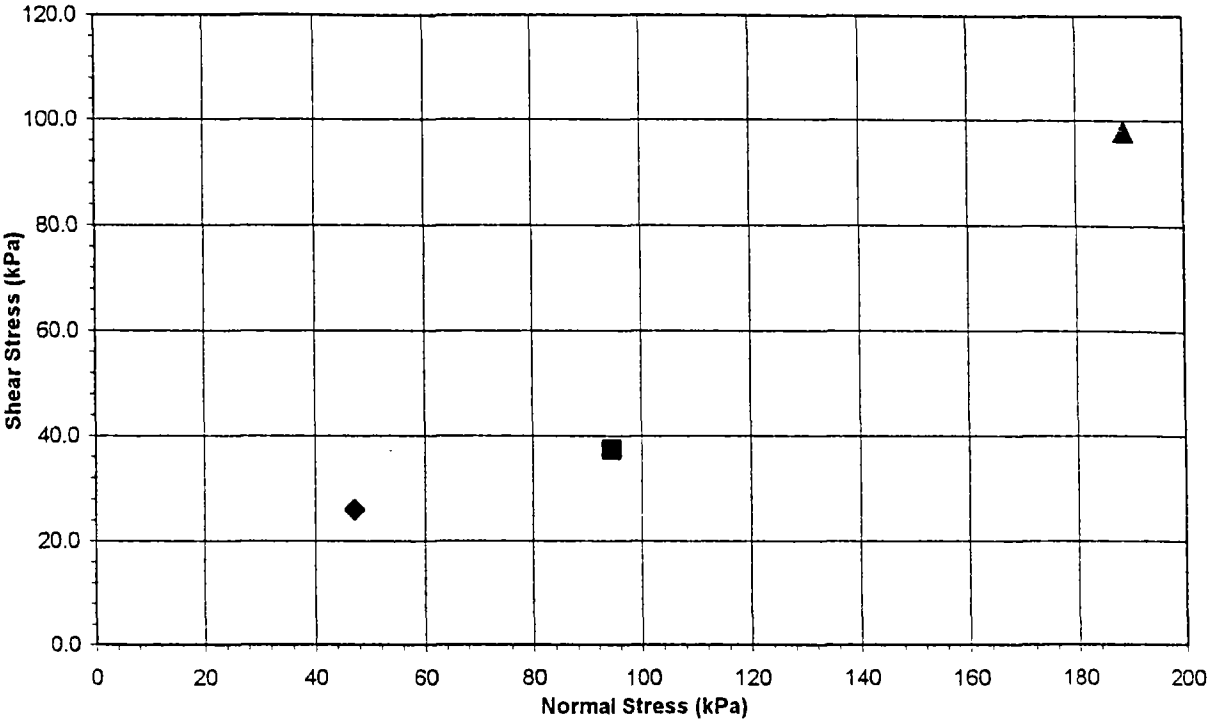
Project No. 35-8163-05

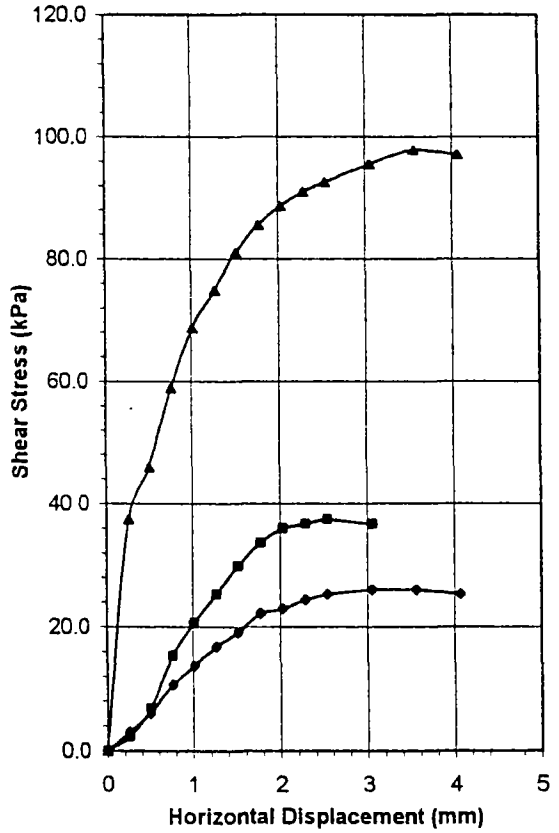
Legacy Highway - Peferred Alternative
I-215 to I-15/US 89 Interchange

DIRECT SHEAR TEST

PLATE

K-1021





Boring: RB-376	Depth: 6.1 m
Type of Test::	Unconsolidated-Undrained

Test No (Symbol)	1	2	3
Sample Type	Undisturbed		
Height, mm	20	20	20
Diameter, mm	63	63	63
Dry Density, KN/m^3	14 0	13.8	13.9
Water Content, %	33.4	33.9	27.7
Normal Stress, kPa	47	94	189
Shear Stress, kPa	26	37	98
Strain Rate	1 25 mm/min		

KLEINFELDER

Project No. 35-8163-05

Legacy Highway - Peferred Alternative
I-215 to I-15/US 89 Interchange

DIRECT SHEAR TEST

PLATE

K-1025

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Kleinfelder-SLC
Date Sampled: March 1, 2000
Project: Legacy Parkway/35-8163-05.005

Contact: Chris Garris
Date Received: May 5, 2000

Lab Sample ID:
L41084-01A

Field Sample ID:
SB-1-243 @ 4-6'

463 West 3600 South
Salt Lake City, Utah
84115

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	5/8/00	9045C	0	7.70	
Resistivity	ohm-cm	5/9/00	2510B	0	2,800	*
Sulfate	mg/kg	5/9/00	375.4	5.0	35	*

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: May 11, 2000

PLATE K-1032

AMERICAN
WEST
ANALYTICAL
LABORATORIES

53 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Free (888) 263-8686
Fax (801) 263-8687

INORGANIC ANALYSIS REPORT

Client: Kleinfelder-SLC
Date Sampled: January 23, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-01A

Field Sample ID:
SB-2-247 @ 5'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	8.00	
Resistivity	ohm-cm	3/3/00	2510B	0	2,300	*
Sulfate	mg/kg	3/6/00	375.4	5.0	48	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

Page 1 of 1

PLATE K-1033

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 21, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-02A

Field Sample ID:
SB-2-248 @ 17'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	8.00	
Resistivity	ohm-cm	3/3/00	2510B	0	1,900	*
Sulfate	mg/kg	3/6/00	375.4	5.0	35	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

PLATE K-1034

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
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LABORATORIES

3 West 3600 South
alt Lake City, Utah
84115

(801) 263-8686
Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 24, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-03A

Field Sample ID:
SB-3-249 @ 9.5'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	**8.20**	
Resistivity	ohm-cm	3/3/00	2510B	0	**1,500**	*
Sulfate	mg/kg	3/6/00	375.4	62	< 62	* *

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

PLATE K-1035

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
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LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
oll Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: February 28, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-04A

Field Sample ID:
SB-4-251 @ 10'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	8.90	
Resistivity	ohm-cm	3/3/00	2510B	0	2,200	*
Sulfate	mg/kg	3/6/00	375.4	5.0	25	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

PLATE K-1036

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Client: Kleinfelder-SLC
Date Sampled: February 22, 2000
Project: Legacy Parkway/35-8163-05.005

Contact: Chris Garris
Date Received: April 14, 2000

Lab Sample ID:
L40795-04A

Field Sample ID:
SB-5-297 @ 5-7'

3 West 3600 South
lt Lake City, Utah
84115

(801) 263-8686
ree (888) 263-8686
Fax (801) 263-8687

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	4/17/00	9045C	0	8.70	
Resistivity	ohm-cm	4/17/00	2510B	0	170	*
Sulfate	mg/kg	4/18/00	375.4	5.0	520	*

* Analysis is performed on a 1:1 DI water extract for soils.
R - Reissue of previously generated report. Information has been added, updated, or revised. Information herein supersedes that of previously issued reports.

Released by: Rene D. Siri
Laboratory Supervisor

Report Date: May 23, 2000

PLATE K-1037

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 14, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-08A

Field Sample ID:
SB-10-303 @ 10'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	**8.80**	
Resistivity	ohm-cm	3/3/00	2510B	0	**220**	*
Sulfate	mg/kg	3/6/00	375.4	5.0	**480**	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

PLATE K-1046

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

3 West 3600 South
alt Lake City, Utah
84115

(801) 263-8686
Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 26, 2000
Project: Legacy Parkway/35-8163-05.005

Contact: Chris Garris
Date Received: March 29, 2000

Lab Sample ID:
L40594-11A

Field Sample ID:
SB-11-259 @ 4-6'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/30/00	9045C	0	**9.10**	
Resistivity	ohm-cm	3/30/00	2510B	0	**180**	*
Sulfate	mg/kg	3/30/00	375.4	5.0	**500**	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: April 5, 2000

PLATE K-1047

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 26, 2000
Project: Legacy Highway

Contact: Curt Christensen
Date Received: March 2, 2000

Lab Sample ID:
L40295-09A

Field Sample ID:
SB-11-262 @ 5'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/3/00	9045C	0	9.40	
Resistivity	ohm-cm	3/3/00	2510B	0	380	*
Sulfate	mg/kg	3/6/00	375.4	5.0	220	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: March 9, 2000

PLATE K-1048

INORGANIC ANALYSIS REPORT

AMERICAN
WEST
ANALYTICAL
LABORATORIES

3 West 3600 South
lt Lake City, Utah
84115

(801) 263-8686
Free (888) 263-8686
Fax (801) 263-8687

Client: Kleinfelder-SLC
Date Sampled: January 31, 2000
Project: Legacy Parkway/35-8163-05.005

Contact: Chris Garris
Date Received: March 29, 2000

Lab Sample ID:
L40594-07A

Field Sample ID:
SB-12-263 @ 5'

Analytical Results	Units	Date Analyzed	Method Used	Reporting Limit	Amount Detected	
pH	pH units	3/30/00	9045C	0	8.50	
Resistivity	ohm-cm	3/30/00	2510B	0	4,900	*
Sulfate	mg/kg	3/30/00	375.4	5.0	8.0	*

* Analysis is performed on a 1:1 DI water extract for soils.

Released by: _____
Laboratory Supervisor

Report Date: April 5, 2000

PLATE K-1049

U.Wt.	Unit Weight of soil determined from: 1) uniform value or 2) value assigned to each SBT zone 3) user supplied unit weight profile		
TStress	Total vertical overburden stress at mid layer depth	$TStress = \sum_{i=1}^{n} \gamma_i h_i$ where γ_i is layer unit weight h_i is layer thickness	
EStress	Effective vertical overburden stress at mid layer depth	$EStress = TStress - Ueq$	
Ueq	Equilibrium pore pressure determined from: 1) hydrostatic from water table depth 2) user supplied profile		
Cn	SPT N_{60} overburden correction factor	$Cn=(\sigma_v')^{-0.5}$ where σ_v' is in tsf $0.5 < C_n < 2.0$	
N_{60}	SPT N value at 60% energy calculated from Qt/N ratios assigned to each SBT zone		3
$(N1)_{60}$	SPT N_{60} value corrected for overburden pressure	$N1_{60} = Cn \bullet N_{60}$	3
$\Delta(N1)_{60}$	Equivalent Clean Sand Correction to $(N1)_{60}$	$\Delta(N1)_{60} = \frac{K_{SPT}}{1 - K_{SPT}} \bullet (N1)_{60}$ Where: K_{SPT} is defined as: 0.0 for FC < 5% 0.0167 • (FC - 5) for 5% < FC < 35% 0.5 for FC > 35% FC - Fines Content in %	7
$(N1)_{60cs}$	Equivalent Clean Sand $(N1)_{60}$	$(N1)_{60cs} = (N1)_{60} + \Delta(N1)_{60}$	7
Su	Undrained shear strength - Nkt is use selectable	$Su = \frac{Qt - \sigma_v}{N_{kt}}$	2
k	Coefficient of permeability (assigned to each SBT zone)		6
Bq	Pore pressure parameter	$Bq = \frac{\Delta u}{Qt - \sigma_v}$	2
Qtn	Normalized Qt for Soil Behavior Type classification as defined by Robertson, 1990	$Qtn = \frac{Qt - \sigma_v}{\sigma_v'}$	4
Rfn	Normalized Rf for Soil Behavior Type classification as defined by Robertson, 1990	$Rfn = 100\% \bullet \frac{f_s}{Qt - \sigma_v}$	4
SBTn	Normalized Soil Behavior Type (slightly modified from that published by Robertson, 1990. This version includes all the soil zones of the original non-normalized SBT chart - see figure 1)		4
Qc1	Normalized Qt for seismic analysis	$qc1 = qc \bullet (Pa/\sigma_v')^{0.5}$ where: Pa = atm. pressure	5
Qc1N	Dimensionless Normalized Qt1	qc1N = qc1 / Pa where: Pa = atm. pressure	

ΔQc1N1	Equivalent clean sand correction	$\Delta qc1N = \frac{K_{CPT}}{1 - K_{CPT}} \bullet qc1N$ Where: K_{CPT} is defined as: 0.0 for FC < 5% 0.0267 • (FC - 5) for 5% < FC < 35% 0.5 for FC > 35% FC - Fines Content in %	5
Qc1Ncs	Clean Sand equivalent Qc1N	$qc1Ncs = qc1N + \Delta qc1N$	5
Ic	Soil index for estimating grain characteristics	$Ic = [(3.47 - logQ)^2 + (log F + 1.22)^2]^{0.5}$	5
FC	Fines content (%)	$FC=1.75(Ic^{3.25}) - 3.7$ $FC=100$ for $Ic > 3.5$ $FC=0$ for $Ic < 1.26$ $FC = 5\%$ if $1.64 < Ic < 2.6$ AND $Rfn<0.5$	8
PHI	Friction Angle	Campanella and Robertson Durunoglu and Mitchel Janbu	1
Dr	Relative Density	Ticino Sand Hokksund Sand Schmertmann 1976 Jamiolkowski - All Sands	1
OCR	Over Consolidation Ratio		1
State Parameter	Difference between the current void ratio (e) and the critical void ratio (e_c) at the same stress level	$\Psi = e - e_c$	9
CRR	Cyclic Resistance Ratio		7

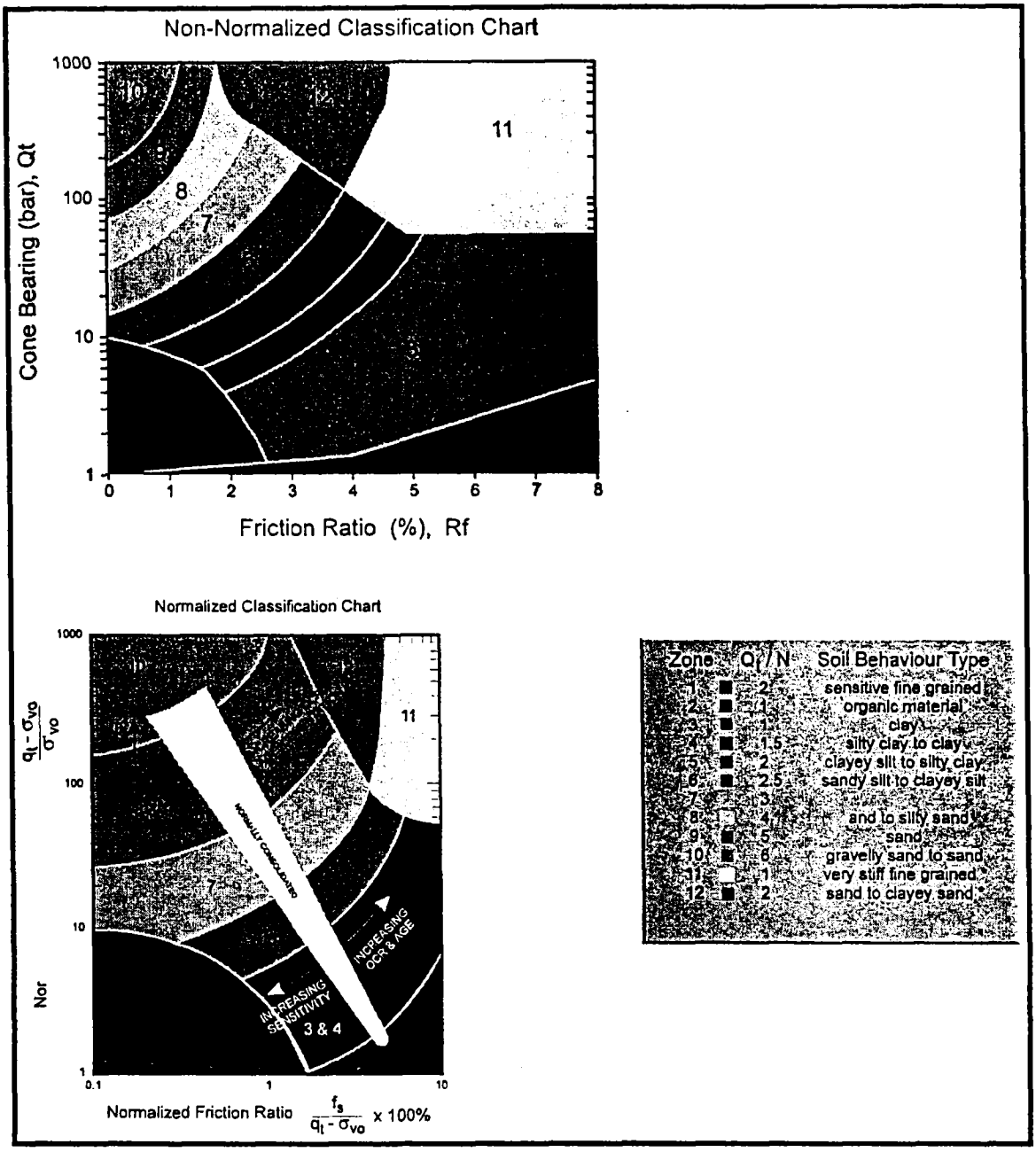

Figure 1 Non-Normalized and Normalized Soil Behaviour Type Classification Charts

Table 2 References

No.	Reference
1	Robertson, P.K. and Campanella, R.G., 1986, "Guidelines for Use, Interpretation and Application of the CPT and CPTU", UBC, Soil Mechanics Series No. 105, Civil Eng. Dept., Vancouver, B.C., Canada
2	Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, "Use of Piezometer Cone Data", Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.
3	Robertson, P.K. and Campanella, R.G., 1989, "Guidelines for Geotechnical Design Using CPT and CPTU", UBC, Soil Mechanics Series No. 120, Civil Eng. Dept., Vancouver, B.C., Canada
4	Robertson, P.K., 1990, "Soil Classification Using the Cone Penetration Test", Canadian Geotechnical Journal, Volume 27.
5	Robertson, P.K. and Fear, C.E., 1995, "Liquefaction of Sands and its Evaluation", Keynote Lecture, First International Conference on Earthquake Geotechnical Enginnering, Tokyo, Japan.
6	ConeTec Internal Report
7	Robertson, P.K. and Wride, C.E., 1997, "Cyclic Liquefaction and its Evaluation Based on SPT and CPT", NCEER Workshop Paper, January 22, 1997
8	Wride, C.E. and Robertson, P.K., 1997, "Phase II Data Review Report (Massey and Kidd Sites, Fraser River Delta)", Volume 1 - Data Report (June 1997), University of Alberta.
9	Plewes, H.D., Davies, M.P. and Jefferies, M.G., 1992, "CPT Based Screening Procedure for Evaluating Liquefaction Susceptibility", 45th Canadian Geotechnical Conference, Toronto, Ontario, October 1992.

References

American Society for Testing and Materials (1996) ASTM D 5778-95 "Performing electronic Friction Cone and Piezocone Penetration Testing of Soils, "Annual Book of ASTM Standards, Vol. 4.08, Philadelphia, PA, pp. 576-593.

Lunne, T., Robertson, P.K. and Powell, J.M.M. (1997) "Cone Penetration Testing in Geotechnical Practice", Blackie Publications, London.

Robertson, P.K. (1990) "Soil classification using the cone penetration test". Canadian Geotechnical Journal, 27(1), pp. 151-158.

Robertson, P.K., and Campenella, R.G. (1988) "Guidelines for geotechnical design using CPT and CPTU", University of British Columbia, Vancouver, Canada, Department of Civil Engineering, Soil Mechanics Series No. 120.

ConeTec CPT Interpretations as of October 16, 1998 (Release 1.00.18)

ConeTec's interpretation routine should be considered a calculator of current published CPT correlations and is subject to change to reflect the current state of practice. The interpreted values are not considered valid for all soil types. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Reference to current literature is strongly recommended.

The CPT interpretations are based on values of tip, sleeve friction and pore pressure averaged over a user specified interval (typically 0.25m). Note that Qt is the recorded tip value, Qc, corrected for pore pressure effects. Since all ConeTec cones have equal end area friction sleeves, pore pressure corrections to sleeve friction, Fs, are not required.

The tip correction is: $Qt = Qc + (1-a) \bullet Ud$

where: *Qt* is the corrected tip load
Qc is the recorded tip load
Ud is the recorded dynamic pore pressure
a is the Net Area Ratio for the cone (typically 0.85 for ConeTec cones)

Effective vertical overburden stresses are calculated based on a hydrostatic distribution of equilibrium pore pressures below the water table or from a user defined equilibrium pore pressure profile (this can be obtained from CPT dissipation tests). The stress calculations use unit weights assigned to the Soil Behaviour Type zones or from a user defined unit weight profile.

Details regarding the interpretation methods for all of the interpreted parameters is given in table 1. The appropriate references referred to in table 1 are listed in table 2.

The estimated Soil Behaviour Type is based on the charts developed by Robertson and Campanella shown in figure 1.

Table 1 CPT Interpretation Methods

Interpreted Parameter	Description	Equation	Ref
Depth	mid layer depth		
AvgQt	Averaged corrected tip (Qt)	$AvgQt = \frac{1}{n}\sum_{i=1}^{n} Qt_i$	
AvgFs	Averaged sleeve friction (Fs)	$AvgFs = \frac{1}{n}\sum_{i=1}^{n} Fs_i$	
AvgRf	Averaged friction ratio (Rf)	$AvgRf = 100\% \bullet \frac{AvgFs}{AvgQt}$	
AvgUd	Averaged dynamic pore pressure (Ud)	$AvgUd = \frac{1}{n}\sum_{i=1}^{n} Ud_i$	
SBT	Soil Behavior Type as defined by Robertson and Campanella		1

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-2867
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-1-244
Location: STRUCTURE 1
Cone: 20 TON A 058
CPT Date: 00/23/02
CPT Time: 10:46
CPT File: 300SC244.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	453.8	8.6	1.9	1.4	0.0	3.0	6.1	30.2	0.0	0.0	10.0
0.74	0.23	562.9	11.6	2.1	4.1	0.0	3.8	7.5	37.3	0.0	0.0	10.0
1.23	0.38	432.0	6.9	1.6	6.3	0.0	2.2	4.3	28.4	0.0	0.0	10.0
1.72	0.52	708.7	2.9	0.4	8.2	0.0	3.5	7.1	46.7	0.0	0.0	10.0
2.21	0.68	444.6	2.0	0.4	10.1	0.0	2.2	4.4	29.0	0.0	0.0	6.0
2.71	0.82	375.4	2.0	0.5	12.0	0.0	1.9	3.8	24.2	0.0	0.0	6.0
3.20	0.97	574.7	15.2	2.6	14.2	0.0	5.7	11.5	37.4	0.0	0.0	6.0
3.61	1.10	540.3	22.4	4.1	15.4	1.0	5.4	10.8	34.9	0.0	0.0	6.0
4.02	1.22	792.8	11.2	1.4	16.4	2.2	4.0	7.9	51.6	0.0	0.0	6.0
4.51	1.38	1099.8	5.7	0.5	17.6	3.7	4.4	8.8	71.9	30.0	40.0	10.0
5.00	1.53	1090.7	8.0	0.7	18.9	5.2	4.4	8.7	71.1	30.0	40.0	6.0
5.50	1.67	1965.0	16.9	0.9	20.1	6.6	7.9	15.7	129.2	43.6	42.0	10.0
5.99	1.83	1363.1	18.6	1.4	21.3	8.1	5.5	10.9	88.9	32.3	40.0	10.0
6.56	2.00	1320.7	18.0	1.4	22.8	9.8	5.3	10.6	85.9	30.5	40.0	6.0
7.14	2.17	1152.1	17.0	1.5	24.2	11.5	5.8	11.5	74.4	0.0	0.0	6.0
7.63	2.33	1914.2	19.7	1.0	25.4	13.0	7.7	14.9	125.1	39.5	40.0	10.0
8.12	2.47	3677.2	12.1	0.3	26.7	14.5	12.3	23.2	0.0	57.5	44.0	1.0
8.61	2.62	1587.4	28.5	1.8	28.0	15.9	6.3	11.8	102.9	32.8	40.0	6.0
9.10	2.78	556.0	6.5	1.2	28.8	17.4	2.8	5.1	34.0	0.0	0.0	6.0
9.60	2.92	671.2	2.1	0.3	29.2	18.9	3.4	6.1	41.5	0.0	0.0	6.0
10.09	3.08	616.6	2.7	0.4	29.6	20.4	3.1	5.5	37.8	0.0	0.0	6.0
10.58	3.22	591.6	2.3	0.4	30.0	21.8	3.0	5.3	36.0	0.0	0.0	6.0
11.07	3.38	665.7	2.0	0.3	30.4	23.3	3.3	5.9	40.8	0.0	0.0	6.0
11.56	3.53	574.2	2.0	0.3	30.8	24.8	2.9	5.1	34.6	0.0	0.0	6.0
12.06	3.67	580.8	2.0	0.3	31.2	26.2	2.9	5.1	34.9	0.0	0.0	6.0
12.55	3.83	555.3	2.0	0.4	31.6	27.7	2.8	4.8	33.1	0.0	0.0	6.0
13.04	3.98	572.3	2.0	0.3	32.0	29.2	2.9	5.0	34.1	0.0	0.0	6.0
13.53	4.12	503.1	2.0	0.4	32.4	30.7	2.5	4.3	29.3	0.0	0.0	3.0
14.03	4.27	520.6	2.0	0.4	32.8	32.1	2.6	4.4	30.4	0.0	0.0	3.0
14.52	4.43	393.4	2.0	0.5	33.2	33.6	2.0	3.3	21.8	0.0	0.0	3.0
15.01	4.57	411.2	2.0	0.5	33.6	35.1	2.1	3.5	22.8	0.0	0.0	3.0
15.50	4.73	677.7	2.0	0.3	34.0	36.5	3.4	5.7	40.5	0.0	0.0	6.0
15.99	4.88	560.9	2.0	0.4	34.4	38.0	2.8	4.7	32.6	0.0	0.0	3.0
16.49	5.02	584.7	2.6	0.4	34.8	39.5	2.9	4.8	34.0	0.0	0.0	3.0
16.98	5.18	1336.8	12.6	0.9	35.6	41.0	5.3	8.8	84.0	30.0	38.0	6.0
17.47	5.32	620.4	3.3	0.5	36.5	42.4	3.1	5.0	36.1	0.0	0.0	3.0
17.96	5.48	545.6	2.0	0.4	36.9	43.9	2.7	4.4	31.0	0.0	0.0	3.0
18.45	5.62	463.8	2.2	0.5	37.3	45.4	2.3	3.7	25.4	0.0	0.0	3.0
18.95	5.77	580.0	2.0	0.3	37.7	46.8	2.9	4.6	33.0	0.0	0.0	3.0
19.44	5.93	1317.6	4.9	0.4	38.5	48.3	5.3	8.3	82.1	30.0	36.0	6.0
19.93	6.07	905.6	3.6	0.4	39.7	49.8	3.6	5.6	54.4	30.0	34.0	6.0
20.42	6.23	819.2	2.4	0.3	40.5	51.3	4.1	6.3	48.5	0.0	0.0	6.0
20.92	6.38	628.2	2.0	0.3	40.9	52.7	3.1	4.8	35.6	0.0	0.0	3.0
21.41	6.52	688.7	2.3	0.3	41.3	54.2	3.4	5.2	39.5	0.0	0.0	3.0
21.90	6.68	751.5	3.4	0.5	41.7	55.7	3.8	5.7	43.6	0.0	0.0	6.0
22.39	6.82	639.8	3.1	0.5	42.1	57.1	3.2	4.8	36.0	0.0	0.0	3.0
22.88	6.98	625.1	4.2	0.7	42.5	58.6	3.1	4.7	34.9	0.0	0.0	3.0

PLATE E-1

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	789.9	6.8	0.9	43.4	60.1	3.9	5.9	45.8	0.0	0.0	6.0
23.87	7.27	9778.6	55.5	0.6	44.7	61.6	24.4	35.8	0.0	78.2	46.0	1.0
24.36	7.43	9247.5	82.4	0.9	46.0	63.0	23.1	33.3	0.0	76.1	46.0	1.0
24.85	7.57	963.7	31.2	3.2	47.3	64.5	6.4	9.1	56.8	0.0	0.0	6.0
25.34	7.73	706.3	3.4	0.5	48.2	66.0	3.5	5.0	39.5	0.0	0.0	3.0
25.84	7.88	743.3	3.5	0.5	48.6	67.4	3.7	5.2	41.8	0.0	0.0	3.0
26.33	8.02	865.1	10.6	1.2	49.4	68.9	4.3	6.0	49.8	0.0	0.0	6.0
26.82	8.18	8677.3	53.0	0.6	50.7	70.4	21.7	29.8	0.0	72.9	44.0	1.0
27.31	8.32	20212.7	115.7	0.6	52.1	71.9	40.4	54.8	0.0	95.0	48.0	1.0
27.80	8.48	21710.2	122.1	0.6	53.6	73.3	43.4	58.1	0.0	95.0	48.0	1.0
28.30	8.62	12652.6	92.6	0.7	55.0	74.8	25.3	33.4	0.0	82.6	46.0	1.0
28.79	8.77	1657.2	46.1	2.8	56.4	76.3	8.3	10.8	101.6	0.0	0.0	6.0
29.28	8.93	2224.9	15.5	0.7	57.6	77.7	7.4	9.6	0.0	32.1	38.0	1.0
29.77	9.07	1332.4	16.3	1.2	58.9	79.2	5.3	6.8	79.6	30.0	34.0	6.0
30.27	9.23	1806.8	6.3	0.3	60.2	80.7	6.0	7.6	0.0	30.0	36.0	1.0
30.76	9.38	4774.4	24.2	0.5	61.5	82.2	11.9	14.9	0.0	53.1	40.0	1.0
31.17	9.50	5976.6	53.6	0.9	62.6	83.4	14.9	18.5	0.0	59.2	42.0	1.0
31.58	9.62	1190.3	24.6	2.1	63.7	84.6	6.0	7.3	69.5	0.0	0.0	6.0
32.07	9.77	1028.7	4.9	0.5	64.9	86.1	4.1	5.0	58.5	30.0	32.0	3.0
32.56	9.93	1326.6	6.8	0.5	66.2	87.6	5.3	6.4	78.2	30.0	32.0	6.0
33.05	10.07	1922.6	24.2	1.3	67.4	89.0	7.7	9.2	117.7	30.0	36.0	6.0
33.55	10.23	929.4	3.4	0.4	68.6	90.5	3.7	4.4	51.4	30.0	30.0	3.0
34.04	10.38	5748.4	55.7	1.0	69.9	92.0	19.2	22.4	0.0	56.5	42.0	1.0
34.53	10.52	5978.0	81.8	1.4	71.2	93.4	19.9	23.1	0.0	57.4	42.0	1.0
35.02	10.68	11570.1	154.6	1.3	72.5	94.9	28.9	33.2	0.0	76.1	44.0	1.0
35.51	10.82	4263.7	37.8	0.9	73.9	96.4	14.2	16.2	0.0	47.2	40.0	1.0
36.01	10.98	1278.3	18.2	1.4	75.1	97.9	5.1	5.8	73.7	30.0	32.0	3.0
36.50	11.12	10708.7	79.7	0.7	76.4	99.3	26.8	30.0	0.0	73.1	44.0	1.0
36.99	11.27	12640.0	174.3	1.4	77.8	100.8	31.6	35.1	0.0	77.6	44.0	1.0
37.48	11.43	1683.1	51.6	3.1	79.1	102.3	8.4	9.3	100.1	0.0	0.0	6.0
37.98	11.57	1483.5	19.9	1.3	80.4	103.7	5.9	6.5	86.6	30.0	32.0	6.0
38.47	11.73	5868.4	31.8	0.5	81.7	105.2	14.7	15.9	0.0	54.9	40.0	1.0
38.96	11.88	1642.4	34.1	2.1	83.0	106.7	8.2	8.8	96.9	0.0	0.0	6.0
39.45	12.02	958.2	6.6	0.7	84.2	108.2	3.8	4.1	51.1	30.0	30.0	3.0
39.94	12.18	1275.0	6.1	0.5	85.4	109.6	5.1	5.4	72.0	30.0	32.0	3.0
40.44	12.32	945.3	6.3	0.7	86.7	111.1	3.8	4.0	49.8	30.0	30.0	3.0
40.93	12.48	1082.7	6.8	0.6	87.9	112.6	4.3	4.5	58.8	30.0	30.0	3.0
41.42	12.62	1252.6	8.8	0.7	89.1	114.0	5.0	5.2	70.0	30.0	30.0	3.0
41.91	12.77	1191.4	9.4	0.8	90.3	115.5	4.8	4.9	65.7	30.0	30.0	3.0
42.40	12.93	1113.0	8.0	0.7	91.6	117.0	4.5	4.6	60.3	30.0	30.0	3.0
42.90	13.07	1195.4	13.0	1.1	92.8	118.5	4.8	4.9	65.6	30.0	30.0	3.0
43.39	13.23	2081.7	11.2	0.5	94.1	119.9	6.9	7.0	0.0	30.0	34.0	1.0
43.88	13.38	1605.9	12.5	0.8	95.3	121.4	6.4	6.4	92.6	30.0	32.0	3.0
44.37	13.52	1355.3	10.4	0.8	96.6	122.9	5.4	5.4	75.7	30.0	30.0	3.0
44.86	13.68	1625.1	12.0	0.7	97.8	124.3	6.5	6.4	93.5	30.0	32.0	3.0
45.36	13.82	2186.4	11.4	0.5	99.0	125.8	7.3	7.2	0.0	30.0	34.0	1.0
45.85	13.98	1296.8	7.5	0.6	100.3	127.3	5.2	5.1	71.3	30.0	30.0	3.0
46.34	14.12	1297.8	7.7	0.6	101.5	128.8	5.2	5.0	71.2	30.0	30.0	3.0
46.83	14.27	1233.9	10.4	0.8	102.8	130.2	4.9	4.8	66.7	30.0	30.0	3.0
47.33	14.43	1584.7	10.9	0.7	104.0	131.7	6.3	6.1	89.9	30.0	32.0	3.0
47.82	14.57	1308.6	9.4	0.7	105.2	133.2	5.2	5.0	71.3	30.0	30.0	3.0
48.31	14.73	3798.1	24.9	0.7	106.5	134.6	12.7	12.0	0.0	38.6	36.0	1.0
48.80	14.88	5600.7	79.2	1.4	107.8	136.1	18.7	17.6	0.0	49.6	38.0	1.0
49.29	15.02	9147.2	77.1	0.8	109.1	137.6	22.9	21.4	0.0	63.5	42.0	1.0
49.79	15.18	6907.4	96.6	1.4	110.5	139.1	23.0	21.4	0.0	55.2	40.0	1.0
50.28	15.32	1663.8	34.9	2.1	111.7	140.5	8.3	7.7	94.1	0.0	0.0	3.0
50.77	15.48	1452.1	6.3	0.4	113.0	142.0	5.8	5.3	79.8	30.0	30.0	3.0
51.26	15.62	1413.5	5.2	0.4	114.2	143.5	5.7	5.2	77.1	30.0	30.0	3.0
51.75	15.77	1476.0	4.9	0.3	115.4	144.9	5.9	5.4	81.0	30.0	30.0	3.0
52.25	15.93	1536.8	10.3	0.7	116.7	146.4	6.1	5.6	84.9	30.0	30.0	3.0
52.74	16.08	1585.8	9.3	0.6	117.9	147.9	6.3	5.7	88.0	30.0	30.0	3.0
53.23	16.22	1422.8	15.2	1.1	119.1	149.4	5.7	5.1	77.0	30.0	30.0	3.0
53.72	16.38	1422.1	14.9	1.0	120.3	150.8	5.7	5.1	76.7	30.0	30.0	3.0
54.22	16.53	1387.5	12.6	0.9	121.6	152.3	5.6	4.9	74.2	30.0	30.0	3.0

PLATE E-2

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1545.9	14.8	1.0	122.8	153.8	6.2	5.5	84.6	30.0	30.0	3.0
55.20	16.83	1855.0	16.8	0.9	124.0	155.2	7.4	6.5	105.1	30.0	32.0	3.0
55.69	16.97	2295.1	34.0	1.5	125.3	156.7	9.2	8.0	134.2	30.0	32.0	6.0
56.18	17.12	2129.2	36.4	1.7	126.5	158.2	8.5	7.4	123.0	30.0	32.0	3.0
56.68	17.28	4892.3	73.7	1.5	127.8	159.7	16.3	14.1	0.0	43.3	38.0	1.0
57.17	17.42	13434.0	116.4	0.9	129.1	161.1	26.9	23.1	0.0	72.1	42.0	1.0
57.66	17.58	16079.2	106.0	0.7	130.6	162.6	32.2	27.5	0.0	77.1	42.0	1.0
58.15	17.72	4945.3	137.9	2.8	131.9	164.1	19.8	16.9	310.0	43.1	38.0	6.0
58.64	17.88	6748.5	68.3	1.0	133.2	165.5	16.9	14.3	0.0	51.9	38.0	1.0
59.14	18.03	7756.5	87.2	1.1	134.6	167.0	19.4	16.4	0.0	55.7	40.0	1.0
59.63	18.17	2024.6	28.5	1.4	135.9	168.5	8.1	6.8	114.7	30.0	32.0	3.0
60.12	18.33	1448.9	4.1	0.3	137.1	170.0	5.8	4.8	76.1	30.0	30.0	3.0
60.61	18.47	1418.8	5.6	0.4	138.4	171.4	5.7	4.7	73.9	30.0	30.0	3.0
61.10	18.62	1453.5	19.7	1.4	139.6	172.9	5.8	4.8	76.1	30.0	30.0	3.0
61.60	18.78	1474.1	14.2	1.0	140.8	174.4	5.9	4.9	77.3	30.0	30.0	3.0
62.09	18.92	3198.0	21.1	0.7	142.1	175.8	10.7	8.8	0.0	30.0	34.0	1.0
62.58	19.08	2158.2	18.3	0.8	143.4	177.3	8.6	7.1	122.5	30.0	32.0	3.0
63.07	19.22	1547.1	11.5	0.7	144.6	178.8	6.2	5.0	81.6	30.0	30.0	3.0
63.57	19.38	2019.1	16.9	0.8	145.8	180.3	8.1	6.5	112.9	30.0	30.0	3.0
64.06	19.53	5568.8	25.9	0.5	147.1	181.7	13.9	11.2	0.0	45.0	38.0	1.0
64.55	19.67	2451.2	18.1	0.7	148.5	183.2	8.2	6.6	0.0	30.0	32.0	1.0
65.04	19.83	5233.4	42.3	0.8	149.8	184.7	17.4	14.0	0.0	42.9	36.0	1.0
65.53	19.97	5571.6	113.2	2.0	151.1	186.1	18.6	14.8	0.0	44.6	38.0	1.0
66.03	20.12	7990.7	83.2	1.0	152.4	187.6	20.0	15.8	0.0	54.8	38.0	1.0
66.52	20.28	6086.7	71.3	1.2	153.7	189.1	20.3	16.0	0.0	46.9	38.0	1.0
67.01	20.42	3790.1	45.8	1.2	155.1	190.6	12.6	9.9	0.0	33.2	34.0	1.0
67.50	20.58	6255.1	55.1	0.9	156.4	192.0	15.6	12.2	0.0	47.4	38.0	1.0
67.99	20.72	3176.5	27.6	0.9	157.7	193.5	10.6	8.3	0.0	30.0	32.0	1.0
68.49	20.88	2708.6	21.9	0.8	159.0	195.0	9.0	7.0	0.0	30.0	32.0	1.0
68.98	21.03	1750.4	12.0	0.7	160.3	196.4	7.0	5.4	92.9	30.0	30.0	3.0
69.47	21.17	1684.1	10.0	0.6	161.5	197.9	6.7	5.2	88.3	30.0	30.0	3.0
69.96	21.33	1720.6	10.1	0.6	162.8	199.4	6.9	5.3	90.6	30.0	30.0	3.0
70.46	21.47	1628.9	9.0	0.6	164.0	200.9	6.5	5.0	84.3	30.0	30.0	3.0
70.95	21.62	1658.2	8.9	0.5	165.2	202.3	6.6	5.1	86.0	30.0	30.0	3.0
71.44	21.78	1659.6	9.7	0.6	166.4	203.8	6.6	5.0	86.0	30.0	30.0	3.0
71.93	21.92	1536.4	11.3	0.7	167.7	205.3	6.1	4.6	77.6	30.0	30.0	1.5
72.42	22.08	1515.0	9.0	0.6	168.9	206.7	6.1	4.6	76.0	30.0	30.0	1.5
72.92	22.22	1517.5	11.8	0.8	170.1	208.2	6.1	4.6	75.9	30.0	30.0	1.5
73.41	22.38	2390.2	28.8	1.2	171.4	209.7	9.6	7.1	133.9	30.0	30.0	3.0
73.90	22.53	1929.1	29.5	1.5	172.6	211.2	7.7	5.7	103.0	30.0	30.0	3.0
74.39	22.67	2910.3	68.1	2.3	173.8	212.6	11.6	8.6	168.3	30.0	32.0	3.0
74.88	22.83	3532.1	64.9	1.8	175.0	214.1	14.1	10.5	209.5	30.0	32.0	6.0
75.38	22.97	8815.3	76.8	0.9	176.3	215.6	22.0	16.2	0.0	55.5	38.0	1.0
75.87	23.12	4356.4	48.9	1.1	177.7	217.0	14.5	10.7	0.0	35.2	34.0	1.0
76.36	23.28	4545.8	46.1	1.0	179.0	218.5	15.2	11.1	0.0	36.3	34.0	1.0
76.85	23.42	2162.4	18.5	0.9	180.3	220.0	8.6	6.3	117.5	30.0	30.0	3.0
77.34	23.58	2699.6	27.2	1.0	181.5	221.5	9.0	6.5	0.0	30.0	32.0	1.0
77.84	23.72	2703.1	45.0	1.7	182.8	222.9	10.8	7.8	153.2	30.0	32.0	3.0
78.33	23.88	6966.0	89.4	1.3	184.1	224.4	23.2	16.8	0.0	48.2	38.0	1.0
78.82	24.03	12560.0	94.6	0.8	185.4	225.9	25.1	18.1	0.0	65.0	40.0	1.0
79.31	24.17	3820.0	107.8	2.8	186.8	227.3	15.3	10.9	227.1	30.7	32.0	6.0
79.81	24.33	2652.7	31.9	1.2	188.0	228.8	10.6	7.6	149.1	30.0	30.0	3.0
80.30	24.47	2542.1	20.6	0.8	189.3	230.3	8.5	6.0	0.0	30.0	30.0	1.0
80.79	24.62	2396.5	18.9	0.8	190.6	231.8	8.0	5.7	0.0	30.0	30.0	1.0
81.28	24.78	2242.0	14.4	0.6	191.9	233.2	7.5	5.3	0.0	30.0	30.0	1.0
81.77	24.92	1922.9	14.0	0.7	193.1	234.7	7.7	5.4	99.7	30.0	30.0	3.0
82.27	25.08	1946.7	14.5	0.7	194.4	236.2	7.8	5.5	101.1	30.0	30.0	3.0
82.76	25.22	2276.0	17.3	0.8	195.6	237.6	7.6	5.3	0.0	30.0	30.0	1.0
83.25	25.38	2283.1	22.4	1.0	196.9	239.1	9.1	6.4	123.1	30.0	30.0	3.0
83.74	25.53	2367.4	34.5	1.5	198.1	240.6	9.5	6.6	128.6	30.0	30.0	3.0
84.23	25.67	2074.3	28.6	1.4	199.4	242.1	8.3	5.8	108.9	30.0	30.0	3.0
84.73	25.83	2338.1	41.3	1.8	200.6	243.5	9.4	6.5	126.3	30.0	30.0	3.0
85.22	25.97	2591.2	56.2	2.2	201.8	245.0	10.4	7.1	143.0	30.0	30.0	3.0
85.71	26.12	3293.8	59.9	1.8	203.0	246.5	13.2	9.0	189.6	30.0	32.0	3.0

PLATE E-3

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	3035.0	75.2	2.5	204.3	247.9	12.1	8.3	172.2	30.0	32.0	3.0
86.70	26.42	3088.5	54.0	1.7	205.5	249.4	12.4	8.4	175.6	30.0	32.0	3.0
87.19	26.58	2142.5	26.4	1.2	206.7	250.9	8.6	5.8	112.3	30.0	30.0	3.0
87.68	26.72	2458.8	30.5	1.2	208.0	252.4	9.8	6.7	133.2	30.0	30.0	3.0
88.17	26.88	3748.1	57.1	1.5	209.2	253.8	12.5	8.5	0.0	30.0	32.0	1.0
88.66	27.03	2750.5	39.2	1.4	210.5	255.3	11.0	7.4	152.3	30.0	30.0	3.0
89.16	27.17	2084.8	23.6	1.1	211.7	256.8	8.3	5.6	107.8	30.0	30.0	3.0
89.65	27.33	3243.8	54.1	1.7	213.0	258.2	13.0	8.7	184.8	30.0	32.0	3.0
90.14	27.47	11457.0	97.3	0.8	214.3	259.7	28.6	19.2	0.0	60.3	38.0	1.0
90.63	27.62	6239.1	127.3	2.0	215.6	261.2	20.8	13.9	0.0	42.7	36.0	1.0
91.12	27.78	4709.7	64.3	1.4	216.9	262.7	15.7	10.4	0.0	34.6	34.0	1.0
91.62	27.92	4510.8	88.2	2.0	218.2	264.1	18.0	12.0	268.6	33.3	32.0	6.0
92.11	28.08	4743.0	74.0	1.6	219.4	265.6	15.8	10.4	0.0	34.6	34.0	1.0
92.60	28.22	2890.0	26.6	0.9	220.7	267.1	9.6	6.3	0.0	30.0	30.0	1.0
93.09	28.38	2492.9	29.2	1.2	222.0	268.5	10.0	6.5	133.5	30.0	30.0	3.0
93.58	28.53	2270.8	32.4	1.4	223.2	270.0	9.1	6.0	118.5	30.0	30.0	3.0
94.08	28.67	2319.2	25.1	1.1	224.5	271.5	9.3	6.1	121.5	30.0	30.0	3.0
94.57	28.83	3549.5	67.8	1.9	225.7	273.0	14.2	9.2	203.4	30.0	32.0	3.0
95.06	28.97	3005.3	63.7	2.1	226.9	274.4	12.0	7.8	166.9	30.0	30.0	3.0
95.55	29.12	3062.4	31.2	1.0	228.2	275.9	10.2	6.6	0.0	30.0	30.0	1.0
96.05	29.28	4470.1	28.3	0.6	229.5	277.4	14.9	9.6	0.0	32.3	32.0	1.0
96.54	29.42	3602.3	23.2	0.6	230.8	278.8	12.0	7.7	0.0	30.0	32.0	1.0
97.03	29.58	2306.7	17.4	0.8	232.1	280.3	7.7	4.9	0.0	30.0	30.0	1.0
97.52	29.72	2401.9	22.1	0.9	233.4	281.8	9.6	6.2	125.8	30.0	30.0	3.0
98.01	29.88	2356.8	25.6	1.1	234.6	283.3	9.4	6.0	122.6	30.0	30.0	3.0
98.51	30.03	2362.2	28.5	1.2	235.8	284.7	9.4	6.0	122.8	30.0	30.0	3.0
99.00	30.17	2593.6	29.3	1.1	237.0	286.2	10.4	6.6	138.0	30.0	30.0	3.0
99.49	30.33	2444.3	22.9	0.9	238.3	287.7	8.1	5.2	0.0	30.0	30.0	1.0
99.98	30.47	2220.9	17.8	0.8	239.6	289.1	8.9	5.6	112.8	30.0	30.0	1.5
100.47	30.62	2275.2	17.9	0.8	240.8	290.6	7.6	4.8	0.0	30.0	30.0	1.0
100.97	30.78	3773.7	40.5	1.1	242.1	292.1	12.6	7.9	0.0	30.0	32.0	1.0
101.46	30.92	10998.4	104.2	0.9	243.5	293.6	27.5	17.2	0.0	57.2	38.0	1.0
101.95	31.08	3692.1	107.1	2.9	244.8	295.0	14.8	9.2	210.2	30.0	32.0	3.0
102.44	31.22	5042.1	69.7	1.4	246.1	296.5	16.8	10.5	0.0	34.7	32.0	1.0
102.94	31.38	10175.6	132.3	1.3	247.4	298.0	25.4	15.8	0.0	54.8	38.0	1.0
103.43	31.53	14585.3	168.5	1.2	248.8	299.5	36.5	22.6	0.0	65.0	40.0	1.0
103.92	31.67	14839.7	221.0	1.5	250.2	300.9	37.1	23.0	0.0	65.4	40.0	1.0
104.41	31.83	19062.3	219.3	1.2	251.6	302.4	38.1	23.5	0.0	72.5	40.0	1.0
104.90	31.97	19991.4	169.0	0.8	253.0	303.9	40.0	24.6	0.0	73.8	42.0	1.0
105.40	32.12	19423.6	137.2	0.7	254.5	305.3	38.8	23.8	0.0	72.9	40.0	1.0
105.89	32.28	20262.2	169.3	0.8	255.9	306.8	40.5	24.8	0.0	74.0	42.0	1.0
106.38	32.42	21061.5	198.8	0.9	257.4	308.3	42.1	25.7	0.0	75.1	42.0	1.0
106.87	32.58	22245.8	222.7	1.0	258.8	309.8	44.5	27.1	0.0	76.6	42.0	1.0
107.36	32.72	26245.4	214.9	0.8	260.3	311.2	52.5	31.8	0.0	81.2	42.0	1.0
107.86	32.88	27705.1	222.3	0.8	261.7	312.7	55.4	33.5	0.0	82.7	42.0	1.0
108.35	33.03	28105.0	228.0	0.8	263.2	314.2	56.2	33.9	0.0	83.0	42.0	1.0
108.84	33.17	26782.4	191.6	0.7	264.7	315.6	53.6	32.2	0.0	81.6	42.0	1.0
109.33	33.33	28528.8	218.1	0.8	266.1	317.1	57.1	34.2	0.0	83.3	42.0	1.0
109.82	33.47	31408.6	158.3	0.5	267.6	318.6	52.3	31.3	0.0	86.0	42.0	1.0
110.32	33.62	29505.6	152.2	0.5	269.1	320.1	49.2	29.3	0.0	84.1	42.0	1.0
110.81	33.78	25049.0	123.6	0.5	270.7	321.5	41.7	24.8	0.0	79.3	42.0	1.0
111.30	33.92	21240.6	214.9	1.0	272.1	323.0	42.5	25.2	0.0	74.5	40.0	1.0
111.79	34.08	25721.1	318.4	1.2	273.6	324.5	51.4	30.4	0.0	79.9	42.0	1.0
112.29	34.22	32034.5	204.0	0.6	275.1	325.9	53.4	31.5	0.0	86.1	42.0	1.0
112.78	34.38	30780.2	217.7	0.7	276.6	327.4	61.6	36.2	0.0	84.9	42.0	1.0
113.27	34.53	27076.3	158.1	0.6	278.0	328.9	54.2	31.8	0.0	81.2	42.0	1.0
113.76	34.67	34692.3	137.7	0.4	279.5	330.4	57.8	33.8	0.0	88.2	42.0	1.0
114.25	34.83	36746.4	143.2	0.4	281.1	331.8	61.2	35.8	0.0	89.8	44.0	1.0
114.75	34.97	33090.6	177.1	0.5	282.6	333.3	55.2	32.1	0.0	86.7	42.0	1.0
115.24	35.12	30019.7	142.0	0.5	284.1	334.8	50.0	29.1	0.0	83.8	42.0	1.0
115.73	35.28	32910.1	178.8	0.5	285.6	336.2	54.9	31.8	0.0	86.4	42.0	1.0
116.22	35.42	28232.9	96.8	0.3	287.2	337.7	47.1	27.2	0.0	81.9	42.0	1.0
116.71	35.58	6925.7	189.7	2.7	288.5	339.2	27.7	16.0	419.9	41.6	34.0	6.0
117.21	35.72	4516.4	53.6	1.2	289.8	340.7	15.1	8.7	0.0	30.0	32.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	5310.4	102.5	1.9	291.1	342.1	17.7	10.2	0.0	33.8	32.0	1.0
118.19	36.03	8416.3	162.6	1.9	292.4	343.6	28.1	16.1	0.0	47.0	36.0	1.0
118.68	36.17	4016.9	61.2	1.5	293.7	345.1	13.4	7.6	0.0	30.0	30.0	1.0
119.18	36.33	3620.2	56.3	1.6	295.0	346.5	12.1	6.9	0.0	30.0	30.0	1.0
119.67	36.47	4591.8	93.8	2.0	296.3	348.0	18.4	10.4	263.2	30.0	32.0	3.0
120.16	36.62	12079.5	182.0	1.5	297.6	349.5	30.2	17.1	0.0	57.1	38.0	1.0
120.65	36.78	5333.4	111.1	2.1	298.9	351.0	17.8	10.1	0.0	33.6	32.0	1.0
121.14	36.92	7658.6	190.2	2.5	300.2	352.4	30.6	17.3	467.1	43.9	34.0	6.0
121.64	37.08	21012.5	295.8	1.4	301.5	353.9	52.5	29.6	0.0	72.7	40.0	1.0
122.21	37.25	20045.1	436.9	2.2	303.1	355.6	66.8	37.6	0.0	71.3	40.0	1.0
122.78	37.42	29269.3	267.5	0.9	304.7	357.3	58.5	32.8	0.0	82.1	42.0	1.0
123.28	37.58	31498.1	235.7	0.7	306.1	358.8	63.0	35.2	0.0	84.1	42.0	1.0
123.77	37.72	31032.3	388.2	1.3	307.6	360.3	62.1	34.6	0.0	83.6	42.0	1.0
124.26	37.88	33860.4	438.5	1.3	309.0	361.7	67.7	37.7	0.0	86.1	42.0	1.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-2911
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-1-245
Location: STRUCTURE 1
Cone: 20 TON A 092
CPT Date: 00/03/02
CPT Time: 13:27
CPT File: 300SC245.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	1683.7	12.7	0.8	1.4	0.0	6.7	13.5	112.2	77.9	50.0	10.0
0.74	0.23	2048.6	14.1	0.7	4.1	0.0	8.2	16.4	136.3	67.8	48.0	10.0
1.23	0.38	3371.0	23.8	0.7	6.8	0.0	11.2	22.5	0.0	74.7	48.0	1.0
1.72	0.52	5497.1	50.3	0.9	9.6	0.0	18.3	36.6	0.0	83.8	50.0	1.0
2.21	0.68	5344.5	68.3	1.3	12.3	0.0	17.8	35.6	0.0	79.3	48.0	1.0
2.71	0.82	5772.1	84.7	1.5	15.1	0.0	19.2	38.5	0.0	78.6	48.0	1.0
3.20	0.97	5692.7	94.0	1.7	17.9	0.0	19.0	38.0	0.0	75.8	46.0	1.0
3.61	1.10	7047.2	101.0	1.4	19.2	1.0	23.5	47.0	0.0	80.9	48.0	1.0
4.02	1.22	6681.3	72.2	1.1	20.3	2.2	16.7	33.4	0.0	78.5	48.0	1.0
4.51	1.38	6945.5	79.6	1.1	21.7	3.7	17.4	34.7	0.0	78.7	46.0	1.0
5.00	1.53	2768.8	135.1	4.9	23.0	5.2	27.7	55.4	182.7	0.0	0.0	10.0
5.50	1.67	1267.5	38.6	3.0	24.2	6.6	8.4	16.8	82.4	0.0	0.0	6.0
5.99	1.83	897.2	18.9	2.1	25.4	8.1	4.5	8.7	57.6	0.0	0.0	6.0
6.56	2.00	685.0	6.8	1.0	26.8	9.8	3.4	6.5	43.2	0.0	0.0	6.0
7.14	2.17	657.4	3.5	0.5	27.9	11.5	3.3	6.1	41.2	0.0	0.0	6.0
7.63	2.33	791.1	6.3	0.8	28.7	13.0	4.0	7.2	50.0	0.0	0.0	6.0
8.12	2.47	1287.0	17.5	1.4	29.9	14.5	5.1	9.2	82.8	30.0	38.0	6.0
8.61	2.62	1041.1	15.6	1.5	31.1	15.9	5.2	9.1	66.3	0.0	0.0	6.0
9.10	2.78	693.4	5.6	0.8	32.4	17.4	3.5	6.0	42.9	0.0	0.0	6.0
9.60	2.92	403.6	2.0	0.5	33.2	18.9	2.0	3.4	23.4	0.0	0.0	3.0
10.09	3.08	305.6	2.0	0.7	33.6	20.4	1.5	2.6	16.8	0.0	0.0	1.5
10.58	3.22	401.2	2.0	0.5	34.0	21.8	2.0	3.4	23.0	0.0	0.0	3.0
11.07	3.38	1195.7	2.0	0.2	34.8	23.3	4.8	7.9	75.8	30.0	36.0	6.0
11.56	3.53	1265.9	4.3	0.3	36.0	24.8	5.1	8.3	80.3	30.0	36.0	6.0
12.06	3.67	2283.6	2.0	0.1	37.3	26.2	7.6	12.2	0.0	39.1	40.0	1.0
12.55	3.83	1254.9	2.0	0.2	38.6	27.7	5.0	7.9	79.2	30.0	36.0	6.0
13.04	3.98	1175.3	2.0	0.2	39.8	29.2	4.7	7.3	73.8	30.0	36.0	6.0
13.53	4.12	786.4	2.0	0.3	40.6	30.7	3.9	6.0	47.7	0.0	0.0	6.0
14.03	4.27	414.8	2.0	0.5	41.0	32.1	2.1	3.2	22.8	0.0	0.0	3.0
14.52	4.43	450.6	2.0	0.4	41.4	33.6	2.3	3.4	25.0	0.0	0.0	3.0
15.01	4.57	1014.9	2.0	0.2	42.2	35.1	4.1	6.1	62.5	30.0	34.0	6.0
15.50	4.73	1144.8	2.0	0.2	43.5	36.5	4.6	6.8	71.0	30.0	34.0	6.0
15.99	4.88	1347.9	8.3	0.6	44.7	38.0	5.4	7.9	84.3	30.0	36.0	6.0
16.49	5.02	3621.1	10.3	0.3	46.0	39.5	12.1	17.4	0.0	49.3	40.0	1.0
16.98	5.18	4624.8	24.1	0.5	47.3	41.0	11.6	16.5	0.0	55.9	42.0	1.0
17.47	5.32	2659.4	22.0	0.8	48.6	42.4	8.9	12.4	0.0	39.6	40.0	1.0
17.96	5.48	1154.0	19.6	1.7	49.9	43.9	5.8	8.0	70.7	0.0	0.0	6.0
18.45	5.62	432.0	2.3	0.5	50.7	45.4	2.2	3.0	22.4	0.0	0.0	1.5
18.95	5.77	371.6	2.0	0.5	51.1	46.8	1.9	2.5	18.2	0.0	0.0	1.5
19.44	5.93	356.4	2.0	0.6	51.5	48.3	1.8	2.4	17.1	0.0	0.0	1.5
19.93	6.07	679.3	2.0	0.3	51.9	49.8	3.4	4.6	38.5	0.0	0.0	3.0
20.42	6.23	602.4	2.0	0.3	52.3	51.3	3.0	4.1	33.3	0.0	0.0	3.0
20.92	6.38	948.9	4.2	0.4	53.1	52.7	3.8	5.1	56.2	30.0	32.0	6.0
21.41	6.52	766.7	7.0	0.9	54.4	54.2	3.8	5.1	43.9	0.0	0.0	3.0
21.90	6.68	543.9	2.0	0.4	55.2	55.7	2.7	3.6	28.9	0.0	0.0	3.0
22.39	6.82	409.4	2.0	0.5	55.6	57.1	2.0	2.7	19.8	0.0	0.0	1.5
22.88	6.98	425.0	2.0	0.5	56.0	58.6	2.1	2.8	20.7	0.0	0.0	1.5

PLATE E-6

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	594.7	2.3	0.4	56.4	60.1	3.0	3.9	31.9	0.0	0.0	3.0
23.87	7.27	1080.6	12.1	1.1	57.2	61.6	4.3	5.6	64.1	30.0	32.0	6.0
24.36	7.43	927.6	2.0	0.2	58.4	63.0	3.7	4.8	53.7	30.0	32.0	3.0
24.85	7.57	563.1	2.0	0.4	59.3	64.5	2.8	3.6	29.3	0.0	0.0	1.5
25.34	7.73	489.8	2.0	0.4	59.7	66.0	2.4	3.1	24.3	0.0	0.0	1.5
25.84	7.88	636.7	2.0	0.3	60.1	67.4	3.2	4.0	33.9	0.0	0.0	3.0
26.33	8.02	592.8	2.0	0.3	60.5	68.9	3.0	3.7	30.9	0.0	0.0	3.0
26.82	8.18	531.5	2.0	0.4	60.9	70.4	2.7	3.3	26.7	0.0	0.0	1.5
27.31	8.32	571.4	2.2	0.4	61.3	71.9	2.9	3.6	29.2	0.0	0.0	1.5
27.80	8.48	1412.1	24.0	1.7	62.1	73.3	5.6	7.0	85.1	30.0	34.0	6.0
28.30	8.62	9634.7	99.4	1.0	63.4	74.8	24.1	29.6	0.0	72.7	44.0	1.0
28.79	8.77	3532.4	62.8	1.8	64.7	76.3	14.1	17.2	226.1	43.7	40.0	6.0
29.28	8.93	686.5	7.9	1.2	65.9	77.7	3.4	4.1	36.2	0.0	0.0	3.0
29.77	9.07	651.3	2.0	0.3	66.7	79.2	3.3	3.9	33.7	0.0	0.0	3.0
30.27	9.23	617.9	2.0	0.3	67.2	80.7	3.1	3.7	31.3	0.0	0.0	1.5
30.76	9.38	1113.6	19.3	1.7	68.0	82.2	5.6	6.6	64.2	0.0	0.0	3.0
31.17	9.50	16251.4	147.9	0.9	69.1	83.4	32.5	38.3	0.0	86.5	46.0	1.0
31.58	9.62	22020.8	245.6	1.1	70.3	84.6	44.0	51.4	0.0	95.0	46.0	1.0
32.07	9.77	22470.5	168.1	0.7	71.7	86.1	44.9	51.9	0.0	95.0	46.0	1.0
32.56	9.93	8818.5	132.8	1.5	73.1	87.6	29.4	33.6	0.0	68.2	42.0	1.0
33.05	10.07	1366.9	38.0	2.8	74.4	89.0	6.8	7.8	80.2	0.0	0.0	6.0
33.55	10.23	4244.0	49.5	1.2	75.6	90.5	14.1	15.9	0.0	46.7	40.0	1.0
34.04	10.38	1248.9	13.9	1.1	76.9	92.0	5.0	5.6	72.0	30.0	32.0	3.0
34.53	10.52	2263.0	19.4	0.9	78.1	93.4	9.1	10.0	139.4	30.0	36.0	6.0
35.02	10.68	3799.0	21.3	0.6	79.4	94.9	12.7	13.9	0.0	42.8	38.0	1.0
35.51	10.82	1332.6	18.1	1.4	80.7	96.4	5.3	5.8	77.0	30.0	32.0	3.0
36.01	10.98	981.5	2.6	0.3	81.9	97.9	3.9	4.2	53.5	30.0	30.0	3.0
36.50	11.12	972.4	5.5	0.6	83.1	99.3	3.9	4.2	52.7	30.0	30.0	3.0
36.99	11.27	2305.4	32.1	1.4	84.4	100.8	9.2	9.8	141.3	30.0	34.0	6.0
37.48	11.43	987.7	3.5	0.4	85.6	102.3	4.0	4.2	53.3	30.0	30.0	3.0
37.98	11.57	1430.3	11.9	0.8	86.8	103.7	5.7	6.0	82.7	30.0	32.0	3.0
38.47	11.73	4370.9	60.0	1.4	88.1	105.2	14.6	15.2	0.0	45.4	38.0	1.0
38.96	11.88	12500.2	168.8	1.4	89.4	106.7	31.3	32.3	0.0	75.3	44.0	1.0
39.45	12.02	2496.8	95.6	3.8	90.7	108.2	16.6	17.1	153.2	0.0	0.0	6.0
39.94	12.18	1406.8	49.5	3.5	91.9	109.6	9.4	9.6	80.3	0.0	0.0	3.0
40.44	12.32	19551.4	283.6	1.5	93.3	111.1	48.9	49.5	0.0	87.5	46.0	1.0
40.93	12.48	5610.4	194.8	3.5	94.6	112.6	28.1	28.2	360.2	0.0	0.0	6.0
41.42	12.62	957.1	26.2	2.7	95.8	114.0	6.4	6.4	49.8	0.0	0.0	3.0
41.91	12.77	1811.4	29.4	1.6	97.0	115.5	7.2	7.2	106.6	30.0	32.0	6.0
42.40	12.93	4681.7	45.6	1.0	98.3	117.0	15.6	15.4	0.0	45.8	38.0	1.0
42.90	13.07	1028.3	21.5	2.1	99.5	118.5	5.1	5.0	54.0	0.0	0.0	3.0
43.39	13.23	914.0	2.0	0.2	100.8	119.9	3.7	3.6	46.2	30.0	30.0	1.5
43.88	13.38	1049.2	3.7	0.3	102.0	121.4	4.2	4.1	55.1	30.0	30.0	3.0
44.37	13.52	855.0	2.0	0.2	102.8	122.9	4.3	4.1	42.0	0.0	0.0	1.5
44.86	13.68	859.8	2.0	0.2	103.2	124.3	4.3	4.1	42.1	0.0	0.0	1.5
45.36	13.82	1170.2	9.3	0.8	104.0	125.8	4.7	4.5	62.7	30.0	30.0	3.0
45.85	13.98	1112.4	10.2	0.9	105.3	127.3	4.4	4.2	58.7	30.0	30.0	3.0
46.34	14.12	938.1	4.1	0.4	106.5	128.8	3.8	3.6	46.9	30.0	30.0	1.5
46.83	14.27	1089.6	7.8	0.7	107.7	130.2	4.4	4.1	56.8	30.0	30.0	3.0
47.33	14.43	2134.9	15.2	0.7	109.0	131.7	8.5	8.0	126.3	30.0	32.0	6.0
47.82	14.57	1819.3	23.3	1.3	110.2	133.2	7.3	6.8	105.1	30.0	32.0	3.0
48.31	14.73	1328.6	12.2	0.9	111.4	134.6	5.3	4.9	72.2	30.0	30.0	3.0
48.80	14.88	1100.5	8.6	0.8	112.6	136.1	4.4	4.1	56.8	30.0	30.0	3.0
49.29	15.02	1277.2	5.6	0.4	113.9	137.6	5.1	4.7	68.4	30.0	30.0	3.0
49.79	15.18	1026.2	3.4	0.3	115.1	139.1	4.1	3.7	51.5	30.0	30.0	1.5
50.28	15.32	1167.4	5.0	0.4	116.3	140.5	4.7	4.2	60.7	30.0	30.0	3.0
50.77	15.48	1111.8	5.6	0.5	117.6	142.0	4.4	4.0	56.8	30.0	30.0	1.5
51.26	15.62	1235.5	4.1	0.3	118.8	143.5	4.9	4.4	64.9	30.0	30.0	3.0
51.75	15.77	1093.2	4.8	0.4	120.0	144.9	4.4	3.9	55.2	30.0	30.0	1.5
52.25	15.93	1695.5	11.4	0.7	121.2	146.4	6.8	6.0	95.2	30.0	30.0	3.0
52.74	16.08	2122.3	18.5	0.9	122.5	147.9	8.5	7.5	123.5	30.0	32.0	6.0
53.23	16.22	1471.0	19.4	1.3	123.7	149.4	5.9	5.2	79.9	30.0	30.0	3.0
53.72	16.38	1364.7	12.4	0.9	124.9	150.8	5.5	4.8	72.6	30.0	30.0	3.0
54.22	16.53	1167.6	12.0	1.0	126.1	152.3	4.7	4.1	59.3	30.0	30.0	1.5

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1094.2	7.4	0.7	127.4	153.8	4.4	3.8	54.2	30.0	30.0	1.5
55.20	16.83	988.6	3.5	0.3	128.6	155.2	4.0	3.4	47.0	30.0	30.0	1.5
55.69	16.97	1352.0	6.6	0.5	129.8	156.7	5.4	4.6	71.0	30.0	30.0	3.0
56.18	17.12	1145.9	7.4	0.6	131.1	158.2	4.6	3.9	57.1	30.0	30.0	1.5
56.68	17.28	1555.4	10.0	0.6	132.3	159.7	6.2	5.3	84.2	30.0	30.0	3.0
57.17	17.42	1723.6	27.9	1.6	133.5	161.1	6.9	5.8	95.3	30.0	30.0	3.0
57.66	17.58	1540.0	40.1	2.6	134.7	162.6	7.7	6.5	82.8	0.0	0.0	3.0
58.15	17.72	1190.1	19.3	1.6	136.0	164.1	6.0	5.0	59.3	0.0	0.0	1.5
58.64	17.88	1371.6	16.5	1.2	137.2	165.5	5.5	4.6	71.3	30.0	30.0	3.0
59.14	18.03	1766.6	16.5	0.9	138.4	167.0	7.1	5.9	97.4	30.0	30.0	3.0
59.63	18.17	1870.2	30.9	1.7	139.7	168.5	7.5	6.2	104.1	30.0	30.0	3.0
60.12	18.33	1679.1	14.2	0.8	140.9	170.0	6.7	5.5	91.2	30.0	30.0	3.0
60.61	18.47	1819.3	13.6	0.8	142.1	171.4	7.3	6.0	100.4	30.0	30.0	3.0
61.10	18.62	2430.7	47.2	1.9	143.3	172.9	9.7	7.9	141.0	30.0	32.0	3.0
61.60	18.78	10311.2	132.0	1.3	144.7	174.4	25.8	21.0	0.0	62.9	40.0	1.0
62.09	18.92	13181.4	139.0	1.1	146.0	175.8	33.0	26.7	0.0	69.8	42.0	1.0
62.58	19.08	12330.7	248.5	2.0	147.4	177.3	41.1	33.1	0.0	67.7	42.0	1.0
63.07	19.22	15990.1	164.2	1.0	148.8	178.8	32.0	25.7	0.0	75.0	42.0	1.0
63.57	19.38	6733.6	122.6	1.8	150.1	180.3	22.4	17.9	0.0	50.1	38.0	1.0
64.06	19.53	1923.0	29.3	1.5	151.4	181.7	7.7	6.1	106.0	30.0	30.0	3.0
64.55	19.67	1092.9	2.6	0.2	152.6	183.2	4.4	3.5	50.5	30.0	30.0	1.5
65.04	19.83	1137.6	3.1	0.3	153.9	184.7	4.6	3.6	53.3	30.0	30.0	1.5
65.53	19.97	1116.3	2.0	0.2	155.1	186.1	4.5	3.5	51.7	30.0	30.0	1.5
66.03	20.12	1102.9	2.5	0.2	156.3	187.6	4.4	3.5	50.6	30.0	30.0	1.5
66.52	20.28	1859.8	14.2	0.8	157.5	189.1	7.4	5.8	100.9	30.0	30.0	3.0
67.01	20.42	1591.9	23.0	1.4	158.8	190.6	6.4	4.9	82.8	30.0	30.0	3.0
67.50	20.58	1448.3	7.8	0.5	160.0	192.0	5.8	4.5	73.1	30.0	30.0	1.5
67.99	20.72	1610.3	10.7	0.7	161.2	193.5	6.4	5.0	83.7	30.0	30.0	3.0
68.49	20.88	4285.4	23.1	0.5	162.5	195.0	14.3	11.0	0.0	36.0	34.0	1.0
68.98	21.03	2488.3	23.8	1.0	163.8	196.4	8.3	6.3	0.0	30.0	32.0	1.0
69.47	21.17	1734.7	13.6	0.8	165.1	197.9	6.9	5.3	91.4	30.0	30.0	3.0
69.96	21.33	2464.0	20.4	0.8	166.3	199.4	8.2	6.2	0.0	30.0	32.0	1.0
70.46	21.47	2810.9	23.8	0.8	167.6	200.9	9.4	7.1	0.0	30.0	32.0	1.0
70.95	21.62	2245.4	18.1	0.8	168.9	202.3	9.0	6.8	124.9	30.0	30.0	3.0
71.44	21.78	2117.1	35.4	1.7	170.1	203.8	8.5	6.4	116.2	30.0	30.0	3.0
71.93	21.92	2039.9	16.1	0.8	171.4	205.3	8.2	6.1	110.9	30.0	30.0	3.0
72.42	22.08	2912.8	28.0	1.0	172.6	206.7	9.7	7.2	0.0	30.0	32.0	1.0
72.92	22.22	2665.3	38.4	1.4	173.9	208.2	10.7	7.9	152.2	30.0	32.0	3.0
73.41	22.38	2913.3	48.8	1.7	175.1	209.7	11.7	8.6	168.6	30.0	32.0	3.0
73.90	22.53	1604.0	8.0	0.5	176.3	211.2	6.4	4.7	81.1	30.0	30.0	1.5
74.39	22.67	1478.6	5.1	0.3	177.6	212.6	5.9	4.3	72.6	30.0	30.0	1.5
74.88	22.83	1427.7	10.9	0.8	178.8	214.1	5.7	4.2	69.0	30.0	30.0	1.5
75.38	22.97	1477.5	6.9	0.5	180.0	215.6	5.9	4.3	72.1	30.0	30.0	1.5
75.87	23.12	1601.9	8.1	0.5	181.3	217.0	6.4	4.7	80.2	30.0	30.0	1.5
76.36	23.28	1515.3	8.4	0.6	182.5	218.5	6.1	4.4	74.3	30.0	30.0	1.5
76.85	23.42	1424.8	23.0	1.6	183.7	220.0	5.7	4.1	68.1	30.0	30.0	1.5
77.34	23.58	1408.8	5.9	0.4	184.9	221.5	5.6	4.1	66.8	30.0	30.0	1.5
77.84	23.72	2459.6	61.1	2.5	186.2	222.9	9.8	7.1	136.7	30.0	30.0	3.0
78.33	23.88	2469.2	99.7	4.0	187.4	224.4	16.5	11.8	137.2	0.0	0.0	3.0
78.82	24.03	1690.6	34.1	2.0	188.6	225.9	6.8	4.8	85.1	30.0	30.0	1.5
79.31	24.17	1782.5	40.7	2.3	189.9	227.3	8.9	6.3	91.0	0.0	0.0	1.5
79.81	24.33	2581.0	63.5	2.5	191.1	228.8	10.3	7.3	144.1	30.0	30.0	3.0
80.30	24.47	2806.4	43.4	1.5	192.3	230.3	11.2	7.9	158.9	30.0	32.0	3.0
80.79	24.62	2334.3	15.5	0.7	193.6	231.8	7.8	5.5	0.0	30.0	30.0	1.0
81.28	24.78	2051.6	25.8	1.3	194.8	233.2	8.2	5.8	108.2	30.0	30.0	3.0
81.77	24.92	2472.5	41.7	1.7	196.1	234.7	9.9	6.9	136.1	30.0	30.0	3.0
82.27	25.08	2221.5	37.6	1.7	197.3	236.2	8.9	6.2	119.2	30.0	30.0	3.0
82.76	25.22	2707.8	44.5	1.6	198.5	237.6	10.8	7.5	151.4	30.0	30.0	3.0
83.25	25.38	4574.7	56.7	1.2	199.8	239.1	15.2	10.6	0.0	34.9	34.0	1.0
83.74	25.53	7452.8	104.6	1.4	201.1	240.6	24.8	17.1	0.0	48.8	38.0	1.0
84.23	25.67	3916.0	76.4	2.0	202.4	242.1	15.7	10.8	231.4	30.3	32.0	6.0
84.73	25.83	6098.0	80.3	1.3	203.6	243.5	20.3	13.9	0.0	42.9	36.0	1.0
85.22	25.97	3220.2	48.8	1.5	204.9	245.0	12.9	8.8	184.7	30.0	32.0	3.0
85.71	26.12	2281.4	10.7	0.5	206.2	246.5	7.6	5.2	0.0	30.0	30.0	1.0

PLATE E-8

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	2081.8	10.3	0.5	207.5	247.9	6.9	4.7	0.0	30.0	30.0	1.0
86.70	26.42	2131.9	14.1	0.7	208.8	249.4	7.1	4.8	0.0	30.0	30.0	1.0
87.19	26.58	2501.9	14.2	0.6	210.1	250.9	8.3	5.6	0.0	30.0	30.0	1.0
87.68	26.72	2461.5	15.0	0.6	211.4	252.4	8.2	5.5	0.0	30.0	30.0	1.0
88.17	26.88	2438.3	16.4	0.7	212.7	253.8	8.1	5.5	0.0	30.0	30.0	1.0
88.66	27.03	2302.0	20.1	0.9	213.9	255.3	9.2	6.2	122.2	30.0	30.0	3.0
89.16	27.17	2203.2	20.0	0.9	215.2	256.8	8.8	5.9	115.4	30.0	30.0	3.0
89.65	27.33	2631.7	27.3	1.0	216.4	258.2	8.8	5.8	0.0	30.0	30.0	1.0
90.14	27.47	3002.5	36.1	1.2	217.7	259.7	10.0	6.6	0.0	30.0	30.0	1.0
90.63	27.62	3024.6	41.4	1.4	219.0	261.2	12.1	8.0	169.6	30.0	30.0	3.0
91.12	27.78	4156.9	134.0	3.2	220.2	262.7	20.8	13.7	244.9	0.0	0.0	6.0
91.62	27.92	9053.3	249.9	2.8	221.5	264.1	36.2	23.8	571.2	53.0	38.0	6.0
92.11	28.08	5027.9	156.5	3.1	222.7	265.6	20.1	13.2	302.6	36.1	34.0	6.0
92.60	28.22	2738.0	51.0	1.9	223.9	267.1	11.0	7.2	149.8	30.0	30.0	3.0
93.09	28.38	3211.7	58.4	1.8	225.2	268.5	12.8	8.4	181.2	30.0	30.0	3.0
93.58	28.53	3388.1	73.4	2.2	226.4	270.0	13.6	8.8	192.8	30.0	32.0	3.0
94.08	28.67	4176.4	82.4	2.0	227.6	271.5	16.7	10.8	245.2	30.5	32.0	6.0
94.57	28.83	4441.0	112.2	2.5	228.8	273.0	17.8	11.5	262.6	32.1	32.0	6.0
95.06	28.97	5388.5	99.5	1.8	230.1	274.4	18.0	11.6	0.0	37.6	34.0	1.0
95.55	29.12	6002.2	113.7	1.9	231.4	275.9	20.0	12.9	0.0	40.6	34.0	1.0
96.05	29.28	10367.3	166.3	1.6	232.7	277.4	34.6	22.2	0.0	56.2	38.0	1.0
96.54	29.42	4836.2	152.6	3.2	234.0	278.8	19.3	12.4	288.2	34.3	32.0	6.0
97.03	29.58	13009.1	185.7	1.4	235.3	280.3	32.5	20.8	0.0	62.6	40.0	1.0
97.52	29.72	19883.5	295.3	1.5	236.7	281.8	49.7	31.6	0.0	74.6	42.0	1.0
98.01	29.88	22228.9	417.1	1.9	238.0	283.3	55.6	35.3	0.0	77.7	42.0	1.0
98.51	30.03	29083.7	406.4	1.4	239.4	284.7	72.7	46.0	0.0	85.4	42.0	1.0
99.00	30.17	32493.8	307.2	0.9	240.8	286.2	65.0	41.0	0.0	88.5	44.0	1.0
99.49	30.33	26969.5	283.7	1.1	242.3	287.7	53.9	33.9	0.0	83.0	42.0	1.0
99.98	30.47	23879.5	219.6	0.9	243.7	289.1	47.8	29.9	0.0	79.5	42.0	1.0
100.47	30.62	22409.3	174.9	0.8	245.2	290.6	44.8	28.0	0.0	77.6	42.0	1.0
100.97	30.78	15101.8	156.8	1.0	246.6	292.1	30.2	18.8	0.0	66.2	40.0	1.0
101.46	30.92	4117.4	145.2	3.5	248.0	293.6	20.6	12.8	238.4	0.0	0.0	3.0
101.95	31.08	2759.2	34.3	1.2	249.2	295.0	11.0	6.8	147.7	30.0	30.0	3.0
102.44	31.22	2046.3	20.5	1.0	250.4	296.5	8.2	5.1	100.0	30.0	30.0	1.5
102.94	31.38	1953.0	16.4	0.8	251.7	298.0	7.8	4.8	93.6	30.0	30.0	1.5
103.43	31.53	2119.3	14.9	0.7	252.9	299.5	8.5	5.2	104.5	30.0	30.0	1.5
103.92	31.67	2054.2	16.8	0.8	254.1	300.9	8.2	5.0	99.9	30.0	30.0	1.5
104.41	31.83	1965.9	16.6	0.8	255.4	302.4	7.9	4.8	93.9	30.0	30.0	1.5
104.90	31.97	1880.8	15.7	0.8	256.6	303.9	7.5	4.6	88.0	30.0	30.0	1.5
105.40	32.12	1901.6	13.7	0.7	257.8	305.3	7.6	4.6	89.2	30.0	30.0	1.5
105.89	32.28	2649.9	20.8	0.8	259.1	306.8	8.8	5.4	0.0	30.0	30.0	1.0
106.38	32.42	2295.7	23.5	1.0	260.3	308.3	9.2	5.6	115.1	30.0	30.0	1.5
106.87	32.58	1951.2	16.2	0.8	261.6	309.8	7.8	4.7	92.0	30.0	30.0	1.5
107.36	32.72	2127.1	27.1	1.3	262.8	311.2	8.5	5.1	103.5	30.0	30.0	1.5
107.86	32.88	3619.1	73.4	2.0	264.0	312.7	14.5	8.7	202.8	30.0	30.0	3.0
108.35	33.03	8211.2	224.0	2.7	265.3	314.2	32.8	19.7	508.8	47.6	36.0	6.0
108.84	33.17	20042.0	250.0	1.2	266.6	315.6	50.1	30.0	0.0	73.2	40.0	1.0
109.33	33.33	24043.0	243.6	1.0	268.0	317.1	48.1	28.7	0.0	78.3	42.0	1.0
109.82	33.47	27361.2	230.1	0.8	269.4	318.6	54.7	32.6	0.0	81.9	42.0	1.0
110.32	33.62	25044.2	157.2	0.6	270.9	320.1	50.1	29.8	0.0	79.3	42.0	1.0
110.81	33.78	24458.5	175.6	0.7	272.3	321.5	48.9	29.0	0.0	78.6	42.0	1.0
111.30	33.92	29702.0	215.3	0.7	273.8	323.0	59.4	35.1	0.0	84.0	42.0	1.0
111.79	34.08	34051.7	160.3	0.5	275.3	324.5	56.8	33.5	0.0	87.9	42.0	1.0
112.29	34.22	35412.7	165.0	0.5	276.8	325.9	59.0	34.7	0.0	88.9	44.0	1.0
112.78	34.38	34369.0	138.1	0.4	278.3	327.4	57.3	33.6	0.0	88.0	42.0	1.0
113.27	34.53	27444.1	202.4	0.7	279.8	328.9	54.9	32.1	0.0	81.5	42.0	1.0
113.76	34.67	36110.8	133.3	0.4	281.3	330.4	60.2	35.1	0.0	89.3	44.0	1.0
114.25	34.83	29945.7	189.6	0.6	282.8	331.8	59.9	34.9	0.0	83.8	42.0	1.0
114.75	34.97	24985.8	209.6	0.8	284.3	333.3	50.0	29.0	0.0	78.6	42.0	1.0
115.24	35.12	31168.1	175.9	0.6	285.8	334.8	51.9	30.1	0.0	84.8	42.0	1.0
115.73	35.28	34896.0	158.8	0.5	287.3	336.2	58.2	33.6	0.0	88.0	42.0	1.0
116.22	35.42	37729.9	132.4	0.4	288.8	337.7	62.9	36.2	0.0	90.1	44.0	1.0
116.71	35.58	36620.7	131.0	0.4	290.3	339.2	61.0	35.1	0.0	89.2	44.0	1.0
117.21	35.72	35078.7	104.3	0.3	291.9	340.7	58.5	33.5	0.0	87.9	42.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	17324.1	128.3	0.7	293.4	342.1	34.6	19.8	0.0	67.6	40.0	1.0
118.19	36.03	5392.1	112.9	2.1	294.7	343.6	18.0	10.2	0.0	34.1	32.0	1.0
118.68	36.17	5369.3	64.5	1.2	296.0	345.1	17.9	10.2	0.0	33.9	32.0	1.0
119.18	36.33	5352.0	70.3	1.3	297.3	346.5	17.8	10.1	0.0	33.7	32.0	1.0
119.67	36.47	6425.5	96.9	1.5	298.7	348.0	21.4	12.1	0.0	38.9	34.0	1.0
120.16	36.62	8287.0	223.9	2.7	299.9	349.5	33.1	18.7	509.2	46.1	36.0	6.0
120.65	36.78	6972.3	250.0	3.6	301.1	351.0	34.9	19.7	421.3	0.0	0.0	6.0
121.14	36.92	7526.6	274.9	3.7	302.4	352.4	37.6	21.2	458.1	0.0	0.0	6.0
121.64	37.08	8689.2	286.8	3.3	303.6	353.9	34.8	19.5	535.4	47.3	36.0	6.0
122.21	37.25	13501.9	351.7	2.6	305.1	355.6	45.0	25.2	0.0	59.9	38.0	1.0
122.78	37.42	15242.0	385.0	2.5	306.6	357.3	50.8	28.4	0.0	63.3	38.0	1.0
123.28	37.58	17011.6	394.8	2.3	307.9	358.8	56.7	31.6	0.0	66.4	40.0	1.0
123.77	37.72	21349.5	246.8	1.2	309.3	360.3	42.7	23.8	0.0	72.8	40.0	1.0
124.26	37.88	21103.9	378.7	1.8	310.7	361.7	52.8	29.3	0.0	72.4	40.0	1.0
124.75	38.03	22694.9	468.6	2.1	312.1	363.2	56.7	31.4	0.0	74.5	40.0	1.0
125.24	38.17	25676.7	340.8	1.3	313.5	364.7	64.2	35.5	0.0	77.9	42.0	1.0
125.74	38.33	28878.6	330.1	1.1	314.9	366.2	57.8	31.9	0.0	81.2	42.0	1.0
126.23	38.47	22711.9	205.6	0.9	316.3	367.6	45.4	25.0	0.0	74.3	40.0	1.0
126.72	38.62	6192.7	147.6	2.4	317.7	369.1	24.8	13.6	367.1	37.0	32.0	6.0
127.21	38.78	3139.1	81.4	2.6	318.9	370.6	12.6	6.9	163.3	30.0	30.0	3.0
127.71	38.92	7822.4	290.1	3.7	320.1	372.0	39.1	21.4	475.3	0.0	0.0	6.0
128.20	39.08	16258.7	481.2	3.0	321.4	373.5	54.2	29.6	0.0	64.5	38.0	1.0
128.69	39.22	29733.1	448.1	1.5	322.7	375.0	74.3	40.5	0.0	81.7	42.0	1.0
129.18	39.38	33907.0	532.0	1.6	324.1	376.5	84.8	46.1	0.0	85.4	42.0	1.0
129.67	39.53	29716.3	334.9	1.1	325.5	377.9	59.4	32.2	0.0	81.6	42.0	1.0
130.17	39.67	33583.8	198.5	0.6	327.0	379.4	56.0	30.3	0.0	85.0	42.0	1.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-2966
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-5-294
Location: STRUCTURE 5
Cone: 20 TON A 092
CPT Date: 00/03/02
CPT Time: 07:50
CPT File: 300SC294.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	323.1	10.7	3.3	1.3	0.0	3.2	6.5	21.4	0.0	0.0	10.0
0.74	0.23	1187.0	36.5	3.1	4.0	0.0	7.9	15.8	78.9	0.0	0.0	10.0
1.23	0.38	1353.5	62.5	4.6	6.6	0.0	13.5	27.1	89.8	0.0	0.0	10.0
1.72	0.52	971.9	35.1	3.6	9.3	0.0	9.7	19.4	64.2	0.0	0.0	10.0
2.21	0.68	1030.7	29.0	2.8	11.9	0.0	6.9	13.7	67.9	0.0	0.0	10.0
2.71	0.82	835.4	23.7	2.8	14.6	0.0	5.6	11.1	54.7	0.0	0.0	6.0
3.20	0.97	837.1	12.5	1.5	17.3	0.0	4.2	8.4	54.6	0.0	0.0	6.0
3.61	1.10	543.1	7.9	1.5	18.6	1.0	2.7	5.4	34.9	0.0	0.0	6.0
4.02	1.22	479.6	5.9	1.2	19.2	2.2	2.4	4.8	30.5	0.0	0.0	6.0
4.51	1.38	424.0	2.6	0.6	19.6	3.7	2.1	4.2	26.7	0.0	0.0	6.0
5.00	1.53	638.0	4.4	0.7	20.0	5.2	3.2	6.4	40.9	0.0	0.0	6.0
5.50	1.67	1391.9	13.4	1.0	20.8	6.6	5.6	11.1	91.0	33.2	40.0	10.0
5.99	1.83	802.4	9.1	1.1	22.1	8.1	4.0	8.0	51.5	0.0	0.0	6.0
6.56	2.00	555.2	2.1	0.4	22.9	9.8	2.8	5.6	34.8	0.0	0.0	6.0
7.14	2.17	417.0	3.2	0.8	23.4	11.5	2.1	4.2	25.5	0.0	0.0	6.0
7.63	2.33	347.6	2.2	0.6	23.8	13.0	1.7	3.5	20.7	0.0	0.0	3.0
8.12	2.47	562.4	3.7	0.7	24.2	14.5	2.8	5.6	34.9	0.0	0.0	6.0
8.61	2.62	468.4	2.6	0.6	24.6	15.9	2.3	4.6	28.5	0.0	0.0	6.0
9.10	2.78	480.5	2.0	0.4	25.0	17.4	2.4	4.7	29.2	0.0	0.0	6.0
9.60	2.92	520.1	2.0	0.4	25.4	18.9	2.6	5.0	31.7	0.0	0.0	6.0
10.09	3.08	688.0	5.7	0.8	26.2	20.4	3.4	6.6	42.8	0.0	0.0	6.0
10.58	3.22	494.9	2.3	0.5	27.1	21.8	2.5	4.7	29.7	0.0	0.0	6.0
11.07	3.38	1478.0	9.7	0.7	27.9	23.3	5.9	11.0	95.1	30.8	38.0	6.0
11.56	3.53	612.9	7.7	1.3	29.1	24.8	3.1	5.6	37.3	0.0	0.0	6.0
12.06	3.67	528.6	2.1	0.4	29.9	26.2	2.6	4.7	31.5	0.0	0.0	6.0
12.55	3.83	563.5	2.0	0.4	30.3	27.7	2.8	5.0	33.7	0.0	0.0	6.0
13.04	3.98	561.5	3.8	0.7	30.7	29.2	2.8	5.0	33.4	0.0	0.0	6.0
13.53	4.12	1034.3	11.0	1.1	31.5	30.7	4.1	7.2	64.8	30.0	36.0	6.0
14.03	4.27	883.0	18.3	2.1	32.8	32.1	4.4	7.5	54.5	0.0	0.0	6.0
14.52	4.43	862.3	10.1	1.2	34.0	33.6	4.3	7.2	53.0	0.0	0.0	6.0
15.01	4.57	611.0	3.1	0.5	34.8	35.1	3.1	5.1	36.1	0.0	0.0	6.0
15.50	4.73	880.7	7.4	0.8	35.6	36.5	4.4	7.2	53.9	0.0	0.0	6.0
15.99	4.88	806.5	6.2	0.8	36.9	38.0	4.0	6.5	48.8	0.0	0.0	6.0
16.49	5.02	625.7	2.9	0.5	37.7	39.5	3.1	5.0	36.6	0.0	0.0	3.0
16.98	5.18	757.2	3.2	0.4	38.1	41.0	3.8	6.0	45.2	0.0	0.0	6.0
17.47	5.32	3924.8	30.2	0.8	38.9	42.4	13.1	20.5	0.0	54.0	42.0	1.0
17.96	5.48	9304.7	97.1	1.0	40.3	43.9	23.3	35.9	0.0	78.2	46.0	1.0
18.45	5.62	1353.8	38.1	2.8	41.6	45.4	6.8	10.3	84.5	0.0	0.0	6.0
18.95	5.77	697.2	4.1	0.6	42.4	46.8	3.5	5.2	40.5	0.0	0.0	3.0
19.44	5.93	660.1	4.1	0.6	42.8	48.3	3.3	4.9	37.9	0.0	0.0	3.0
19.93	6.07	6217.7	51.0	0.8	43.7	49.8	15.5	23.0	0.0	65.5	44.0	1.0
20.42	6.23	16764.8	121.9	0.7	45.1	51.3	33.5	48.9	0.0	93.5	48.0	1.0
20.92	6.38	14696.5	128.1	0.9	46.6	52.7	29.4	42.2	0.0	89.3	46.0	1.0
21.41	6.52	2647.3	55.9	2.1	47.9	54.2	10.6	15.0	169.7	39.7	40.0	6.0
21.90	6.68	1403.2	18.4	1.3	49.1	55.7	5.6	7.8	86.6	30.0	36.0	6.0
22.39	6.82	991.8	14.3	1.4	50.4	57.1	5.0	6.8	59.0	0.0	0.0	6.0
22.88	6.98	5243.7	40.5	0.8	51.7	58.6	13.1	17.9	0.0	58.2	42.0	1.0

PLATE E-11

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	3067.6	42.1	1.4	53.0	60.1	12.3	16.5	197.0	42.5	40.0	6.0
23.87	7.27	882.1	13.0	1.5	54.2	61.6	4.4	5.9	51.1	0.0	0.0	3.0
24.36	7.43	799.3	9.3	1.2	55.4	63.0	4.0	5.3	45.4	0.0	0.0	3.0
24.85	7.57	1570.0	19.6	1.2	56.6	64.5	6.3	8.2	96.6	30.0	36.0	6.0
25.34	7.73	2920.3	25.9	0.9	57.9	66.0	9.7	12.5	0.0	39.8	38.0	1.0
25.84	7.88	8312.9	77.7	0.9	59.3	67.4	20.8	26.4	0.0	69.5	44.0	1.0
26.33	8.02	1835.9	50.6	2.8	60.6	68.9	9.2	11.5	113.8	0.0	0.0	6.0
26.82	8.18	13598.7	146.4	1.1	61.9	70.4	34.0	42.3	0.0	83.0	46.0	1.0
27.31	8.32	2205.2	106.3	4.8	63.1	71.9	22.1	27.2	138.0	0.0	0.0	6.0
27.80	8.48	2079.4	14.3	0.7	64.3	73.3	8.3	10.2	129.5	30.0	36.0	6.0
28.30	8.62	1858.8	36.9	2.0	65.5	74.8	7.4	9.0	114.6	30.0	36.0	6.0
28.79	8.77	878.8	8.4	1.0	66.8	76.3	4.4	5.3	49.1	0.0	0.0	3.0
29.28	8.93	1230.3	8.3	0.7	68.0	77.7	4.9	5.8	72.3	30.0	32.0	6.0
29.77	9.07	845.8	6.0	0.7	69.2	79.2	3.4	4.0	46.5	30.0	30.0	3.0
30.27	9.23	888.5	5.2	0.6	70.5	80.7	3.6	4.1	49.2	30.0	30.0	3.0
30.76	9.38	1448.5	14.9	1.0	71.7	82.2	5.8	6.7	86.3	30.0	32.0	6.0
31.17	9.50	1490.6	20.0	1.3	72.7	83.4	6.0	6.8	89.0	30.0	32.0	6.0
31.58	9.62	1049.4	8.7	0.8	73.7	84.6	4.2	4.8	59.4	30.0	30.0	3.0
32.07	9.77	1083.9	8.4	0.8	75.0	86.1	4.3	4.9	61.5	30.0	32.0	3.0
32.56	9.93	1991.0	11.3	0.6	76.2	87.6	6.6	7.4	0.0	30.0	34.0	1.0
33.05	10.07	1333.2	14.6	1.1	77.5	89.0	5.3	5.9	77.8	30.0	32.0	6.0
33.55	10.23	1148.6	10.1	0.9	78.7	90.5	4.6	5.1	65.3	30.0	32.0	3.0
34.04	10.38	1421.3	10.5	0.7	80.0	92.0	5.7	6.2	83.3	30.0	32.0	6.0
34.53	10.52	1350.2	10.6	0.8	81.2	93.4	5.4	5.9	78.4	30.0	32.0	3.0
35.02	10.68	1169.5	10.8	0.9	82.4	94.9	4.7	5.0	66.1	30.0	30.0	3.0
35.51	10.82	1251.0	13.0	1.0	83.6	96.4	5.0	5.4	71.4	30.0	32.0	3.0
36.01	10.98	1377.6	12.2	0.9	84.9	97.9	5.5	5.9	79.7	30.0	32.0	3.0
36.50	11.12	1534.0	9.1	0.6	86.1	99.3	6.1	6.5	89.9	30.0	32.0	6.0
36.99	11.27	1330.5	13.6	1.0	87.3	100.8	5.3	5.6	76.2	30.0	32.0	3.0
37.48	11.43	1664.7	17.8	1.1	88.6	102.3	6.7	6.9	98.3	30.0	32.0	6.0
37.98	11.57	3003.3	16.7	0.6	89.8	103.7	10.0	10.3	0.0	34.3	36.0	1.0
38.47	11.73	2053.1	17.6	0.9	91.1	105.2	8.2	8.4	123.8	30.0	34.0	6.0
38.96	11.88	2254.3	22.4	1.0	92.3	106.7	9.0	9.2	137.0	30.0	34.0	6.0
39.45	12.02	1538.2	10.6	0.7	93.5	108.2	6.2	6.2	89.1	30.0	32.0	3.0
39.94	12.18	1755.0	23.2	1.3	94.8	109.6	7.0	7.1	103.4	30.0	32.0	6.0
40.44	12.32	1732.0	40.2	2.3	96.0	111.1	8.7	8.7	101.7	0.0	0.0	6.0
40.93	12.48	1459.8	17.1	1.2	97.2	112.6	5.8	5.8	83.3	30.0	32.0	3.0
41.42	12.62	1411.9	9.6	0.7	98.5	114.0	5.6	5.6	80.0	30.0	32.0	3.0
41.91	12.77	1500.6	15.1	1.0	99.7	115.5	6.0	5.9	85.7	30.0	32.0	3.0
42.40	12.93	1405.3	21.4	1.5	100.9	117.0	5.6	5.5	79.2	30.0	30.0	3.0
42.90	13.07	1299.4	16.2	1.2	102.1	118.5	5.2	5.0	71.9	30.0	30.0	3.0
43.39	13.23	1570.2	19.6	1.2	103.4	119.9	6.3	6.0	89.8	30.0	32.0	3.0
43.88	13.38	2479.6	20.8	0.8	104.6	121.4	8.3	7.9	0.0	30.0	34.0	1.0
44.37	13.52	3545.9	40.2	1.1	105.9	122.9	11.8	11.2	0.0	36.7	36.0	1.0
44.86	13.68	2445.3	41.7	1.7	107.2	124.3	9.8	9.2	147.6	30.0	34.0	6.0
45.36	13.82	4214.6	36.5	0.9	108.5	125.8	14.0	13.2	0.0	41.3	38.0	1.0
45.85	13.98	1730.0	18.1	1.0	109.7	127.3	6.9	6.5	99.5	30.0	32.0	3.0
46.34	14.12	1320.3	5.5	0.4	111.0	128.8	5.3	4.9	72.0	30.0	30.0	3.0
46.83	14.27	1834.7	14.9	0.8	112.2	130.2	7.3	6.8	106.2	30.0	32.0	3.0
47.33	14.43	4630.7	55.9	1.2	113.5	131.7	15.4	14.2	0.0	43.4	38.0	1.0
47.82	14.57	4762.6	46.1	1.0	114.8	133.2	15.9	14.5	0.0	44.0	38.0	1.0
48.31	14.73	1954.4	23.0	1.2	116.0	134.6	7.8	7.1	113.6	30.0	32.0	3.0
48.80	14.88	1429.2	8.7	0.6	117.3	136.1	5.7	5.2	78.4	30.0	30.0	3.0
49.29	15.02	1463.5	9.2	0.6	118.5	137.6	5.9	5.3	80.5	30.0	30.0	3.0
49.79	15.18	1594.2	13.2	0.8	119.7	139.1	6.4	5.7	89.0	30.0	30.0	3.0
50.28	15.32	3955.5	34.6	0.9	121.0	140.5	13.2	11.7	0.0	38.0	36.0	1.0
50.77	15.48	2133.8	20.9	1.0	122.3	142.0	8.5	7.6	124.6	30.0	32.0	6.0
51.26	15.62	1672.4	19.8	1.2	123.5	143.5	6.7	5.9	93.7	30.0	30.0	3.0
51.75	15.77	5132.1	26.4	0.5	124.8	144.9	12.8	11.2	0.0	45.0	38.0	1.0
52.25	15.93	2943.2	20.4	0.7	126.1	146.4	9.8	8.5	0.0	30.0	34.0	1.0
52.74	16.08	1778.9	17.4	1.0	127.4	147.9	7.1	6.2	100.2	30.0	30.0	3.0
53.23	16.22	2244.7	18.3	0.8	128.6	149.4	9.0	7.7	131.1	30.0	32.0	6.0
53.72	16.38	2403.7	19.0	0.8	129.9	150.8	8.0	6.9	0.0	30.0	32.0	1.0
54.22	16.53	2476.0	28.6	1.2	131.1	152.3	9.9	8.5	146.2	30.0	32.0	6.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	2369.5	20.1	0.8	132.4	153.8	7.9	6.7	0.0	30.0	32.0	1.0
55.20	16.83	2968.8	39.3	1.3	133.7	155.2	11.9	10.1	178.7	30.0	34.0	6.0
55.69	16.97	5079.7	99.3	2.0	134.9	156.7	16.9	14.3	0.0	43.6	38.0	1.0
56.18	17.12	2131.8	22.9	1.1	136.2	158.2	8.5	7.2	122.5	30.0	32.0	3.0
56.68	17.28	1829.0	15.6	0.9	137.4	159.7	7.3	6.1	102.1	30.0	30.0	3.0
57.17	17.42	1545.2	30.5	2.0	138.7	161.1	7.7	6.4	83.0	0.0	0.0	3.0
57.66	17.58	1500.6	16.0	1.1	139.9	162.6	6.0	5.0	79.9	30.0	30.0	3.0
58.15	17.72	1425.9	7.2	0.5	141.1	164.1	5.7	4.7	74.7	30.0	30.0	3.0
58.64	17.88	1439.9	8.0	0.6	142.4	165.5	5.8	4.7	75.5	30.0	30.0	3.0
59.14	18.03	1517.2	8.9	0.6	143.6	167.0	6.1	5.0	80.4	30.0	30.0	3.0
59.63	18.17	1549.7	8.6	0.6	144.8	168.5	6.2	5.0	82.4	30.0	30.0	3.0
60.12	18.33	1589.3	12.9	0.8	146.0	170.0	6.4	5.1	84.9	30.0	30.0	3.0
60.61	18.47	2010.8	49.4	2.5	147.3	171.4	10.1	8.1	112.8	0.0	0.0	3.0
61.10	18.62	2206.4	40.7	1.8	148.5	172.9	8.8	7.1	125.7	30.0	32.0	3.0
61.60	18.78	1512.4	17.7	1.2	149.7	174.4	6.0	4.8	79.2	30.0	30.0	3.0
62.09	18.92	1698.7	19.3	1.1	151.0	175.8	6.8	5.4	91.5	30.0	30.0	3.0
62.58	19.08	2515.3	50.3	2.0	152.2	177.3	10.1	8.0	145.7	30.0	32.0	3.0
63.07	19.22	2323.4	64.3	2.8	153.4	178.8	11.6	9.2	132.7	0.0	0.0	3.0
63.57	19.38	2470.8	55.6	2.3	154.6	180.3	9.9	7.8	142.4	30.0	32.0	3.0
64.06	19.53	2290.5	32.1	1.4	155.9	181.7	9.2	7.2	130.2	30.0	32.0	3.0
64.55	19.67	2271.9	44.1	1.9	157.1	183.2	9.1	7.1	128.8	30.0	32.0	3.0
65.04	19.83	6589.0	88.9	1.3	158.4	184.7	22.0	17.1	0.0	48.7	38.0	1.0
65.53	19.97	5406.5	140.7	2.6	159.6	186.1	21.6	16.8	337.4	42.9	36.0	6.0
66.03	20.12	7948.0	135.0	1.7	160.9	187.6	26.5	20.4	0.0	53.9	38.0	1.0
66.52	20.28	7602.5	137.0	1.8	162.2	189.1	25.3	19.5	0.0	52.5	38.0	1.0
67.01	20.42	3652.5	56.3	1.5	163.5	190.6	12.2	9.3	0.0	31.4	34.0	1.0
67.50	20.58	3629.1	39.7	1.1	164.8	192.0	12.1	9.2	0.0	31.1	34.0	1.0
67.99	20.72	5862.3	83.1	1.4	166.1	193.5	19.5	14.8	0.0	44.7	36.0	1.0
68.49	20.88	6264.6	122.6	2.0	167.4	195.0	20.9	15.8	0.0	46.5	38.0	1.0
68.98	21.03	22766.5	164.8	0.7	168.8	196.4	45.5	34.3	0.0	83.4	44.0	1.0
69.47	21.17	29882.5	141.3	0.5	170.3	197.9	49.8	37.4	0.0	91.0	44.0	1.0
69.96	21.33	32936.5	98.6	0.3	171.8	199.4	54.9	41.0	0.0	93.7	44.0	1.0
70.46	21.47	29450.3	64.3	0.2	173.3	200.9	49.1	36.5	0.0	90.4	44.0	1.0
70.95	21.62	16506.3	80.7	0.5	174.8	202.3	33.0	24.4	0.0	73.6	42.0	1.0
71.44	21.78	4801.8	71.7	1.5	176.2	203.8	16.0	11.8	0.0	38.1	34.0	1.0
71.93	21.92	3705.6	21.4	0.6	177.5	205.3	12.4	9.1	0.0	30.6	34.0	1.0
72.42	22.08	2444.1	14.0	0.6	178.8	206.7	8.1	6.0	0.0	30.0	30.0	1.0
72.92	22.22	1937.6	12.3	0.6	180.1	208.2	7.8	5.7	103.3	30.0	30.0	3.0
73.41	22.38	2241.7	7.4	0.3	181.3	209.7	7.5	5.4	0.0	30.0	30.0	1.0
73.90	22.53	2912.4	15.5	0.5	182.7	211.2	9.7	7.0	0.0	30.0	32.0	1.0
74.39	22.67	4424.1	43.8	1.0	184.0	212.6	14.7	10.6	0.0	35.2	34.0	1.0
74.88	22.83	3874.1	59.1	1.5	185.3	214.1	12.9	9.3	0.0	31.3	34.0	1.0
75.38	22.97	2519.6	34.7	1.4	186.5	215.6	10.1	7.2	141.2	30.0	30.0	3.0
75.87	23.12	2960.2	25.9	0.9	187.8	217.0	9.9	7.0	0.0	30.0	32.0	1.0
76.36	23.28	2583.1	26.3	1.0	189.1	218.5	8.6	6.1	0.0	30.0	30.0	1.0
76.85	23.42	1609.5	13.7	0.9	190.4	220.0	6.4	4.6	79.9	30.0	30.0	1.5
77.34	23.58	2341.6	21.5	0.9	191.6	221.5	9.4	6.6	128.6	30.0	30.0	3.0
77.84	23.72	1847.7	27.3	1.5	192.8	222.9	7.4	5.2	95.5	30.0	30.0	1.5
78.33	23.88	1960.8	32.2	1.6	194.0	224.4	7.8	5.5	102.8	30.0	30.0	3.0
78.82	24.03	1565.5	17.3	1.1	195.3	225.9	6.3	4.4	76.3	30.0	30.0	1.5
79.31	24.17	1870.2	29.7	1.6	196.5	227.3	7.5	5.2	96.4	30.0	30.0	1.5
79.81	24.33	1584.5	21.4	1.3	197.7	228.8	6.3	4.4	77.2	30.0	30.0	1.5
80.30	24.47	2361.7	23.0	1.0	199.0	230.3	9.4	6.6	128.8	30.0	30.0	3.0
80.79	24.62	3186.9	70.7	2.2	200.2	231.8	12.7	8.8	183.7	30.0	32.0	3.0
81.28	24.78	3154.0	75.3	2.4	201.4	233.2	12.6	8.7	181.3	30.0	32.0	3.0
81.77	24.92	2705.9	65.7	2.4	202.6	234.7	10.8	7.4	151.2	30.0	30.0	3.0
82.27	25.08	2323.1	35.7	1.5	203.9	236.2	9.3	6.4	125.5	30.0	30.0	3.0
82.76	25.22	2047.1	28.5	1.4	205.1	237.6	8.2	5.6	107.0	30.0	30.0	3.0
83.25	25.38	2027.9	24.0	1.2	206.3	239.1	8.1	5.5	105.5	30.0	30.0	3.0
83.74	25.53	1991.8	24.8	1.2	207.6	240.6	8.0	5.4	102.9	30.0	30.0	1.5
84.23	25.67	1887.2	15.1	0.8	208.8	242.1	7.5	5.1	95.8	30.0	30.0	1.5
84.73	25.83	1879.4	14.0	0.7	210.0	243.5	7.5	5.1	95.1	30.0	30.0	1.5
85.22	25.97	4408.2	70.8	1.6	211.3	245.0	14.7	9.9	0.0	33.1	34.0	1.0
85.71	26.12	5250.8	44.7	0.9	212.6	246.5	17.5	11.7	0.0	38.0	34.0	1.0

PLATE E-13

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	3789.5	57.8	1.5	213.9	247.9	12.6	8.5	0.0	30.0	32.0	1.0
86.70	26.42	7197.8	81.7	1.1	215.2	249.4	18.0	12.0	0.0	46.9	36.0	1.0
87.19	26.58	3356.8	49.7	1.5	216.6	250.9	11.2	7.4	0.0	30.0	32.0	1.0
87.68	26.72	3163.4	36.3	1.1	217.9	252.4	10.5	7.0	0.0	30.0	32.0	1.0
88.17	26.88	3480.5	51.0	1.5	219.2	253.8	11.6	7.7	0.0	30.0	32.0	1.0
88.66	27.03	4017.6	81.4	2.0	220.4	255.3	16.1	10.6	236.1	30.0	32.0	6.0
89.16	27.17	4173.4	86.1	2.1	221.7	256.8	16.7	11.0	246.3	30.8	32.0	6.0
89.65	27.33	4031.7	101.6	2.5	222.9	258.2	16.1	10.6	236.7	30.0	32.0	6.0
90.14	27.47	7018.9	127.0	1.8	224.2	259.7	23.4	15.3	0.0	45.6	36.0	1.0
90.63	27.62	6298.9	194.1	3.1	225.4	261.2	25.2	16.4	387.5	42.4	36.0	6.0
91.12	27.78	14576.8	208.1	1.4	226.7	262.7	36.4	23.7	0.0	66.3	40.0	1.0
91.62	27.92	18694.5	281.7	1.5	228.1	264.1	46.7	30.3	0.0	73.4	42.0	1.0
92.11	28.08	22277.3	247.7	1.1	229.5	265.6	44.6	28.8	0.0	78.3	42.0	1.0
92.60	28.22	16927.8	185.6	1.1	231.0	267.1	33.9	21.8	0.0	70.4	40.0	1.0
93.09	28.38	5397.1	138.3	2.6	232.3	268.5	21.6	13.9	326.4	37.5	34.0	6.0
93.58	28.53	7289.2	175.2	2.4	233.6	270.0	29.2	18.7	452.4	46.1	36.0	6.0
94.08	28.67	8233.3	241.3	2.9	234.8	271.5	32.9	21.0	515.1	49.5	36.0	6.0
94.57	28.83	6027.6	203.8	3.4	236.0	273.0	30.1	19.2	367.9	0.0	0.0	6.0
95.06	28.97	3669.8	97.8	2.7	237.2	274.4	14.7	9.3	210.5	30.0	32.0	3.0
95.55	29.12	3823.6	81.3	2.1	238.5	275.9	15.3	9.7	220.6	30.0	32.0	3.0
96.05	29.28	3473.1	64.4	1.9	239.7	277.4	13.9	8.8	197.1	30.0	32.0	3.0
96.54	29.42	3035.5	52.5	1.7	240.9	278.8	12.1	7.7	167.7	30.0	30.0	3.0
97.03	29.58	3300.8	55.7	1.7	242.2	280.3	13.2	8.3	185.2	30.0	30.0	3.0
97.52	29.72	3395.6	69.1	2.0	243.4	281.8	13.6	8.5	191.4	30.0	30.0	3.0
98.01	29.88	3168.7	68.7	2.2	244.6	283.3	12.7	7.9	176.1	30.0	30.0	3.0
98.51	30.03	2996.4	57.6	1.9	245.8	284.7	12.0	7.5	164.4	30.0	30.0	3.0
99.00	30.17	3436.4	70.0	2.0	247.1	286.2	13.7	8.6	193.5	30.0	30.0	3.0
99.49	30.33	3996.3	54.6	1.4	248.3	287.7	13.3	8.3	0.0	30.0	32.0	1.0
99.98	30.47	4077.5	93.9	2.3	249.6	289.1	16.3	10.1	235.9	30.0	32.0	3.0
100.47	30.62	8595.7	180.7	2.1	250.9	290.6	28.7	17.7	0.0	49.8	36.0	1.0
100.97	30.78	10493.6	234.9	2.2	252.2	292.1	35.0	21.6	0.0	55.4	38.0	1.0
101.46	30.92	11395.4	292.2	2.6	253.5	293.6	38.0	23.4	0.0	57.7	38.0	1.0
101.95	31.08	11425.9	274.4	2.4	254.8	295.0	38.1	23.4	0.0	57.7	38.0	1.0
102.44	31.22	20530.0	337.0	1.6	256.1	296.5	51.3	31.4	0.0	74.4	42.0	1.0
102.94	31.38	25846.6	260.5	1.0	257.5	298.0	51.7	31.5	0.0	80.9	42.0	1.0
103.43	31.53	28298.2	315.6	1.1	259.0	299.5	56.6	34.4	0.0	83.5	42.0	1.0
103.92	31.67	27297.3	303.5	1.1	260.4	300.9	54.6	33.1	0.0	82.3	42.0	1.0
104.41	31.83	24123.6	197.5	0.8	261.9	302.4	48.2	29.2	0.0	78.7	42.0	1.0
104.90	31.97	6974.7	201.5	2.9	263.2	303.9	27.9	16.8	427.2	43.1	34.0	6.0
105.40	32.12	3357.0	53.7	1.6	264.5	305.3	13.4	8.1	185.8	30.0	30.0	3.0
105.89	32.28	3828.8	40.8	1.1	265.7	306.8	12.8	7.7	0.0	30.0	32.0	1.0
106.38	32.42	3256.8	46.8	1.4	267.0	308.3	10.9	6.5	0.0	30.0	30.0	1.0
106.87	32.58	2913.9	44.8	1.5	268.3	309.8	11.7	7.0	155.7	30.0	30.0	3.0
107.36	32.72	2973.7	45.0	1.5	269.5	311.2	11.9	7.1	159.5	30.0	30.0	3.0
107.86	32.88	5409.9	110.8	2.0	270.8	312.7	18.0	10.7	0.0	35.4	32.0	1.0
108.35	33.03	8621.9	201.7	2.3	272.1	314.2	28.7	17.1	0.0	48.7	36.0	1.0
108.84	33.17	4237.3	103.1	2.4	273.4	315.6	16.9	10.0	243.2	30.0	32.0	3.0
109.33	33.33	5221.3	94.3	1.8	274.6	317.1	17.4	10.3	0.0	34.2	32.0	1.0
109.82	33.47	5373.9	128.3	2.4	275.9	318.6	21.5	12.7	318.6	34.9	32.0	6.0
110.32	33.62	3388.6	41.9	1.2	277.2	320.1	11.3	6.6	0.0	30.0	30.0	1.0
110.81	33.78	3052.7	30.8	1.0	278.5	321.5	10.2	6.0	0.0	30.0	30.0	1.0
111.30	33.92	3066.5	33.5	1.1	279.8	323.0	10.2	6.0	0.0	30.0	30.0	1.0
111.79	34.08	5728.8	142.4	2.5	281.0	324.5	22.9	13.4	341.6	36.5	32.0	6.0
112.29	34.22	7614.6	114.2	1.5	282.3	325.9	25.4	14.8	0.0	44.6	34.0	1.0
112.78	34.38	3119.1	60.7	1.9	283.6	327.4	12.5	7.3	167.2	30.0	30.0	3.0
113.27	34.53	2793.7	49.0	1.8	284.8	328.9	11.2	6.5	145.3	30.0	30.0	3.0
113.76	34.67	4481.5	85.1	1.9	286.1	330.4	14.9	8.6	0.0	30.0	32.0	1.0
114.25	34.83	10118.3	136.9	1.4	287.4	331.8	25.3	14.6	0.0	52.5	36.0	1.0
114.75	34.97	8353.4	244.2	2.9	288.7	333.3	33.4	19.2	515.4	46.9	36.0	6.0
115.24	35.12	9633.9	224.8	2.3	290.0	334.8	32.1	18.5	0.0	50.9	36.0	1.0
115.73	35.28	13236.3	224.7	1.7	291.3	336.2	33.1	19.0	0.0	60.0	38.0	1.0
116.22	35.42	7796.6	195.5	2.5	292.6	337.7	31.2	17.8	477.8	44.8	34.0	6.0
116.71	35.58	5567.9	125.9	2.3	293.8	339.2	22.3	12.7	329.0	35.0	32.0	6.0
117.21	35.72	7510.0	228.2	3.0	295.1	340.7	30.0	17.1	458.3	43.6	34.0	6.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	30095.5	198.4	0.7	296.4	342.1	60.2	34.2	0.0	83.3	42.0	1.0
118.19	36.03	33258.8	149.9	0.5	297.9	343.6	55.4	31.4	0.0	86.1	42.0	1.0
118.68	36.17	38296.9	129.2	0.3	299.4	345.1	63.8	36.1	0.0	90.0	44.0	1.0
119.18	36.33	42427.5	183.8	0.4	301.0	346.5	70.7	39.9	0.0	92.9	44.0	1.0
119.67	36.47	40131.8	273.4	0.7	302.5	348.0	66.9	37.6	0.0	91.2	44.0	1.0
120.16	36.62	35665.2	267.1	0.7	304.0	349.5	71.3	40.0	0.0	87.8	42.0	1.0
120.65	36.78	33801.1	225.8	0.7	305.4	351.0	67.6	37.9	0.0	86.2	42.0	1.0
121.14	36.92	34270.8	260.8	0.8	306.9	352.4	68.5	38.3	0.0	86.5	42.0	1.0
121.64	37.08	31484.4	298.7	0.9	308.3	353.9	63.0	35.1	0.0	84.0	42.0	1.0
122.21	37.25	33889.5	288.4	0.9	310.0	355.6	67.8	37.7	0.0	86.0	42.0	1.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-3015
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-5-295
Location: STRUCTURE 5
Cone: 20 TON A 092
CPT Date: 00/02/02
CPT Time: 07:56
CPT File: 300SC295.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	433.9	19.9	4.6	1.3	0.0	4.3	8.7	28.8	0.0	0.0	10.0
0.74	0.23	1393.2	37.7	2.7	4.0	0.0	7.0	13.9	92.6	0.0	0.0	10.0
1.23	0.38	2135.9	19.7	0.9	6.7	0.0	8.5	17.1	141.9	61.8	46.0	10.0
1.72	0.52	1801.0	30.9	1.7	9.4	0.0	7.2	14.4	119.4	52.1	44.0	10.0
2.21	0.68	1842.5	37.3	2.0	12.1	0.0	7.4	14.7	122.0	49.1	44.0	10.0
2.71	0.82	1157.9	31.1	2.7	14.8	0.0	5.8	11.6	76.2	0.0	0.0	10.0
3.20	0.97	812.7	12.3	1.5	17.5	0.0	4.1	8.1	53.0	0.0	0.0	6.0
3.61	1.10	396.3	8.8	2.2	18.7	1.0	4.0	7.9	25.1	0.0	0.0	6.0
4.02	1.22	320.3	7.3	2.3	19.7	2.2	3.2	6.4	19.9	0.0	0.0	6.0
4.51	1.38	237.8	3.3	1.4	20.5	3.7	1.2	2.4	14.2	0.0	0.0	3.0
5.00	1.53	341.5	3.8	1.1	20.9	5.2	1.7	3.4	21.0	0.0	0.0	6.0
5.50	1.67	1298.1	6.1	0.5	21.7	6.6	5.2	10.4	84.7	30.7	40.0	6.0
5.99	1.83	654.5	4.0	0.6	22.5	8.1	3.3	6.5	41.6	0.0	0.0	6.0
6.56	2.00	361.8	2.4	0.7	23.0	9.8	1.8	3.6	21.9	0.0	0.0	3.0
7.14	2.17	444.1	2.3	0.5	23.4	11.5	2.2	4.4	27.3	0.0	0.0	6.0
7.63	2.33	436.3	2.7	0.6	23.8	13.0	2.2	4.4	26.6	0.0	0.0	6.0
8.12	2.47	256.4	2.0	0.8	24.2	14.5	1.3	2.5	14.5	0.0	0.0	3.0
8.61	2.62	307.9	2.0	0.6	24.6	15.9	1.5	3.0	17.8	0.0	0.0	3.0
9.10	2.78	303.4	3.0	1.0	25.0	17.4	1.5	3.0	17.4	0.0	0.0	3.0
9.60	2.92	227.2	10.0	4.4	25.8	18.9	2.3	4.4	12.2	0.0	0.0	1.5
10.09	3.08	394.4	2.7	0.7	26.6	20.4	2.0	3.7	23.2	0.0	0.0	3.0
10.58	3.22	1109.5	12.2	1.1	27.4	21.8	4.4	8.3	70.7	30.0	38.0	6.0
11.07	3.38	427.9	10.8	2.5	28.6	23.3	4.3	7.8	25.1	0.0	0.0	3.0
11.56	3.53	252.1	2.0	0.8	29.4	24.8	1.3	2.3	13.2	0.0	0.0	1.5
12.06	3.67	289.9	2.1	0.7	29.8	26.2	1.4	2.6	15.6	0.0	0.0	3.0
12.55	3.83	498.3	7.0	1.4	30.2	27.7	2.5	4.4	29.4	0.0	0.0	3.0
13.04	3.98	574.8	13.4	2.3	31.0	29.2	3.8	6.7	34.3	0.0	0.0	6.0
13.53	4.12	751.1	15.4	2.1	32.2	30.7	3.8	6.5	45.9	0.0	0.0	6.0
14.03	4.27	354.5	5.3	1.5	33.1	32.1	1.8	3.0	19.3	0.0	0.0	3.0
14.52	4.43	343.1	8.5	2.5	33.8	33.6	3.4	5.8	18.4	0.0	0.0	3.0
15.01	4.57	720.1	14.6	2.0	35.0	35.1	3.6	6.0	43.3	0.0	0.0	6.0
15.50	4.73	497.5	8.4	1.7	36.3	36.5	3.3	5.4	28.3	0.0	0.0	3.0
15.99	4.88	557.5	6.4	1.2	37.1	38.0	2.8	4.5	32.2	0.0	0.0	3.0
16.49	5.02	708.0	8.0	1.1	37.9	39.5	3.5	5.6	42.0	0.0	0.0	6.0
16.98	5.18	7669.8	63.0	0.8	39.2	41.0	19.2	30.0	0.0	73.1	44.0	1.0
17.47	5.32	4310.6	109.6	2.5	40.5	42.4	17.2	26.5	281.8	56.1	42.0	10.0
17.96	5.48	593.3	16.4	2.8	41.7	43.9	5.9	9.0	33.8	0.0	0.0	3.0
18.45	5.62	526.6	4.7	0.9	42.5	45.4	2.6	4.0	29.3	0.0	0.0	3.0
18.95	5.77	3326.4	32.6	1.0	43.3	46.8	11.1	16.5	0.0	47.7	40.0	1.0
19.44	5.93	16083.0	129.9	0.8	44.7	48.3	32.2	47.1	0.0	92.4	48.0	1.0
19.93	6.07	16235.0	127.8	0.8	46.2	49.8	32.5	46.8	0.0	92.2	48.0	1.0
20.42	6.23	4720.8	82.0	1.7	47.5	51.3	15.7	22.3	0.0	56.4	42.0	1.0
20.92	6.38	891.6	25.3	2.8	48.8	52.7	5.9	8.3	52.7	0.0	0.0	6.0
21.41	6.52	924.6	21.9	2.4	50.0	54.2	4.6	6.4	54.7	0.0	0.0	6.0
21.90	6.68	5660.8	31.9	0.6	51.3	55.7	14.2	19.3	0.0	60.5	42.0	1.0
22.39	6.82	5954.8	53.3	0.9	52.7	57.1	14.9	20.1	0.0	61.6	42.0	1.0
22.88	6.98	896.6	21.0	2.3	54.0	58.6	4.5	6.0	52.3	0.0	0.0	3.0

PLATE E-16

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	606.2	4.9	0.8	54.8	60.1	3.0	4.0	32.8	0.0	0.0	3.0
23.87	7.27	1218.6	15.7	1.3	55.6	61.6	4.9	6.4	73.4	30.0	34.0	6.0
24.36	7.43	1944.9	29.0	1.5	56.9	63.0	7.8	10.1	121.7	30.0	36.0	6.0
24.85	7.57	3929.8	68.8	1.8	58.1	64.5	13.1	16.8	0.0	48.3	40.0	1.0
25.34	7.73	5139.0	61.3	1.2	59.4	66.0	17.1	21.7	0.0	55.6	42.0	1.0
25.84	7.88	7080.4	136.6	1.9	60.7	67.4	23.6	29.6	0.0	64.5	42.0	1.0
26.33	8.02	783.4	37.3	4.8	62.0	68.9	7.8	9.7	43.5	0.0	0.0	3.0
26.82	8.18	2017.9	27.9	1.4	63.2	70.4	8.1	9.9	125.6	30.0	36.0	6.0
27.31	8.32	726.4	8.9	1.2	64.4	71.9	3.6	4.4	39.3	0.0	0.0	3.0
27.80	8.48	994.8	8.8	0.9	65.6	73.3	4.0	4.8	57.1	30.0	32.0	3.0
28.30	8.62	822.9	11.0	1.3	66.8	74.8	4.1	4.9	45.4	0.0	0.0	3.0
28.79	8.77	696.4	3.9	0.6	67.7	76.3	3.5	4.1	36.8	0.0	0.0	3.0
29.28	8.93	747.4	7.7	1.0	68.5	77.7	3.7	4.4	40.1	0.0	0.0	3.0
29.77	9.07	2000.1	25.6	1.3	69.7	79.2	8.0	9.4	123.4	30.0	36.0	6.0
30.27	9.23	1178.9	19.9	1.7	70.9	80.7	5.9	6.8	68.5	0.0	0.0	3.0
30.76	9.38	856.5	7.8	0.9	72.2	82.2	4.3	4.9	46.8	0.0	0.0	3.0
31.17	9.50	975.4	18.4	1.9	73.2	83.4	4.9	5.6	54.6	0.0	0.0	3.0
31.58	9.62	3326.4	26.5	0.8	74.3	84.6	11.1	12.6	0.0	40.0	38.0	1.0
32.07	9.77	1514.6	22.1	1.5	75.5	86.1	6.1	6.8	90.2	30.0	32.0	6.0
32.56	9.93	1163.3	6.5	0.6	76.7	87.6	4.7	5.2	66.6	30.0	32.0	3.0
33.05	10.07	1167.0	6.8	0.6	78.0	89.0	4.7	5.2	66.7	30.0	32.0	3.0
33.55	10.23	1168.9	8.9	0.8	79.2	90.5	4.7	5.1	66.6	30.0	32.0	3.0
34.04	10.38	961.2	3.8	0.4	80.4	92.0	3.8	4.2	52.6	30.0	30.0	3.0
34.53	10.52	948.0	5.1	0.5	81.7	93.4	3.8	4.1	51.5	30.0	30.0	3.0
35.02	10.68	1002.9	9.0	0.9	82.9	94.9	4.0	4.3	55.0	30.0	30.0	3.0
35.51	10.82	1227.5	10.9	0.9	84.1	96.4	4.9	5.2	69.8	30.0	32.0	3.0
36.01	10.98	910.0	7.2	0.8	85.3	97.9	3.6	3.9	48.5	30.0	30.0	3.0
36.50	11.12	1072.4	11.4	1.1	86.6	99.3	4.3	4.5	59.1	30.0	30.0	3.0
36.99	11.27	1874.9	14.1	0.8	87.8	100.8	7.5	7.8	112.4	30.0	34.0	6.0
37.48	11.43	1688.1	10.7	0.6	89.0	102.3	6.8	7.0	99.8	30.0	32.0	6.0
37.98	11.57	1876.5	23.2	1.2	90.3	103.7	7.5	7.7	112.2	30.0	32.0	6.0
38.47	11.73	1214.3	13.8	1.1	91.5	105.2	4.9	5.0	67.8	30.0	30.0	3.0
38.96	11.88	1079.1	8.7	0.8	92.7	106.7	4.3	4.4	58.6	30.0	30.0	3.0
39.45	12.02	1100.7	8.2	0.7	93.9	108.2	4.4	4.4	59.9	30.0	30.0	3.0
39.94	12.18	1034.1	9.0	0.9	95.2	109.6	4.1	4.1	55.3	30.0	30.0	3.0
40.44	12.32	1132.8	11.7	1.0	96.4	111.1	4.5	4.5	61.7	30.0	30.0	3.0
40.93	12.48	1098.2	8.2	0.8	97.6	112.6	4.4	4.4	59.2	30.0	30.0	3.0
41.42	12.62	1053.9	15.6	1.5	98.9	114.0	5.3	5.2	56.1	0.0	0.0	3.0
41.91	12.77	958.8	19.1	2.0	100.1	115.5	4.8	4.7	49.5	0.0	0.0	1.5
42.40	12.93	1355.5	18.0	1.3	101.3	117.0	5.4	5.3	75.8	30.0	30.0	3.0
42.90	13.07	3091.9	43.9	1.4	102.5	118.5	12.4	12.0	191.4	33.3	36.0	6.0
43.39	13.23	2675.4	51.0	1.9	103.8	119.9	10.7	10.3	163.4	30.0	34.0	6.0
43.88	13.38	2604.8	49.4	1.9	105.0	121.4	10.4	10.0	158.6	30.0	34.0	6.0
44.37	13.52	5427.8	42.9	0.8	106.3	122.9	13.6	12.9	0.0	48.9	38.0	1.0
44.86	13.68	1808.5	34.7	1.9	107.6	124.3	7.2	6.8	105.1	30.0	32.0	3.0
45.36	13.82	1097.5	9.8	0.9	108.8	125.8	4.4	4.1	57.5	30.0	30.0	3.0
45.85	13.98	3569.4	51.2	1.4	110.1	127.3	11.9	11.1	0.0	36.4	36.0	1.0
46.34	14.12	9874.4	98.2	1.0	111.4	128.8	24.7	22.9	0.0	65.4	42.0	1.0
46.83	14.27	4286.1	76.2	1.8	112.8	130.2	14.3	13.2	0.0	41.3	38.0	1.0
47.33	14.43	1718.7	26.6	1.5	114.1	131.7	6.9	6.3	98.2	30.0	32.0	3.0
47.82	14.57	976.8	3.2	0.3	115.3	133.2	3.9	3.6	48.6	30.0	30.0	1.5
48.31	14.73	918.6	3.0	0.3	116.5	134.6	3.7	3.3	44.5	30.0	30.0	1.5
48.80	14.88	1142.9	8.5	0.7	117.7	136.1	4.6	4.1	59.3	30.0	30.0	3.0
49.29	15.02	1520.0	9.4	0.6	119.0	137.6	6.1	5.5	84.2	30.0	30.0	3.0
49.79	15.18	1364.9	10.3	0.8	120.2	139.1	5.5	4.9	73.7	30.0	30.0	3.0
50.28	15.32	1341.3	18.6	1.4	121.4	140.5	5.4	4.8	72.0	30.0	30.0	3.0
50.77	15.48	1833.0	27.7	1.5	122.7	142.0	7.3	6.5	104.6	30.0	32.0	3.0
51.26	15.62	1371.3	24.9	1.8	123.9	143.5	6.9	6.0	73.6	0.0	0.0	3.0
51.75	15.77	1435.4	11.6	0.8	125.1	144.9	5.7	5.0	77.7	30.0	30.0	3.0
52.25	15.93	1357.3	9.2	0.7	126.3	146.4	5.4	4.7	72.3	30.0	30.0	3.0
52.74	16.08	1440.6	12.5	0.9	127.6	147.9	5.8	5.0	77.7	30.0	30.0	3.0
53.23	16.22	1448.0	9.4	0.6	128.8	149.4	5.8	5.0	78.0	30.0	30.0	3.0
53.72	16.38	1120.5	8.2	0.7	130.0	150.8	4.5	3.8	56.0	30.0	30.0	1.5
54.22	16.53	1399.2	8.0	0.6	131.2	152.3	5.6	4.8	74.4	30.0	30.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1296.0	15.5	1.2	132.5	153.8	5.2	4.4	67.3	30.0	30.0	3.0
55.20	16.83	1123.9	17.5	1.6	133.7	155.2	5.6	4.8	55.7	0.0	0.0	1.5
55.69	16.97	1103.1	12.5	1.1	134.9	156.7	4.4	3.7	54.1	30.0	30.0	1.5
56.18	17.12	1278.6	12.9	1.0	136.2	158.2	5.1	4.3	65.6	30.0	30.0	1.5
56.68	17.28	1150.4	11.3	1.0	137.4	159.7	4.6	3.8	56.9	30.0	30.0	1.5
57.17	17.42	1292.9	13.5	1.0	138.6	161.1	5.2	4.3	66.2	30.0	30.0	1.5
57.66	17.58	1322.5	12.7	1.0	139.8	162.6	5.3	4.4	68.0	30.0	30.0	1.5
58.15	17.72	1264.4	10.9	0.9	141.1	164.1	5.1	4.2	63.9	30.0	30.0	1.5
58.64	17.88	1548.5	28.0	1.8	142.3	165.5	6.2	5.1	82.7	30.0	30.0	3.0
59.14	18.03	2007.5	28.8	1.4	143.5	167.0	8.0	6.6	113.1	30.0	30.0	3.0
59.63	18.17	1507.2	24.6	1.6	144.8	168.5	6.0	4.9	79.6	30.0	30.0	3.0
60.12	18.33	1641.2	36.2	2.2	146.0	170.0	8.2	6.6	88.4	0.0	0.0	3.0
60.61	18.47	2039.7	46.8	2.3	147.2	171.4	8.2	6.6	114.7	30.0	30.0	3.0
61.10	18.62	1828.2	51.2	2.8	148.4	172.9	9.1	7.3	100.5	0.0	0.0	3.0
61.60	18.78	1984.0	59.7	3.0	149.7	174.4	9.9	7.9	110.7	0.0	0.0	3.0
62.09	18.92	4148.3	134.5	3.2	150.9	175.8	20.7	16.5	254.8	0.0	0.0	6.0
62.58	19.08	6417.1	167.6	2.6	152.1	177.3	25.7	20.4	405.8	48.5	38.0	6.0
63.07	19.22	14993.7	147.7	1.0	153.5	178.8	30.0	23.7	0.0	72.7	42.0	1.0
63.57	19.38	14639.2	157.0	1.1	154.9	180.3	36.6	28.8	0.0	71.9	42.0	1.0
64.06	19.53	12805.0	219.6	1.7	156.3	181.7	32.0	25.1	0.0	68.0	42.0	1.0
64.55	19.67	15488.4	159.0	1.0	157.7	183.2	31.0	24.1	0.0	73.3	42.0	1.0
65.04	19.83	17230.7	133.7	0.8	159.1	184.7	34.5	26.7	0.0	76.2	42.0	1.0
65.53	19.97	16291.1	149.1	0.9	160.6	186.1	32.6	25.2	0.0	74.5	42.0	1.0
66.03	20.12	14695.7	210.6	1.4	162.0	187.6	36.7	28.2	0.0	71.4	42.0	1.0
66.52	20.28	20806.6	270.7	1.3	163.4	189.1	52.0	39.8	0.0	81.2	44.0	1.0
67.01	20.42	22805.9	137.3	0.6	164.8	190.6	45.6	34.8	0.0	83.7	44.0	1.0
67.50	20.58	25341.0	115.3	0.5	166.3	192.0	42.2	32.1	0.0	86.6	44.0	1.0
67.99	20.72	16617.3	70.0	0.4	167.8	193.5	33.2	25.1	0.0	74.4	42.0	1.0
68.49	20.88	3563.4	78.3	2.2	169.1	195.0	14.3	10.7	213.3	30.2	34.0	6.0
68.98	21.03	3036.6	23.3	0.8	170.4	196.4	10.1	7.6	0.0	30.0	32.0	1.0
69.47	21.17	7259.4	138.6	1.9	171.7	197.9	24.2	18.1	0.0	50.3	38.0	1.0
69.96	21.33	6745.1	85.6	1.3	173.0	199.4	22.5	16.7	0.0	48.1	38.0	1.0
70.46	21.47	1859.9	26.0	1.4	174.3	200.9	7.4	5.5	99.0	30.0	30.0	3.0
70.95	21.62	2591.1	21.2	0.8	175.5	202.3	8.6	6.4	0.0	30.0	32.0	1.0
71.44	21.78	2621.4	34.9	1.3	176.8	203.8	10.5	7.7	149.4	30.0	32.0	3.0
71.93	21.92	2932.1	49.8	1.7	178.0	205.3	11.7	8.6	169.9	30.0	32.0	3.0
72.42	22.08	3592.5	72.4	2.0	179.3	206.7	14.4	10.5	213.8	30.0	32.0	6.0
72.92	22.22	3205.9	87.5	2.7	180.5	208.2	12.8	9.3	187.8	30.0	32.0	6.0
73.41	22.38	3295.7	80.8	2.5	181.7	209.7	13.2	9.6	193.6	30.0	32.0	6.0
73.90	22.53	3584.1	73.2	2.0	182.9	211.2	14.3	10.4	212.7	30.0	32.0	6.0
74.39	22.67	6194.0	135.0	2.2	184.2	212.6	20.6	14.9	0.0	44.8	36.0	1.0
74.88	22.83	6407.4	181.0	2.8	185.5	214.1	25.6	18.4	400.5	45.7	36.0	6.0
75.38	22.97	2995.5	101.2	3.4	186.7	215.6	15.0	10.7	172.9	0.0	0.0	3.0
75.87	23.12	2755.8	70.5	2.6	187.9	217.0	11.0	7.9	156.7	30.0	32.0	3.0
76.36	23.28	2376.6	96.0	4.0	189.2	218.5	15.8	11.3	131.3	0.0	0.0	3.0
76.85	23.42	2502.4	93.0	3.7	190.4	220.0	12.5	8.9	139.5	0.0	0.0	3.0
77.34	23.58	2991.4	104.2	3.5	191.6	221.5	15.0	10.6	171.9	0.0	0.0	3.0
77.84	23.72	2774.9	108.0	3.9	192.8	222.9	18.5	13.0	157.3	0.0	0.0	3.0
78.33	23.88	2519.2	98.0	3.9	194.1	224.4	16.8	11.8	140.0	0.0	0.0	3.0
78.82	24.03	2508.7	98.6	3.9	195.3	225.9	16.7	11.7	139.2	0.0	0.0	3.0
79.31	24.17	1945.5	63.7	3.3	196.5	227.3	9.7	6.8	101.4	0.0	0.0	3.0
79.81	24.33	1769.6	38.9	2.2	197.8	228.8	8.8	6.2	89.5	0.0	0.0	1.5
80.30	24.47	1728.5	31.9	1.8	199.0	230.3	6.9	4.8	86.6	30.0	30.0	1.5
80.79	24.62	1851.0	41.2	2.2	200.2	231.8	7.4	5.1	94.6	30.0	30.0	1.5
81.28	24.78	1737.2	32.3	1.9	201.4	233.2	6.9	4.8	86.8	30.0	30.0	1.5
81.77	24.92	1643.3	25.0	1.5	202.7	234.7	6.6	4.5	80.4	30.0	30.0	1.5
82.27	25.08	1641.4	25.9	1.6	203.9	236.2	6.6	4.5	80.1	30.0	30.0	1.5
82.76	25.22	5462.9	91.8	1.7	205.2	237.6	18.2	12.4	0.0	39.6	34.0	1.0
83.25	25.38	4284.1	92.8	2.2	206.4	239.1	17.1	11.7	255.9	32.6	32.0	6.0
83.74	25.53	2430.8	64.5	2.7	207.7	240.6	12.2	8.3	132.2	0.0	0.0	3.0
84.23	25.67	2708.5	80.2	3.0	208.9	242.1	13.5	9.2	150.5	0.0	0.0	3.0
84.73	25.83	2531.3	52.8	2.1	210.1	243.5	10.1	6.8	138.5	30.0	30.0	3.0
85.22	25.97	2728.4	46.1	1.7	211.3	245.0	10.9	7.3	151.5	30.0	30.0	3.0
85.71	26.12	3549.1	88.0	2.5	212.6	246.5	14.2	9.5	206.0	30.0	32.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	3421.4	153.9	4.5	213.8	247.9	22.8	15.3	197.3	0.0	0.0	3.0
86.70	26.42	3485.2	122.2	3.5	215.0	249.4	17.4	11.6	201.4	0.0	0.0	3.0
87.19	26.58	6930.3	143.1	2.1	216.3	250.9	23.1	15.4	0.0	45.7	36.0	1.0
87.68	26.72	4268.5	174.1	4.1	217.6	252.4	21.3	14.2	253.2	0.0	0.0	6.0
88.17	26.88	11110.0	224.5	2.0	218.8	253.8	37.0	24.5	0.0	59.1	38.0	1.0
88.66	27.03	16291.5	344.9	2.1	220.1	255.3	54.3	35.8	0.0	70.0	40.0	1.0
89.16	27.17	19005.4	370.4	1.9	221.5	256.8	47.5	31.2	0.0	74.3	42.0	1.0
89.65	27.33	24936.5	309.4	1.2	222.9	258.2	49.9	32.7	0.0	82.0	42.0	1.0
90.14	27.47	33072.0	197.2	0.6	224.4	259.7	55.1	36.0	0.0	90.0	44.0	1.0
90.63	27.62	31737.0	240.6	0.8	225.9	261.2	63.5	41.3	0.0	88.7	44.0	1.0
91.12	27.78	27764.9	109.7	0.4	227.4	262.7	46.3	30.0	0.0	84.8	42.0	1.0
91.62	27.92	13261.1	256.4	1.9	228.8	264.1	44.2	28.6	0.0	63.5	40.0	1.0
92.11	28.08	16719.3	348.3	2.1	230.1	265.6	55.7	36.0	0.0	70.1	40.0	1.0
92.60	28.22	29114.1	328.5	1.1	231.5	267.1	58.2	37.5	0.0	85.9	42.0	1.0
93.09	28.38	32371.7	208.3	0.6	232.9	268.5	64.7	41.5	0.0	88.8	44.0	1.0
93.58	28.53	29850.8	183.5	0.6	234.4	270.0	59.7	38.2	0.0	86.4	44.0	1.0
94.08	28.67	29324.0	141.0	0.5	235.9	271.5	48.9	31.1	0.0	85.8	42.0	1.0
94.57	28.83	27856.3	180.4	0.6	237.3	273.0	55.7	35.4	0.0	84.3	42.0	1.0
95.06	28.97	29713.1	196.3	0.7	238.8	274.4	59.4	37.6	0.0	86.0	42.0	1.0
95.55	29.12	32277.4	155.2	0.5	240.3	275.9	53.8	34.0	0.0	88.3	44.0	1.0
96.05	29.28	36611.6	134.6	0.4	241.8	277.4	61.0	38.4	0.0	91.8	44.0	1.0
96.54	29.42	29861.7	156.6	0.5	243.4	278.8	49.8	31.2	0.0	85.9	42.0	1.0
97.03	29.58	21175.9	143.9	0.7	244.8	280.3	42.4	26.5	0.0	75.9	42.0	1.0
97.52	29.72	11651.5	273.0	2.3	246.2	281.8	38.8	24.2	0.0	58.7	38.0	1.0
98.01	29.88	23124.1	210.9	0.9	247.6	283.3	46.2	28.8	0.0	78.3	42.0	1.0
98.51	30.03	25572.2	221.1	0.9	249.1	284.7	51.1	31.7	0.0	81.1	42.0	1.0
99.00	30.17	21573.6	149.7	0.7	250.5	286.2	43.1	26.7	0.0	76.2	42.0	1.0
99.49	30.33	7046.7	176.7	2.5	251.8	287.7	28.2	17.4	433.8	44.0	36.0	6.0
99.98	30.47	7402.1	204.3	2.8	253.1	289.1	29.6	18.2	457.3	45.3	36.0	6.0
100.47	30.62	11457.3	270.9	2.4	254.3	290.6	38.2	23.4	0.0	57.8	38.0	1.0
100.97	30.78	6315.7	128.1	2.0	255.6	292.1	21.1	12.9	0.0	40.7	34.0	1.0
101.46	30.92	2763.4	31.2	1.1	256.9	293.6	9.2	5.6	0.0	30.0	30.0	1.0
101.95	31.08	1976.2	21.0	1.1	258.2	295.0	7.9	4.8	94.9	30.0	30.0	1.5
102.44	31.22	2035.5	24.1	1.2	259.4	296.5	8.1	4.9	98.6	30.0	30.0	1.5
102.94	31.38	3063.5	24.3	0.8	260.7	298.0	10.2	6.2	0.0	30.0	30.0	1.0
103.43	31.53	3057.8	29.2	1.0	262.0	299.5	10.2	6.2	0.0	30.0	30.0	1.0
103.92	31.67	3277.9	61.0	1.9	263.3	300.9	13.1	7.9	180.9	30.0	30.0	3.0
104.41	31.83	4290.7	132.8	3.1	264.5	302.4	21.5	12.9	248.3	0.0	0.0	3.0
104.90	31.97	8351.3	175.2	2.1	265.8	303.9	27.8	16.7	0.0	48.1	36.0	1.0
105.40	32.12	9549.1	158.8	1.7	267.1	305.3	31.8	19.1	0.0	51.9	36.0	1.0
105.89	32.28	3015.6	80.1	2.7	268.3	306.8	12.1	7.2	162.7	30.0	30.0	3.0
106.38	32.42	2566.8	33.4	1.3	269.6	308.3	10.3	6.1	132.6	30.0	30.0	1.5
106.87	32.58	4599.6	89.9	2.0	270.8	309.8	15.3	9.1	0.0	30.7	32.0	1.0
107.36	32.72	3836.2	72.9	1.9	272.1	311.2	15.3	9.1	216.9	30.0	30.0	3.0
107.86	32.88	2352.5	36.9	1.6	273.3	312.7	9.4	5.6	117.8	30.0	30.0	1.5
108.35	33.03	3920.6	50.2	1.3	274.6	314.2	13.1	7.7	0.0	30.0	30.0	1.0
108.84	33.17	5447.3	101.8	1.9	275.9	315.6	18.2	10.7	0.0	35.3	32.0	1.0
109.33	33.33	3059.1	41.1	1.3	277.2	317.1	10.2	6.0	0.0	30.0	30.0	1.0
109.82	33.47	2449.8	26.7	1.1	278.5	318.6	9.8	5.7	123.5	30.0	30.0	1.5
110.32	33.62	2883.9	52.5	1.8	279.7	320.1	11.5	6.8	152.3	30.0	30.0	3.0
110.81	33.78	3170.7	97.7	3.1	280.9	321.5	15.9	9.3	171.2	0.0	0.0	3.0
111.30	33.92	2976.9	74.6	2.5	282.2	323.0	11.9	6.9	158.1	30.0	30.0	3.0
111.79	34.08	5561.2	118.7	2.1	283.4	324.5	22.2	12.9	330.2	35.5	32.0	6.0
112.29	34.22	6442.5	123.3	1.9	284.6	325.9	21.5	12.5	0.0	39.7	34.0	1.0
112.78	34.38	5166.5	149.9	2.9	285.9	327.4	20.7	12.0	303.5	33.3	32.0	6.0
113.27	34.53	12447.5	231.4	1.9	287.2	328.9	41.5	24.0	0.0	58.4	38.0	1.0
113.76	34.67	18618.3	297.9	1.6	288.5	330.4	46.5	26.8	0.0	69.9	40.0	1.0
114.25	34.83	26312.4	278.0	1.1	289.9	331.8	52.6	30.2	0.0	79.7	42.0	1.0
114.75	34.97	27993.7	279.8	1.0	291.4	333.3	56.0	32.1	0.0	81.5	42.0	1.0
115.24	35.12	28094.4	268.3	1.0	292.8	334.8	56.2	32.1	0.0	81.5	42.0	1.0
115.73	35.28	18875.0	372.8	2.0	294.3	336.2	47.2	26.9	0.0	70.0	40.0	1.0
116.22	35.42	16901.5	445.6	2.6	295.6	337.7	56.3	32.1	0.0	66.8	40.0	1.0
116.71	35.58	22271.3	245.5	1.1	297.0	339.2	44.5	25.3	0.0	74.6	40.0	1.0
117.21	35.72	19338.7	258.2	1.3	298.4	340.7	48.3	27.4	0.0	70.5	40.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	20686.3	454.4	2.2	299.7	342.1	69.0	39.0	0.0	72.4	40.0	1.0
118.19	36.03	28215.2	439.3	1.6	301.1	343.6	70.5	39.8	0.0	81.2	42.0	1.0
118.68	36.17	28501.2	251.5	0.9	302.5	345.1	57.0	32.1	0.0	81.4	42.0	1.0
119.18	36.33	30011.2	233.4	0.8	303.9	346.5	60.0	33.7	0.0	82.8	42.0	1.0
119.67	36.47	29081.9	221.3	0.8	305.4	348.0	58.2	32.6	0.0	81.9	42.0	1.0
120.16	36.62	25118.7	256.1	1.0	306.9	349.5	50.2	28.1	0.0	77.6	42.0	1.0
120.65	36.78	20535.0	329.0	1.6	308.3	351.0	51.3	28.6	0.0	71.8	40.0	1.0
121.14	36.92	21436.4	388.7	1.8	309.7	352.4	53.6	29.8	0.0	72.9	40.0	1.0
121.64	37.08	23147.7	384.4	1.7	311.0	353.9	57.9	32.1	0.0	75.1	40.0	1.0
122.21	37.25	26442.2	332.6	1.3	312.7	355.6	52.9	29.3	0.0	78.8	42.0	1.0
122.78	37.42	27180.2	294.7	1.1	314.4	357.3	54.4	30.0	0.0	79.5	42.0	1.0
123.28	37.58	27495.8	181.0	0.7	315.8	358.8	55.0	30.3	0.0	79.8	42.0	1.0
123.77	37.72	25776.6	181.3	0.7	317.3	360.3	51.6	28.3	0.0	77.9	42.0	1.0
124.26	37.88	19948.0	246.3	1.2	318.7	361.7	49.9	27.3	0.0	70.5	40.0	1.0
124.75	38.03	18377.1	312.6	1.7	320.1	363.2	45.9	25.1	0.0	68.0	40.0	1.0
125.24	38.17	13483.7	262.3	1.9	321.4	364.7	44.9	24.5	0.0	59.1	38.0	1.0
125.74	38.33	14224.6	281.6	2.0	322.7	366.2	47.4	25.8	0.0	60.6	38.0	1.0
126.23	38.47	32917.7	105.5	0.3	324.1	367.6	54.9	29.8	0.0	84.6	42.0	1.0
126.72	38.62	21700.2	226.2	1.0	325.6	369.1	43.4	23.5	0.0	72.6	40.0	1.0
127.21	38.78	11186.7	422.8	3.8	327.0	370.6	44.7	24.2	699.3	53.5	36.0	6.0
127.71	38.92	17810.5	240.1	1.3	328.3	372.0	44.5	24.1	0.0	66.8	40.0	1.0
128.20	39.08	15792.5	264.8	1.7	329.7	373.5	39.5	21.3	0.0	63.3	38.0	1.0
128.69	39.22	14067.1	183.0	1.3	331.0	375.0	35.2	18.9	0.0	59.9	38.0	1.0
129.18	39.38	4308.5	101.8	2.4	332.3	376.5	17.2	9.3	240.0	30.0	30.0	3.0
129.67	39.53	2843.4	38.3	1.3	333.6	377.9	11.4	6.1	142.1	30.0	30.0	1.5
130.17	39.67	2795.1	45.8	1.6	334.8	379.4	11.2	6.0	138.7	30.0	30.0	1.5
130.66	39.83	3810.0	96.3	2.5	336.0	380.9	15.2	8.1	206.2	30.0	30.0	3.0
131.15	39.97	5786.7	141.9	2.5	337.3	382.3	23.1	12.3	337.8	34.2	32.0	6.0
131.64	40.12	3268.1	73.0	2.2	338.5	383.8	13.1	7.0	169.7	30.0	30.0	3.0
132.13	40.28	3181.1	68.8	2.2	339.7	385.3	12.7	6.8	163.7	30.0	30.0	1.5
132.63	40.42	4279.9	122.0	2.9	340.9	386.8	17.1	9.1	236.8	30.0	30.0	3.0
133.12	40.58	7775.2	230.6	3.0	342.2	388.2	31.1	16.5	469.7	42.4	34.0	6.0
133.61	40.72	14489.2	225.2	1.6	343.5	389.7	36.2	19.1	0.0	60.2	38.0	1.0
134.10	40.88	9624.9	258.8	2.7	344.8	391.2	38.5	20.3	592.6	48.4	36.0	6.0
134.59	41.03	16253.2	349.6	2.2	346.0	392.6	54.2	28.5	0.0	63.4	38.0	1.0
135.09	41.17	22846.1	377.9	1.7	347.4	394.1	57.1	30.0	0.0	73.1	40.0	1.0

neTec Inc. - CPT Interpretation
nterpretation Output - Release 1.00.19c
Run No: 00-0518-1635-3059
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-5-296
Location: STRUCTURE 5
Cone: 20 TON A 092
CPT Date: 00/01/02
CPT Time: 13:29
CPT File: 300SC296.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	842.3	8.7	1.0	1.4	0.0	4.2	8.4	56.1	0.0	0.0	10.0
0.74	0.23	1424.0	20.8	1.5	4.1	0.0	5.7	11.4	94.7	57.4	48.0	10.0
1.23	0.38	1265.4	18.5	1.5	6.8	0.0	5.1	10.1	83.9	46.7	44.0	10.0
1.72	0.52	1469.0	18.6	1.3	9.4	0.0	5.9	11.8	97.3	46.1	44.0	10.0
2.21	0.68	1570.3	25.9	1.7	12.1	0.0	6.3	12.6	103.9	44.4	44.0	10.0
2.71	0.82	1273.3	14.2	1.1	14.8	0.0	5.1	10.2	83.9	35.5	42.0	10.0
3.20	0.97	831.9	3.7	0.5	17.5	0.0	3.3	6.7	54.3	30.0	38.0	6.0
3.61	1.10	440.2	2.0	0.5	18.5	1.0	2.2	4.4	28.0	0.0	0.0	6.0
4.02	1.22	473.3	2.0	0.4	18.9	2.2	2.4	4.7	30.1	0.0	0.0	6.0
4.51	1.38	419.6	2.0	0.5	19.3	3.7	2.1	4.2	26.4	0.0	0.0	6.0
5.00	1.53	384.1	2.0	0.5	19.7	5.2	1.9	3.8	23.9	0.0	0.0	6.0
5.50	1.67	366.0	2.0	0.5	20.1	6.6	1.8	3.7	22.6	0.0	0.0	6.0
5.99	1.83	565.8	2.0	0.4	20.5	8.1	2.8	5.7	35.8	0.0	0.0	6.0
6.56	2.00	667.1	2.0	0.3	21.0	9.8	3.3	6.7	42.4	0.0	0.0	6.0
7.14	2.17	498.2	2.0	0.4	21.4	11.5	2.5	5.0	31.0	0.0	0.0	6.0
7.63	2.33	472.2	2.0	0.4	21.8	13.0	2.4	4.7	29.2	0.0	0.0	6.0
8.12	2.47	481.6	2.0	0.4	22.2	14.5	2.4	4.8	29.7	0.0	0.0	6.0
8.61	2.62	440.6	2.0	0.5	22.6	15.9	2.2	4.4	26.8	0.0	0.0	6.0
9.10	2.78	475.7	2.0	0.4	23.0	17.4	2.4	4.8	29.0	0.0	0.0	6.0
9.60	2.92	812.6	2.0	0.2	23.5	18.9	4.1	8.1	51.4	0.0	0.0	6.0
10.09	3.08	693.5	2.0	0.3	23.9	20.4	3.5	6.9	43.3	0.0	0.0	6.0
10.58	3.22	1401.2	3.9	0.3	24.7	21.8	5.6	11.0	90.3	31.0	40.0	6.0
11.07	3.38	953.1	5.5	0.6	25.9	23.3	3.8	7.3	60.3	30.0	38.0	6.0
11.56	3.53	601.2	2.0	0.3	26.7	24.8	3.0	5.7	36.7	0.0	0.0	6.0
12.06	3.67	466.9	2.0	0.4	27.1	26.2	2.3	4.4	27.6	0.0	0.0	6.0
12.55	3.83	479.9	2.0	0.4	27.5	27.7	2.4	4.5	28.3	0.0	0.0	6.0
13.04	3.98	846.8	2.2	0.3	27.9	29.2	4.2	7.8	52.6	0.0	0.0	6.0
13.53	4.12	845.7	6.2	0.7	28.7	30.7	4.2	7.7	52.4	0.0	0.0	6.0
14.03	4.27	915.4	5.5	0.6	30.0	32.1	3.7	6.5	56.9	30.0	36.0	6.0
14.52	4.43	633.6	2.0	0.3	30.8	33.6	3.2	5.6	37.9	0.0	0.0	6.0
15.01	4.57	766.8	2.8	0.4	31.2	35.1	3.8	6.7	46.7	0.0	0.0	6.0
15.50	4.73	769.8	4.2	0.5	31.6	36.5	3.8	6.7	46.8	0.0	0.0	6.0
15.99	4.88	696.8	2.0	0.3	32.0	38.0	3.5	6.0	41.8	0.0	0.0	6.0
16.49	5.02	638.4	2.0	0.3	32.4	39.5	3.2	5.5	37.8	0.0	0.0	6.0
16.98	5.18	1073.3	7.1	0.7	33.2	41.0	4.3	7.3	66.6	30.0	36.0	6.0
17.47	5.32	7861.3	44.3	0.6	34.5	42.4	19.7	32.7	0.0	75.6	46.0	1.0
17.96	5.48	1234.3	26.1	2.1	35.8	43.9	6.2	10.1	77.0	0.0	0.0	6.0
18.45	5.62	630.7	2.0	0.3	36.6	45.4	3.2	5.1	36.6	0.0	0.0	3.0
18.95	5.77	579.6	2.0	0.3	37.0	46.8	2.9	4.7	33.0	0.0	0.0	3.0
19.44	5.93	8719.3	53.5	0.6	37.9	48.3	21.8	34.6	0.0	77.2	46.0	1.0
19.93	6.07	18049.2	124.4	0.7	39.4	49.8	36.1	56.3	0.0	95.0	48.0	1.0
20.42	6.23	7776.3	90.8	1.2	40.8	51.3	19.4	29.8	0.0	72.9	44.0	1.0
20.92	6.38	879.5	22.1	2.5	42.1	52.7	5.9	8.8	52.3	0.0	0.0	6.0
21.41	6.52	1195.1	14.7	1.2	43.3	54.2	4.8	7.1	73.2	30.0	36.0	6.0
21.90	6.68	11511.3	66.7	0.6	44.6	55.7	23.0	33.7	0.0	82.9	46.0	1.0
22.39	6.82	7821.6	53.0	0.7	46.1	57.1	19.6	28.2	0.0	71.3	44.0	1.0
22.88	6.98	1034.2	20.7	2.0	47.4	58.6	5.2	7.4	61.9	0.0	0.0	6.0

PLATE E-21

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	792.9	2.0	0.3	48.2	60.1	4.0	5.6	45.6	0.0	0.0	3.0
23.87	7.27	1470.4	14.1	1.0	49.0	61.6	5.9	8.2	90.7	30.0	36.0	6.0
24.36	7.43	6928.0	62.5	0.9	50.3	63.0	17.3	23.9	0.0	66.6	44.0	1.0
24.85	7.57	3879.1	83.8	2.2	51.6	64.5	15.5	21.1	250.9	49.6	40.0	10.0
25.34	7.73	13696.8	125.6	0.9	52.9	66.0	27.4	36.8	0.0	85.4	46.0	1.0
25.84	7.88	3433.9	91.1	2.7	54.3	67.4	13.7	18.2	220.8	45.4	40.0	10.0
26.33	8.02	1407.4	12.9	0.9	55.5	68.9	5.6	7.4	85.5	30.0	34.0	6.0
26.82	8.18	1325.6	12.8	1.0	56.7	70.4	5.3	6.9	79.9	30.0	34.0	6.0
27.31	8.32	785.2	2.0	0.3	57.6	71.9	3.9	5.1	43.7	0.0	0.0	3.0
27.80	8.48	1090.2	3.8	0.4	58.4	73.3	4.4	5.6	63.9	30.0	32.0	6.0
28.30	8.62	708.8	3.6	0.5	59.2	74.8	3.5	4.5	38.3	0.0	0.0	3.0
28.79	8.77	721.5	2.2	0.3	59.6	76.3	3.6	4.6	39.0	0.0	0.0	3.0
29.28	8.93	1444.6	9.6	0.7	60.4	77.7	5.8	7.3	87.1	30.0	34.0	6.0
29.77	9.07	2364.4	36.8	1.6	61.6	79.2	9.5	11.8	148.2	32.9	38.0	6.0
30.27	9.23	953.9	5.1	0.5	62.9	80.7	3.8	4.7	54.0	30.0	32.0	3.0
30.76	9.38	1393.2	2.7	0.2	64.1	82.2	5.6	6.8	83.1	30.0	34.0	6.0
31.17	9.50	3148.2	13.8	0.4	65.1	83.4	10.5	12.7	0.0	40.3	38.0	1.0
31.58	9.62	1749.5	26.2	1.5	66.2	84.6	7.0	8.4	106.6	30.0	34.0	6.0
32.07	9.77	1240.5	2.8	0.2	67.4	86.1	5.0	5.9	72.5	30.0	32.0	6.0
32.56	9.93	1564.8	6.9	0.4	68.6	87.6	6.3	7.4	93.9	30.0	34.0	6.0
33.05	10.07	1485.7	4.5	0.3	69.9	89.0	5.9	7.0	88.5	30.0	34.0	6.0
33.55	10.23	1051.0	2.2	0.2	71.1	90.5	4.2	4.9	59.3	30.0	32.0	3.0
34.04	10.38	1066.3	3.0	0.3	72.3	92.0	4.3	4.9	60.1	30.0	32.0	3.0
34.53	10.52	1187.2	6.5	0.5	73.6	93.4	4.7	5.4	68.0	30.0	32.0	3.0
35.02	10.68	1616.3	6.0	0.4	74.8	94.9	6.5	7.3	96.4	30.0	34.0	6.0
35.51	10.82	1045.1	2.7	0.3	76.0	96.4	4.2	4.7	58.2	30.0	30.0	3.0
36.01	10.98	1363.8	8.0	0.6	77.2	97.9	5.5	6.1	79.2	30.0	32.0	6.0
36.50	11.12	3012.5	23.0	0.8	78.5	99.3	10.0	11.1	0.0	36.4	38.0	1.0
36.99	11.27	4229.3	41.3	1.0	79.8	100.8	14.1	15.4	0.0	45.8	38.0	1.0
37.48	11.43	2821.9	35.5	1.3	81.1	102.3	11.3	12.3	175.9	34.0	36.0	6.0
37.98	11.57	2590.6	16.9	0.7	82.3	103.7	8.6	9.3	0.0	31.3	36.0	1.0
38.47	11.73	5126.8	24.6	0.5	83.7	105.2	12.8	13.7	0.0	50.7	40.0	1.0
38.96	11.88	1917.6	18.9	1.0	85.0	106.7	7.7	8.1	115.1	30.0	34.0	6.0
39.45	12.02	1299.9	7.9	0.6	86.2	108.2	5.2	5.5	73.7	30.0	32.0	3.0
39.94	12.18	1170.3	4.8	0.4	87.4	109.6	4.7	4.9	64.9	30.0	30.0	3.0
40.44	12.32	1285.0	9.8	0.8	88.7	111.1	5.1	5.3	72.3	30.0	32.0	3.0
40.93	12.48	1312.2	22.1	1.7	89.9	112.6	6.6	6.8	74.0	0.0	0.0	3.0
41.42	12.62	1179.2	16.2	1.4	91.1	114.0	5.9	6.0	64.9	0.0	0.0	3.0
41.91	12.77	1191.0	9.5	0.8	92.4	115.5	4.8	4.9	65.5	30.0	30.0	3.0
42.40	12.93	2609.6	23.6	0.9	93.6	117.0	8.7	8.8	0.0	30.0	36.0	1.0
42.90	13.07	5461.1	49.5	0.9	94.9	118.5	18.2	18.3	0.0	50.7	40.0	1.0
43.39	13.23	6198.3	83.5	1.3	96.2	119.9	20.7	20.6	0.0	54.1	40.0	1.0
43.88	13.38	2713.2	54.4	2.0	97.5	121.4	10.9	10.8	166.3	30.2	36.0	6.0
44.37	13.52	1566.7	14.1	0.9	98.7	122.9	6.3	6.2	89.7	30.0	32.0	3.0
44.86	13.68	1298.5	3.0	0.2	100.0	124.3	5.2	5.1	71.6	30.0	30.0	3.0
45.36	13.82	3274.8	41.8	1.3	101.2	125.8	10.9	10.6	0.0	35.1	36.0	1.0
45.85	13.98	11509.7	71.1	0.6	102.6	127.3	23.0	22.2	0.0	70.9	42.0	1.0
46.34	14.12	4013.2	97.9	2.4	103.9	128.8	16.1	15.4	252.0	40.6	38.0	6.0
46.83	14.27	1514.6	20.8	1.4	105.2	130.2	6.1	5.8	85.3	30.0	32.0	3.0
47.33	14.43	1098.2	2.0	0.2	106.4	131.7	4.4	4.2	57.3	30.0	30.0	3.0
47.82	14.57	1146.5	2.8	0.2	107.6	133.2	4.6	4.3	60.4	30.0	30.0	3.0
48.31	14.73	1934.3	13.7	0.7	108.9	134.6	7.7	7.3	112.7	30.0	32.0	6.0
48.80	14.88	2053.2	20.9	1.0	110.1	136.1	8.2	7.7	120.5	30.0	32.0	6.0
49.29	15.02	1713.3	19.7	1.2	111.3	137.6	6.9	6.4	97.6	30.0	32.0	3.0
49.79	15.18	1914.4	26.8	1.4	112.5	139.1	7.7	7.1	110.9	30.0	32.0	3.0
50.28	15.32	1443.7	12.1	0.8	113.8	140.5	5.8	5.3	79.3	30.0	30.0	3.0
50.77	15.48	1422.5	6.5	0.5	115.0	142.0	5.7	5.2	77.7	30.0	30.0	3.0
51.26	15.62	2169.9	6.8	0.3	116.3	143.5	7.2	6.6	0.0	30.0	32.0	1.0
51.75	15.77	1498.1	7.7	0.5	117.5	144.9	6.0	5.4	82.4	30.0	30.0	3.0
52.25	15.93	1917.8	9.9	0.5	118.8	146.4	7.7	6.9	110.2	30.0	32.0	3.0
52.74	16.08	2269.7	19.1	0.8	120.0	147.9	9.1	8.1	133.5	30.0	32.0	6.0
53.23	16.22	2647.3	21.9	0.8	121.3	149.4	8.8	7.8	0.0	30.0	34.0	1.0
53.72	16.38	1657.4	12.2	0.7	122.5	150.8	6.6	5.9	92.3	30.0	30.0	3.0
54.22	16.53	1530.1	10.1	0.7	123.7	152.3	6.1	5.4	83.6	30.0	30.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1435.7	10.2	0.7	125.0	153.8	5.7	5.0	77.1	30.0	30.0	3.0
55.20	16.83	1431.1	9.2	0.6	126.2	155.2	5.7	5.0	76.6	30.0	30.0	3.0
55.69	16.97	1516.9	11.0	0.7	127.4	156.7	6.1	5.3	82.2	30.0	30.0	3.0
56.18	17.12	1403.9	9.5	0.7	128.7	158.2	5.6	4.8	74.5	30.0	30.0	3.0
56.68	17.28	1303.3	5.7	0.4	129.9	159.7	5.2	4.5	67.6	30.0	30.0	3.0
57.17	17.42	1393.4	6.7	0.5	131.1	161.1	5.6	4.8	73.4	30.0	30.0	3.0
57.66	17.58	1698.6	38.5	2.3	132.3	162.6	8.5	7.2	93.6	0.0	0.0	3.0
58.15	17.72	1784.7	42.1	2.4	133.6	164.1	8.9	7.6	99.1	0.0	0.0	3.0
58.64	17.88	1556.5	66.9	4.3	134.8	165.5	15.6	13.1	83.7	0.0	0.0	3.0
59.14	18.03	1363.1	28.5	2.1	136.0	167.0	6.8	5.7	70.7	0.0	0.0	3.0
59.63	18.17	2065.0	39.0	1.9	137.2	168.5	8.3	6.9	117.3	30.0	32.0	3.0
60.12	18.33	2510.2	36.9	1.5	138.4	170.0	10.0	8.4	146.8	30.0	32.0	6.0
60.61	18.47	1847.0	17.0	0.9	139.6	171.4	7.4	6.1	102.4	30.0	30.0	3.0
61.10	18.62	1560.8	14.1	0.9	140.9	172.9	6.2	5.1	83.1	30.0	30.0	3.0
61.60	18.78	2020.9	42.0	2.1	142.1	174.4	8.1	6.6	113.6	30.0	30.0	3.0
62.09	18.92	10574.5	93.6	0.9	143.4	175.8	26.4	21.6	0.0	63.7	40.0	1.0
62.58	19.08	17113.3	103.8	0.6	144.8	177.3	34.2	27.8	0.0	77.4	42.0	1.0
63.07	19.22	15729.2	127.4	0.8	146.3	178.8	31.5	25.5	0.0	74.8	42.0	1.0
63.57	19.38	17242.9	130.0	0.8	147.7	180.3	34.5	27.8	0.0	77.3	42.0	1.0
64.06	19.53	16652.2	88.6	0.5	149.2	181.7	33.3	26.7	0.0	76.2	42.0	1.0
64.55	19.67	10790.0	73.7	0.7	150.6	183.2	21.6	17.2	0.0	63.6	40.0	1.0
65.04	19.83	8530.6	117.2	1.4	152.1	184.7	21.3	16.9	0.0	56.7	40.0	1.0
65.53	19.97	21461.7	124.4	0.6	153.5	186.1	42.9	33.9	0.0	83.0	44.0	1.0
66.03	20.12	26566.9	164.5	0.6	154.9	187.6	53.1	41.8	0.0	89.0	44.0	1.0
66.52	20.28	31021.4	141.5	0.5	156.4	189.1	51.7	40.5	0.0	93.3	46.0	1.0
67.01	20.42	32035.9	113.6	0.4	157.9	190.6	53.4	41.6	0.0	94.1	46.0	1.0
67.50	20.58	29463.0	91.6	0.3	159.5	192.0	49.1	38.1	0.0	91.6	44.0	1.0
67.99	20.72	29371.0	170.7	0.6	161.0	193.5	49.0	37.8	0.0	91.3	44.0	1.0
68.49	20.88	30302.8	104.0	0.3	162.5	195.0	50.5	38.8	0.0	92.1	44.0	1.0
68.98	21.03	26353.0	82.7	0.3	164.1	196.4	43.9	33.6	0.0	88.0	44.0	1.0
69.47	21.17	12649.2	154.1	1.2	165.5	197.9	31.6	24.1	0.0	66.8	40.0	1.0
69.96	21.33	3988.8	81.6	2.0	166.8	199.4	16.0	12.1	241.5	33.6	34.0	6.0
70.46	21.47	4306.1	32.6	0.8	168.1	200.9	14.4	10.8	0.0	35.7	34.0	1.0
70.95	21.62	3363.2	46.5	1.4	169.4	202.3	11.2	8.4	0.0	30.0	32.0	1.0
71.44	21.78	2525.4	27.8	1.1	170.6	203.8	10.1	7.6	143.4	30.0	32.0	3.0
71.93	21.92	2201.2	20.2	0.9	171.9	205.3	8.8	6.6	121.6	30.0	30.0	3.0
72.42	22.08	2619.9	24.4	0.9	173.1	206.7	8.7	6.5	0.0	30.0	32.0	1.0
72.92	22.22	2452.5	30.5	1.2	174.4	208.2	9.8	7.3	138.0	30.0	30.0	3.0
73.41	22.38	2735.8	31.7	1.2	175.6	209.7	10.9	8.1	156.7	30.0	32.0	3.0
73.90	22.53	2902.6	43.8	1.5	176.9	211.2	11.6	8.5	167.6	30.0	32.0	3.0
74.39	22.67	1929.6	29.6	1.5	178.1	212.6	7.7	5.7	102.6	30.0	30.0	3.0
74.88	22.83	1964.5	18.9	1.0	179.3	214.1	7.9	5.7	104.7	30.0	30.0	3.0
75.38	22.97	2844.2	40.1	1.4	180.6	215.6	11.4	8.3	163.2	30.0	32.0	3.0
75.87	23.12	3744.5	90.6	2.4	181.8	217.0	15.0	10.9	223.0	30.6	32.0	6.0
76.36	23.28	3423.8	97.2	2.8	183.0	218.5	13.7	9.9	201.5	30.0	32.0	6.0
76.85	23.42	2348.4	40.1	1.7	184.2	220.0	9.4	6.8	129.6	30.0	30.0	3.0
77.34	23.58	2248.8	30.6	1.4	185.5	221.5	9.0	6.5	122.8	30.0	30.0	3.0
77.84	23.72	2305.4	48.6	2.1	186.7	222.9	9.2	6.6	126.4	30.0	30.0	3.0
78.33	23.88	2088.7	49.5	2.4	187.9	224.4	8.4	6.0	111.8	30.0	30.0	3.0
78.82	24.03	1712.2	26.3	1.5	189.1	225.9	6.8	4.9	86.5	30.0	30.0	1.5
79.31	24.17	1752.7	23.3	1.3	190.4	227.3	7.0	5.0	89.0	30.0	30.0	1.5
79.81	24.33	1856.2	31.0	1.7	191.6	228.8	7.4	5.2	95.7	30.0	30.0	1.5
80.30	24.47	1681.5	18.2	1.1	192.8	230.3	6.7	4.7	83.9	30.0	30.0	1.5
80.79	24.62	1662.7	11.2	0.7	194.1	231.8	6.7	4.7	82.5	30.0	30.0	1.5
81.28	24.78	1856.7	20.7	1.1	195.3	233.2	7.4	5.2	95.2	30.0	30.0	1.5
81.77	24.92	4921.8	116.6	2.4	196.5	234.7	19.7	13.7	299.4	37.3	34.0	6.0
82.27	25.08	2902.3	27.0	0.9	197.8	236.2	9.7	6.7	0.0	30.0	32.0	1.0
82.76	25.22	2246.9	43.7	1.9	199.1	237.6	9.0	6.2	120.7	30.0	30.0	3.0
83.25	25.38	3036.8	94.2	3.1	200.3	239.1	15.2	10.5	173.2	0.0	0.0	3.0
83.74	25.53	2595.9	45.8	1.8	201.5	240.6	10.4	7.2	143.6	30.0	30.0	3.0
84.23	25.67	2648.2	25.8	1.0	202.8	242.1	8.8	6.1	0.0	30.0	30.0	1.0
84.73	25.83	2285.7	16.9	0.7	204.1	243.5	7.6	5.2	0.0	30.0	30.0	1.0
85.22	25.97	2951.7	35.7	1.2	205.4	245.0	9.8	6.7	0.0	30.0	32.0	1.0
85.71	26.12	3449.4	63.7	1.8	206.6	246.5	13.8	9.4	199.7	30.0	32.0	3.0

PLATE E-23

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	4115.0	119.5	2.9	207.9	247.9	16.5	11.2	243.9	31.3	32.0	6.0
86.70	26.42	5535.7	125.4	2.3	209.1	249.4	22.1	15.0	338.5	39.8	34.0	6.0
87.19	26.58	7161.5	213.0	3.0	210.3	250.9	28.6	19.3	446.7	47.0	36.0	6.0
87.68	26.72	23593.3	176.1	0.7	211.7	252.4	47.2	31.7	0.0	81.1	42.0	1.0
88.17	26.88	26947.4	205.6	0.8	213.1	253.8	53.9	36.1	0.0	84.8	44.0	1.0
88.66	27.03	34174.7	234.0	0.7	214.6	255.3	68.3	45.7	0.0	91.6	44.0	1.0
89.16	27.17	37264.6	145.5	0.4	216.1	256.8	62.1	41.4	0.0	93.9	44.0	1.0
89.65	27.33	27951.6	217.5	0.8	217.6	258.2	55.9	37.1	0.0	85.6	44.0	1.0
90.14	27.47	35770.8	249.9	0.7	219.0	259.7	71.5	47.3	0.0	92.6	44.0	1.0
90.63	27.62	40145.6	152.2	0.4	220.5	261.2	66.9	44.1	0.0	95.0	44.0	1.0
91.12	27.78	35970.4	158.1	0.4	222.0	262.7	60.0	39.4	0.0	92.5	44.0	1.0
91.62	27.92	31005.6	239.5	0.8	223.5	264.1	62.0	40.6	0.0	88.2	44.0	1.0
92.11	28.08	33173.7	162.2	0.5	225.0	265.6	55.3	36.1	0.0	90.0	44.0	1.0
92.60	28.22	33888.2	102.2	0.3	226.5	267.1	56.5	36.7	0.0	90.5	44.0	1.0
93.09	28.38	34617.6	109.5	0.3	228.1	268.5	57.7	37.4	0.0	91.1	44.0	1.0
93.58	28.53	30624.9	113.7	0.4	229.6	270.0	51.0	33.0	0.0	87.4	44.0	1.0
94.08	28.67	27745.2	142.9	0.5	231.1	271.5	46.2	29.8	0.0	84.5	42.0	1.0
94.57	28.83	33475.6	149.8	0.4	232.7	273.0	55.8	35.8	0.0	89.8	44.0	1.0
95.06	28.97	35482.1	164.8	0.5	234.2	274.4	59.1	37.8	0.0	91.4	44.0	1.0
95.55	29.12	35811.4	184.5	0.5	235.7	275.9	59.7	38.0	0.0	91.6	44.0	1.0
96.05	29.28	30530.5	125.2	0.4	237.2	277.4	50.9	32.3	0.0	86.9	44.0	1.0
96.54	29.42	22868.5	172.6	0.8	238.7	278.8	45.7	29.0	0.0	78.5	42.0	1.0
97.03	29.58	27543.6	157.9	0.6	240.2	280.3	55.1	34.8	0.0	83.8	42.0	1.0
97.52	29.72	27957.9	95.7	0.3	241.7	281.8	46.6	29.3	0.0	84.1	42.0	1.0
98.01	29.88	9060.7	164.2	1.8	243.1	283.3	30.2	19.0	0.0	51.7	38.0	1.0
98.51	30.03	3933.9	85.2	2.2	244.4	284.7	15.7	9.9	227.0	30.0	32.0	3.0
99.00	30.17	12139.8	175.9	1.4	245.7	286.2	30.3	19.0	0.0	60.0	38.0	1.0
99.49	30.33	6747.9	67.3	1.0	247.0	287.7	16.9	10.5	0.0	43.0	34.0	1.0
99.98	30.47	2641.8	14.8	0.6	248.4	289.1	8.8	5.5	0.0	30.0	30.0	1.0
100.47	30.62	2465.1	9.5	0.4	249.7	290.6	8.2	5.1	0.0	30.0	30.0	1.0
100.97	30.78	2828.9	15.8	0.6	251.0	292.1	9.4	5.8	0.0	30.0	30.0	1.0
101.46	30.92	3040.1	42.5	1.4	252.3	293.6	12.2	7.5	166.3	30.0	30.0	3.0
101.95	31.08	2332.5	21.3	0.9	253.5	295.0	9.3	5.7	118.9	30.0	30.0	1.5
102.44	31.22	2670.1	42.1	1.6	254.7	296.5	10.7	6.5	141.3	30.0	30.0	3.0
102.94	31.38	3967.2	102.4	2.6	255.9	298.0	15.9	9.7	227.5	30.0	32.0	3.0
103.43	31.53	14749.7	117.7	0.8	257.3	299.5	29.5	18.0	0.0	64.9	40.0	1.0
103.92	31.67	5688.9	123.6	2.2	258.6	300.9	22.8	13.8	342.0	37.5	34.0	6.0
104.41	31.83	2282.4	27.1	1.2	259.9	302.4	9.1	5.5	114.7	30.0	30.0	1.5
104.90	31.97	2829.4	36.8	1.3	261.1	303.9	11.3	6.9	151.0	30.0	30.0	3.0
105.40	32.12	3908.0	36.7	0.9	262.4	305.3	13.0	7.9	0.0	30.0	32.0	1.0
105.89	32.28	2398.3	28.8	1.2	263.6	306.8	9.6	5.8	121.9	30.0	30.0	1.5
106.38	32.42	4840.2	75.8	1.6	264.9	308.3	16.1	9.7	0.0	32.5	32.0	1.0
106.87	32.58	7458.7	150.2	2.0	266.2	309.8	24.9	14.9	0.0	44.8	36.0	1.0
107.36	32.72	9139.4	107.1	1.2	267.5	311.2	22.8	13.7	0.0	50.6	36.0	1.0
107.86	32.88	3157.8	64.4	2.0	268.8	312.7	12.6	7.5	171.8	30.0	30.0	3.0
108.35	33.03	2523.2	19.4	0.8	270.1	314.2	8.4	5.0	0.0	30.0	30.0	1.0
108.84	33.17	2801.5	26.7	1.0	271.4	315.6	9.3	5.5	0.0	30.0	30.0	1.0
109.33	33.33	3668.6	41.0	1.1	272.7	317.1	12.2	7.2	0.0	30.0	30.0	1.0
109.82	33.47	2858.0	29.8	1.0	274.0	318.6	9.5	5.6	0.0	30.0	30.0	1.0
110.32	33.62	2756.0	23.5	0.9	275.3	320.1	9.2	5.4	0.0	30.0	30.0	1.0
110.81	33.78	4830.3	47.2	1.0	276.6	321.5	16.1	9.5	0.0	31.8	32.0	1.0
111.30	33.92	3493.2	48.4	1.4	277.9	323.0	11.6	6.8	0.0	30.0	30.0	1.0
111.79	34.08	2685.8	29.5	1.1	279.2	324.5	9.0	5.2	0.0	30.0	30.0	1.0
112.29	34.22	3650.9	81.7	2.2	280.5	325.9	14.6	8.5	203.0	30.0	30.0	3.0
112.78	34.38	3377.6	72.0	2.1	281.7	327.4	13.5	7.9	184.6	30.0	30.0	3.0
113.27	34.53	8994.2	84.2	0.9	283.0	328.9	22.5	13.1	0.0	49.3	36.0	1.0
113.76	34.67	5451.9	123.2	2.3	284.3	330.4	21.8	12.7	322.5	34.9	32.0	6.0
114.25	34.83	5221.2	140.8	2.7	285.6	331.8	20.9	12.1	306.9	33.6	32.0	6.0
114.75	34.97	9445.9	183.1	1.9	286.8	333.3	31.5	18.2	0.0	50.5	36.0	1.0
115.24	35.12	11038.0	301.9	2.7	288.1	334.8	44.2	25.5	694.3	54.9	38.0	6.0
115.73	35.28	23546.4	286.7	1.2	289.4	336.2	47.1	27.1	0.0	76.6	42.0	1.0
116.22	35.42	25727.2	269.8	1.0	290.9	337.7	51.5	29.5	0.0	79.1	42.0	1.0
116.71	35.58	31048.1	292.0	0.9	292.3	339.2	62.1	35.5	0.0	84.4	42.0	1.0
117.21	35.72	32034.5	267.3	0.8	293.8	340.7	64.1	36.6	0.0	85.2	42.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	32263.4	349.7	1.1	295.2	342.1	64.5	36.8	0.0	85.3	42.0	1.0
118.19	36.03	34931.8	334.8	1.0	296.7	343.6	69.9	39.7	0.0	87.5	42.0	1.0
118.68	36.17	35841.0	320.3	0.9	298.1	345.1	71.7	40.6	0.0	88.2	42.0	1.0
119.18	36.33	31431.5	265.5	0.8	299.6	346.5	62.9	35.5	0.0	84.4	42.0	1.0
119.67	36.47	31636.4	296.9	0.9	301.1	348.0	63.3	35.7	0.0	84.5	42.0	1.0
120.16	36.62	32216.8	258.3	0.8	302.5	349.5	64.4	36.3	0.0	84.9	42.0	1.0
120.65	36.78	34604.4	258.0	0.7	304.0	351.0	69.2	38.9	0.0	86.9	42.0	1.0
121.14	36.92	31778.3	245.7	0.8	305.4	352.4	63.6	35.6	0.0	84.4	42.0	1.0
121.64	37.08	30830.7	228.5	0.7	306.9	353.9	61.7	34.4	0.0	83.5	42.0	1.0
122.21	37.25	32838.6	173.6	0.5	308.6	355.6	54.7	30.5	0.0	85.2	42.0	1.0
122.78	37.42	23260.1	139.9	0.6	310.4	357.3	46.5	25.8	0.0	75.2	40.0	1.0
123.28	37.58	24869.3	204.1	0.8	311.8	358.8	49.7	27.6	0.0	77.1	42.0	1.0
123.77	37.72	15660.1	197.9	1.3	313.2	360.3	39.2	21.6	0.0	63.8	38.0	1.0
124.26	37.88	5440.9	151.2	2.8	314.5	361.7	21.8	12.0	317.6	33.4	32.0	6.0
124.75	38.03	8051.2	161.7	2.0	315.8	363.2	26.8	14.8	0.0	44.6	34.0	1.0
125.24	38.17	7882.9	209.0	2.7	317.1	364.7	31.5	17.3	480.1	43.9	34.0	6.0
125.74	38.33	7841.7	170.6	2.2	318.3	366.2	26.1	14.3	0.0	43.7	34.0	1.0
126.23	38.47	7357.4	190.8	2.6	319.6	367.6	29.4	16.1	444.7	41.8	34.0	6.0
126.72	38.62	5591.4	126.3	2.3	320.8	369.1	22.4	12.2	326.8	33.9	32.0	6.0
127.21	38.78	3008.2	46.1	1.5	322.1	370.6	12.0	6.6	154.4	30.0	30.0	1.5
127.71	38.92	2874.8	34.6	1.2	323.3	372.0	9.6	5.2	0.0	30.0	30.0	1.0
128.20	39.08	3196.0	21.6	0.7	324.6	373.5	10.7	5.8	0.0	30.0	30.0	1.0
128.69	39.22	2507.3	14.8	0.6	325.9	375.0	8.4	4.5	0.0	30.0	30.0	1.0
129.18	39.38	2747.5	36.9	1.3	327.2	376.5	11.0	5.9	136.3	30.0	30.0	1.5
129.67	39.53	3207.5	49.8	1.6	328.4	377.9	12.8	6.9	166.7	30.0	30.0	3.0
130.17	39.67	3459.3	39.7	1.1	329.7	379.4	11.5	6.2	0.0	30.0	30.0	1.0
130.66	39.83	5073.1	112.1	2.2	331.0	380.9	20.3	10.9	290.7	30.7	32.0	3.0
131.15	39.97	12241.0	283.1	2.3	332.2	382.3	40.8	21.9	0.0	55.9	38.0	1.0
131.64	40.12	19539.0	379.9	1.9	333.6	383.8	48.8	26.2	0.0	69.2	40.0	1.0
132.13	40.28	27122.3	329.4	1.2	335.0	385.3	54.2	29.0	0.0	78.5	42.0	1.0
132.63	40.42	26958.6	341.9	1.3	336.4	386.8	53.9	28.8	0.0	78.3	42.0	1.0
133.12	40.58	28007.3	383.1	1.4	337.8	388.2	70.0	37.3	0.0	79.3	42.0	1.0
133.61	40.72	26141.6	391.3	1.5	339.2	389.7	65.4	34.7	0.0	77.3	40.0	1.0
134.10	40.88	26662.9	461.7	1.7	340.6	391.2	66.7	35.3	0.0	77.8	40.0	1.0
134.59	41.03	33174.7	357.4	1.1	342.0	392.6	66.3	35.1	0.0	84.0	42.0	1.0
135.09	41.17	33265.4	362.3	1.1	343.5	394.1	66.5	35.1	0.0	84.0	42.0	1.0

PLATE E-25

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-3548
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-11-260
Location: STRUCTURE 11
Cone: 20 TON A 092
CPT Date: 00/31/01
CPT Time: 13:50
CPT File: 300SC260.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	334.1	2.0	0.6	0.9	0.0	1.7	3.3	22.2	0.0	0.0	10.0
0.74	0.23	653.5	3.8	0.6	2.8	0.0	3.3	6.5	43.4	0.0	0.0	10.0
1.23	0.38	887.8	2.2	0.2	4.7	0.0	4.4	8.9	58.9	0.0	0.0	10.0
1.72	0.52	860.0	7.0	0.8	7.0	0.0	4.3	8.6	56.9	0.0	0.0	10.0
2.21	0.68	779.3	18.1	2.3	9.7	0.0	5.2	10.4	51.3	0.0	0.0	10.0
2.71	0.82	1123.1	17.5	1.6	12.4	0.0	5.6	11.2	74.1	0.0	0.0	10.0
3.20	0.97	582.8	7.8	1.3	15.1	0.0	2.9	5.8	37.8	0.0	0.0	6.0
3.61	1.10	539.1	2.0	0.4	16.1	1.0	2.7	5.4	34.8	0.0	0.0	6.0
4.02	1.22	2744.7	8.4	0.3	16.9	2.2	9.1	18.3	0.0	55.7	44.0	1.0
4.51	1.38	2046.4	21.2	1.0	18.1	3.7	8.2	16.4	135.0	46.3	42.0	10.0
5.00	1.53	516.6	4.5	0.9	18.9	5.2	2.6	5.2	32.8	0.0	0.0	6.0
5.50	1.67	519.6	2.0	0.4	19.3	6.6	2.6	5.2	32.9	0.0	0.0	6.0
5.99	1.83	673.8	2.0	0.3	19.7	8.1	3.4	6.7	43.1	0.0	0.0	6.0
6.56	2.00	1116.7	6.4	0.6	20.8	9.8	4.5	8.9	72.4	30.0	38.0	6.0
7.14	2.17	1063.6	10.7	1.0	22.2	11.5	4.3	8.5	68.7	30.0	38.0	6.0
7.63	2.33	917.6	6.8	0.7	23.4	13.0	3.7	7.3	58.7	30.0	38.0	6.0
8.12	2.47	1193.6	12.8	1.1	24.7	14.5	4.8	9.4	77.0	30.0	38.0	6.0
8.61	2.62	1105.9	8.3	0.8	25.9	15.9	4.4	8.5	70.9	30.0	38.0	6.0
9.10	2.78	1670.7	13.4	0.8	27.1	17.4	6.7	12.6	108.4	34.7	40.0	6.0
9.60	2.92	2534.5	33.0	1.3	28.3	18.9	10.1	18.6	165.8	46.0	42.0	10.0
10.09	3.08	1251.2	8.3	0.7	29.6	20.4	5.0	9.0	80.1	30.0	38.0	6.0
10.58	3.22	5820.3	43.5	0.7	30.9	21.8	14.6	25.6	0.0	68.6	44.0	1.0
11.07	3.38	6896.7	85.5	1.2	32.2	23.3	23.0	39.6	0.0	72.9	46.0	1.0
11.56	3.53	2610.2	58.1	2.2	33.5	24.8	10.4	17.7	170.1	44.5	40.0	10.0
12.06	3.67	3756.0	53.1	1.4	34.7	26.2	12.5	20.8	0.0	54.4	42.0	1.0
12.55	3.83	1532.6	25.6	1.7	36.0	27.7	6.1	10.0	97.9	30.0	38.0	6.0
13.04	3.98	3917.4	47.4	1.2	37.3	29.2	13.1	20.9	0.0	54.6	42.0	1.0
13.53	4.12	4000.5	88.6	2.2	38.5	30.7	16.0	25.2	262.1	54.7	42.0	10.0
14.03	4.27	1315.7	15.0	1.1	39.8	32.1	5.3	8.2	82.9	30.0	36.0	6.0
14.52	4.43	1241.8	6.2	0.5	41.0	33.6	5.0	7.6	77.8	30.0	36.0	6.0
15.01	4.57	821.1	2.0	0.2	41.8	35.1	4.1	6.2	49.6	0.0	0.0	6.0
15.50	4.73	823.2	3.0	0.4	42.2	36.5	4.1	6.2	49.6	0.0	0.0	6.0
15.99	4.88	662.9	2.0	0.3	42.6	38.0	3.3	5.0	38.8	0.0	0.0	3.0
16.49	5.02	699.2	2.6	0.4	43.0	39.5	3.5	5.2	41.1	0.0	0.0	3.0
16.98	5.18	1662.7	12.4	0.7	43.8	41.0	6.7	9.8	105.2	30.0	38.0	6.0
17.47	5.32	5120.1	25.6	0.5	45.1	42.4	12.8	18.6	0.0	59.5	42.0	1.0
17.96	5.48	4888.8	43.4	0.9	46.5	43.9	16.3	23.4	0.0	57.7	42.0	1.0
18.45	5.62	1990.8	44.5	2.2	47.8	45.4	8.0	11.3	126.5	31.6	38.0	6.0
18.95	5.77	2068.4	8.6	0.4	49.0	46.8	6.9	9.6	0.0	32.3	38.0	1.0
19.44	5.93	1000.2	3.9	0.4	50.3	48.3	4.0	5.5	60.1	30.0	32.0	6.0
19.93	6.07	1219.0	7.0	0.6	51.5	49.8	4.9	6.6	74.5	30.0	34.0	6.0
20.42	6.23	1080.9	2.2	0.2	52.7	51.3	4.3	5.8	65.1	30.0	32.0	6.0
20.92	6.38	862.9	3.2	0.4	54.0	52.7	3.5	4.6	50.4	30.0	32.0	3.0
21.41	6.52	868.4	5.9	0.7	55.2	54.2	3.5	4.6	50.6	30.0	32.0	3.0
21.90	6.68	788.1	5.0	0.6	56.4	55.7	3.9	5.1	45.1	0.0	0.0	3.0
22.39	6.82	1147.8	6.0	0.5	57.7	57.1	4.6	5.9	68.9	30.0	32.0	6.0
22.88	6.98	1125.9	4.7	0.4	58.9	58.6	4.5	5.7	67.2	30.0	32.0	6.0

PLATE E-71

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	850.2	5.1	0.6	60.1	60.1	3.4	4.3	48.7	30.0	30.0	3.0
23.87	7.27	997.0	6.3	0.6	61.3	61.6	4.0	5.0	58.3	30.0	32.0	3.0
24.36	7.43	1040.1	7.6	0.7	62.6	63.0	4.2	5.1	61.0	30.0	32.0	3.0
24.85	7.57	1284.0	10.7	0.8	63.8	64.5	5.1	6.3	77.0	30.0	32.0	6.0
25.34	7.73	1624.5	12.9	0.8	65.0	66.0	6.5	7.9	99.6	30.0	34.0	6.0
25.84	7.88	1791.0	21.0	1.2	66.3	67.4	7.2	8.6	110.5	30.0	34.0	6.0
26.33	8.02	2872.7	29.3	1.0	67.5	68.9	9.6	11.4	0.0	37.2	38.0	1.0
26.82	8.18	2669.7	31.8	1.2	68.8	70.4	10.7	12.6	168.7	34.8	38.0	6.0
27.31	8.32	2442.9	28.1	1.2	70.0	71.9	9.8	11.4	153.4	32.0	36.0	6.0
27.80	8.48	3625.5	44.3	1.2	71.3	73.3	12.1	14.0	0.0	43.0	38.0	1.0
28.30	8.62	13250.4	83.8	0.6	72.7	74.8	26.5	30.4	0.0	79.9	44.0	1.0
28.79	8.77	16146.2	118.2	0.7	74.1	76.3	32.3	36.7	0.0	85.3	46.0	1.0
29.28	8.93	11204.2	170.5	1.5	75.5	77.7	28.0	31.5	0.0	74.6	44.0	1.0
29.77	9.07	14984.4	122.5	0.8	76.9	79.2	30.0	33.4	0.0	82.6	44.0	1.0
30.27	9.23	12531.4	161.4	1.3	78.4	80.7	31.3	34.6	0.0	77.2	44.0	1.0
30.76	9.38	14869.1	152.6	1.0	79.8	82.2	29.7	32.6	0.0	81.9	44.0	1.0
31.17	9.50	16788.7	143.5	0.9	81.0	83.4	33.6	36.5	0.0	85.1	46.0	1.0
31.58	9.62	18172.8	135.8	0.7	82.2	84.6	36.3	39.2	0.0	87.2	46.0	1.0
32.07	9.77	18378.2	144.1	0.8	83.7	86.1	36.8	39.3	0.0	87.3	46.0	1.0
32.56	9.93	18721.0	158.8	0.8	85.1	87.6	37.4	39.7	0.0	87.6	46.0	1.0
33.05	10.07	17057.0	111.3	0.7	86.6	89.0	34.1	35.9	0.0	84.6	46.0	1.0
33.55	10.23	9605.4	174.8	1.8	87.9	90.5	32.0	33.4	0.0	68.0	42.0	1.0
34.04	10.38	14615.2	100.0	0.7	89.3	92.0	29.2	30.3	0.0	79.8	44.0	1.0
34.53	10.52	8751.2	100.7	1.2	90.7	93.4	21.9	22.5	0.0	64.8	42.0	1.0
35.02	10.68	4947.3	49.6	1.0	92.1	94.9	16.5	16.8	0.0	48.3	38.0	1.0
35.51	10.82	2670.7	10.7	0.4	93.4	96.4	8.9	9.0	0.0	30.4	36.0	1.0
36.01	10.98	1190.8	3.7	0.3	94.6	97.9	4.8	4.8	66.6	30.0	30.0	3.0
36.50	11.12	980.3	2.4	0.2	95.9	99.3	3.9	3.9	52.3	30.0	30.0	3.0
36.99	11.27	1135.8	7.7	0.7	97.1	100.8	4.5	4.5	62.5	30.0	30.0	3.0
37.48	11.43	2794.1	42.4	1.5	98.3	102.3	11.2	11.0	172.9	31.0	36.0	6.0
37.98	11.57	3361.8	46.4	1.4	99.6	103.7	11.2	11.0	0.0	36.1	36.0	1.0
38.47	11.73	1308.6	22.0	1.7	100.9	105.2	6.5	6.4	73.5	0.0	0.0	3.0
38.96	11.88	1087.0	19.9	1.8	102.1	106.7	5.4	5.3	58.5	0.0	0.0	3.0
39.45	12.02	1198.4	22.2	1.9	103.3	108.2	6.0	5.8	65.8	0.0	0.0	3.0
39.94	12.18	1005.3	11.2	1.1	104.5	109.6	5.0	4.8	52.7	0.0	0.0	3.0
40.44	12.32	1108.2	12.6	1.1	105.8	111.1	4.4	4.2	59.4	30.0	30.0	3.0
40.93	12.48	1371.3	15.2	1.1	107.0	112.6	5.5	5.2	76.8	30.0	30.0	3.0
41.42	12.62	1983.8	42.0	2.1	108.2	114.0	7.9	7.5	117.4	30.0	32.0	6.0
41.91	12.77	3597.3	110.3	3.1	109.5	115.5	18.0	16.8	224.8	0.0	0.0	6.0
42.40	12.93	4560.1	89.1	2.0	110.7	117.0	15.2	14.1	0.0	43.3	38.0	1.0
42.90	13.07	4756.2	68.3	1.4	112.0	118.5	15.9	14.7	0.0	44.3	38.0	1.0
43.39	13.23	4454.6	76.0	1.7	113.3	119.9	14.8	13.7	0.0	42.3	38.0	1.0
43.88	13.38	5780.7	53.4	0.9	114.7	121.4	14.5	13.2	0.0	49.6	38.0	1.0
44.37	13.52	5711.3	65.1	1.1	116.0	122.9	19.0	17.3	0.0	49.1	38.0	1.0
44.86	13.68	5391.6	112.2	2.1	117.3	124.3	18.0	16.2	0.0	47.3	38.0	1.0
45.36	13.82	15919.0	99.4	0.6	118.7	125.8	31.8	28.6	0.0	78.1	44.0	1.0
45.85	13.98	18928.0	135.6	0.7	120.2	127.3	37.9	33.8	0.0	82.9	44.0	1.0
46.34	14.12	17569.2	135.1	0.8	121.6	128.8	35.1	31.2	0.0	80.6	44.0	1.0
46.83	14.27	21069.2	152.7	0.7	123.1	130.2	42.1	37.2	0.0	85.7	44.0	1.0
47.33	14.43	19424.2	104.5	0.5	124.5	131.7	38.8	34.1	0.0	83.2	44.0	1.0
47.82	14.57	11514.7	76.7	0.7	126.0	133.2	23.0	20.1	0.0	68.0	42.0	1.0
48.31	14.73	6125.9	87.6	1.4	127.3	134.6	20.4	17.7	0.0	49.8	38.0	1.0
48.80	14.88	5431.8	130.3	2.4	128.6	136.1	21.7	18.8	344.5	46.2	38.0	6.0
49.29	15.02	8184.8	171.6	2.1	129.9	137.6	27.3	23.4	0.0	57.8	40.0	1.0
49.79	15.18	9951.1	89.2	0.9	131.2	139.1	24.9	21.3	0.0	63.2	40.0	1.0
50.28	15.32	4015.2	99.5	2.5	132.5	140.5	16.1	13.7	249.5	37.1	36.0	6.0
50.77	15.48	4066.2	101.4	2.5	133.8	142.0	16.3	13.8	252.7	37.3	36.0	6.0
51.26	15.62	9458.6	126.1	1.3	135.1	143.5	23.6	19.9	0.0	61.4	40.0	1.0
51.75	15.77	9166.7	99.9	1.1	136.4	144.9	22.9	19.2	0.0	60.3	40.0	1.0
52.25	15.93	7330.3	80.4	1.1	137.8	146.4	18.3	15.3	0.0	53.8	38.0	1.0
52.74	16.08	3440.9	58.2	1.7	139.1	147.9	13.8	11.4	210.3	32.0	34.0	6.0
53.23	16.22	1399.6	8.2	0.6	140.3	149.4	5.6	4.6	74.0	30.0	30.0	3.0
53.72	16.38	1708.0	16.7	1.0	141.6	150.8	6.8	5.6	94.4	30.0	30.0	3.0
54.22	16.53	1404.7	5.1	0.4	142.8	152.3	5.6	4.6	74.0	30.0	30.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1517.3	7.8	0.5	144.0	153.8	6.1	4.9	81.3	30.0	30.0	3.0
55.20	16.83	1471.0	7.9	0.5	145.3	155.2	5.9	4.8	78.0	30.0	30.0	3.0
55.69	16.97	1391.5	5.7	0.4	146.5	156.7	5.6	4.5	72.6	30.0	30.0	1.5
56.18	17.12	1305.9	5.9	0.4	147.7	158.2	5.2	4.2	66.7	30.0	30.0	1.5
56.68	17.28	1359.3	21.5	1.6	148.9	159.7	5.4	4.4	70.0	30.0	30.0	1.5
57.17	17.42	1244.3	5.6	0.4	150.2	161.1	5.0	4.0	62.2	30.0	30.0	1.5
57.66	17.58	1248.9	3.1	0.2	151.4	162.6	5.0	4.0	62.3	30.0	30.0	1.5
58.15	17.72	1177.1	3.8	0.3	152.6	164.1	4.7	3.7	57.4	30.0	30.0	1.5
58.64	17.88	1629.8	18.1	1.1	153.9	165.5	6.5	5.1	87.4	30.0	30.0	3.0
59.14	18.03	1835.1	19.5	1.1	155.1	167.0	7.3	5.8	100.9	30.0	30.0	3.0
59.63	18.17	13247.5	55.3	0.4	156.4	168.5	26.5	20.7	0.0	68.9	42.0	1.0
60.12	18.33	6347.7	153.7	2.4	157.8	170.0	25.4	19.8	401.3	47.7	38.0	6.0
60.61	18.47	5406.8	118.5	2.2	159.0	171.4	21.6	16.8	338.4	43.0	36.0	6.0
61.10	18.62	14830.7	156.2	1.1	160.3	172.9	29.7	22.9	0.0	71.8	42.0	1.0
61.60	18.78	22589.9	148.6	0.7	161.8	174.4	45.2	34.8	0.0	83.7	44.0	1.0
62.09	18.92	17645.0	141.2	0.8	163.2	175.8	35.3	27.0	0.0	76.5	42.0	1.0
62.58	19.08	16592.2	131.1	0.8	164.7	177.3	33.2	25.3	0.0	74.6	42.0	1.0
63.07	19.22	19860.3	155.6	0.8	166.2	178.8	39.7	30.2	0.0	79.7	42.0	1.0
63.57	19.38	20861.1	141.0	0.7	167.6	180.3	41.7	31.5	0.0	81.0	42.0	1.0
64.06	19.53	18811.3	108.4	0.6	169.1	181.7	37.6	28.3	0.0	77.9	42.0	1.0
64.55	19.67	19699.1	96.6	0.5	170.5	183.2	39.4	29.5	0.0	79.1	42.0	1.0
65.04	19.83	20168.5	114.2	0.6	172.0	184.7	40.3	30.1	0.0	79.6	42.0	1.0
65.53	19.97	18054.8	96.0	0.5	173.4	186.1	36.1	26.8	0.0	76.3	42.0	1.0
66.03	20.12	15552.9	85.7	0.6	174.9	187.6	31.1	23.0	0.0	71.9	42.0	1.0
66.52	20.28	13940.9	63.1	0.5	176.3	189.1	27.9	20.6	0.0	68.7	42.0	1.0
67.01	20.42	13667.0	91.5	0.7	177.8	190.6	27.3	20.1	0.0	68.0	40.0	1.0
67.50	20.58	13885.5	71.5	0.5	179.2	192.0	27.8	20.3	0.0	68.3	40.0	1.0
67.99	20.72	10626.4	168.9	1.6	180.6	193.5	26.6	19.3	0.0	60.5	40.0	1.0
68.49	20.88	16258.4	142.5	0.9	182.1	195.0	32.5	23.6	0.0	72.6	42.0	1.0
68.98	21.03	19278.3	98.0	0.5	183.5	196.4	38.6	27.9	0.0	77.4	42.0	1.0
69.47	21.17	18427.4	81.7	0.4	185.0	197.9	36.9	26.5	0.0	76.0	42.0	1.0
69.96	21.33	17327.3	58.5	0.3	186.4	199.4	34.7	24.8	0.0	74.1	42.0	1.0
70.46	21.47	13996.5	114.3	0.8	187.9	200.9	28.0	20.0	0.0	67.9	40.0	1.0
70.95	21.62	18587.1	85.0	0.5	189.3	202.3	37.2	26.4	0.0	75.9	42.0	1.0
71.44	21.78	19525.3	67.1	0.3	190.8	203.8	39.1	27.7	0.0	77.2	42.0	1.0
71.93	21.92	21777.2	70.0	0.3	192.3	205.3	36.3	25.6	0.0	80.2	42.0	1.0
72.42	22.08	24141.9	63.8	0.3	193.8	206.7	40.2	28.3	0.0	83.1	42.0	1.0
72.92	22.22	29153.4	84.5	0.3	195.3	208.2	48.6	34.0	0.0	88.3	44.0	1.0
73.41	22.38	30051.8	92.8	0.3	196.9	209.7	50.1	34.9	0.0	89.1	44.0	1.0
73.90	22.53	26278.2	143.8	0.5	198.4	211.2	52.6	36.5	0.0	85.2	44.0	1.0
74.39	22.67	24521.6	131.8	0.5	199.8	212.6	49.0	34.0	0.0	83.1	42.0	1.0
74.88	22.83	26579.2	122.8	0.5	201.3	214.1	44.3	30.6	0.0	85.3	44.0	1.0
75.38	22.97	27603.0	153.1	0.6	202.8	215.6	46.0	31.6	0.0	86.2	44.0	1.0
75.87	23.12	28027.0	126.9	0.5	204.4	217.0	46.7	32.0	0.0	86.6	44.0	1.0
76.36	23.28	22543.3	111.7	0.5	205.8	218.5	45.1	30.8	0.0	80.2	42.0	1.0
76.85	23.42	19306.6	142.5	0.7	207.3	220.0	38.6	26.2	0.0	75.7	42.0	1.0
77.34	23.58	21820.9	176.2	0.8	208.8	221.5	43.6	29.6	0.0	79.1	42.0	1.0
77.84	23.72	24009.0	153.9	0.6	210.2	222.9	48.0	32.4	0.0	81.7	42.0	1.0
78.33	23.88	23082.0	125.6	0.5	211.7	224.4	46.2	31.1	0.0	80.5	42.0	1.0
78.82	24.03	18947.8	114.3	0.6	213.1	225.9	37.9	25.4	0.0	74.8	42.0	1.0
79.31	24.17	5931.4	199.0	3.4	214.5	227.3	29.7	19.8	366.0	0.0	0.0	6.0
79.81	24.33	5943.7	96.2	1.6	215.7	228.8	19.8	13.2	0.0	41.3	36.0	1.0
80.30	24.47	2900.3	59.3	2.0	217.0	230.3	11.6	7.7	163.5	30.0	30.0	3.0
80.79	24.62	6485.5	100.3	1.5	218.3	231.8	21.6	14.3	0.0	43.7	36.0	1.0
81.28	24.78	5026.1	101.3	2.0	219.6	233.2	16.8	11.1	0.0	36.3	34.0	1.0
81.77	24.92	2724.8	21.7	0.8	220.9	234.7	9.1	6.0	0.0	30.0	30.0	1.0
82.27	25.08	2127.1	17.6	0.8	222.1	236.2	8.5	5.6	111.3	30.0	30.0	3.0
82.76	25.22	2632.0	26.5	1.0	223.4	237.6	8.8	5.7	0.0	30.0	30.0	1.0
83.25	25.38	2965.1	37.2	1.3	224.7	239.1	9.9	6.5	0.0	30.0	30.0	1.0
83.74	25.53	2181.6	25.0	1.1	226.0	240.6	8.7	5.7	114.3	30.0	30.0	3.0
84.23	25.67	2220.9	42.9	1.9	227.2	242.1	8.9	5.8	116.8	30.0	30.0	3.0
84.73	25.83	3397.5	110.0	3.2	228.4	243.5	17.0	11.0	195.0	0.0	0.0	3.0
85.22	25.97	3115.5	135.2	4.3	229.6	245.0	20.8	13.4	176.1	0.0	0.0	3.0
85.71	26.12	2848.4	71.3	2.5	230.9	246.5	11.4	7.3	158.1	30.0	30.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	2518.0	32.8	1.3	232.1	247.9	10.1	6.5	135.9	30.0	30.0	3.0
86.70	26.42	2611.9	41.7	1.6	233.3	249.4	10.4	6.7	141.9	30.0	30.0	3.0
87.19	26.58	2379.6	42.6	1.8	234.6	250.9	9.5	6.1	126.3	30.0	30.0	3.0
87.68	26.72	2080.3	28.1	1.3	235.8	252.4	8.3	5.3	106.1	30.0	30.0	1.5
88.17	26.88	2287.5	40.5	1.8	237.0	253.8	9.1	5.8	119.8	30.0	30.0	3.0
88.66	27.03	2813.4	60.2	2.1	238.2	255.3	11.3	7.1	154.7	30.0	30.0	3.0
89.16	27.17	4321.6	106.2	2.5	239.5	256.8	17.3	10.9	255.0	30.7	32.0	6.0
89.65	27.33	13809.5	243.4	1.8	240.8	258.2	34.5	21.8	0.0	63.9	40.0	1.0
90.14	27.47	22648.6	195.3	0.9	242.2	259.7	45.3	28.5	0.0	78.0	42.0	1.0
90.63	27.62	25291.3	209.7	0.8	243.6	261.2	50.6	31.7	0.0	81.1	42.0	1.0
91.12	27.78	24491.2	207.3	0.8	245.1	262.7	49.0	30.6	0.0	80.1	42.0	1.0
91.62	27.92	17443.9	265.0	1.5	246.5	264.1	43.6	27.2	0.0	70.3	40.0	1.0
92.11	28.08	21217.7	196.9	0.9	247.9	265.6	42.4	26.4	0.0	75.8	42.0	1.0
92.60	28.22	20884.2	154.7	0.7	249.4	267.1	41.8	25.9	0.0	75.3	42.0	1.0
93.09	28.38	20685.6	159.7	0.8	250.8	268.5	41.4	25.6	0.0	74.9	42.0	1.0
93.58	28.53	24070.4	159.6	0.7	252.3	270.0	48.1	29.7	0.0	79.2	42.0	1.0
94.08	28.67	33050.2	207.2	0.6	253.8	271.5	55.1	33.8	0.0	88.2	44.0	1.0
94.57	28.83	34709.7	198.6	0.6	255.3	273.0	57.8	35.4	0.0	89.5	44.0	1.0
95.06	28.97	29230.3	174.6	0.6	256.8	274.4	58.5	35.7	0.0	84.5	42.0	1.0
95.55	29.12	26029.4	167.6	0.6	258.3	275.9	52.1	31.7	0.0	81.1	42.0	1.0
96.05	29.28	29617.4	183.4	0.6	259.7	277.4	59.2	36.0	0.0	84.7	42.0	1.0
96.54	29.42	30982.1	184.3	0.6	261.2	278.8	51.6	31.3	0.0	85.9	42.0	1.0
97.03	29.58	34235.3	152.3	0.4	262.7	280.3	57.1	34.5	0.0	88.7	44.0	1.0
97.52	29.72	36100.8	124.6	0.3	264.3	281.8	60.2	36.2	0.0	90.1	44.0	1.0
98.01	29.88	31955.4	143.4	0.4	265.8	283.3	53.3	32.0	0.0	86.6	42.0	1.0
98.51	30.03	28511.1	199.4	0.7	267.3	284.7	57.0	34.1	0.0	83.2	42.0	1.0
99.00	30.17	29779.5	200.3	0.7	268.7	286.2	59.6	35.6	0.0	84.4	42.0	1.0
99.49	30.33	28232.5	118.4	0.4	270.2	287.7	47.1	28.0	0.0	82.8	42.0	1.0
99.98	30.47	26406.3	98.3	0.4	271.7	289.1	44.0	26.1	0.0	80.8	42.0	1.0
100.47	30.62	23420.0	121.1	0.5	273.2	290.6	46.8	27.7	0.0	77.3	42.0	1.0
100.97	30.78	8718.9	200.6	2.3	274.6	292.1	29.1	17.2	0.0	48.9	36.0	1.0
101.46	30.92	3758.7	42.4	1.1	275.9	293.6	12.5	7.4	0.0	30.0	30.0	1.0
101.95	31.08	4118.9	31.2	0.8	277.2	295.0	13.7	8.1	0.0	30.0	32.0	1.0
102.44	31.22	4691.5	90.8	1.9	278.5	296.5	15.6	9.2	0.0	30.9	32.0	1.0
102.94	31.38	3168.7	57.4	1.8	279.8	298.0	12.7	7.4	172.7	30.0	30.0	3.0
103.43	31.53	5117.8	87.8	1.7	281.1	299.5	17.1	10.0	0.0	33.3	32.0	1.0
103.92	31.67	6655.5	141.2	2.1	282.4	300.9	22.2	12.9	0.0	40.7	34.0	1.0
104.41	31.83	3229.7	51.7	1.6	283.6	302.4	12.9	7.5	176.2	30.0	30.0	3.0
104.90	31.97	3544.0	37.4	1.1	284.9	303.9	11.8	6.8	0.0	30.0	30.0	1.0
105.40	32.12	3683.7	52.8	1.4	286.2	305.3	12.3	7.1	0.0	30.0	30.0	1.0
105.89	32.28	3287.6	42.0	1.3	287.5	306.8	11.0	6.3	0.0	30.0	30.0	1.0
106.38	32.42	2736.2	36.7	1.3	288.8	308.3	10.9	6.3	142.6	30.0	30.0	1.5
106.87	32.58	3047.2	58.0	1.9	290.0	309.8	12.2	7.0	163.2	30.0	30.0	3.0
107.36	32.72	3001.2	86.3	2.9	291.2	311.2	15.0	8.6	159.9	0.0	0.0	3.0
107.86	32.88	2814.1	65.8	2.3	292.5	312.7	11.3	6.4	147.3	30.0	30.0	3.0
108.35	33.03	2991.5	92.5	3.1	293.7	314.2	15.0	8.5	158.9	0.0	0.0	3.0
108.84	33.17	2980.0	61.1	2.1	294.9	315.6	11.9	6.8	158.0	30.0	30.0	3.0
109.33	33.33	3357.5	65.4	1.9	296.1	317.1	13.4	7.6	182.9	30.0	30.0	3.0
109.82	33.47	5100.4	49.2	1.0	297.4	318.6	17.0	9.6	0.0	32.4	32.0	1.0
110.32	33.62	3094.9	54.7	1.8	298.7	320.1	12.4	7.0	165.1	30.0	30.0	3.0
110.81	33.78	3767.0	43.8	1.2	299.9	321.5	12.6	7.1	0.0	30.0	30.0	1.0
111.30	33.92	3086.3	41.5	1.3	301.2	323.0	10.3	5.8	0.0	30.0	30.0	1.0
111.79	34.08	4639.1	68.5	1.5	302.5	324.5	15.5	8.7	0.0	30.0	32.0	1.0
112.29	34.22	9375.7	196.2	2.1	303.8	325.9	31.3	17.5	0.0	49.5	36.0	1.0
112.78	34.38	16098.2	178.8	1.1	305.2	327.4	40.2	22.5	0.0	64.9	38.0	1.0
113.27	34.53	19044.7	176.0	0.9	306.6	328.9	38.1	21.3	0.0	69.7	40.0	1.0
113.76	34.67	19657.0	198.5	1.0	308.1	330.4	39.3	21.9	0.0	70.5	40.0	1.0
114.25	34.83	22724.1	247.3	1.1	309.5	331.8	45.4	25.3	0.0	74.6	40.0	1.0
114.75	34.97	20511.6	122.3	0.6	311.0	333.3	41.0	22.8	0.0	71.6	40.0	1.0
115.24	35.12	7038.7	157.3	2.2	312.3	334.8	23.5	13.0	0.0	40.9	34.0	1.0
115.73	35.28	3855.8	41.9	1.1	313.6	336.2	12.9	7.1	0.0	30.0	30.0	1.0
116.22	35.42	4558.1	60.1	1.3	315.0	337.7	15.2	8.4	0.0	30.0	32.0	1.0
116.71	35.58	4020.3	92.9	2.3	316.2	339.2	16.1	8.9	224.3	30.0	30.0	3.0
117.21	35.72	4697.5	169.0	3.6	317.4	340.7	23.5	12.9	269.3	0.0	0.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	5318.7	88.6	1.7	318.7	342.1	17.7	9.7	0.0	32.6	32.0	1.0
118.19	36.03	3092.1	56.5	1.8	320.0	343.6	12.4	6.8	161.9	30.0	30.0	3.0
118.68	36.17	3231.0	50.7	1.6	321.2	345.1	12.9	7.1	171.0	30.0	30.0	3.0
119.18	36.33	10249.2	174.4	1.7	322.5	346.5	34.2	18.6	0.0	51.2	36.0	1.0
119.67	36.47	15408.2	231.6	1.5	323.8	348.0	38.5	21.0	0.0	62.8	38.0	1.0
120.16	36.62	13014.1	214.9	1.7	325.2	349.5	32.5	17.7	0.0	57.9	38.0	1.0
120.65	36.78	11474.0	277.7	2.4	326.5	351.0	38.2	20.7	0.0	54.3	36.0	1.0
121.14	36.92	13006.6	167.7	1.3	327.9	352.4	32.5	17.6	0.0	57.8	38.0	1.0
121.64	37.08	4770.9	154.5	3.2	329.2	353.9	23.9	12.9	272.5	0.0	0.0	3.0
122.21	37.25	3095.0	47.9	1.5	330.6	355.6	12.4	6.7	160.6	30.0	30.0	1.5
122.78	37.42	3026.8	30.1	1.0	332.1	357.3	10.1	5.4	0.0	30.0	30.0	1.0
123.28	37.58	2984.9	30.4	1.0	333.4	358.8	9.9	5.3	0.0	30.0	30.0	1.0
123.77	37.72	3030.4	47.0	1.5	334.7	360.3	12.1	6.5	155.7	30.0	30.0	1.5
124.26	37.88	3105.5	65.5	2.1	335.9	361.7	12.4	6.6	160.5	30.0	30.0	1.5
124.75	38.03	2808.3	51.3	1.8	337.1	363.2	11.2	6.0	140.5	30.0	30.0	1.5
125.24	38.17	2685.4	36.5	1.4	338.3	364.7	10.7	5.7	132.2	30.0	30.0	1.5
125.74	38.33	3218.1	54.0	1.7	339.6	366.2	12.9	6.8	167.5	30.0	30.0	1.5
126.23	38.47	3327.9	69.8	2.1	340.8	367.6	13.3	7.1	174.6	30.0	30.0	3.0
126.72	38.62	3911.7	126.1	3.2	342.0	369.1	19.6	10.4	213.4	0.0	0.0	3.0
127.21	38.78	4771.5	191.4	4.0	343.3	370.6	23.9	12.6	270.5	0.0	0.0	3.0
127.71	38.92	6190.4	168.4	2.7	344.5	372.0	24.8	13.1	364.9	35.8	32.0	6.0
128.20	39.08	10372.0	200.9	1.9	345.7	373.5	34.6	18.2	0.0	50.5	36.0	1.0
128.69	39.22	6740.2	116.1	1.7	347.0	375.0	22.5	11.8	0.0	38.1	32.0	1.0
129.18	39.38	4409.4	72.8	1.7	348.4	376.5	14.7	7.7	0.0	30.0	30.0	1.0
129.67	39.53	4341.9	110.5	2.5	349.6	377.9	17.4	9.1	241.0	30.0	30.0	3.0
130.17	39.67	3464.3	84.2	2.4	350.8	379.4	13.9	7.2	182.3	30.0	30.0	3.0
130.66	39.83	4049.6	148.0	3.7	352.1	380.9	20.2	10.6	221.1	0.0	0.0	3.0
131.15	39.97	4849.2	158.0	3.3	353.3	382.3	24.2	12.6	274.2	0.0	0.0	3.0
131.64	40.12	5332.2	87.6	1.6	354.6	383.8	17.8	9.2	0.0	31.1	32.0	1.0
132.13	40.28	3571.4	63.7	1.8	355.8	385.3	14.3	7.4	188.7	30.0	30.0	3.0
132.63	40.42	4158.1	106.6	2.6	357.1	386.8	16.6	8.6	227.6	30.0	30.0	3.0
133.12	40.58	3401.9	65.2	1.9	358.3	388.2	13.6	7.0	177.0	30.0	30.0	1.5
133.61	40.72	2825.3	44.1	1.6	359.5	389.7	11.3	5.8	138.4	30.0	30.0	1.5
134.10	40.88	3485.0	88.3	2.5	360.8	391.2	13.9	7.2	182.2	30.0	30.0	3.0
134.59	41.03	3478.3	88.2	2.5	362.0	392.6	13.9	7.2	181.6	30.0	30.0	3.0
135.09	41.17	3171.0	63.4	2.0	363.2	394.1	12.7	6.5	160.9	30.0	30.0	1.5
135.58	41.33	3977.7	95.4	2.4	364.4	395.6	15.9	8.2	214.5	30.0	30.0	3.0
136.07	41.47	3281.6	75.6	2.3	365.7	397.1	13.1	6.7	167.9	30.0	30.0	1.5
136.56	41.62	4128.1	120.5	2.9	366.9	398.5	16.5	8.4	224.2	30.0	30.0	3.0
137.06	41.78	6678.9	246.7	3.7	368.1	400.0	33.4	17.0	394.1	0.0	0.0	6.0
137.55	41.92	7644.7	257.8	3.4	369.3	401.5	30.6	15.6	458.3	40.9	32.0	6.0
138.04	42.08	7145.8	265.0	3.7	370.6	402.9	35.7	18.2	424.8	0.0	0.0	6.0
138.53	42.22	7788.0	281.6	3.6	371.8	404.4	38.9	19.8	467.4	0.0	0.0	6.0
139.02	42.38	10936.8	357.5	3.3	373.0	405.9	43.7	22.2	677.2	51.0	36.0	6.0
139.52	42.53	14639.8	364.6	2.5	374.3	407.4	48.8	24.7	0.0	59.3	38.0	1.0
140.01	42.67	14544.3	232.8	1.6	375.6	408.8	36.4	18.4	0.0	59.0	38.0	1.0
140.50	42.83	4973.6	113.4	2.3	376.9	410.3	19.9	10.0	279.1	30.0	30.0	3.0
140.99	42.97	3971.9	47.7	1.2	378.2	411.8	13.2	6.7	0.0	30.0	30.0	1.0
141.48	43.12	6728.6	118.6	1.8	379.5	413.2	22.4	11.3	0.0	36.8	32.0	1.0
141.98	43.28	6995.2	189.2	2.7	380.8	414.7	28.0	14.0	413.3	37.9	32.0	6.0
142.47	43.42	3837.1	73.7	1.9	382.0	416.2	15.3	7.7	202.6	30.0	30.0	3.0
142.96	43.58	3417.5	45.8	1.3	383.3	417.7	11.4	5.7	0.0	30.0	30.0	1.0
143.45	43.72	5639.4	77.2	1.4	384.6	419.1	18.8	9.4	0.0	31.6	32.0	1.0
143.95	43.88	5643.0	143.1	2.5	385.8	420.6	22.6	11.3	322.4	31.5	32.0	3.0
144.44	44.03	4287.8	70.9	1.7	387.1	422.1	14.3	7.1	0.0	30.0	30.0	1.0
144.93	44.17	5299.8	149.9	2.8	388.4	423.5	21.2	10.6	299.2	30.0	30.0	3.0
145.42	44.33	16990.4	239.7	1.4	389.7	425.0	42.5	21.2	0.0	63.0	38.0	1.0
145.91	44.47	8836.2	293.9	3.3	391.0	426.5	35.3	17.7	534.6	44.2	34.0	6.0
146.41	44.62	4903.4	168.4	3.4	392.2	428.0	24.5	12.3	272.2	0.0	0.0	3.0
146.90	44.78	5655.6	223.6	4.0	393.4	429.4	28.3	14.1	322.2	0.0	0.0	3.0
147.39	44.92	5849.5	262.1	4.5	394.7	430.9	29.2	14.6	334.9	0.0	0.0	3.0
147.88	45.08	6672.2	224.8	3.4	395.9	432.4	26.7	13.3	389.6	36.0	32.0	3.0
148.37	45.22	9579.1	342.9	3.6	397.1	433.8	38.3	19.2	583.2	46.3	34.0	6.0
148.87	45.38	10082.7	269.5	2.7	398.4	435.3	40.3	20.2	616.6	47.7	34.0	6.0

PLATE E-75

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
149.36	45.53	3966.0	128.0	3.2	399.6	436.8	19.8	9.9	208.6	0.0	0.0	3.0
149.85	45.67	5029.7	165.9	3.3	400.8	438.3	25.1	12.6	279.4	0.0	0.0	3.0
150.34	45.83	3987.4	104.9	2.6	402.0	439.7	15.9	8.0	209.7	30.0	30.0	3.0
150.83	45.97	3782.5	66.2	1.8	403.3	441.2	15.1	7.6	195.9	30.0	30.0	1.5
151.33	46.12	3675.9	73.0	2.0	404.5	442.7	14.7	7.4	188.6	30.0	30.0	1.5
151.82	46.28	5554.8	146.4	2.6	405.7	444.1	22.2	11.1	313.7	30.4	30.0	3.0
152.31	46.42	17196.8	308.6	1.8	407.0	445.6	43.0	21.5	0.0	62.7	38.0	1.0
152.80	46.58	18825.2	326.2	1.7	408.4	447.1	47.1	23.5	0.0	65.2	38.0	1.0
153.30	46.72	16754.5	226.0	1.3	409.8	448.6	41.9	20.9	0.0	61.9	38.0	1.0
153.79	46.88	5409.0	198.4	3.7	411.1	450.0	27.0	13.5	303.2	0.0	0.0	3.0
154.28	47.03	4018.9	58.7	1.5	412.4	451.5	13.4	6.7	0.0	30.0	30.0	1.0
154.77	47.17	4617.5	78.2	1.7	413.7	453.0	15.4	7.7	0.0	30.0	30.0	1.0
155.26	47.33	4646.8	96.8	2.1	414.9	454.4	18.6	9.3	251.8	30.0	30.0	3.0
155.76	47.47	3697.7	47.8	1.3	416.2	455.9	12.3	6.2	0.0	30.0	30.0	1.0
156.25	47.62	3345.8	33.4	1.0	417.5	457.4	11.2	5.6	0.0	30.0	30.0	1.0
156.74	47.78	3179.2	35.4	1.1	418.8	458.9	10.6	5.3	0.0	30.0	30.0	1.0
157.23	47.92	3214.6	40.9	1.3	420.1	460.3	10.7	5.4	0.0	30.0	30.0	1.0
157.72	48.08	5309.1	93.5	1.8	421.4	461.8	17.7	8.8	0.0	30.0	30.0	1.0
158.22	48.22	8626.9	164.7	1.9	422.7	463.3	28.8	14.4	0.0	42.4	32.0	1.0
158.71	48.38	4238.7	86.4	2.0	424.0	464.7	17.0	8.5	223.3	30.0	30.0	3.0
159.20	48.53	6574.3	119.0	1.8	425.2	466.2	21.9	11.0	0.0	34.5	32.0	1.0
159.69	48.67	5779.7	212.7	3.7	426.5	467.7	28.9	14.4	325.7	0.0	0.0	3.0
160.19	48.83	12450.8	384.5	3.1	427.7	469.2	49.8	24.9	770.3	52.7	36.0	6.0
160.68	48.97	19952.2	176.5	0.9	429.1	470.6	39.9	20.0	0.0	66.2	38.0	1.0
161.17	49.12	6899.3	170.5	2.5	430.4	472.1	27.6	13.8	399.8	35.7	32.0	3.0
161.66	49.28	7616.0	188.7	2.5	431.6	473.6	30.5	15.2	447.4	38.5	32.0	6.0
162.15	49.42	8936.9	289.9	3.2	432.9	475.0	35.7	17.9	535.3	43.1	32.0	6.0
162.65	49.58	6668.5	201.3	3.0	434.1	476.5	26.7	13.3	383.9	34.6	32.0	3.0
163.14	49.72	4486.7	200.9	4.5	435.3	478.0	29.9	15.0	238.2	0.0	0.0	3.0
163.63	49.88	3952.8	110.4	2.8	436.6	479.5	15.8	7.9	202.5	30.0	30.0	1.5
164.12	50.03	4354.5	140.7	3.2	437.8	480.9	21.8	10.9	229.0	0.0	0.0	3.0
164.61	50.17	4355.9	175.3	4.0	439.0	482.4	21.8	10.9	229.0	0.0	0.0	3.0
165.11	50.33	13703.4	216.8	1.6	440.3	483.9	34.3	17.1	0.0	55.1	36.0	1.0
165.60	50.47	12396.6	155.7	1.3	441.7	485.3	31.0	15.5	0.0	52.1	36.0	1.0
166.09	50.62	4918.0	158.8	3.2	443.0	486.8	24.6	12.3	265.9	0.0	0.0	3.0
166.58	50.78	5364.6	198.5	3.7	444.2	488.3	26.8	13.4	295.5	0.0	0.0	3.0
167.07	50.92	5140.7	164.6	3.2	445.5	489.8	20.6	10.3	280.4	30.0	30.0	3.0
167.57	51.08	7258.9	196.8	2.7	446.7	491.2	29.0	14.5	421.4	36.6	32.0	3.0
168.06	51.22	6278.2	157.2	2.5	447.9	492.7	25.1	12.6	355.8	32.4	30.0	3.0
168.55	51.38	6577.6	228.2	3.5	449.1	494.2	32.9	16.4	375.6	0.0	0.0	3.0

Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-3597
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-11-261
Location: STRUCTURE 11
Cone: 20 TON A 092
CPT Date: 00/31/01
CPT Time: 07:47
CPT File: 300SC261.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	451.8	18.8	4.2	1.3	0.0	4.5	9.0	30.0	0.0	0.0	10.0
0.74	0.23	982.8	37.0	3.8	3.9	0.0	9.8	19.7	65.3	0.0	0.0	10.0
1.23	0.38	1306.7	57.5	4.4	6.6	0.0	13.1	26.1	86.7	0.0	0.0	10.0
1.72	0.52	1323.3	70.3	5.3	9.2	0.0	13.2	26.5	87.6	0.0	0.0	10.0
2.21	0.68	1213.2	65.2	5.4	11.8	0.0	12.1	24.3	80.1	0.0	0.0	10.0
2.71	0.82	1174.9	30.0	2.6	14.5	0.0	5.9	11.7	77.4	0.0	0.0	10.0
3.20	0.97	704.5	20.1	2.9	17.2	0.0	4.7	9.4	45.8	0.0	0.0	6.0
3.61	1.10	632.5	19.4	3.1	18.4	1.0	6.3	12.7	40.9	0.0	0.0	6.0
4.02	1.22	1118.7	28.4	2.5	19.4	2.2	5.6	11.2	73.1	0.0	0.0	6.0
4.51	1.38	637.9	13.4	2.1	20.6	3.7	4.3	8.5	40.9	0.0	0.0	6.0
5.00	1.53	606.3	8.6	1.4	21.9	5.2	3.0	6.1	38.6	0.0	0.0	6.0
5.50	1.67	772.2	13.3	1.7	23.1	6.6	3.9	7.7	49.5	0.0	0.0	6.0
5.99	1.83	1062.5	19.4	1.8	24.3	8.1	5.3	10.5	68.7	0.0	0.0	6.0
6.56	2.00	1770.9	40.3	2.3	25.8	9.8	8.9	17.1	115.7	0.0	0.0	10.0
7.14	2.17	772.8	20.6	2.7	27.2	11.5	5.2	9.7	48.9	0.0	0.0	6.0
7.63	2.33	1323.2	26.8	2.0	28.4	13.0	6.6	12.1	85.5	0.0	0.0	6.0
8.12	2.47	1098.0	14.9	1.4	29.7	14.5	5.5	9.9	70.3	0.0	0.0	6.0
8.61	2.62	972.1	23.9	2.5	30.9	15.9	4.9	8.6	61.7	0.0	0.0	6.0
9.10	2.78	3876.2	52.7	1.4	32.1	17.4	12.9	22.3	0.0	56.4	42.0	1.0
9.60	2.92	1488.5	35.9	2.4	33.4	18.9	7.4	12.6	95.7	0.0	0.0	6.0
10.09	3.08	1203.7	15.2	1.3	34.6	20.4	4.8	8.0	76.6	30.0	36.0	6.0
10.58	3.22	11471.1	74.9	0.7	36.0	21.8	22.9	37.4	0.0	85.9	46.0	1.0
11.07	3.38	5300.4	88.0	1.7	37.4	23.3	17.7	28.3	0.0	63.2	44.0	1.0
11.56	3.53	2826.9	46.6	1.6	38.6	24.8	11.3	17.8	184.2	44.7	40.0	10.0
12.06	3.67	1916.6	51.1	2.7	39.9	26.2	9.6	14.9	123.4	0.0	0.0	6.0
12.55	3.83	2131.4	30.7	1.4	41.1	27.7	8.5	13.0	137.5	35.7	38.0	6.0
13.04	3.98	4896.4	78.8	1.6	42.4	29.2	16.3	24.5	0.0	59.1	42.0	1.0
13.53	4.12	1668.6	58.3	3.5	43.6	30.7	11.1	16.5	106.3	0.0	0.0	6.0
14.03	4.27	1520.8	15.9	1.0	44.8	32.1	6.1	8.9	96.3	30.0	36.0	6.0
14.52	4.43	1192.1	15.1	1.3	46.1	33.6	4.8	6.9	74.2	30.0	34.0	6.0
15.01	4.57	1108.1	12.3	1.1	47.3	35.1	4.4	6.3	68.4	30.0	34.0	6.0
15.50	4.73	701.3	13.3	1.9	48.5	36.5	3.5	4.9	41.1	0.0	0.0	3.0
15.99	4.88	694.5	13.0	1.9	49.8	38.0	3.5	4.8	40.4	0.0	0.0	3.0
16.49	5.02	996.2	17.4	1.7	51.0	39.5	5.0	6.8	60.4	0.0	0.0	6.0
16.98	5.18	5332.2	18.5	0.3	52.3	41.0	13.3	18.0	0.0	58.5	42.0	1.0
17.47	5.32	3450.6	56.7	1.6	53.6	42.4	13.8	18.5	223.6	45.7	40.0	10.0
17.96	5.48	1246.3	21.4	1.7	54.8	43.9	6.2	8.2	76.5	0.0	0.0	6.0
18.45	5.62	2114.9	26.6	1.3	56.1	45.4	8.5	11.1	134.2	31.0	38.0	6.0
18.95	5.77	1333.7	28.9	2.2	57.3	46.8	6.7	8.6	82.0	0.0	0.0	6.0
19.44	5.93	980.4	22.4	2.3	58.5	48.3	4.9	6.3	58.2	0.0	0.0	3.0
19.93	6.07	1299.9	25.5	2.0	59.7	49.8	6.5	8.2	79.4	0.0	0.0	6.0
20.42	6.23	860.2	24.6	2.9	61.0	51.3	5.7	7.2	49.9	0.0	0.0	3.0
20.92	6.38	905.0	57.4	6.3	62.2	52.7	9.0	11.2	52.7	0.0	0.0	3.0
21.41	6.52	856.0	34.8	4.1	63.3	54.2	8.6	10.5	49.2	0.0	0.0	3.0
21.90	6.68	885.4	28.2	3.2	64.5	55.7	5.9	7.2	51.0	0.0	0.0	3.0
22.39	6.82	1004.6	24.9	2.5	65.7	57.1	5.0	6.1	58.8	0.0	0.0	3.0
22.88	6.98	866.2	29.5	3.4	66.9	58.6	8.7	10.4	49.4	0.0	0.0	3.0

PLATE E-77

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	1297.2	29.7	2.3	68.1	60.1	6.5	7.7	77.9	0.0	0.0	6.0
23.87	7.27	2671.5	49.0	1.8	69.3	61.6	10.7	12.6	169.4	34.7	38.0	6.0
24.36	7.43	3283.6	54.8	1.7	70.6	63.0	13.1	15.3	210.0	40.4	38.0	6.0
24.85	7.57	5601.5	38.3	0.7	71.9	64.5	14.0	16.2	0.0	55.4	40.0	1.0
25.34	7.73	10273.9	57.8	0.6	73.3	66.0	20.5	23.5	0.0	72.5	44.0	1.0
25.84	7.88	8793.3	72.2	0.8	74.7	67.4	22.0	24.9	0.0	67.8	42.0	1.0
26.33	8.02	7018.9	42.8	0.6	76.1	68.9	17.5	19.7	0.0	61.0	42.0	1.0
26.82	8.18	4483.3	49.6	1.1	77.4	70.4	14.9	16.6	0.0	47.9	40.0	1.0
27.31	8.32	2895.4	28.3	1.0	78.7	71.9	9.7	10.6	0.0	35.2	38.0	1.0
27.80	8.48	1994.5	28.3	1.4	80.0	73.3	8.0	8.7	122.7	30.0	34.0	6.0
28.30	8.62	1911.0	28.6	1.5	81.2	74.8	7.6	8.3	117.0	30.0	34.0	6.0
28.79	8.77	1374.7	19.1	1.4	82.5	76.3	5.5	5.9	81.1	30.0	32.0	3.0
29.28	8.93	963.9	12.8	1.3	83.7	77.7	4.8	5.2	53.5	0.0	0.0	3.0
29.77	9.07	952.9	12.9	1.4	84.9	79.2	4.8	5.1	52.6	0.0	0.0	3.0
30.27	9.23	1504.2	21.9	1.5	86.1	80.7	6.0	6.3	89.2	30.0	32.0	6.0
30.76	9.38	1855.2	40.3	2.2	87.4	82.2	7.4	7.8	112.4	30.0	34.0	6.0
31.17	9.50	1653.9	63.6	3.8	88.4	83.4	11.0	11.5	98.8	0.0	0.0	6.0
31.58	9.62	1256.9	43.7	3.5	89.4	84.6	8.4	8.7	72.2	0.0	0.0	3.0
32.07	9.77	1527.4	35.3	2.3	90.6	86.1	7.6	7.9	90.0	0.0	0.0	3.0
32.56	9.93	989.7	14.9	1.5	91.9	87.6	4.9	5.1	54.0	0.0	0.0	3.0
33.05	10.07	862.0	13.0	1.5	93.1	89.0	4.3	4.4	45.3	0.0	0.0	1.5
33.55	10.23	726.9	15.9	2.2	94.3	90.5	4.8	4.9	36.1	0.0	0.0	1.5
34.04	10.38	1507.9	28.6	1.9	95.6	92.0	7.5	7.5	88.0	0.0	0.0	3.0
34.53	10.52	3324.8	27.2	0.8	96.8	93.4	11.1	11.0	0.0	36.2	36.0	1.0
35.02	10.68	1414.6	31.3	2.2	98.1	94.9	7.1	7.0	81.4	0.0	0.0	3.0
35.51	10.82	1027.3	19.2	1.9	99.3	96.4	5.1	5.0	55.4	0.0	0.0	3.0
36.01	10.98	1102.7	13.2	1.2	100.5	97.9	4.4	4.3	60.3	30.0	30.0	3.0
36.50	11.12	1712.9	19.7	1.2	101.8	99.3	6.9	6.6	100.8	30.0	32.0	3.0
36.99	11.27	6654.9	38.0	0.6	103.1	100.8	16.6	16.0	0.0	55.2	40.0	1.0
37.48	11.43	9359.9	30.1	0.3	104.5	102.3	18.7	17.9	0.0	64.7	42.0	1.0
37.98	11.57	2812.4	40.3	1.4	105.8	103.7	11.2	10.7	173.5	30.1	34.0	6.0
38.47	11.73	1354.3	23.5	1.7	107.1	105.2	6.8	6.4	76.1	0.0	0.0	3.0
38.96	11.88	1506.0	20.8	1.4	108.3	106.7	6.0	5.7	86.1	30.0	30.0	3.0
39.45	12.02	1082.8	23.6	2.2	109.5	108.2	5.4	5.1	57.7	0.0	0.0	3.0
39.94	12.18	1151.4	25.7	2.2	110.7	109.6	5.8	5.4	62.1	0.0	0.0	3.0
40.44	12.32	834.6	22.6	2.7	112.0	111.1	5.6	5.1	40.8	0.0	0.0	1.5
40.93	12.48	1049.4	20.4	1.9	113.2	112.6	5.2	4.8	54.9	0.0	0.0	1.5
41.42	12.62	1540.0	37.4	2.4	114.4	114.0	7.7	7.0	87.4	0.0	0.0	3.0
41.91	12.77	4234.1	94.7	2.2	115.7	115.5	16.9	15.4	266.9	40.6	38.0	6.0
42.40	12.93	7255.3	71.5	1.0	117.0	117.0	18.1	16.4	0.0	55.8	40.0	1.0
42.90	13.07	5139.7	55.7	1.1	118.3	118.5	17.1	15.4	0.0	45.8	38.0	1.0
43.39	13.23	3602.0	50.7	1.4	119.6	119.9	12.0	10.7	0.0	35.4	36.0	1.0
43.88	13.38	4785.3	58.1	1.2	120.9	121.4	16.0	14.2	0.0	43.4	38.0	1.0
44.37	13.52	4116.0	50.9	1.2	122.2	122.9	13.7	12.1	0.0	39.0	36.0	1.0
44.86	13.68	4031.8	60.5	1.5	123.5	124.3	13.4	11.8	0.0	38.2	36.0	1.0
45.36	13.82	1927.1	24.6	1.3	124.8	125.8	7.7	6.8	111.8	30.0	32.0	3.0
45.85	13.98	1450.8	20.6	1.4	126.0	127.3	5.8	5.1	79.8	30.0	30.0	3.0
46.34	14.12	1400.6	27.9	2.0	127.2	128.8	7.0	6.1	76.3	0.0	0.0	3.0
46.83	14.27	1928.1	23.9	1.2	128.5	130.2	7.7	6.7	111.3	30.0	32.0	3.0
47.33	14.43	2411.2	27.0	1.1	129.7	131.7	9.6	8.3	143.3	30.0	32.0	6.0
47.82	14.57	2995.7	49.5	1.7	130.9	133.2	12.0	10.2	182.1	30.0	34.0	6.0
48.31	14.73	7111.2	53.6	0.8	132.2	134.6	17.8	15.1	0.0	53.5	38.0	1.0
48.80	14.88	3004.2	57.8	1.9	133.5	136.1	12.0	10.2	182.3	30.0	34.0	6.0
49.29	15.02	7426.5	44.9	0.6	134.8	137.6	18.6	15.6	0.0	54.5	40.0	1.0
49.79	15.18	14358.8	92.8	0.6	136.3	139.1	28.7	24.1	0.0	73.2	42.0	1.0
50.28	15.32	13696.5	68.0	0.5	137.7	140.5	27.4	22.8	0.0	71.7	42.0	1.0
50.77	15.48	3882.4	74.5	1.9	139.1	142.0	15.5	12.9	240.1	35.4	36.0	6.0
51.26	15.62	1647.7	13.6	0.8	140.3	143.5	6.6	5.4	90.9	30.0	30.0	3.0
51.75	15.77	1391.3	11.4	0.8	141.5	144.9	5.6	4.6	73.7	30.0	30.0	3.0
52.25	15.93	1562.5	15.8	1.0	142.7	146.4	6.3	5.1	84.9	30.0	30.0	3.0
52.74	16.08	1585.7	15.8	1.0	144.0	147.9	6.3	5.2	86.3	30.0	30.0	3.0
53.23	16.22	2704.6	24.8	0.9	145.2	149.4	9.0	7.3	0.0	30.0	32.0	1.0
53.72	16.38	1928.9	21.8	1.1	146.5	150.8	7.7	6.2	108.8	30.0	30.0	3.0
54.22	16.53	5884.3	57.2	1.0	147.8	152.3	14.7	11.8	0.0	46.5	38.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	16633.9	61.7	0.4	149.2	153.8	33.3	26.7	0.0	76.1	42.0	1.0
55.20	16.83	21785.0	33.8	0.2	150.7	155.2	36.3	28.9	0.0	83.7	44.0	1.0
55.69	16.97	18998.6	29.9	0.2	152.2	156.7	38.0	30.1	0.0	79.7	42.0	1.0
56.18	17.12	18108.1	29.9	0.2	153.7	158.2	36.2	28.6	0.0	78.1	42.0	1.0
56.68	17.28	17182.6	41.8	0.2	155.1	159.7	34.4	27.0	0.0	76.5	42.0	1.0
57.17	17.42	16988.1	57.3	0.3	156.6	161.1	34.0	26.6	0.0	76.0	42.0	1.0
57.66	17.58	16717.4	79.7	0.5	158.0	162.6	33.4	26.0	0.0	75.4	42.0	1.0
58.15	17.72	14665.1	78.2	0.5	159.5	164.1	29.3	22.7	0.0	71.6	42.0	1.0
58.64	17.88	17840.3	48.9	0.3	160.9	165.5	35.7	27.5	0.0	77.0	42.0	1.0
59.14	18.03	19037.6	47.5	0.2	162.4	167.0	38.1	29.2	0.0	78.8	42.0	1.0
59.63	18.17	18442.5	38.7	0.2	163.8	168.5	36.9	28.2	0.0	77.7	42.0	1.0
60.12	18.33	18643.4	48.3	0.3	165.3	170.0	37.3	28.4	0.0	77.9	42.0	1.0
60.61	18.47	18436.1	60.7	0.3	166.7	171.4	36.9	27.9	0.0	77.5	42.0	1.0
61.10	18.62	20436.5	53.3	0.3	168.2	172.9	40.9	30.8	0.0	80.3	42.0	1.0
61.60	18.78	18649.2	35.2	0.2	169.6	174.4	37.3	28.0	0.0	77.6	42.0	1.0
62.09	18.92	8459.1	59.0	0.7	171.1	175.8	21.1	15.8	0.0	54.8	38.0	1.0
62.58	19.08	11684.9	74.7	0.6	172.5	177.3	23.4	17.4	0.0	63.9	40.0	1.0
63.07	19.22	16180.8	75.6	0.5	173.9	178.8	32.4	24.0	0.0	73.1	42.0	1.0
63.57	19.38	23141.3	79.9	0.3	175.4	180.3	38.6	28.5	0.0	83.3	44.0	1.0
64.06	19.53	23521.8	66.7	0.3	176.9	181.7	39.2	28.8	0.0	83.6	44.0	1.0
64.55	19.67	20842.4	76.3	0.4	178.4	183.2	41.7	30.5	0.0	80.0	42.0	1.0
65.04	19.83	22752.6	81.5	0.4	179.9	184.7	37.9	27.7	0.0	82.4	44.0	1.0
65.53	19.97	20565.0	67.4	0.3	181.4	186.1	41.1	29.9	0.0	79.4	42.0	1.0
66.03	20.12	22237.1	65.3	0.3	182.9	187.6	37.1	26.8	0.0	81.5	42.0	1.0
66.52	20.28	24872.1	62.4	0.3	184.4	189.1	41.5	29.9	0.0	84.6	44.0	1.0
67.01	20.42	21721.2	41.0	0.2	186.0	190.6	36.2	26.0	0.0	80.6	42.0	1.0
67.50	20.58	18834.9	35.4	0.2	187.5	192.0	37.7	26.9	0.0	76.4	42.0	1.0
67.99	20.72	17426.1	35.8	0.2	188.9	193.5	34.9	24.8	0.0	74.1	42.0	1.0
68.49	20.88	17604.4	34.0	0.2	190.4	195.0	35.2	25.0	0.0	74.3	42.0	1.0
68.98	21.03	19786.9	37.4	0.2	191.8	196.4	39.6	28.0	0.0	77.5	42.0	1.0
69.47	21.17	20677.2	38.9	0.2	193.3	197.9	34.5	24.3	0.0	78.7	42.0	1.0
69.96	21.33	20575.2	74.9	0.4	194.8	199.4	41.2	28.9	0.0	78.4	42.0	1.0
70.46	21.47	20982.2	147.3	0.7	196.3	200.9	42.0	29.3	0.0	78.9	42.0	1.0
70.95	21.62	21106.6	74.7	0.4	197.7	202.3	42.2	29.4	0.0	78.9	42.0	1.0
71.44	21.78	22482.7	58.4	0.3	199.2	203.8	37.5	26.0	0.0	80.6	42.0	1.0
71.93	21.92	25397.2	56.9	0.2	200.7	205.3	42.3	29.2	0.0	84.0	44.0	1.0
72.42	22.08	26893.6	50.0	0.2	202.3	206.7	44.8	30.8	0.0	85.5	44.0	1.0
72.92	22.22	25073.1	56.5	0.2	203.8	208.2	41.8	28.6	0.0	83.4	42.0	1.0
73.41	22.38	21674.4	69.8	0.3	205.3	209.7	36.1	24.7	0.0	79.1	42.0	1.0
73.90	22.53	20680.4	66.4	0.3	206.8	211.2	41.4	28.1	0.0	77.7	42.0	1.0
74.39	22.67	23279.0	69.9	0.3	208.3	212.6	38.8	26.3	0.0	81.0	42.0	1.0
74.88	22.83	23882.6	78.4	0.3	209.8	214.1	39.8	26.9	0.0	81.6	42.0	1.0
75.38	22.97	24091.5	81.6	0.3	211.4	215.6	40.2	27.0	0.0	81.8	42.0	1.0
75.87	23.12	23939.1	69.3	0.3	212.9	217.0	39.9	26.8	0.0	81.5	42.0	1.0
76.36	23.28	27162.1	52.8	0.2	214.4	218.5	45.3	30.3	0.0	85.0	44.0	1.0
76.85	23.42	24601.9	74.2	0.3	215.9	220.0	41.0	27.3	0.0	82.0	42.0	1.0
77.34	23.58	23475.3	50.6	0.2	217.5	221.5	39.1	26.0	0.0	80.6	42.0	1.0
77.84	23.72	15823.7	60.1	0.4	219.0	222.9	31.6	20.9	0.0	69.2	40.0	1.0
78.33	23.88	3889.4	61.8	1.6	220.3	224.4	13.0	8.5	0.0	30.0	32.0	1.0
78.82	24.03	3101.6	15.7	0.5	221.6	225.9	10.3	6.8	0.0	30.0	30.0	1.0
79.31	24.17	2983.9	23.5	0.8	222.9	227.3	9.9	6.5	0.0	30.0	30.0	1.0
79.81	24.33	9346.4	35.4	0.4	224.3	228.8	18.7	12.2	0.0	53.8	38.0	1.0
80.30	24.47	5066.2	67.4	1.3	225.7	230.3	16.9	11.0	0.0	36.1	34.0	1.0
80.79	24.62	2653.0	36.0	1.4	227.0	231.8	10.6	6.9	146.3	30.0	30.0	3.0
81.28	24.78	3050.7	38.6	1.3	228.2	233.2	10.2	6.6	0.0	30.0	30.0	1.0
81.77	24.92	2417.4	28.3	1.2	229.5	234.7	9.7	6.2	130.2	30.0	30.0	3.0
82.27	25.08	2114.8	30.7	1.4	230.7	236.2	8.5	5.5	109.9	30.0	30.0	1.5
82.76	25.22	2399.2	39.1	1.6	232.0	237.6	9.6	6.2	128.6	30.0	30.0	3.0
83.25	25.38	2812.3	78.3	2.8	233.2	239.1	14.1	9.0	156.0	0.0	0.0	3.0
83.74	25.53	3495.8	87.4	2.5	234.4	240.6	14.0	8.9	201.4	30.0	32.0	3.0
84.23	25.67	4485.1	153.3	3.4	235.6	242.1	22.4	14.3	267.2	0.0	0.0	6.0
84.73	25.83	3587.9	91.2	2.5	236.9	243.5	14.4	9.1	207.2	30.0	32.0	3.0
85.22	25.97	3136.3	69.7	2.2	238.1	245.0	12.5	8.0	176.9	30.0	30.0	3.0
85.71	26.12	3016.5	73.3	2.4	239.3	246.5	12.1	7.6	168.7	30.0	30.0	3.0

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Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	3405.0	118.2	3.5	240.6	247.9	17.0	10.7	194.4	0.0	0.0	3.0
86.70	26.42	2296.6	32.9	1.4	241.8	249.4	9.2	5.8	120.4	30.0	30.0	1.5
87.19	26.58	2370.7	31.8	1.3	243.0	250.9	9.5	6.0	125.1	30.0	30.0	3.0
87.68	26.72	2747.0	68.5	2.5	244.2	252.4	11.0	6.9	150.0	30.0	30.0	3.0
88.17	26.88	3006.4	86.1	2.9	245.5	253.8	15.0	9.4	167.1	0.0	0.0	3.0
88.66	27.03	5762.0	112.1	1.9	246.7	255.3	19.2	12.0	0.0	38.5	34.0	1.0
89.16	27.17	10201.3	193.5	1.9	248.0	256.8	34.0	21.1	0.0	54.8	38.0	1.0
89.65	27.33	13775.8	158.4	1.2	249.4	258.2	34.4	21.3	0.0	63.4	40.0	1.0
90.14	27.47	11542.1	157.0	1.4	250.8	259.7	28.9	17.8	0.0	58.2	38.0	1.0
90.63	27.62	7453.1	124.0	1.7	252.1	261.2	24.8	15.3	0.0	45.6	36.0	1.0
91.12	27.78	9880.7	182.3	1.8	253.4	262.7	32.9	20.2	0.0	53.6	38.0	1.0
91.62	27.92	14839.1	186.0	1.3	254.7	264.1	37.1	22.7	0.0	65.2	40.0	1.0
92.11	28.08	23480.7	160.0	0.7	256.2	265.6	47.0	28.7	0.0	78.3	42.0	1.0
92.60	28.22	25325.4	168.7	0.7	257.6	267.1	50.7	30.9	0.0	80.3	42.0	1.0
93.09	28.38	26843.1	171.2	0.6	259.1	268.5	53.7	32.6	0.0	81.9	42.0	1.0
93.58	28.53	23593.0	150.6	0.6	260.5	270.0	47.2	28.6	0.0	78.2	42.0	1.0
94.08	28.67	21663.3	171.1	0.8	262.0	271.5	43.3	26.2	0.0	75.6	42.0	1.0
94.57	28.83	30106.6	152.1	0.5	263.5	273.0	50.2	30.3	0.0	85.0	42.0	1.0
95.06	28.97	28749.3	165.8	0.6	265.0	274.4	47.9	28.8	0.0	83.6	42.0	1.0
95.55	29.12	27997.9	113.1	0.4	266.5	275.9	46.7	28.0	0.0	82.7	42.0	1.0
96.05	29.28	30068.3	140.2	0.5	268.0	277.4	50.1	30.0	0.0	84.7	42.0	1.0
96.54	29.42	29740.8	140.2	0.5	269.6	278.8	49.6	29.5	0.0	84.3	42.0	1.0
97.03	29.58	26151.2	118.5	0.5	271.1	280.3	43.6	25.9	0.0	80.5	42.0	1.0
97.52	29.72	22860.0	133.3	0.6	272.6	281.8	45.7	27.1	0.0	76.6	42.0	1.0
98.01	29.88	29819.0	139.8	0.5	274.1	283.3	49.7	29.4	0.0	84.1	42.0	1.0
98.51	30.03	28922.3	109.0	0.4	275.6	284.7	48.2	28.4	0.0	83.2	42.0	1.0
99.00	30.17	28514.4	63.4	0.2	277.1	286.2	47.5	27.9	0.0	82.7	42.0	1.0
99.49	30.33	25611.4	58.9	0.2	278.7	287.7	42.7	25.0	0.0	79.5	42.0	1.0
99.98	30.47	24429.3	54.9	0.2	280.2	289.1	40.7	23.8	0.0	78.1	42.0	1.0
100.47	30.62	23693.4	72.3	0.3	281.7	290.6	39.5	23.0	0.0	77.2	42.0	1.0
100.97	30.78	26349.7	106.6	0.4	283.3	292.1	43.9	25.5	0.0	80.1	42.0	1.0
101.46	30.92	26954.4	103.3	0.4	284.8	293.6	44.9	26.1	0.0	80.7	42.0	1.0
101.95	31.08	27136.8	82.1	0.3	286.3	295.0	45.2	26.2	0.0	80.8	42.0	1.0
102.44	31.22	20744.8	220.7	1.1	287.8	296.5	41.5	23.9	0.0	73.0	40.0	1.0
102.94	31.38	9161.7	236.4	2.6	289.1	298.0	36.6	21.1	571.6	49.5	36.0	6.0
103.43	31.53	4696.1	69.5	1.5	290.4	299.5	15.7	9.0	0.0	30.3	32.0	1.0
103.92	31.67	3833.6	44.6	1.2	291.7	300.9	12.8	7.3	0.0	30.0	30.0	1.0
104.41	31.83	7653.3	152.3	2.0	293.0	302.4	25.5	14.6	0.0	44.2	34.0	1.0
104.90	31.97	7044.0	163.0	2.3	294.3	303.9	23.5	13.4	0.0	41.8	34.0	1.0
105.40	32.12	14028.3	185.8	1.3	295.7	305.3	35.1	20.0	0.0	61.4	38.0	1.0
105.89	32.28	16344.4	256.3	1.6	297.0	306.8	40.9	23.2	0.0	65.8	40.0	1.0
106.38	32.42	22721.4	196.1	0.9	298.5	308.3	45.4	25.7	0.0	75.1	40.0	1.0
106.87	32.58	22756.3	204.7	0.9	299.9	309.8	45.5	25.7	0.0	75.1	40.0	1.0
107.36	32.72	24015.4	191.6	0.8	301.4	311.2	48.0	27.1	0.0	76.6	42.0	1.0
107.86	32.88	24142.6	205.0	0.8	302.8	312.7	48.3	27.2	0.0	76.7	42.0	1.0
108.35	33.03	27726.9	170.4	0.6	304.3	314.2	55.5	31.1	0.0	80.6	42.0	1.0
108.84	33.17	21401.6	188.2	0.9	305.7	315.6	42.8	24.0	0.0	73.1	40.0	1.0
109.33	33.33	6976.4	192.7	2.8	307.1	317.1	27.9	15.6	423.5	40.9	34.0	6.0
109.82	33.47	5576.8	73.6	1.3	308.3	318.6	18.6	10.4	0.0	34.4	32.0	1.0
110.32	33.62	5611.0	98.7	1.8	309.6	320.1	18.7	10.4	0.0	34.5	32.0	1.0
110.81	33.78	10331.5	92.1	0.9	311.0	321.5	25.8	14.3	0.0	52.0	36.0	1.0
111.30	33.92	3831.9	61.4	1.6	312.3	323.0	12.8	7.1	0.0	30.0	30.0	1.0
111.79	34.08	5583.4	83.2	1.5	313.6	324.5	18.6	10.3	0.0	34.2	32.0	1.0
112.29	34.22	5458.2	117.6	2.2	314.9	325.9	21.8	12.0	321.2	33.5	32.0	6.0
112.78	34.38	9539.9	190.6	2.0	316.2	327.4	31.8	17.5	0.0	49.4	36.0	1.0
113.27	34.53	18601.7	147.8	0.8	317.5	328.9	37.2	20.4	0.0	68.5	40.0	1.0
113.76	34.67	16418.1	167.8	1.0	319.0	330.4	32.8	18.0	0.0	64.9	38.0	1.0
114.25	34.83	14750.1	201.5	1.4	320.4	331.8	36.9	20.2	0.0	61.7	38.0	1.0
114.75	34.97	16702.4	255.3	1.5	321.8	333.3	41.8	22.8	0.0	65.2	38.0	1.0
115.24	35.12	19620.3	130.5	0.7	323.2	334.8	39.2	21.4	0.0	69.8	40.0	1.0
115.73	35.28	12461.6	174.5	1.4	324.6	336.2	31.2	16.9	0.0	56.7	38.0	1.0
116.22	35.42	6096.0	175.8	2.9	325.9	337.7	24.4	13.2	362.2	36.2	32.0	6.0
116.71	35.58	10318.4	120.0	1.2	327.2	339.2	25.8	14.0	0.0	51.2	36.0	1.0
117.21	35.72	4748.7	120.3	2.5	328.5	340.7	19.0	10.3	272.0	30.0	32.0	3.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	3917.8	54.4	1.4	329.8	342.1	13.1	7.0	0.0	30.0	30.0	1.0
118.19	36.03	3835.4	45.3	1.2	331.1	343.6	12.8	6.9	0.0	30.0	30.0	1.0
118.68	36.17	7085.6	164.6	2.3	332.4	345.1	23.6	12.7	0.0	40.2	34.0	1.0
119.18	36.33	15835.7	190.5	1.2	333.7	346.5	39.6	21.2	0.0	63.2	38.0	1.0
119.67	36.47	13567.9	216.3	1.6	335.1	348.0	33.9	18.1	0.0	58.7	38.0	1.0
120.16	36.62	7260.8	124.7	1.7	336.5	349.5	24.2	12.9	0.0	40.7	34.0	1.0
120.65	36.78	3197.8	42.0	1.3	337.8	351.0	10.7	5.7	0.0	30.0	30.0	1.0
121.14	36.92	2783.2	26.6	1.0	339.1	352.4	9.3	4.9	0.0	30.0	30.0	1.0
121.64	37.08	3111.8	55.7	1.8	340.3	353.9	12.4	6.6	161.2	30.0	30.0	1.5
122.21	37.25	3063.0	35.8	1.2	341.8	355.6	10.2	5.4	0.0	30.0	30.0	1.0
122.78	37.42	3169.8	55.2	1.7	343.3	357.3	12.7	6.7	164.6	30.0	30.0	1.5
123.28	37.58	2746.7	53.9	2.0	344.5	358.8	11.0	5.8	136.2	30.0	30.0	1.5
123.77	37.72	3329.2	55.1	1.7	345.8	360.3	13.3	7.0	174.9	30.0	30.0	3.0
124.26	37.88	4210.7	76.9	1.8	347.0	361.7	14.0	7.4	0.0	30.0	30.0	1.0
124.75	38.03	3449.4	52.5	1.5	348.3	363.2	11.5	6.0	0.0	30.0	30.0	1.0
125.24	38.17	2981.7	43.0	1.4	349.6	364.7	11.9	6.2	151.2	30.0	30.0	1.5
125.74	38.33	2998.7	56.8	1.9	350.8	366.2	12.0	6.3	152.1	30.0	30.0	1.5
126.23	38.47	3973.6	101.7	2.6	352.0	367.6	15.9	8.3	216.9	30.0	30.0	3.0
126.72	38.62	4061.1	150.0	3.7	353.3	369.1	20.3	10.6	222.6	0.0	0.0	3.0
127.21	38.78	4344.5	91.4	2.1	354.5	370.6	17.4	9.0	241.3	30.0	30.0	3.0
127.71	38.92	3153.1	50.2	1.6	355.7	372.0	12.6	6.5	161.7	30.0	30.0	1.5
128.20	39.08	3523.3	43.4	1.2	357.0	373.5	11.7	6.1	0.0	30.0	30.0	1.0
128.69	39.22	3259.6	61.7	1.9	358.3	375.0	13.0	6.7	168.4	30.0	30.0	1.5
129.18	39.38	3673.2	58.2	1.6	359.5	376.5	12.2	6.3	0.0	30.0	30.0	1.0
129.67	39.53	5239.9	139.0	2.7	360.8	377.9	21.0	10.8	300.1	30.4	32.0	3.0
130.17	39.67	4705.1	122.0	2.6	362.0	379.4	18.8	9.7	264.2	30.0	30.0	3.0
130.66	39.83	5383.6	118.4	2.2	363.3	380.9	21.5	11.1	309.3	31.0	32.0	3.0
131.15	39.97	7291.0	162.7	2.2	364.5	382.3	24.3	12.5	0.0	39.7	32.0	1.0
131.64	40.12	9454.8	218.2	2.3	365.8	383.8	31.5	16.1	0.0	47.1	34.0	1.0
132.13	40.28	6795.3	141.4	2.1	367.1	385.3	22.7	11.6	0.0	37.6	32.0	1.0
132.63	40.42	3223.2	75.2	2.3	368.4	386.8	12.9	6.6	164.5	30.0	30.0	1.5
133.12	40.58	3105.2	71.1	2.3	369.6	388.2	12.4	6.3	156.5	30.0	30.0	1.5
133.61	40.72	2911.6	57.5	2.0	370.8	389.7	11.6	5.9	143.4	30.0	30.0	1.5
134.10	40.88	3576.9	50.2	1.4	372.1	391.2	11.9	6.0	0.0	30.0	30.0	1.0
134.59	41.03	3472.6	40.4	1.2	373.4	392.6	11.6	5.9	0.0	30.0	30.0	1.0
135.09	41.17	2886.6	26.8	0.9	374.7	394.1	9.6	4.9	0.0	30.0	30.0	1.0
135.58	41.33	3364.0	46.1	1.4	376.0	395.6	11.2	5.7	0.0	30.0	30.0	1.0
136.07	41.47	4151.2	105.8	2.5	377.3	397.1	16.6	8.4	225.1	30.0	30.0	3.0
136.56	41.62	4335.8	130.9	3.0	378.5	398.5	17.3	8.7	237.2	30.0	30.0	3.0
137.06	41.78	4201.4	82.9	2.0	379.7	400.0	16.8	8.4	228.1	30.0	30.0	3.0
137.55	41.92	8377.5	213.0	2.5	381.0	401.5	33.5	16.8	506.3	43.0	34.0	6.0
138.04	42.08	20662.4	226.3	1.1	382.3	402.9	41.3	20.7	0.0	68.9	40.0	1.0
138.53	42.22	19391.6	130.4	0.7	383.8	404.4	38.8	19.4	0.0	67.0	38.0	1.0
139.02	42.38	6995.1	194.8	2.8	385.1	405.9	28.0	14.0	413.6	37.7	32.0	6.0
139.52	42.53	4453.1	97.3	2.2	386.3	407.4	17.8	8.9	244.0	30.0	30.0	3.0
140.01	42.67	6312.3	188.2	3.0	387.6	408.8	25.2	12.6	367.7	34.7	32.0	3.0
140.50	42.83	15405.7	222.8	1.4	388.9	410.3	38.5	19.3	0.0	60.2	38.0	1.0
140.99	42.97	10950.5	176.6	1.6	390.2	411.8	27.4	13.7	0.0	50.4	36.0	1.0
141.48	43.12	4881.4	81.1	1.7	391.6	413.2	16.3	8.1	0.0	30.0	30.0	1.0
141.98	43.28	6692.1	49.7	0.7	392.9	414.7	16.7	8.4	0.0	36.2	32.0	1.0
142.47	43.42	2383.3	26.8	1.1	394.2	416.2	9.5	4.8	104.9	30.0	30.0	1.5
142.96	43.58	2163.5	29.1	1.3	395.5	417.7	8.7	4.3	90.0	30.0	30.0	1.0
143.45	43.72	3812.3	85.2	2.2	396.7	419.1	15.2	7.6	199.8	30.0	30.0	3.0
143.95	43.88	4017.6	69.8	1.7	398.0	420.6	13.4	6.7	0.0	30.0	30.0	1.0
144.44	44.03	5051.1	118.7	2.4	399.2	422.1	20.2	10.1	282.0	30.0	30.0	3.0
144.93	44.17	4587.3	146.5	3.2	400.5	423.5	22.9	11.5	250.9	0.0	0.0	3.0
145.42	44.33	5715.8	171.9	3.0	401.7	425.0	22.9	11.4	325.9	31.3	30.0	3.0
145.91	44.47	6913.4	221.0	3.2	402.9	426.5	27.7	13.8	405.6	36.7	32.0	6.0
146.41	44.62	3981.3	90.5	2.3	404.1	428.0	15.9	8.0	209.9	30.0	30.0	3.0
146.90	44.78	4476.7	77.7	1.7	405.4	429.4	14.9	7.5	0.0	30.0	30.0	1.0
147.39	44.92	3682.0	77.1	2.1	406.7	430.9	14.7	7.4	189.6	30.0	30.0	1.5
147.88	45.08	3462.7	49.8	1.4	407.9	432.4	11.5	5.8	0.0	30.0	30.0	1.0
148.37	45.22	3297.6	43.7	1.3	409.2	433.8	11.0	5.5	0.0	30.0	30.0	1.0
148.87	45.38	4585.4	89.9	2.0	410.5	435.3	18.3	9.2	249.3	30.0	30.0	3.0

PLATE E-81

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
149.36	45.53	12492.3	305.0	2.4	411.8	436.8	41.6	20.8	0.0	53.4	36.0	1.0
149.85	45.67	18456.6	214.7	1.2	413.1	438.3	46.1	23.1	0.0	64.5	38.0	1.0
150.34	45.83	16904.3	163.2	1.0	414.5	439.7	33.8	16.9	0.0	61.9	38.0	1.0
150.83	45.97	6231.8	220.6	3.5	415.9	441.2	31.2	15.6	358.3	0.0	0.0	3.0
151.33	46.12	5748.5	105.6	1.8	417.1	442.7	19.2	9.6	0.0	30.9	30.0	1.0
151.82	46.28	3557.3	56.9	1.6	418.4	444.1	11.9	5.9	0.0	30.0	30.0	1.0
152.31	46.42	3780.9	50.6	1.3	419.7	445.6	12.6	6.3	0.0	30.0	30.0	1.0
152.80	46.58	3877.5	53.0	1.4	421.0	447.1	12.9	6.5	0.0	30.0	30.0	1.0
153.30	46.72	3480.8	38.2	1.1	422.3	448.6	11.6	5.8	0.0	30.0	30.0	1.0
153.79	46.88	3291.5	29.5	0.9	423.7	450.0	11.0	5.5	0.0	30.0	30.0	1.0
154.28	47.03	3160.7	29.5	0.9	425.0	451.5	10.5	5.3	0.0	30.0	30.0	1.0
154.77	47.17	3218.8	30.8	1.0	426.3	453.0	10.7	5.4	0.0	30.0	30.0	1.0
155.26	47.33	3376.7	36.3	1.1	427.6	454.4	11.3	5.6	0.0	30.0	30.0	1.0
155.76	47.47	7178.7	82.2	1.1	428.9	455.9	17.9	9.0	0.0	36.9	32.0	1.0
156.25	47.62	4800.6	115.4	2.4	430.2	457.4	19.2	9.6	260.9	30.0	30.0	3.0
156.74	47.78	8454.6	152.5	1.8	431.5	458.9	28.2	14.1	0.0	41.5	32.0	1.0
157.23	47.92	6537.3	187.4	2.9	432.7	460.3	26.1	13.1	376.3	34.1	32.0	3.0
157.72	48.08	9422.1	228.5	2.4	434.0	461.8	31.4	15.7	0.0	44.5	34.0	1.0
158.22	48.22	17361.6	279.1	1.6	435.3	463.3	43.4	21.7	0.0	62.0	38.0	1.0
158.71	48.38	12843.4	266.6	2.1	436.7	464.7	42.8	21.4	0.0	53.3	36.0	1.0
159.20	48.53	4610.3	200.4	4.3	438.0	466.2	23.1	11.5	247.1	0.0	0.0	3.0
159.69	48.67	11281.0	271.8	2.4	439.2	467.7	37.6	18.8	0.0	49.5	34.0	1.0
160.19	48.83	17474.2	229.5	1.3	440.6	469.2	43.7	21.8	0.0	62.0	38.0	1.0
160.68	48.97	6358.7	205.3	3.2	441.9	470.6	25.4	12.7	363.1	33.0	32.0	3.0
161.17	49.12	4405.4	87.3	2.0	443.1	472.1	17.6	8.8	232.7	30.0	30.0	3.0
161.66	49.28	6493.6	177.6	2.7	444.3	473.6	26.0	13.0	371.7	33.5	32.0	3.0
162.15	49.42	12027.3	202.3	1.7	445.6	475.0	30.1	15.0	0.0	51.2	34.0	1.0
162.65	49.58	5031.8	112.7	2.2	446.9	476.5	20.1	10.1	273.9	30.0	30.0	3.0
163.14	49.72	6940.3	194.7	2.8	448.2	478.0	27.8	13.9	400.9	35.3	32.0	3.0
163.63	49.88	4411.1	111.0	2.5	449.4	479.5	17.6	8.8	232.1	30.0	30.0	3.0
164.12	50.03	4957.1	105.5	2.1	450.6	480.9	19.8	9.9	268.4	30.0	30.0	3.0
164.61	50.17	6039.3	141.7	2.3	451.8	482.4	24.2	12.1	340.3	31.2	30.0	3.0
165.11	50.33	5713.6	131.7	2.3	453.1	483.9	22.9	11.4	318.4	30.0	30.0	3.0
165.60	50.47	5466.8	137.1	2.5	454.3	485.3	21.9	10.9	301.8	30.0	30.0	3.0
166.09	50.62	9433.4	288.9	3.1	455.5	486.8	37.7	18.9	566.1	43.9	32.0	6.0
166.58	50.78	11387.4	397.9	3.5	456.8	488.3	45.5	22.8	696.2	49.2	34.0	6.0
167.07	50.92	19256.1	264.1	1.4	458.1	489.8	48.1	24.1	0.0	64.2	38.0	1.0
167.57	51.08	24203.7	212.5	0.9	459.5	491.2	48.4	24.2	0.0	70.8	38.0	1.0
168.06	51.22	24030.6	243.6	1.0	460.9	492.7	48.1	24.0	0.0	70.5	38.0	1.0
168.55	51.38	25249.7	173.3	0.7	462.4	494.2	50.5	25.2	0.0	71.9	40.0	1.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0519-1709-1921
Job No: 97-100
Client: Kleinfelder
Project: Legacy Parkway Project
Site: SC-33-358
Location: STRUCTURE 33
Cone: 20 TON A 070
CPT Date: 10/04/05
CPT Time: 18:34
CPT File: 300SC358.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	3938.1	2.0	0.1	1.4	0.0	9.8	19.7	0.0	95.0	50.0	1.0
0.74	0.23	6847.9	8.8	0.1	4.3	0.0	17.1	34.2	0.0	95.0	50.0	1.0
1.23	0.38	5159.0	19.6	0.4	7.1	0.0	12.9	25.8	0.0	86.2	50.0	1.0
1.72	0.52	2172.2	36.1	1.7	9.9	0.0	8.7	17.4	144.2	56.7	46.0	10.0
2.21	0.68	1887.3	30.5	1.6	12.6	0.0	7.5	15.1	125.0	49.2	44.0	10.0
2.71	0.82	989.6	15.0	1.5	15.3	0.0	4.9	9.9	65.0	0.0	0.0	10.0
3.20	0.97	951.9	9.3	1.0	18.0	0.0	4.8	9.5	62.3	0.0	0.0	6.0
3.61	1.10	1176.0	7.4	0.6	19.3	1.0	4.7	9.4	77.0	30.0	40.0	6.0
4.02	1.22	404.6	2.5	0.6	19.9	2.2	2.0	4.0	25.5	0.0	0.0	6.0
4.51	1.38	220.6	2.2	1.0	20.3	3.7	1.1	2.2	13.1	0.0	0.0	3.0
5.00	1.53	554.5	3.6	0.7	20.7	5.2	2.8	5.5	35.2	0.0	0.0	6.0
5.50	1.67	235.0	2.0	0.9	21.1	6.6	1.2	2.3	13.8	0.0	0.0	3.0
5.99	1.83	201.9	4.5	2.2	21.5	8.1	1.0	2.0	11.5	0.0	0.0	3.0
6.56	2.00	234.4	3.2	1.4	22.0	9.8	1.2	2.3	13.5	0.0	0.0	3.0
7.14	2.17	1556.9	17.7	1.1	22.8	11.5	6.2	12.5	101.5	35.1	40.0	10.0
7.63	2.33	1373.0	13.7	1.0	24.1	13.0	5.5	11.0	89.1	30.8	40.0	6.0
8.12	2.47	419.8	5.3	1.3	24.9	14.5	2.1	4.1	25.4	0.0	0.0	6.0
8.61	2.62	231.6	4.9	2.1	25.3	15.9	1.2	2.3	12.7	0.0	0.0	3.0
9.10	2.78	250.5	2.0	0.8	25.7	17.4	1.3	2.4	13.8	0.0	0.0	3.0
9.60	2.92	439.6	2.0	0.5	26.1	18.9	2.2	4.2	26.3	0.0	0.0	6.0
10.09	3.08	353.8	3.5	1.0	26.5	20.4	1.8	3.4	20.5	0.0	0.0	3.0
10.58	3.22	292.5	2.2	0.8	26.9	21.8	1.5	2.8	16.3	0.0	0.0	3.0
11.07	3.38	562.9	2.9	0.5	27.3	23.3	2.8	5.3	34.2	0.0	0.0	6.0
11.56	3.53	290.1	3.6	1.2	27.7	24.8	1.5	2.7	15.8	0.0	0.0	3.0
12.06	3.67	271.3	2.1	0.8	28.1	26.2	1.4	2.5	14.5	0.0	0.0	3.0
12.55	3.83	1109.9	13.1	1.2	28.9	27.7	4.4	8.1	70.2	30.0	38.0	6.0
13.04	3.98	596.4	7.5	1.3	30.2	29.2	3.0	5.3	35.8	0.0	0.0	6.0
13.53	4.12	401.2	3.8	0.9	31.0	30.7	2.0	3.5	22.6	0.0	0.0	3.0
14.03	4.27	508.0	2.3	0.5	31.4	32.1	2.5	4.4	29.6	0.0	0.0	3.0
14.52	4.43	367.1	5.7	1.5	31.8	33.6	1.8	3.2	20.1	0.0	0.0	3.0
15.01	4.57	467.7	6.6	1.4	32.2	35.1	2.3	4.0	26.7	0.0	0.0	3.0
15.50	4.73	722.4	12.4	1.7	33.0	36.5	3.6	6.2	43.5	0.0	0.0	6.0
15.99	4.88	727.3	9.0	1.2	34.2	38.0	3.6	6.1	43.7	0.0	0.0	6.0
16.49	5.02	337.4	5.6	1.7	35.1	39.5	1.7	2.8	17.5	0.0	0.0	3.0
16.98	5.18	622.6	7.2	1.2	35.9	41.0	3.1	5.1	36.4	0.0	0.0	6.0
17.47	5.32	617.4	8.7	1.4	37.1	42.4	3.1	5.0	35.9	0.0	0.0	3.0
17.96	5.48	447.9	5.3	1.2	37.9	43.9	2.2	3.6	24.4	0.0	0.0	3.0
18.45	5.62	1150.5	16.4	1.4	38.7	45.4	5.8	9.0	71.1	0.0	0.0	6.0
18.95	5.77	3930.1	19.7	0.5	40.0	46.8	13.1	20.3	0.0	53.6	42.0	1.0
19.44	5.93	6515.1	38.6	0.6	41.3	48.3	16.3	24.8	0.0	67.7	44.0	1.0
19.93	6.07	610.2	20.7	3.4	42.6	49.8	6.1	9.1	34.5	0.0	0.0	3.0
20.42	6.23	559.4	2.0	0.4	43.4	51.3	2.8	4.2	31.0	0.0	0.0	3.0
20.92	6.38	454.0	3.6	0.8	43.8	52.7	2.3	3.4	23.8	0.0	0.0	3.0
21.41	6.52	7054.7	30.4	0.4	44.7	54.2	17.6	25.8	0.0	68.8	44.0	1.0
21.90	6.68	17360.6	60.7	0.3	46.1	55.7	34.7	50.1	0.0	94.2	48.0	1.0
22.39	6.82	13429.0	31.3	0.2	47.5	57.1	26.9	38.1	0.0	86.4	46.0	1.0
22.88	6.98	1257.6	37.6	3.0	48.9	58.6	8.4	11.7	76.7	0.0	0.0	6.0

PLATE E-220

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	1493.6	16.7	1.1	50.1	60.1	6.0	8.3	92.2	30.0	36.0	6.0
23.87	7.27	927.2	11.4	1.2	51.3	61.6	4.6	6.3	54.3	0.0	0.0	6.0
24.36	7.43	7228.9	30.2	0.4	52.6	63.0	18.1	24.4	0.0	67.2	44.0	1.0
24.85	7.57	3220.0	47.7	1.5	53.9	64.5	12.9	17.2	206.8	43.6	40.0	6.0
25.34	7.73	942.8	10.3	1.1	55.2	66.0	4.7	6.2	54.8	0.0	0.0	3.0
25.84	7.88	994.6	14.6	1.5	56.4	67.4	5.0	6.5	58.0	0.0	0.0	6.0
26.33	8.02	1195.9	22.3	1.9	57.6	68.9	6.0	7.7	71.3	0.0	0.0	6.0
26.82	8.18	7687.5	44.6	0.6	58.9	70.4	19.2	24.5	0.0	67.3	44.0	1.0
27.31	8.32	10404.2	87.7	0.8	60.3	71.9	26.0	32.8	0.0	75.7	44.0	1.0
27.80	8.48	2848.3	56.0	2.0	61.6	73.3	11.4	14.2	180.9	38.2	38.0	6.0
28.30	8.62	12739.3	104.6	0.8	63.0	74.8	25.5	31.4	0.0	80.8	46.0	1.0
28.79	8.77	1765.2	48.3	2.7	64.3	76.3	8.8	10.8	108.3	0.0	0.0	6.0
29.28	8.93	2518.9	29.5	1.2	65.5	77.7	10.1	12.2	158.4	33.8	38.0	6.0
29.77	9.07	706.9	7.7	1.1	66.8	79.2	3.5	4.2	37.4	0.0	0.0	3.0
30.27	9.23	844.3	2.9	0.3	67.6	80.7	4.2	5.0	46.4	0.0	0.0	3.0
30.76	9.38	1028.2	10.0	1.0	68.4	82.2	4.1	4.9	58.5	30.0	32.0	3.0
31.17	9.50	605.8	2.3	0.4	69.1	83.4	3.0	3.6	30.2	0.0	0.0	1.5
31.58	9.62	615.1	3.9	0.6	69.5	84.6	3.1	3.6	30.7	0.0	0.0	1.5
32.07	9.77	1239.6	11.4	0.9	70.3	86.1	5.0	5.8	72.2	30.0	32.0	6.0
32.56	9.93	1760.2	24.3	1.4	71.5	87.6	7.0	8.1	106.7	30.0	34.0	6.0
33.05	10.07	704.4	3.0	0.4	72.3	89.0	3.5	4.1	36.2	0.0	0.0	3.0
33.55	10.23	875.7	3.8	0.4	73.2	90.5	3.5	4.0	47.5	30.0	30.0	3.0
34.04	10.38	1668.1	6.1	0.4	74.4	92.0	6.7	7.6	100.1	30.0	34.0	6.0
34.53	10.52	924.5	5.3	0.6	75.6	93.4	3.7	4.2	50.4	30.0	30.0	3.0
35.02	10.68	713.1	6.8	1.0	76.8	94.9	3.6	4.0	36.1	0.0	0.0	1.5
35.51	10.82	1177.4	15.7	1.3	78.1	96.4	4.7	5.2	66.9	30.0	32.0	3.0
36.01	10.98	1047.4	6.5	0.6	79.3	97.9	4.2	4.6	58.0	30.0	30.0	3.0
36.50	11.12	970.8	3.1	0.3	80.5	99.3	3.9	4.2	52.7	30.0	30.0	3.0
36.99	11.27	1101.0	5.2	0.5	81.8	100.8	4.4	4.8	61.2	30.0	30.0	3.0
37.48	11.43	2488.5	21.3	0.9	83.0	102.3	8.3	8.9	0.0	30.1	36.0	1.0
37.98	11.57	2015.9	17.3	0.9	84.3	103.7	8.1	8.6	121.9	30.0	34.0	6.0
38.47	11.73	915.8	6.1	0.7	85.5	105.2	3.7	3.9	48.3	30.0	30.0	3.0
38.96	11.88	2948.4	10.1	0.3	86.8	106.7	9.8	10.3	0.0	34.3	36.0	1.0
39.45	12.02	4124.5	34.3	0.8	88.1	108.2	13.7	14.3	0.0	43.7	38.0	1.0
39.94	12.18	2751.7	38.7	1.4	89.3	109.6	11.0	11.4	170.2	31.9	36.0	6.0
40.44	12.32	2920.3	21.0	0.7	90.6	111.1	9.7	10.0	0.0	33.4	36.0	1.0
40.93	12.48	1169.8	7.3	0.6	91.9	112.6	4.7	4.8	64.4	30.0	30.0	3.0
41.42	12.62	980.4	4.8	0.5	93.1	114.0	3.9	4.0	51.6	30.0	30.0	3.0
41.91	12.77	1256.4	10.1	0.8	94.3	115.5	5.0	5.1	69.8	30.0	30.0	3.0
42.40	12.93	1487.5	18.4	1.2	95.6	117.0	5.9	6.0	85.0	30.0	32.0	3.0
42.90	13.07	1248.2	17.9	1.4	96.8	118.5	5.0	5.0	68.9	30.0	30.0	3.0
43.39	13.23	1151.4	11.6	1.0	98.0	119.9	4.6	4.6	62.2	30.0	30.0	3.0
43.88	13.38	1085.7	21.8	2.0	99.3	121.4	5.4	5.3	57.7	0.0	0.0	3.0
44.37	13.52	966.6	14.8	1.5	100.5	122.9	4.8	4.7	49.6	0.0	0.0	1.5
44.86	13.68	911.5	9.0	1.0	101.7	124.3	4.6	4.4	45.7	0.0	0.0	1.5
45.36	13.82	1347.6	9.7	0.7	102.9	125.8	5.4	5.2	74.6	30.0	30.0	3.0
45.85	13.98	3902.7	32.8	0.8	104.2	127.3	13.0	12.5	0.0	39.7	38.0	1.0
46.34	14.12	5854.2	72.5	1.2	105.5	128.8	19.5	18.6	0.0	51.2	40.0	1.0
46.83	14.27	5988.4	52.9	0.9	106.8	130.2	15.0	14.2	0.0	51.6	40.0	1.0
47.33	14.43	1881.9	32.5	1.7	108.2	131.7	7.5	7.1	109.5	30.0	32.0	6.0
47.82	14.57	1073.1	8.3	0.8	109.4	133.2	4.3	4.0	55.4	30.0	30.0	3.0
48.31	14.73	2335.3	20.5	0.9	110.6	134.6	9.3	8.7	139.3	30.0	34.0	6.0
48.80	14.88	10162.2	82.2	0.8	111.9	136.1	25.4	23.5	0.0	66.1	42.0	1.0
49.29	15.02	6911.4	98.2	1.4	113.3	137.6	23.0	21.2	0.0	54.9	40.0	1.0
49.79	15.18	1734.0	31.8	1.8	114.5	139.1	6.9	6.3	98.7	30.0	32.0	3.0
50.28	15.32	985.3	4.4	0.4	115.7	140.5	3.9	3.6	48.6	30.0	30.0	1.5
50.77	15.48	932.7	2.1	0.2	117.0	142.0	3.7	3.4	44.9	30.0	30.0	1.5
51.26	15.62	965.2	3.0	0.3	118.2	143.5	3.9	3.5	46.9	30.0	30.0	1.5
51.75	15.77	891.7	2.6	0.3	119.4	144.9	3.6	3.2	41.8	30.0	30.0	1.5
52.25	15.93	1197.2	5.0	0.4	120.7	146.4	4.8	4.3	62.0	30.0	30.0	3.0
52.74	16.08	1017.1	3.2	0.3	121.9	147.9	4.1	3.6	49.8	30.0	30.0	1.5
53.23	16.22	3329.1	5.9	0.2	123.2	149.4	11.1	9.8	0.0	32.8	34.0	1.0
53.72	16.38	1400.3	11.2	0.8	124.4	150.8	5.6	4.9	75.0	30.0	30.0	3.0
54.22	16.53	978.3	2.1	0.2	125.6	152.3	3.9	3.4	46.7	30.0	30.0	1.5

PLATE E-221

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
54.71	16.67	1443.2	3.5	0.2	126.9	153.8	5.8	5.0	77.5	30.0	30.0	3.0
55.20	16.83	3286.9	33.9	1.0	128.1	155.2	11.0	9.5	0.0	31.8	34.0	1.0
55.69	16.97	1546.5	13.7	0.9	129.4	156.7	6.2	5.3	84.0	30.0	30.0	3.0
56.18	17.12	3160.3	43.3	1.4	130.7	158.2	10.5	9.0	0.0	30.4	34.0	1.0
56.68	17.28	2453.8	22.8	0.9	132.0	159.7	8.2	7.0	0.0	30.0	32.0	1.0
57.17	17.42	1999.7	19.6	1.0	133.2	161.1	8.0	6.8	113.7	30.0	32.0	3.0
57.66	17.58	1224.4	10.1	0.8	134.5	162.6	4.9	4.1	61.8	30.0	30.0	1.5
58.15	17.72	1191.8	17.9	1.5	135.7	164.1	6.0	5.0	59.5	0.0	0.0	1.5
58.64	17.88	1241.9	20.5	1.7	136.9	165.5	6.2	5.2	62.6	0.0	0.0	1.5
59.14	18.03	1063.5	4.9	0.5	138.2	167.0	4.3	3.5	50.6	30.0	30.0	1.5
59.63	18.17	1031.2	3.9	0.4	139.4	168.5	4.1	3.4	48.2	30.0	30.0	1.5
60.12	18.33	1007.9	4.3	0.4	140.6	170.0	4.0	3.3	46.5	30.0	30.0	1.5
60.61	18.47	1108.0	5.5	0.5	141.8	171.4	4.4	3.6	53.0	30.0	30.0	1.5
61.10	18.62	1340.3	8.8	0.7	143.1	172.9	5.4	4.4	68.3	30.0	30.0	1.5
61.60	18.78	1965.4	44.4	2.3	144.3	174.4	7.9	6.4	109.8	30.0	30.0	3.0
62.09	18.92	2082.0	29.3	1.4	145.5	175.8	8.3	6.8	117.4	30.0	32.0	3.0
62.58	19.08	1338.0	17.8	1.3	146.8	177.3	5.4	4.3	67.6	30.0	30.0	1.5
63.07	19.22	1439.8	10.5	0.7	148.0	178.8	5.8	4.6	74.2	30.0	30.0	3.0
63.57	19.38	1901.1	18.7	1.0	149.2	180.3	7.6	6.1	104.8	30.0	30.0	3.0
64.06	19.53	1989.8	36.8	1.8	150.4	181.7	8.0	6.4	110.5	30.0	30.0	3.0
64.55	19.67	2486.4	45.1	1.8	151.7	183.2	9.9	7.9	143.4	30.0	32.0	3.0
65.04	19.83	2847.4	69.4	2.4	152.9	184.7	11.4	9.0	167.3	30.0	32.0	6.0
65.53	19.97	2163.9	32.8	1.5	154.1	186.1	8.7	6.8	121.6	30.0	30.0	3.0
66.03	20.12	1705.3	23.3	1.4	155.4	187.6	6.8	5.4	90.8	30.0	30.0	3.0
66.52	20.28	2506.8	47.3	1.9	156.6	189.1	10.0	7.8	144.1	30.0	32.0	3.0
67.01	20.42	5447.5	51.1	0.9	157.9	190.6	18.2	14.1	0.0	43.3	36.0	1.0
67.50	20.58	6243.5	50.4	0.8	159.2	192.0	15.6	12.1	0.0	47.1	38.0	1.0
67.99	20.72	2123.3	24.9	1.2	160.5	193.5	8.5	6.6	118.0	30.0	30.0	3.0
68.49	20.88	2490.5	31.8	1.3	161.7	195.0	10.0	7.7	142.3	30.0	32.0	3.0
68.98	21.03	2749.6	40.1	1.5	163.0	196.4	11.0	8.4	159.3	30.0	32.0	3.0
69.47	21.17	9953.7	105.4	1.1	164.3	197.9	24.9	19.0	0.0	60.0	40.0	1.0
69.96	21.33	12599.1	102.4	0.8	165.7	199.4	25.2	19.2	0.0	66.7	40.0	1.0
70.46	21.47	8918.0	106.3	1.2	167.1	200.9	22.3	16.9	0.0	56.6	38.0	1.0
70.95	21.62	2731.6	50.6	1.9	168.4	202.3	10.9	8.2	157.4	30.0	32.0	3.0
71.44	21.78	2009.2	13.7	0.7	169.6	203.8	8.0	6.0	109.1	30.0	30.0	3.0
71.93	21.92	3451.6	31.7	0.9	170.9	205.3	11.5	8.6	0.0	30.0	32.0	1.0
72.42	22.08	11959.9	83.4	0.7	172.3	206.7	23.9	17.8	0.0	64.6	40.0	1.0
72.92	22.22	8488.8	108.3	1.3	173.7	208.2	21.2	15.8	0.0	54.7	38.0	1.0
73.41	22.38	2749.8	39.6	1.4	175.0	209.7	11.0	8.1	157.7	30.0	32.0	3.0
73.90	22.53	2691.5	14.1	0.5	176.3	211.2	9.0	6.6	0.0	30.0	32.0	1.0
74.39	22.67	2478.4	8.7	0.4	177.6	212.6	8.3	6.1	0.0	30.0	30.0	1.0
74.88	22.83	4004.6	26.1	0.7	178.9	214.1	13.3	9.8	0.0	32.7	34.0	1.0
75.38	22.97	2717.4	26.1	1.0	180.2	215.6	9.1	6.6	0.0	30.0	32.0	1.0
75.87	23.12	2535.8	40.5	1.6	181.4	217.0	10.1	7.4	142.5	30.0	30.0	3.0
76.36	23.28	3324.0	38.0	1.1	182.7	218.5	11.1	8.0	0.0	30.0	32.0	1.0
76.85	23.42	1924.8	14.4	0.7	184.0	220.0	7.7	5.6	101.4	30.0	30.0	3.0
77.34	23.58	3200.5	29.4	0.9	185.2	221.5	10.7	7.7	0.0	30.0	32.0	1.0
77.84	23.72	2478.2	37.9	1.5	186.5	222.9	9.9	7.1	137.9	30.0	30.0	3.0
78.33	23.88	1440.7	13.6	0.9	187.7	224.4	5.8	4.1	68.6	30.0	30.0	1.5
78.82	24.03	1721.4	13.8	0.8	188.9	225.9	6.9	4.9	87.1	30.0	30.0	1.5
79.31	24.17	2246.2	23.9	1.1	190.2	227.3	9.0	6.4	121.9	30.0	30.0	3.0
79.81	24.33	1956.3	11.9	0.6	191.4	228.8	7.8	5.5	102.4	30.0	30.0	3.0
80.30	24.47	2020.6	20.6	1.0	192.6	230.3	8.1	5.7	106.5	30.0	30.0	3.0
80.79	24.62	2726.3	19.2	0.7	193.9	231.8	9.1	6.4	0.0	30.0	30.0	1.0
81.28	24.78	2700.4	40.9	1.5	195.2	233.2	10.8	7.6	151.5	30.0	30.0	3.0
81.77	24.92	2416.0	61.3	2.5	196.4	234.7	9.7	6.7	132.3	30.0	30.0	3.0
82.27	25.08	2010.8	43.9	2.2	197.6	236.2	8.0	5.6	105.1	30.0	30.0	3.0
82.76	25.22	4943.9	35.1	0.7	198.9	237.6	12.4	8.6	0.0	37.2	34.0	1.0
83.25	25.38	2072.9	21.5	1.0	200.2	239.1	8.3	5.7	108.9	30.0	30.0	3.0
83.74	25.53	1934.6	13.9	0.7	201.5	240.6	7.7	5.3	99.5	30.0	30.0	1.5
84.23	25.67	1786.5	14.0	0.8	202.7	242.1	7.1	4.9	89.4	30.0	30.0	1.5
84.73	25.83	1706.7	9.8	0.6	203.9	243.5	6.8	4.7	84.0	30.0	30.0	1.5
85.22	25.97	1685.0	11.7	0.7	205.1	245.0	6.7	4.6	82.3	30.0	30.0	1.5
85.71	26.12	3281.6	48.1	1.5	206.4	246.5	10.9	7.5	0.0	30.0	32.0	1.0

PLATE E-222

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
86.20	26.28	3407.4	40.5	1.2	207.7	247.9	11.4	7.7	0.0	30.0	32.0	1.0
86.70	26.42	2088.9	24.7	1.2	209.0	249.4	8.4	5.7	108.7	30.0	30.0	3.0
87.19	26.58	3714.8	65.7	1.8	210.2	250.9	14.9	10.0	216.9	30.0	32.0	6.0
87.68	26.72	2586.4	42.2	1.6	211.4	252.4	10.3	7.0	141.5	30.0	30.0	3.0
88.17	26.88	3851.1	79.5	2.1	212.7	253.8	15.4	10.3	225.6	30.0	32.0	6.0
88.66	27.03	4110.8	80.2	2.0	213.9	255.3	16.4	11.0	242.8	30.9	32.0	6.0
89.16	27.17	3526.5	73.3	2.1	215.1	256.8	14.1	9.4	203.6	30.0	32.0	3.0
89.65	27.33	4997.5	114.8	2.3	216.4	258.2	20.0	13.3	301.5	36.3	34.0	6.0
90.14	27.47	9613.6	186.4	1.9	217.6	259.7	32.0	21.3	0.0	55.0	38.0	1.0
90.63	27.62	3736.8	73.4	2.0	218.9	261.2	14.9	9.9	217.1	30.0	32.0	3.0
91.12	27.78	2368.5	17.8	0.8	220.1	262.7	7.9	5.2	0.0	30.0	30.0	1.0
91.62	27.92	2847.2	47.2	1.7	221.4	264.1	11.4	7.5	157.4	30.0	30.0	3.0
92.11	28.08	3124.2	85.1	2.7	222.6	265.6	12.5	8.2	175.7	30.0	30.0	3.0
92.60	28.22	8692.0	136.0	1.6	223.9	267.1	29.0	19.0	0.0	51.7	38.0	1.0
93.09	28.38	10769.3	177.3	1.6	225.2	268.5	35.9	23.4	0.0	57.8	38.0	1.0
93.58	28.53	8386.4	113.5	1.4	226.6	270.0	21.0	13.6	0.0	50.5	38.0	1.0
94.08	28.67	2699.1	62.9	2.3	227.9	271.5	10.8	7.0	146.6	30.0	30.0	3.0
94.57	28.83	2737.5	46.4	1.7	229.1	273.0	11.0	7.1	149.0	30.0	30.0	3.0
95.06	28.97	2697.1	46.1	1.7	230.3	274.4	10.8	7.0	146.2	30.0	30.0	3.0
95.55	29.12	3332.2	79.9	2.4	231.5	275.9	13.3	8.6	188.3	30.0	32.0	3.0
96.05	29.28	3612.0	94.8	2.6	232.8	277.4	14.4	9.3	206.8	30.0	32.0	3.0
96.54	29.42	5292.6	124.5	2.4	234.0	278.8	21.2	13.5	318.7	36.9	34.0	6.0
97.03	29.58	13982.5	164.0	1.2	235.3	280.3	35.0	22.3	0.0	64.6	40.0	1.0
97.52	29.72	15614.8	281.6	1.8	236.7	281.8	39.0	24.8	0.0	67.7	40.0	1.0
98.01	29.88	14287.4	224.1	1.6	238.1	283.3	35.7	22.7	0.0	65.1	40.0	1.0
98.51	30.03	10685.3	315.1	2.9	239.4	284.7	42.7	27.0	677.4	56.7	38.0	6.0
99.00	30.17	18340.3	235.4	1.3	240.7	286.2	45.9	28.9	0.0	72.1	40.0	1.0
99.49	30.33	17626.4	264.3	1.5	242.0	287.7	44.1	27.7	0.0	70.9	40.0	1.0
99.98	30.47	16850.0	392.5	2.3	243.4	289.1	56.2	35.2	0.0	69.5	40.0	1.0
100.47	30.62	25336.9	277.1	1.1	244.8	290.6	50.7	31.7	0.0	81.1	42.0	1.0
100.97	30.78	30732.3	208.2	0.7	246.2	292.1	61.5	38.3	0.0	86.5	42.0	1.0
101.46	30.92	30592.4	162.9	0.5	247.7	293.6	51.0	31.7	0.0	86.3	42.0	1.0
101.95	31.08	28974.5	215.1	0.7	249.2	295.0	57.9	35.9	0.0	84.7	42.0	1.0
102.44	31.22	29019.7	199.8	0.7	250.7	296.5	58.0	35.9	0.0	84.6	42.0	1.0
102.94	31.38	32672.6	242.8	0.7	252.1	298.0	65.3	40.3	0.0	88.0	44.0	1.0
103.43	31.53	32930.6	257.7	0.8	253.6	299.5	65.9	40.5	0.0	88.1	44.0	1.0
103.92	31.67	33707.6	239.1	0.7	255.0	300.9	67.4	41.3	0.0	88.7	44.0	1.0
104.41	31.83	31582.8	144.6	0.5	256.5	302.4	52.6	32.2	0.0	86.7	42.0	1.0
104.90	31.97	17385.7	171.1	1.0	258.0	303.9	34.8	21.2	0.0	69.5	40.0	1.0
105.40	32.12	4039.2	127.5	3.2	259.3	305.3	20.2	12.3	231.6	0.0	0.0	3.0
105.89	32.28	3269.1	39.2	1.2	260.6	306.8	10.9	6.6	0.0	30.0	30.0	1.0
106.38	32.42	2815.4	38.1	1.4	261.9	308.3	11.3	6.8	149.7	30.0	30.0	3.0
106.87	32.58	3115.2	62.4	2.0	263.1	309.8	12.5	7.5	169.5	30.0	30.0	3.0
107.36	32.72	11181.0	194.3	1.7	264.4	311.2	37.3	22.4	0.0	56.5	38.0	1.0
107.86	32.88	10775.5	304.9	2.8	265.6	312.7	43.1	25.9	679.8	55.4	38.0	6.0
108.35	33.03	5589.8	151.5	2.7	266.9	314.2	22.4	13.4	333.9	36.5	34.0	6.0
108.84	33.17	2801.7	55.3	2.0	268.1	315.6	11.2	6.7	147.9	30.0	30.0	3.0
109.33	33.33	2883.4	39.1	1.4	269.3	317.1	11.5	6.9	153.1	30.0	30.0	3.0
109.82	33.47	2563.7	28.9	1.1	270.5	318.6	10.3	6.1	131.6	30.0	30.0	1.5
110.32	33.62	3781.5	58.8	1.6	271.8	320.1	12.6	7.5	0.0	30.0	30.0	1.0
110.81	33.78	3362.3	86.0	2.6	273.1	321.5	13.4	8.0	184.5	30.0	30.0	3.0
111.30	33.92	2613.5	73.7	2.8	274.3	323.0	13.1	7.7	134.4	0.0	0.0	1.5
111.79	34.08	3740.2	52.1	1.4	275.6	324.5	12.5	7.4	0.0	30.0	30.0	1.0
112.29	34.22	4318.7	76.5	1.8	276.9	325.9	14.4	8.5	0.0	30.0	32.0	1.0
112.78	34.38	3083.0	27.3	0.9	278.2	327.4	10.3	6.0	0.0	30.0	30.0	1.0
113.27	34.53	6186.0	124.5	2.0	279.5	328.9	20.6	12.1	0.0	38.8	34.0	1.0
113.76	34.67	8335.1	202.7	2.4	280.8	330.4	27.8	16.2	0.0	47.3	36.0	1.0
114.25	34.83	11200.8	238.5	2.1	282.1	331.8	37.3	21.8	0.0	55.7	38.0	1.0
114.75	34.97	16607.8	242.0	1.5	283.4	333.3	41.5	24.1	0.0	66.9	40.0	1.0
115.24	35.12	12990.6	353.8	2.7	284.8	334.8	43.3	25.1	0.0	59.8	38.0	1.0
115.73	35.28	20125.3	443.1	2.2	286.1	336.2	67.1	38.8	0.0	72.3	40.0	1.0
116.22	35.42	30121.8	421.1	1.4	287.4	337.7	75.3	43.5	0.0	83.8	42.0	1.0
116.71	35.58	29356.6	298.0	1.0	288.8	339.2	58.7	33.8	0.0	82.9	42.0	1.0
117.21	35.72	23108.0	242.9	1.1	290.3	340.7	46.2	26.5	0.0	76.0	42.0	1.0

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
117.70	35.88	24916.3	444.1	1.8	291.7	342.1	62.3	35.7	0.0	78.1	42.0	1.0
118.19	36.03	27901.4	338.6	1.2	293.1	343.6	55.8	31.9	0.0	81.3	42.0	1.0
118.68	36.17	19787.8	361.2	1.8	294.5	345.1	49.5	28.2	0.0	71.4	40.0	1.0
119.18	36.33	19140.0	508.5	2.7	295.9	346.5	63.8	36.3	0.0	70.3	40.0	1.0

PLATE E-224

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0518-1635-5327
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway Project
Site: WC-29-321
Location: RET. WALL 29
Cone: 20 TON A 092
CPT Date: 00/01/02
CPT Time: 09:39
CPT File: 300WC321.COR

Water Table (m): 1.00 (ft): 3.3
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	1272.3	21.7	1.7	1.4	0.0	6.4	12.7	84.7	0.0	0.0	10.0
0.74	0.23	2519.9	62.1	2.5	4.1	0.0	10.1	20.2	167.7	73.7	50.0	10.0
1.23	0.38	2818.4	105.4	3.7	6.8	0.0	14.1	28.2	187.4	0.0	0.0	10.0
1.72	0.52	1835.9	73.6	4.0	9.4	0.0	18.4	36.7	121.8	0.0	0.0	10.0
2.21	0.68	1408.9	69.0	4.9	12.0	0.0	14.1	28.2	93.1	0.0	0.0	10.0
2.71	0.82	1509.5	44.8	3.0	14.7	0.0	7.5	15.1	99.7	0.0	0.0	10.0
3.20	0.97	1170.0	35.1	3.0	17.4	0.0	7.8	15.6	76.8	0.0	0.0	10.0
3.61	1.10	901.9	23.4	2.6	18.7	1.0	6.0	12.0	58.8	0.0	0.0	6.0
4.02	1.22	798.0	15.2	1.9	19.7	2.2	4.0	8.0	51.7	0.0	0.0	6.0
4.51	1.38	742.0	10.2	1.4	20.9	3.7	3.7	7.4	47.8	0.0	0.0	6.0
5.00	1.53	703.6	2.8	0.4	21.7	5.2	3.5	7.0	45.1	0.0	0.0	6.0
5.50	1.67	811.7	6.1	0.8	22.6	6.6	4.1	8.1	52.2	0.0	0.0	6.0
5.99	1.83	619.7	6.9	1.1	23.8	8.1	3.1	6.2	39.2	0.0	0.0	6.0
6.56	2.00	819.1	7.5	0.9	25.2	9.8	4.1	8.0	52.3	0.0	0.0	6.0
7.14	2.17	1749.1	17.1	1.0	26.6	11.5	7.0	13.3	114.1	36.3	40.0	10.0
7.63	2.33	1213.3	12.1	1.0	27.9	13.0	4.9	9.0	78.2	30.0	38.0	6.0
8.12	2.47	549.2	2.0	0.4	28.7	14.5	2.7	5.0	33.7	0.0	0.0	6.0
8.61	2.62	606.7	2.0	0.3	29.1	15.9	3.0	5.5	37.4	0.0	0.0	6.0
9.10	2.78	631.8	4.5	0.7	29.5	17.4	3.2	5.7	39.0	0.0	0.0	6.0
9.60	2.92	1514.9	6.9	0.5	30.3	18.9	6.1	10.8	97.7	30.3	38.0	6.0
10.09	3.08	1189.2	13.7	1.2	31.5	20.4	4.8	8.3	75.8	30.0	38.0	6.0
10.58	3.22	719.2	3.6	0.5	32.4	21.8	3.6	6.2	44.3	0.0	0.0	6.0
11.07	3.38	757.2	8.5	1.1	33.2	23.3	3.8	6.4	46.7	0.0	0.0	6.0
11.56	3.53	563.7	7.1	1.3	34.4	24.8	2.8	4.7	33.6	0.0	0.0	3.0
12.06	3.67	582.7	3.6	0.6	35.2	26.2	2.9	4.8	34.8	0.0	0.0	3.0
12.55	3.83	627.2	3.2	0.5	35.6	27.7	3.1	5.1	37.6	0.0	0.0	6.0
13.04	3.98	2993.0	15.7	0.5	36.5	29.2	10.0	16.2	0.0	47.2	42.0	1.0
13.53	4.12	1494.6	32.8	2.2	37.7	30.7	7.5	11.9	95.1	0.0	0.0	6.0
14.03	4.27	735.5	3.0	0.4	38.6	32.1	3.7	5.8	44.3	0.0	0.0	6.0
14.52	4.43	804.1	7.3	0.9	39.4	33.6	4.0	6.3	48.7	0.0	0.0	6.0
15.01	4.57	12179.5	59.5	0.5	40.7	35.1	24.4	37.4	0.0	85.8	46.0	1.0
15.50	4.73	11289.8	48.6	0.4	42.2	36.5	22.6	34.0	0.0	83.1	46.0	1.0
15.99	4.88	1533.9	45.5	3.0	43.5	38.0	7.7	11.4	96.8	0.0	0.0	6.0
16.49	5.02	1595.8	21.8	1.4	44.7	39.5	6.4	9.3	100.8	30.0	36.0	6.0
16.98	5.18	2714.8	9.0	0.3	46.0	41.0	9.0	13.1	0.0	41.0	40.0	1.0
17.47	5.32	783.5	11.8	1.5	47.3	42.4	3.9	5.6	46.3	0.0	0.0	3.0
17.96	5.48	722.7	3.3	0.5	48.1	43.9	3.6	5.1	42.0	0.0	0.0	3.0
18.45	5.62	1210.6	13.6	1.1	48.9	45.4	4.8	6.8	74.4	30.0	34.0	6.0
18.95	5.77	11708.4	45.7	0.4	50.2	46.8	23.4	32.3	0.0	81.7	46.0	1.0
19.44	5.93	2796.4	93.2	3.3	51.6	48.3	14.0	19.1	179.8	0.0	0.0	6.0
19.93	6.07	1201.0	13.5	1.1	52.8	49.8	4.8	6.5	73.2	30.0	34.0	6.0
20.42	6.23	903.6	2.6	0.3	54.0	51.3	3.6	4.8	53.2	30.0	32.0	3.0
20.92	6.38	682.6	2.0	0.3	54.9	52.7	3.4	4.5	38.3	0.0	0.0	3.0
21.41	6.52	880.6	5.2	0.6	55.7	54.2	3.5	4.6	51.4	30.0	32.0	3.0
21.90	6.68	617.9	2.0	0.3	56.5	55.7	3.1	4.0	33.7	0.0	0.0	3.0
22.39	6.82	665.1	2.7	0.4	56.9	57.1	3.3	4.3	36.7	0.0	0.0	3.0
22.88	6.98	974.8	4.9	0.5	57.7	58.6	3.9	5.0	57.2	30.0	32.0	3.0

PLATE E-255

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	3371.0	19.5	0.6	59.0	60.1	11.2	14.3	0.0	43.7	40.0	1.0
23.87	7.27	934.7	12.4	1.3	60.2	61.6	4.7	5.9	54.2	0.0	0.0	3.0
24.36	7.43	1289.1	4.9	0.4	61.5	63.0	5.2	6.4	77.6	30.0	34.0	6.0
24.85	7.57	2590.5	6.8	0.3	62.7	64.5	8.6	10.7	0.0	35.2	38.0	1.0
25.34	7.73	1761.8	12.4	0.7	64.0	66.0	7.0	8.6	108.8	30.0	36.0	6.0
25.84	7.88	906.4	3.8	0.4	65.2	67.4	3.6	4.4	51.6	30.0	30.0	3.0
26.33	8.02	1148.7	5.1	0.4	66.5	68.9	4.6	5.5	67.6	30.0	32.0	6.0
26.82	8.18	863.5	5.7	0.7	67.7	70.4	3.5	4.1	48.4	30.0	30.0	3.0
27.31	8.32	827.0	6.4	0.8	68.9	71.9	4.1	4.9	45.7	0.0	0.0	3.0
27.80	8.48	1287.4	16.7	1.3	70.1	73.3	5.1	6.0	76.3	30.0	32.0	6.0
28.30	8.62	1256.2	12.1	1.0	71.4	74.8	5.0	5.8	74.0	30.0	32.0	6.0
28.79	8.77	984.1	4.9	0.5	72.6	76.3	3.9	4.5	55.7	30.0	30.0	3.0
29.28	8.93	901.5	4.5	0.5	73.8	77.7	3.6	4.1	50.0	30.0	30.0	3.0
29.77	9.07	1049.5	7.9	0.7	75.1	79.2	4.2	4.7	59.7	30.0	30.0	3.0
30.27	9.23	1962.1	9.1	0.5	76.3	80.7	6.5	7.3	0.0	30.0	34.0	1.0
30.76	9.38	1607.2	10.3	0.6	77.6	82.2	6.4	7.1	96.5	30.0	32.0	6.0
31.17	9.50	2238.4	22.7	1.0	78.6	83.4	9.0	9.9	138.4	30.0	36.0	6.0
31.58	9.62	1400.7	16.9	1.2	79.6	84.6	5.6	6.1	82.4	30.0	32.0	6.0
32.07	9.77	1198.4	11.7	1.0	80.9	86.1	4.8	5.2	68.8	30.0	32.0	3.0
32.56	9.93	1011.1	10.5	1.0	82.1	87.6	4.0	4.4	56.1	30.0	30.0	3.0
33.05	10.07	974.8	7.0	0.7	83.3	89.0	3.9	4.2	53.5	30.0	30.0	3.0
33.55	10.23	886.2	7.3	0.8	84.6	90.5	4.4	4.7	47.4	0.0	0.0	3.0
34.04	10.38	962.8	6.9	0.7	85.8	92.0	3.9	4.1	52.3	30.0	30.0	3.0
34.53	10.52	1038.7	9.6	0.9	87.0	93.4	4.2	4.4	57.2	30.0	30.0	3.0
35.02	10.68	1401.7	7.3	0.5	88.2	94.9	5.6	5.8	81.2	30.0	32.0	3.0
35.51	10.82	1376.3	9.0	0.7	89.5	96.4	5.5	5.7	79.4	30.0	32.0	3.0
36.01	10.98	1303.3	8.1	0.6	90.7	97.9	5.2	5.4	74.3	30.0	32.0	3.0
36.50	11.12	2360.9	14.8	0.6	92.0	99.3	7.9	8.0	0.0	30.0	34.0	1.0
36.99	11.27	2981.0	12.3	0.4	93.3	100.8	9.9	10.1	0.0	33.6	36.0	1.0
37.48	11.43	1454.6	4.8	0.3	94.5	102.3	5.8	5.9	83.9	30.0	32.0	3.0
37.98	11.57	1125.2	4.4	0.4	95.8	103.7	4.5	4.5	61.7	30.0	30.0	3.0
38.47	11.73	1091.0	6.8	0.6	97.0	105.2	4.4	4.3	59.3	30.0	30.0	3.0
38.96	11.88	1158.8	9.0	0.8	98.2	106.7	4.6	4.6	63.6	30.0	30.0	3.0
39.45	12.02	1310.8	8.0	0.6	99.4	108.2	5.2	5.1	73.5	30.0	30.0	3.0
39.94	12.18	1154.0	7.9	0.7	100.7	109.6	4.6	4.5	62.9	30.0	30.0	3.0
40.44	12.32	1148.3	7.3	0.6	101.9	111.1	4.6	4.5	62.4	30.0	30.0	3.0
40.93	12.48	997.1	5.9	0.6	103.1	112.6	4.0	3.8	52.1	30.0	30.0	3.0
41.42	12.62	1240.0	9.7	0.8	104.4	114.0	5.0	4.8	68.1	30.0	30.0	3.0
41.91	12.77	1004.5	9.7	1.0	105.6	115.5	4.0	3.8	52.2	30.0	30.0	1.5
42.40	12.93	1272.0	8.3	0.7	106.8	117.0	5.1	4.8	69.9	30.0	30.0	3.0
42.90	13.07	2567.6	31.1	1.2	108.0	118.5	10.3	9.7	156.1	30.0	34.0	6.0
43.39	13.23	14111.5	47.4	0.3	109.4	119.9	28.2	26.4	0.0	75.9	44.0	1.0
43.88	13.38	13506.5	66.6	0.5	110.8	121.4	27.0	25.1	0.0	74.4	42.0	1.0
44.37	13.52	3779.1	93.8	2.5	112.2	122.9	15.1	14.0	236.3	37.7	36.0	6.0
44.86	13.68	1626.9	16.3	1.0	113.4	124.3	6.5	6.0	92.6	30.0	32.0	3.0
45.36	13.82	2211.4	9.2	0.4	114.7	125.8	7.4	6.7	0.0	30.0	32.0	1.0
45.85	13.98	3098.6	17.2	0.6	116.0	127.3	10.3	9.4	0.0	31.6	34.0	1.0
46.34	14.12	2135.9	20.1	0.9	117.2	128.8	8.5	7.7	126.0	30.0	32.0	6.0
46.83	14.27	1217.8	10.9	0.9	118.5	130.2	4.9	4.4	64.6	30.0	30.0	3.0
47.33	14.43	1271.4	8.1	0.6	119.7	131.7	5.1	4.5	68.0	30.0	30.0	3.0
47.82	14.57	966.5	10.6	1.1	120.9	133.2	4.8	4.3	47.5	0.0	0.0	1.5
48.31	14.73	1259.4	8.6	0.7	122.2	134.6	5.0	4.5	66.8	30.0	30.0	3.0
48.80	14.88	1073.7	10.9	1.0	123.4	136.1	4.3	3.8	54.3	30.0	30.0	1.5
49.29	15.02	1522.1	32.6	2.1	124.6	137.6	7.6	6.7	84.0	0.0	0.0	3.0

ConeTec Inc. - CPT Interpretation
Interpretation Output - Release 1.00.19c
Run No: 00-0519-1709-1959
Job No: 97-100
Client: Kleinfelder
Project: Legacy Parkway Project
Site: CPT-69
Location: RC-373
Cone: 20 TON A 070
CPT Date: 10/09/05
CPT Time: 09:14
CPT File: 300RC373.COR

Water Table (m): 1.50 (ft): 4.9
Averaging Increment (m): 0.15
Su Nkt used: 15.00
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
Used Unit Weights Assigned to Soil Zones

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
0.25	0.08	26404.7	17.3	0.1	1.5	0.0	44.0	88.0	0.0	95.0	50.0	1.0
0.74	0.23	36859.1	453.3	1.2	4.5	0.0	73.7	147.4	0.0	95.0	50.0	1.0
1.23	0.38	37081.8	423.3	1.1	7.4	0.0	74.2	148.3	0.0	95.0	50.0	1.0
1.72	0.52	21711.7	273.3	1.3	10.3	0.0	54.3	108.6	0.0	95.0	50.0	1.0
2.21	0.68	13322.1	336.7	2.5	13.1	0.0	44.4	88.8	0.0	95.0	50.0	1.0
2.71	0.82	5642.5	173.3	3.1	15.8	0.0	22.6	45.1	375.1	77.3	48.0	10.0
3.20	0.97	6292.2	176.7	2.8	18.5	0.0	25.2	50.3	418.2	78.2	48.0	10.0
3.61	1.10	2668.2	40.0	1.5	20.8	0.0	10.7	21.3	176.5	51.9	44.0	10.0
4.02	1.22	1409.9	36.7	2.6	23.0	0.0	7.0	14.1	92.5	0.0	0.0	10.0
4.51	1.38	1015.5	20.0	2.0	25.7	0.0	5.1	9.8	66.0	0.0	0.0	6.0
5.00	1.53	478.5	13.3	2.8	28.1	0.2	4.8	8.8	30.0	0.0	0.0	6.0
5.50	1.67	998.4	16.7	1.7	29.3	1.7	5.0	9.0	64.5	0.0	0.0	6.0
5.99	1.83	753.5	13.3	1.8	30.6	3.2	3.8	6.7	48.0	0.0	0.0	6.0
6.56	2.00	907.5	30.0	3.3	31.9	4.9	9.1	15.7	58.0	0.0	0.0	6.0
7.14	2.17	899.3	36.7	4.1	33.3	6.6	9.0	15.3	57.3	0.0	0.0	6.0
7.63	2.33	981.9	43.3	4.4	34.4	8.1	9.8	16.4	62.6	0.0	0.0	6.0
8.12	2.47	889.2	26.7	3.0	35.6	9.6	5.9	9.7	56.3	0.0	0.0	6.0
8.61	2.62	542.7	23.3	4.3	36.8	11.0	5.4	8.8	33.0	0.0	0.0	3.0
9.10	2.78	1870.6	60.0	3.2	38.0	12.5	9.4	14.8	121.3	0.0	0.0	6.0
9.60	2.92	1797.1	60.0	3.3	39.2	14.0	9.0	14.0	116.3	0.0	0.0	6.0
10.09	3.08	1898.5	130.0	6.8	40.4	15.5	19.0	29.2	122.8	0.0	0.0	6.0
10.58	3.22	3788.5	103.3	2.7	41.6	16.9	15.2	23.0	248.7	52.0	42.0	10.0
11.07	3.38	2160.9	86.7	4.0	42.9	18.4	14.4	21.5	140.0	0.0	0.0	6.0
11.56	3.53	2845.6	86.7	3.0	44.1	19.9	14.2	21.0	185.4	0.0	0.0	10.0
12.06	3.67	7310.0	106.7	1.5	45.4	21.3	24.4	35.4	0.0	69.6	44.0	1.0
12.55	3.83	5033.7	76.7	1.5	46.7	22.8	16.8	24.0	0.0	58.5	42.0	1.0
13.04	3.98	6282.1	83.3	1.3	48.0	24.3	20.9	29.6	0.0	64.5	44.0	1.0
13.53	4.12	5678.6	136.7	2.4	49.2	25.8	22.7	31.7	373.6	61.2	42.0	10.0
14.03	4.27	5665.9	126.7	2.2	50.5	27.2	22.7	31.2	372.5	60.8	42.0	10.0
14.52	4.43	9849.6	183.3	1.9	51.7	28.7	32.8	44.7	0.0	76.3	44.0	1.0
15.01	4.57	12045.0	80.0	0.7	53.1	30.2	24.1	32.4	0.0	81.7	46.0	1.0
15.50	4.73	16792.3	240.0	1.4	54.5	31.6	42.0	55.6	0.0	90.8	46.0	1.0
15.99	4.88	21828.7	350.0	1.6	55.9	33.1	54.6	71.4	0.0	95.0	48.0	1.0
16.49	5.02	21085.9	313.3	1.5	57.3	34.6	52.7	68.2	0.0	95.0	48.0	1.0
16.98	5.18	23082.4	183.3	0.8	58.7	36.1	46.2	59.0	0.0	95.0	48.0	1.0
17.47	5.32	23233.5	143.3	0.6	60.1	37.5	46.5	58.6	0.0	95.0	48.0	1.0
17.96	5.48	21551.0	53.3	0.2	61.6	39.0	35.9	44.8	0.0	95.0	48.0	1.0
18.45	5.62	17725.6	60.0	0.3	63.1	40.5	35.5	43.7	0.0	90.3	46.0	1.0
18.95	5.77	13809.2	80.0	0.6	64.6	41.9	27.6	33.6	0.0	82.8	46.0	1.0
19.44	5.93	9524.8	100.0	1.0	66.0	43.4	23.8	28.7	0.0	71.8	44.0	1.0
19.93	6.07	7168.5	113.3	1.6	67.3	44.9	23.9	28.5	0.0	63.4	42.0	1.0
20.42	6.23	5504.5	96.7	1.8	68.6	46.4	18.3	21.7	0.0	55.6	42.0	1.0
20.92	6.38	3120.1	70.0	2.2	69.9	47.8	12.5	14.6	200.2	39.0	38.0	6.0
21.41	6.52	1399.3	23.3	1.7	71.1	49.3	5.6	6.5	85.3	30.0	32.0	6.0
21.90	6.68	1217.6	23.3	1.9	72.4	50.8	6.1	7.0	73.0	0.0	0.0	6.0
22.39	6.82	4105.2	30.0	0.7	73.6	52.2	13.7	15.6	0.0	46.1	40.0	1.0
22.88	6.98	3540.5	40.0	1.1	74.9	53.7	11.8	13.3	0.0	41.7	38.0	1.0

PLATE E-257

Depth (ft)	Depth (m)	AvgQt (kPa)	AvgFs (kPa)	AvgRf (%)	E.Stress (kPa)	Hyd. Pr. (kPa)	N60 (blows/ft)	(N1)60 (blows/ft)	Su (kPa)	Dr (%)	Phi (deg.)	OCR (ratio)
23.38	7.12	1892.5	40.0	2.1	76.2	55.2	7.6	8.5	117.4	30.0	34.0	6.0
23.87	7.27	1471.7	30.0	2.0	77.4	56.7	7.4	8.2	89.2	0.0	0.0	6.0
24.36	7.43	1194.0	16.7	1.4	78.7	58.1	6.0	6.6	70.5	0.0	0.0	3.0
24.85	7.57	1059.6	16.7	1.6	79.9	59.6	5.3	5.8	61.3	0.0	0.0	3.0
25.34	7.73	811.4	13.3	1.6	81.1	61.1	4.1	4.4	44.6	0.0	0.0	3.0
25.84	7.88	975.6	16.7	1.7	82.3	62.5	4.9	5.3	55.4	0.0	0.0	3.0
26.33	8.02	1847.6	36.7	2.0	83.6	64.0	7.4	7.9	113.3	30.0	34.0	6.0
26.82	8.18	1747.0	36.7	2.1	84.8	65.5	7.0	7.4	106.4	30.0	32.0	6.0
27.31	8.32	3456.3	33.3	1.0	86.1	67.0	11.5	12.2	0.0	39.0	38.0	1.0
27.80	8.48	1237.7	26.7	2.2	87.3	68.4	6.2	6.5	72.1	0.0	0.0	3.0
28.30	8.62	1258.3	16.7	1.3	88.6	69.9	5.0	5.2	73.3	30.0	30.0	3.0
28.79	8.77	945.2	10.0	1.1	89.8	71.4	4.7	4.9	52.3	0.0	0.0	3.0
29.28	8.93	1305.7	10.0	0.8	91.0	72.8	5.2	5.4	76.1	30.0	32.0	3.0
29.77	9.07	1200.1	13.3	1.1	92.2	74.3	4.8	4.9	68.9	30.0	30.0	3.0
30.27	9.23	1205.2	16.7	1.4	93.5	75.8	4.8	4.9	69.1	30.0	30.0	3.0
30.76	9.38	1146.0	20.0	1.7	94.7	77.3	5.7	5.8	64.9	0.0	0.0	3.0
31.17	9.50	1250.2	25.0	2.0	95.7	78.5	6.3	6.3	71.7	0.0	0.0	3.0
31.58	9.62	1695.1	23.3	1.4	96.7	79.7	6.8	6.7	101.2	30.0	32.0	6.0
32.07	9.77	1260.9	23.3	1.9	98.0	81.2	6.3	6.2	72.1	0.0	0.0	3.0
32.56	9.93	1248.7	20.0	1.6	99.2	82.6	6.2	6.1	71.1	0.0	0.0	3.0
33.05	10.07	1142.7	30.0	2.6	100.4	84.1	5.7	5.6	63.9	0.0	0.0	3.0
33.55	10.23	1392.2	30.0	2.2	101.7	85.6	7.0	6.8	80.3	0.0	0.0	3.0
34.04	10.38	1200.8	20.0	1.7	102.9	87.1	6.0	5.8	67.4	0.0	0.0	3.0
34.53	10.52	1371.5	20.0	1.5	104.1	88.5	5.5	5.3	78.6	30.0	30.0	3.0
35.02	10.68	1288.6	20.0	1.6	105.3	90.0	6.4	6.1	72.9	0.0	0.0	3.0
35.51	10.82	1188.4	23.3	2.0	106.6	91.5	5.9	5.6	66.0	0.0	0.0	3.0
36.01	10.98	1336.0	26.7	2.0	107.8	92.9	6.7	6.3	75.7	0.0	0.0	3.0
36.50	11.12	1300.7	20.0	1.5	109.0	94.4	5.2	4.9	73.2	30.0	30.0	3.0
36.99	11.27	1311.0	20.0	1.5	110.3	95.9	5.2	4.9	73.7	30.0	30.0	3.0
37.48	11.43	1364.5	30.0	2.2	111.5	97.4	6.8	6.3	77.0	0.0	0.0	3.0
37.98	11.57	6127.9	106.7	1.7	112.8	98.8	20.4	18.8	0.0	51.5	40.0	1.0
38.47	11.73	4864.5	123.3	2.5	114.0	100.3	19.5	17.8	310.0	44.7	38.0	6.0
38.96	11.88	2338.4	50.0	2.1	115.2	101.8	9.4	8.5	141.4	30.0	32.0	6.0
39.45	12.02	3256.8	50.0	1.5	116.5	103.3	13.0	11.8	202.5	32.9	36.0	6.0
39.94	12.18	1642.7	46.7	2.8	117.7	104.7	8.2	7.4	94.7	0.0	0.0	3.0
40.44	12.32	3589.2	53.3	1.5	119.0	106.2	12.0	10.7	0.0	35.4	36.0	1.0
40.93	12.48	2324.9	90.0	3.9	120.2	107.7	15.5	13.8	139.8	0.0	0.0	6.0
41.42	12.62	2205.2	126.7	5.7	121.4	109.1	22.1	19.6	131.6	0.0	0.0	6.0
41.91	12.77	21222.2	193.3	0.9	122.7	110.6	42.4	37.5	0.0	85.9	44.0	1.0
42.40	12.93	28068.8	223.3	0.8	124.2	112.1	56.1	49.3	0.0	93.8	46.0	1.0
42.90	13.07	25352.4	200.0	0.8	125.6	113.6	50.7	44.3	0.0	90.7	46.0	1.0
43.39	13.23	23854.2	216.7	0.9	127.1	115.0	47.7	41.4	0.0	88.8	44.0	1.0
43.88	13.38	13189.7	323.3	2.5	128.5	116.5	44.0	38.0	0.0	71.6	42.0	1.0
44.37	13.52	8873.8	136.7	1.5	129.8	118.0	29.6	25.4	0.0	60.1	40.0	1.0
44.86	13.68	5688.3	120.0	2.1	131.1	119.4	19.0	16.2	0.0	47.2	38.0	1.0
45.36	13.82	13405.6	53.3	0.4	132.5	120.9	26.8	22.8	0.0	71.6	42.0	1.0
45.85	13.98	12463.8	93.3	0.7	133.9	122.4	24.9	21.1	0.0	69.4	42.0	1.0
46.34	14.12	16028.5	46.7	0.3	135.4	123.9	32.1	27.0	0.0	76.5	42.0	1.0
46.83	14.27	17945.1	93.3	0.5	136.8	125.3	35.9	30.0	0.0	79.5	44.0	1.0
47.33	14.43	15848.2	70.0	0.4	138.3	126.8	31.7	26.4	0.0	75.8	42.0	1.0
47.82	14.57	8796.4	133.3	1.5	139.6	128.3	29.3	24.3	0.0	58.8	40.0	1.0
48.31	14.73	5765.4	133.3	2.3	140.9	129.7	23.1	19.0	366.3	46.6	38.0	6.0
48.80	14.88	6461.0	113.3	1.8	142.2	131.2	21.5	17.7	0.0	49.7	38.0	1.0
49.29	15.02	4885.4	166.7	3.4	143.4	132.7	24.4	20.0	307.3	0.0	0.0	6.0
49.79	15.18	13117.3	66.7	0.5	144.8	134.2	26.2	21.3	0.0	69.7	42.0	1.0
50.28	15.32	14928.2	80.0	0.5	146.2	135.6	29.9	24.2	0.0	73.3	42.0	1.0
50.77	15.48	22939.9	250.0	1.1	147.7	137.1	45.9	36.9	0.0	85.5	44.0	1.0
51.26	15.62	38486.9	520.0	1.4	149.1	138.6	77.0	61.7	0.0	95.0	46.0	1.0
51.75	15.77	41490.1	350.7	0.8	150.6	140.0	83.0	66.2	0.0	95.0	46.0	1.0

ConeTec Inc. • Salt Lake City
Job No: 00-300
Client: Kleinfelder
Project: Legacy Parkway

Pore Pressure Dissipation Summary

Station Identifier	Dissipation File Name	Dissipation Depth (m)	Dissipation Status	Equilibrium* Pressure (kPa)	Dissipation Duration (s)
*Note: Not all dissipation tests went to completion. For those not reaching 100% completion the **final** pore pressure value has been recorded. Incomplete dissipation tests estimated to have reached >95% completion are marked with * Dissipation tests estimated to have not reached 95% completion are marked with ** Equilibrium **and** final values for tests reaching >95% dissipation have been plotted on the CPT plots					
SC-1-244	300SC244.PPR	6.95	Incomplete	79.2**	7200
SC-1-244		18.65	Incomplete	434**	7200
SC-1-245	300SC245.PPR	6.40	>95% Complete	44.8*	4800
SC-1-245		23.45	Incomplete	418**	7200
SC-5-294	300SC294.PPR	8.80	Incomplete	183**	7200
SC-5-294		17.50	>95% Complete	212*	7200
SC-5-295	300SC295.PPR	4.50	>95% Complete	48.0*	7200
SC-5-295		23.35	Incomplete	385**	7200
SC-5-296	300SC296.PPR	8 90	Incomplete	165**	7200
SC-5-296		17 90	Incomplete	405**	7200
SC-6-324	300SC324.PPR	10.85	>95% Complete	140*	6500
SC-6-324		21.55	Incomplete	402**	7200
SC-6-325	300SC325.PPR	14.10	Incomplete	192**	7200
SC-6-325		21.45	Incomplete	457**	7200
SC-6-326	300SC326.PPR	10.40	Complete	70.8	6000
SC-6-326		23.30	Complete	230	7200
SC-6-329	300SC329.PPR	6.70	Incomplete	66.7**	7200
SC-6-329		21.70	>95% Complete	229*	7200
SC-6-330	300SC330.PPR	10.85	Incomplete	163**	7200
SC-6-330		24 50	Complete	252	900
SC-6-331	300SC331.PPR	9.75	>95% Complete	86.1*	4200
SC-6-331		15.75	>95% Complete	175*	7200
SC-6-332	300SC332.PPR	11.85	Incomplete	237**	7200
SC-6-332		22.85	Incomplete	381**	7200
SC-10-301	300SC301.PPR	7.70	Incomplete	80 2**	7200
SC-10-301		17.70	>95% Complete	175*	7200
SC-10-302	300SC302.PPR	6.80	Incomplete	70.0**	7200
SC-10-302		25.00	Incomplete	547**	7200
SC-11-260	300SC260.PPR	12.00	Incomplete	220**	7200
SC-11-260		17 30	>95% Complete	204*	2000
SC-11-261	300SC261.PPR	6.40	Incomplete	76 0**	7200
SC-11-261		26 25	Complete	292	7200
SC-12-264	300SC264 PPR	13.25	Incomplete	248**	7200
SC-12-264		21.85	Complete	222	4000

PLATE G-1

Station Identifier	Dissipation File Name	Dissipation Depth (m)	Dissipation Status	Equilibrium* Pressure (kPa)	Dissipation Duration (s)
SC-13-305	300SC305.PPR	11.75	Incomplete	171**	7200
SC-13-305		28.75	Complete	338	3600
SC-13-306	300SC306.PPR	8.05	Complete	70.8	200
SC-13-306		9.75	Incomplete	220**	7200
SC-13-306		19 35	Complete	218	1800
SC-13-307	300SC307.PPR	7.00	Incomplete	153**	7200
SC-13-307		19.45	Complete	194	1500
SC-14-310	300SC310.PPR	2.70	>95% Complete	20*	2800
SC-14-310		29.40	Complete	336	800
SC-14-311	300SC311.PPR	6.70	Incomplete	243**	7200
SC-14-311		17.95	Complete	215	400
SC-14-311		21.20	>95% Complete	290*	7200
SC-14-312	300SC312.PPR	6.90	Incomplete	98**	7200
SC-14-312		21.05	Complete	233	2500
SC-15-266	300SC266.PPR	16.80	Complete	216	7200
SC-15-266		26.80	Complete	324	1800
SC-15-267	300SC267.PPR	12.30	Incomplete	255**	4635
SC-15-361	300SC361.PPR	none	none	none	none
SC-16-269	300SC269.PPR	6.05	Incomplete	80.5**	7200
SC-16-269A	300S269A.PPR	26.0	Complete	297	1500
SC-1604-360	300SC360	none	none	none	none
SC-17-270	300SC270.PPR	4.10	>95% Complete	34.7*	2000
SC-17-270		28.55	Incomplete	523**	7200
SC-18-273	300SC273.PPR	9.85	Complete	130	7200
SC-18-273		16.55	>95% Complete	250*	7200
SC-19-275	300SC275.PPR	13.8	Complete	56.3	7200
SC-19-275		30.05	Complete	266	7200
SC-19-277	300SC277.PPR	6.70	Incomplete	81.9**	7200
SC-19-277		23.70	Complete	283	3600
SC-19-278	300SC278.PPR	8.50	Incomplete	80.5**	7200
SC-19-278		24.75	Complete	270	3600
SC-19-280	300SC280.PPR	4.70	>95% Complete	20.1*	7200
SC-19-280		17.70	Incomplete	219**	7200
SC-21-283	300SC283.PPR	14.75	Complete	64.2	2500
SC-21-283		21.10	Incomplete	322**	7200
SC-22-286	300SC286.PPR	4.65	Complete	32.3	4500
SC-22-287	300SC287.PPR	13.70	Complete	115	500
SC-22-287		22.80	Complete	227	3600
SC-23-290A	300S290A.PPR	2.30	Complete	27.0	7200
SC-23-290B	300S290B.PPR	10.55	Complete	83.0	500
SC-23-290B		11.20	Complete	91.6	1500
SC-24-256	300SC256.PPR	9.50	Incomplete	122**	7200
SC-24-257	300SC257.PPR	4.0	Complete	16.2	300
SC-24-257		4.85	Complete	24 4	600
SC-25-335	300SC335.PPR	7.25	Complete	52.8	400
SC-25-335		7.85	Complete	61.5	1000
SC-26-338	300SC338.PPR	5.85	Complete	35 3	1500
SC-27-341	300SC341.PPR	11.65	Complete	92 7	2500
SC-27-342	300SC342.PPR	6 00	Complete	41.7	1000
SC-27-343	300SC343.PPR	none	none	none	none
SC-27-344	300SC344.PPR	9.60	Incomplete	100**	6000

PLATE G-2

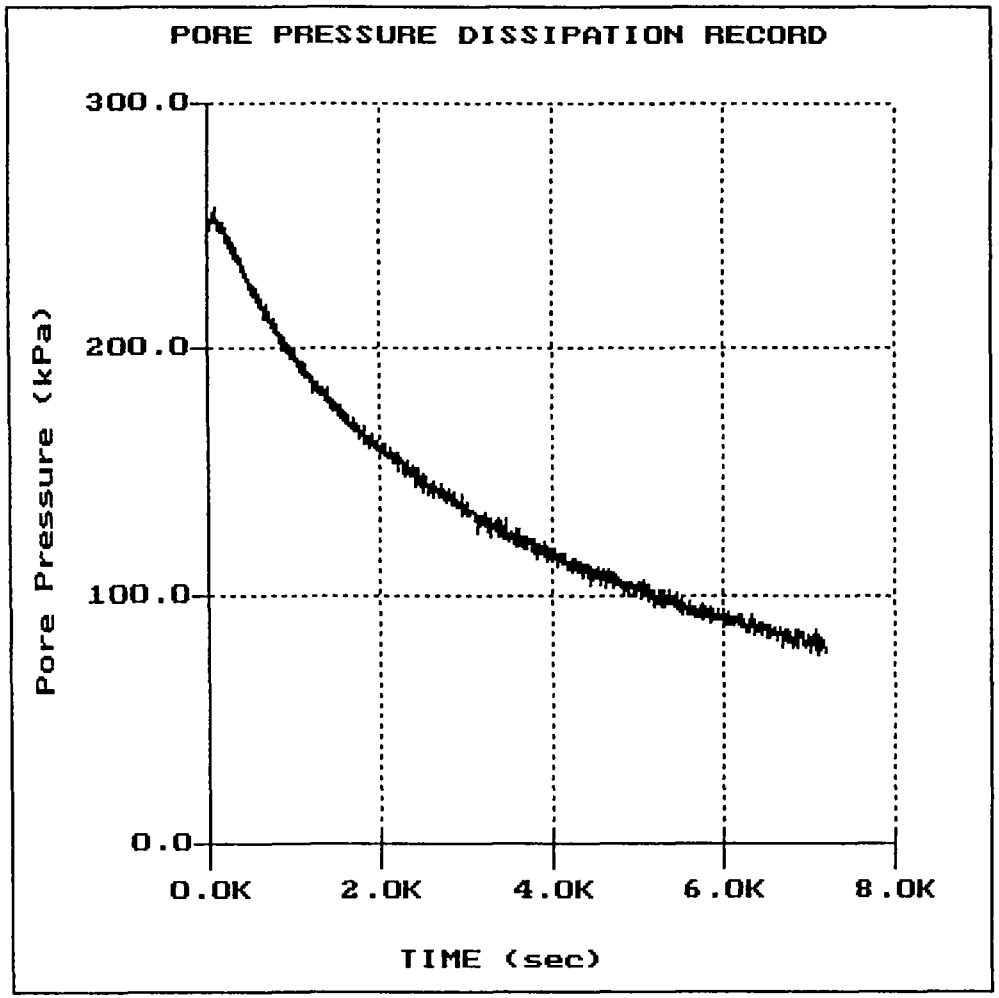
Station Identifier	Dissipation File Name	Dissipation Depth (m)	Dissipation Status	Equilibrium* Pressure (kPa)	Dissipation Duration (s)
SC-29-349	300SC349.PPR	3.05	Complete	9.6	400
SC-29-349		4.25	Complete	21.0	500
SC-29-349		10.75	Complete	100	5500
SC-31-353	300SC353.PPR	9.15	Incomplete	133**	7260
SC-31-353		22.7	Complete	258	4500
SC-31-356	300SC356.PPR	7.8	Incomplete	136**	7200
SC-31-356		18.7	>95% Complete	231*	7200
SC-33-358	300SC358.PPR	10.85	Complete	107	7200
SC-33-358		17.85	>95% Complete	191*	7200
WC-9-227	300WC227.PPR	3.45	>95% Complete	19.3*	3200
WC-9-230	300WC230.PPR	6.55	Complete	51.4	800
WC-10-232	300WC232.PPR	8.60	Complete	63.5	1505
WC-10-234	300WC234.PPR	9.65	Complete	87.5	2700
WC-13-235	300WC235.PPR	5.80	Complete	27.0	100
WC-13-235		8.65	Complete	60.0	100
WC-14-237	300WC237.PPR	8.80	>95% Complete	73.0*	1500
WC-15-220B	300W220B.PPR	7.05	Complete	68.0	3000
WC-15-221	300WC221.PPR	7.65	>95% Complete	110*	26000
WC-16-223B	300W223B.PPR	4.95	Incomplete	51.0**	7200
WC-17-214B	300W214B.PPR	10.65	Incomplete	144**	7200
WC-18-217	300WC217.PPR	8.90	Incomplete	191**	7200
WC-22-207	300WC207.PPR	7.00	Incomplete	167**	7200
WC-24-203B	300W203B.PPR	6.50	Incomplete	215**	7200
WC-27-316	300WC316.PPR	3.0	Complete	39.0	7200
WC-28-318	300WC318.PPR	4.50	>95% Complete	33.3*	3600
WC-29-321	300WC321.PPR	8.50	>95% Complete	80.2*	1600
RC-373	300RC373.PPR	10.15	Complete	94	4000
RC-373		15.90	Complete	147	1200

PLATE G-3

Legacy Parkway

SC-1-244
Location:STRUCTURE 1

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



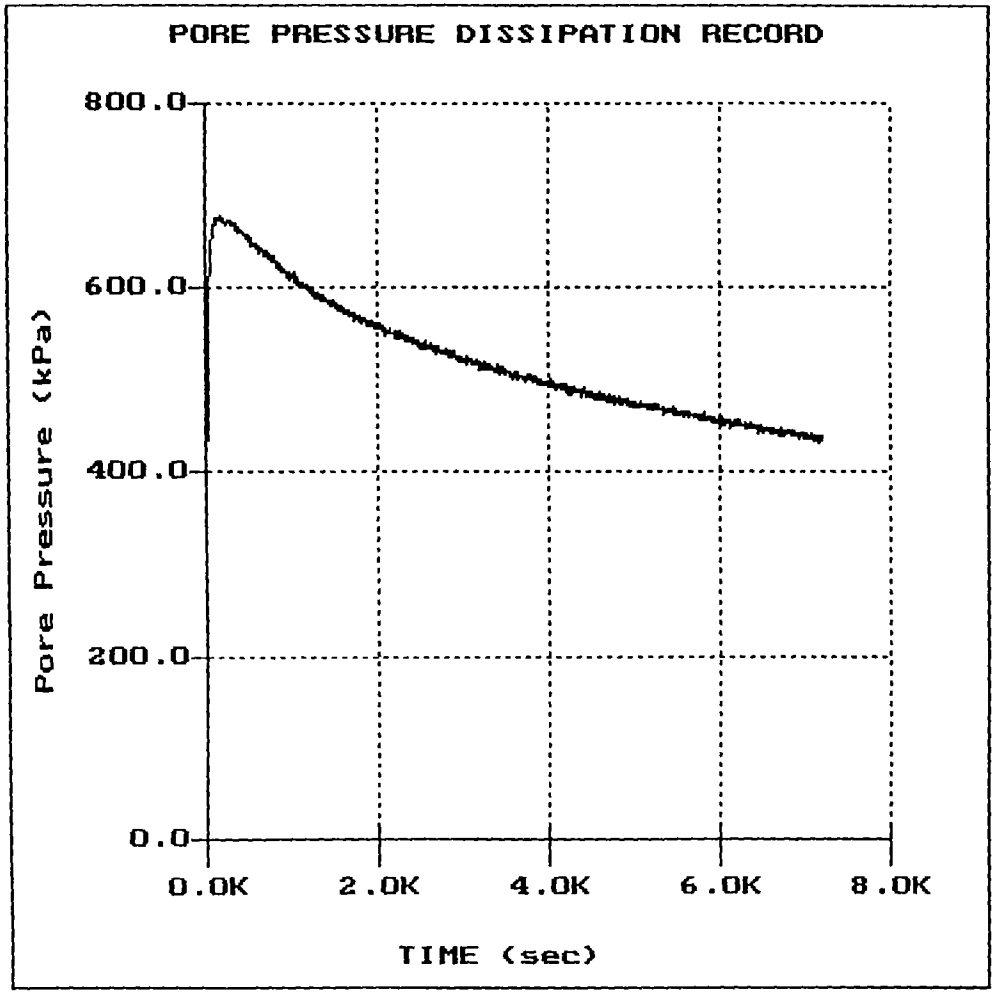
File: 300SC244.PPR
Depth (m): 6.95
(ft): 22.80
Duration : 7200.0s
U-min: 76.20 7090.0s
U-max: 271.60 0.0s

PLATE G-4

Legacy Parkway

SC-1-244
Location:STRUCTURE 1

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



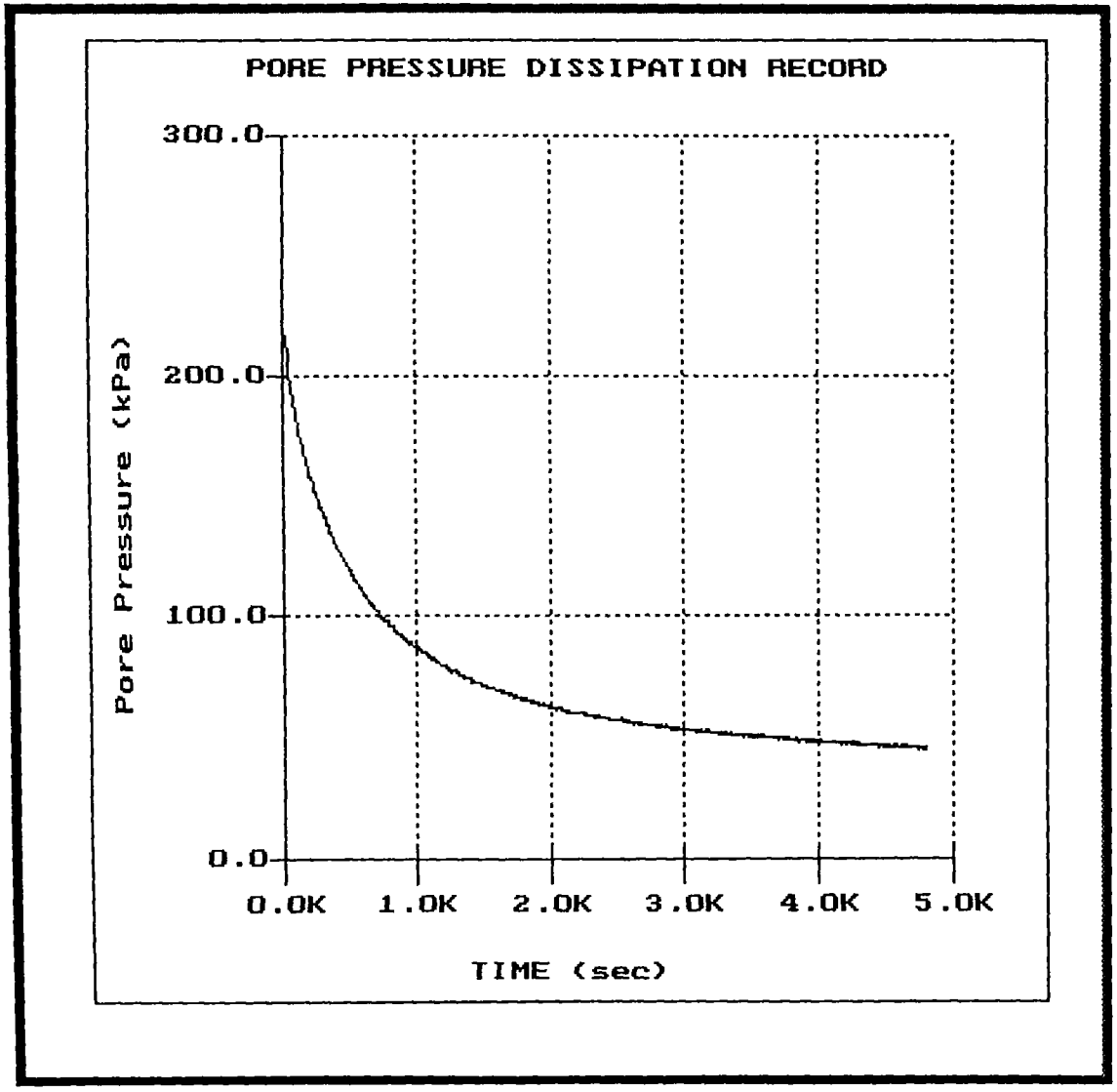
File: 300SC244.PPR
Depth (m): 18.65
(ft): 61.19
Duration : 7200.0s
U-min: 214.20 0.0s
U-max: 676.90 175.0s

PLATE G-5

Legacy Parkway

SC-1-245
Location:STRUCTURE 1

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



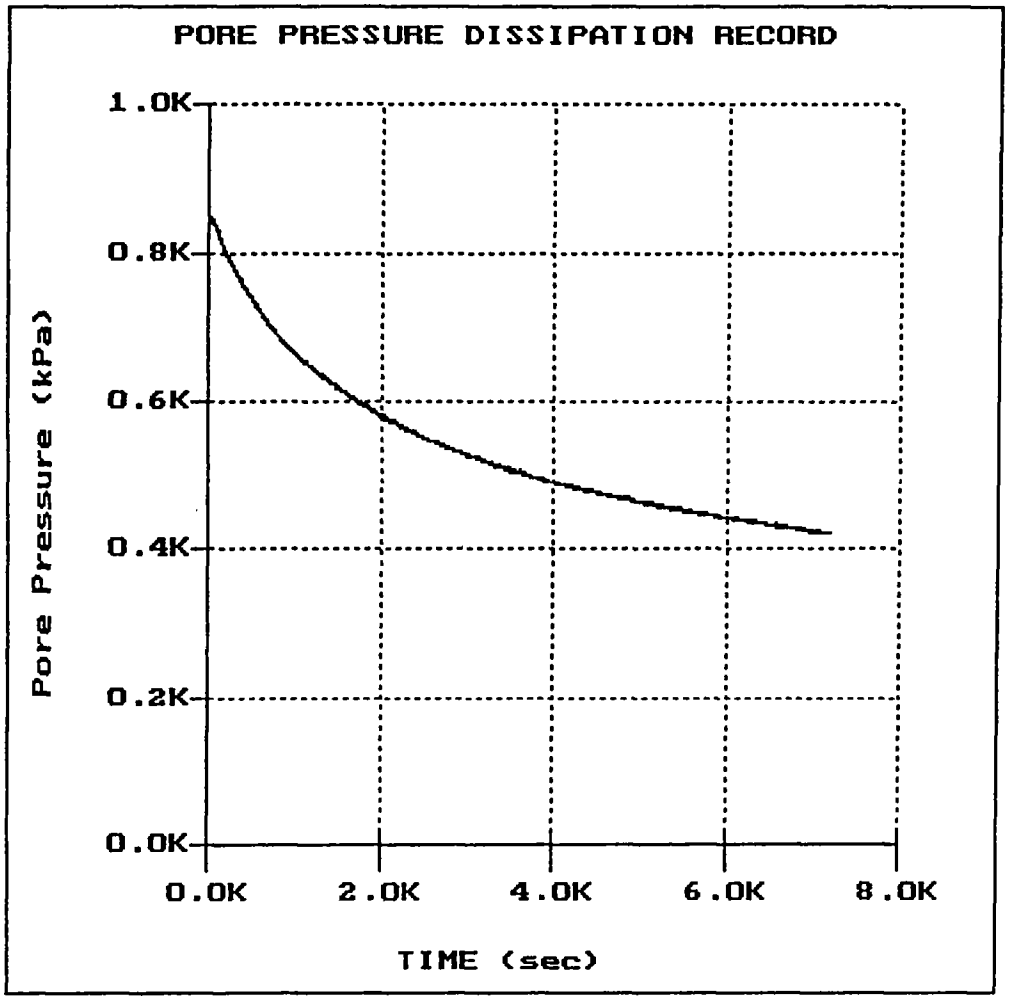
File: 300SC245.PPR
Depth (m): 6.40
(ft): 21.00
Duration : 4800.0s
U-min: 45.00 4800.0s
U-max: 216.90 15.0s

PLATE G-6

Legacy Parkway

SC-1-245
Location:STRUCTURE 1

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



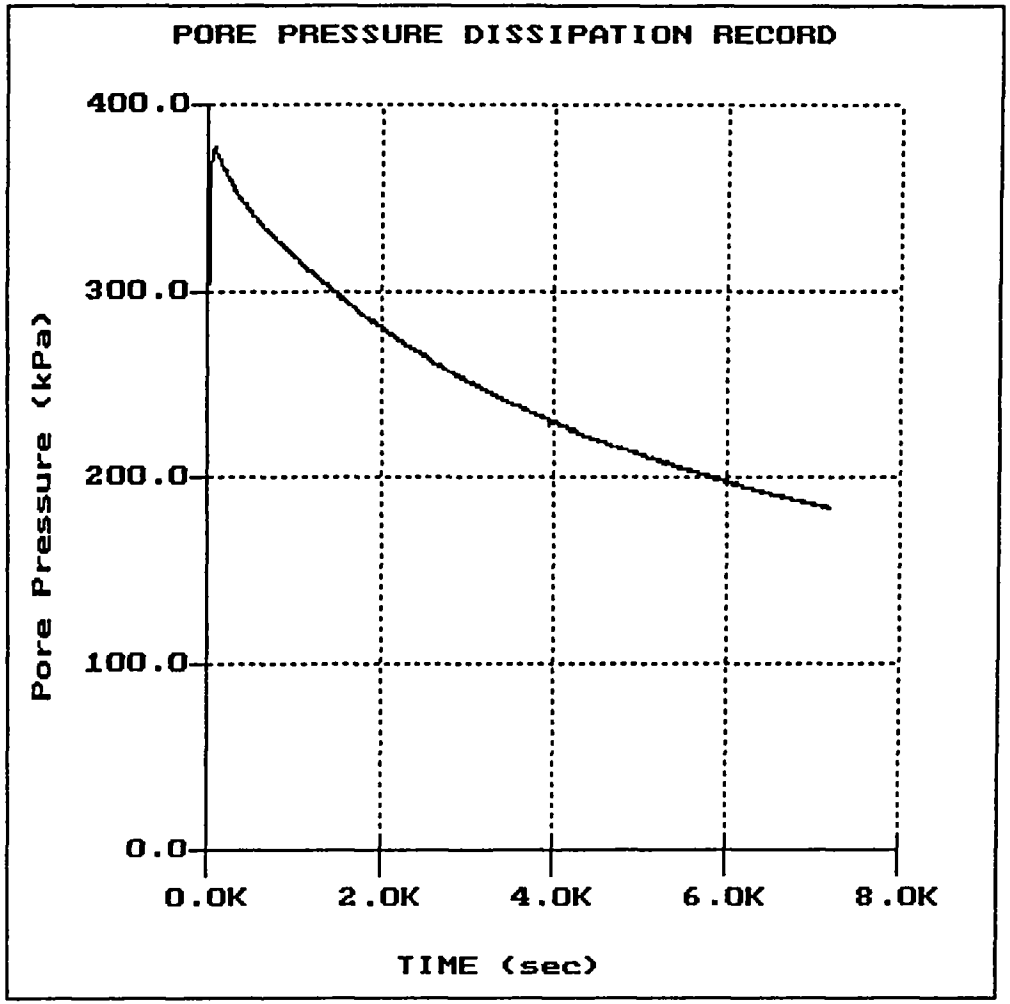
File: 300SC245.PPR
Depth (m): 23.45
(ft): 76.94
Duration : 7200.0s
U-min: 418.80 7185.0s
U-max: 906.20 0.0s

PLATE G-7

Legacy Parkway

SC-5-294
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:03:00 07:50



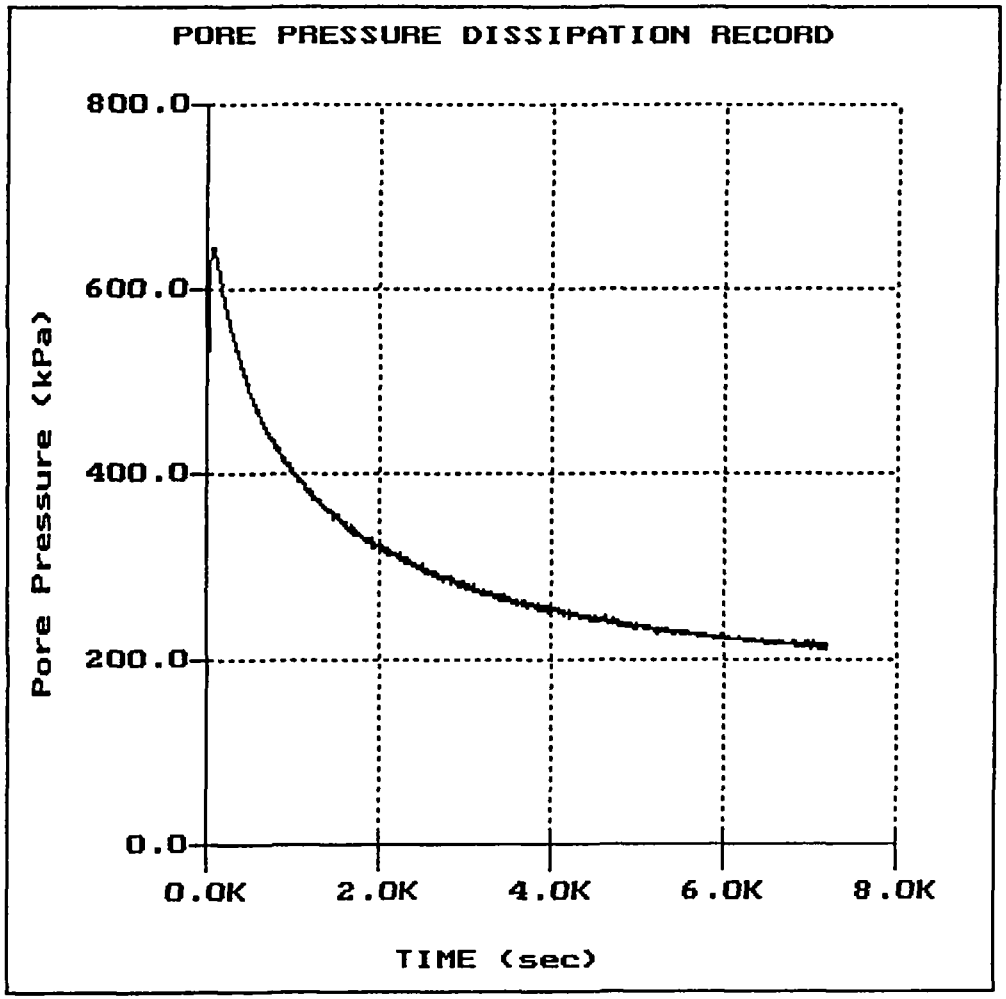
File: 300SC294.PPR
Depth (m): 8.80
(ft): 28.87
Duration : 7200.0s
U-min: 183.20 7200.0s
U-max: 377.20 80.0s

PLATE G-8

Legacy Parkway

SC-5-294
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:03:00 07:50



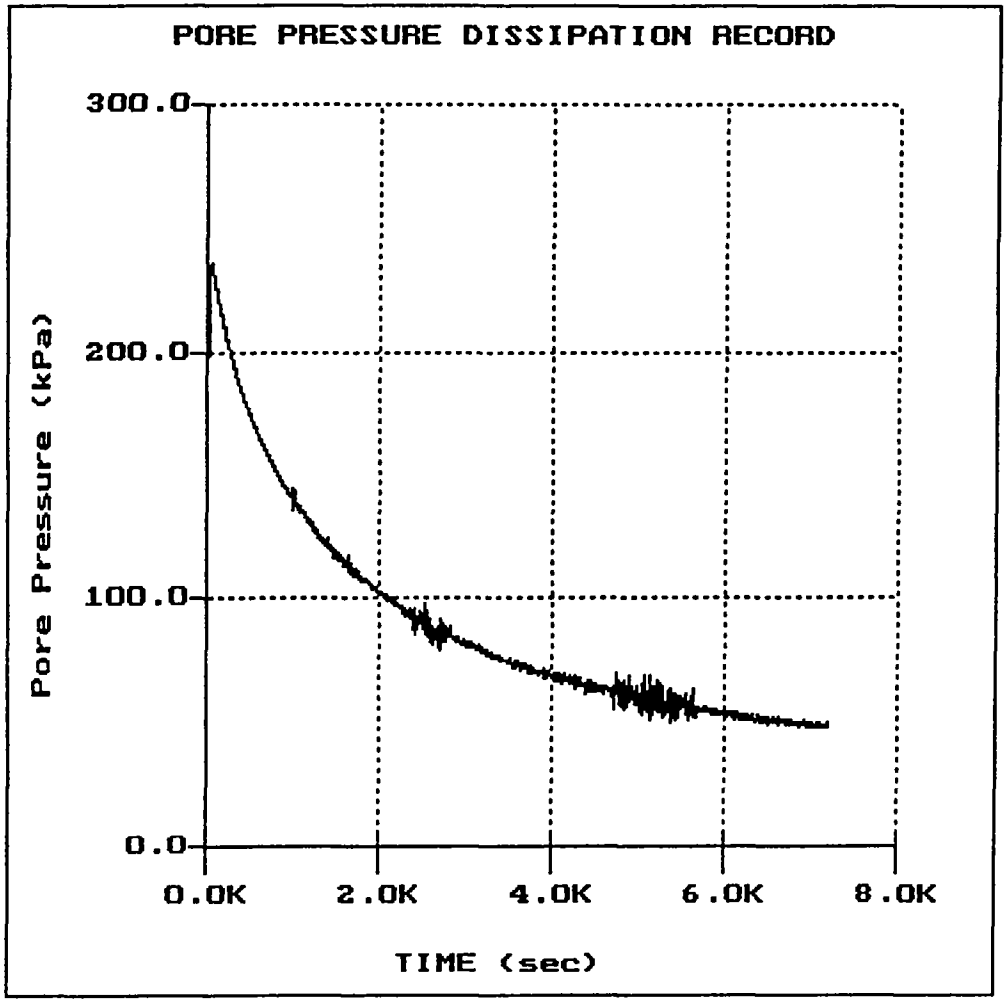
File: 300SC294.PPR
Depth (m): 17.50
(ft): 57.41
Duration : 7200.0s
U-min: 211.40 7010.0s
U-max: 644.60 70.0s

PLATE G-9

Legacy Parkway

SC-5-295
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:02:00 07:56



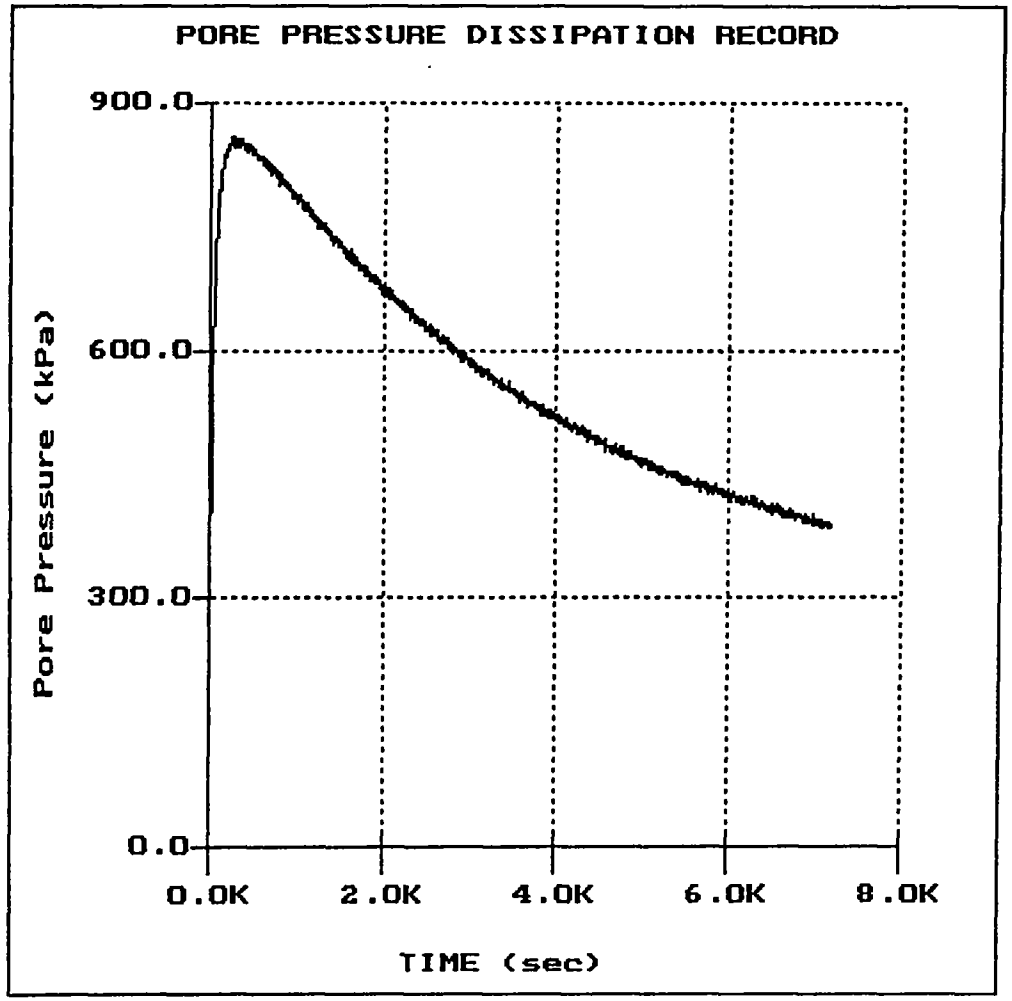
File: 300SC295.PPR
Depth (m): 4.50
(ft): 14.76
Duration : 7200.0s
U-min: 47.50 7150.0s
U-max: 236.00 45.0s

PLATE G-10

Legacy Parkway

SC-5-295
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:02:00 07:56



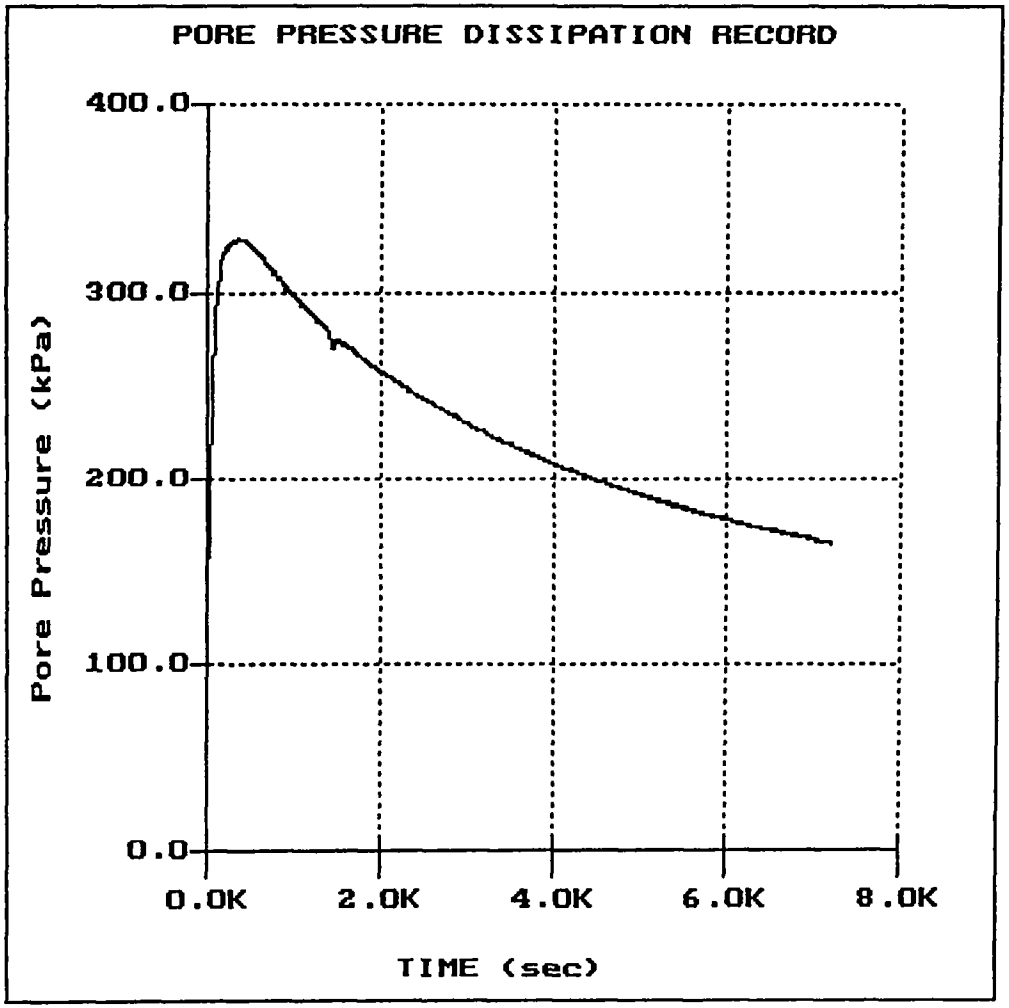
File: 300SC295.PPR
Depth (m): 23.35
(ft): 76.61
Duration : 7200.0s
U-min: 295.20 0.0s
U-max: 858.20 270.0s

PLATE G-11

Legacy Parkway

SC-5-296
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:01:00 13:29



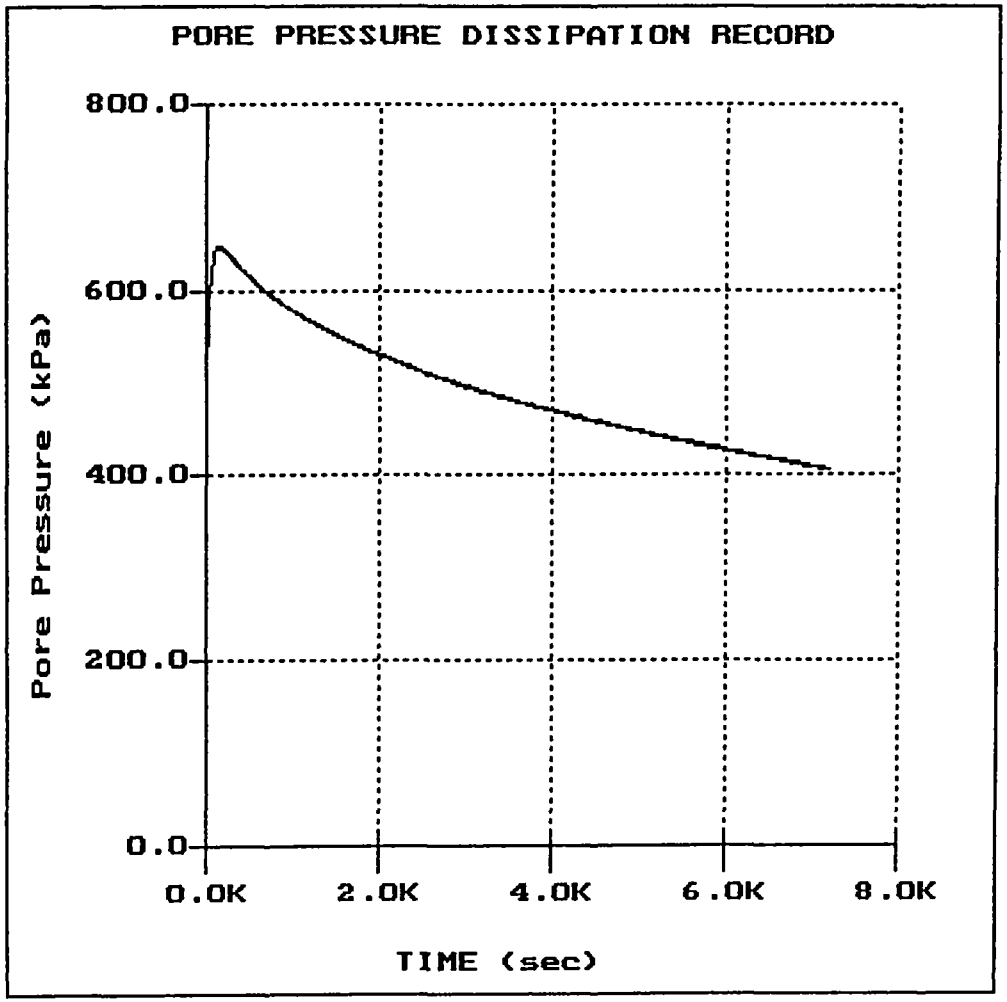
File: 300SC296.PPR
Depth (m): 8.90
(ft): 29.20
Duration : 7200.0s
U-min: 123.00 0.0s
U-max: 328.60 360.0s

PLATE G-12

Legacy Parkway

SC-5-296
Location:STRUCTURE 5

Cone:20 TON A 092
Date:02:01:00 13:29



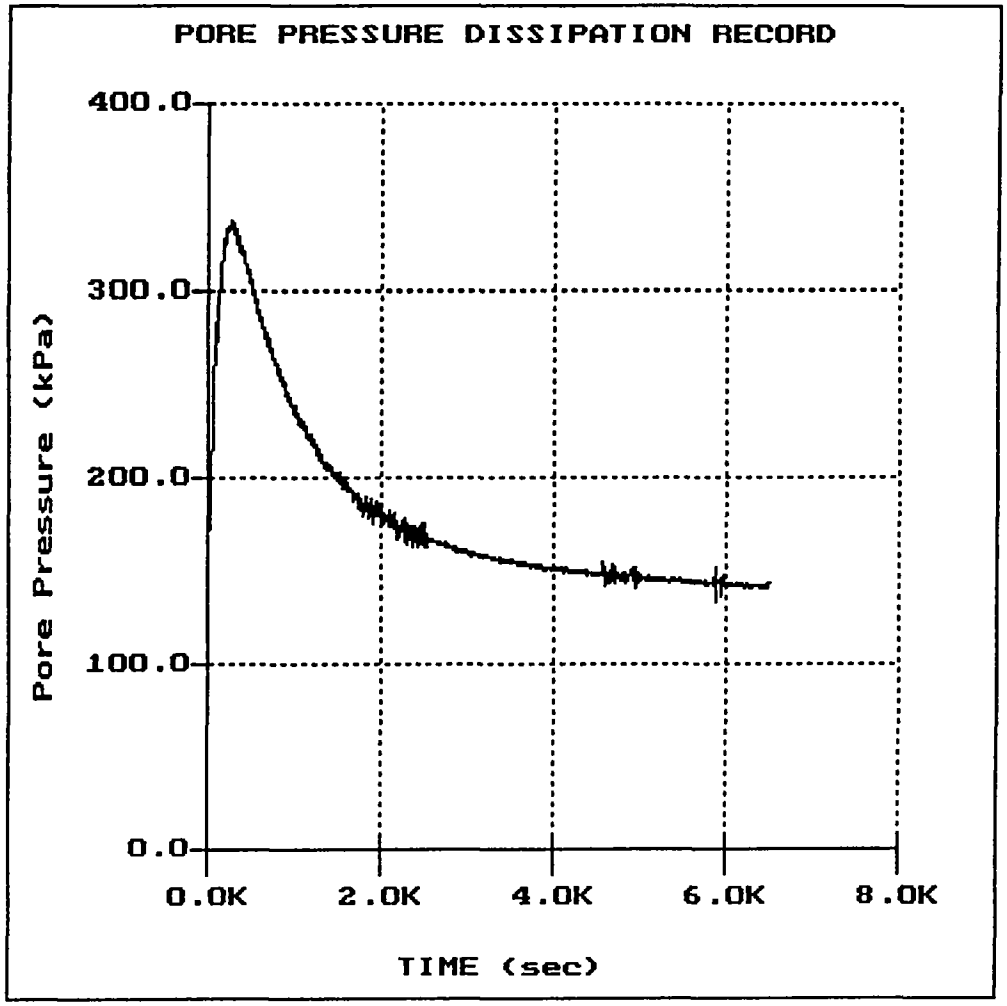
File: 300SC296.PPR
Depth (m): 17.90
(ft): 58.73
Duration : 7200.0s
U-min: 405.30 7195.0s
U-max: 648.30 165.0s

PLATE G-13

Legacy Parkway

SC-6-324
Location:STRUCTURE 6

Cone:20 TON A 092
Date:02:09:00 07:42



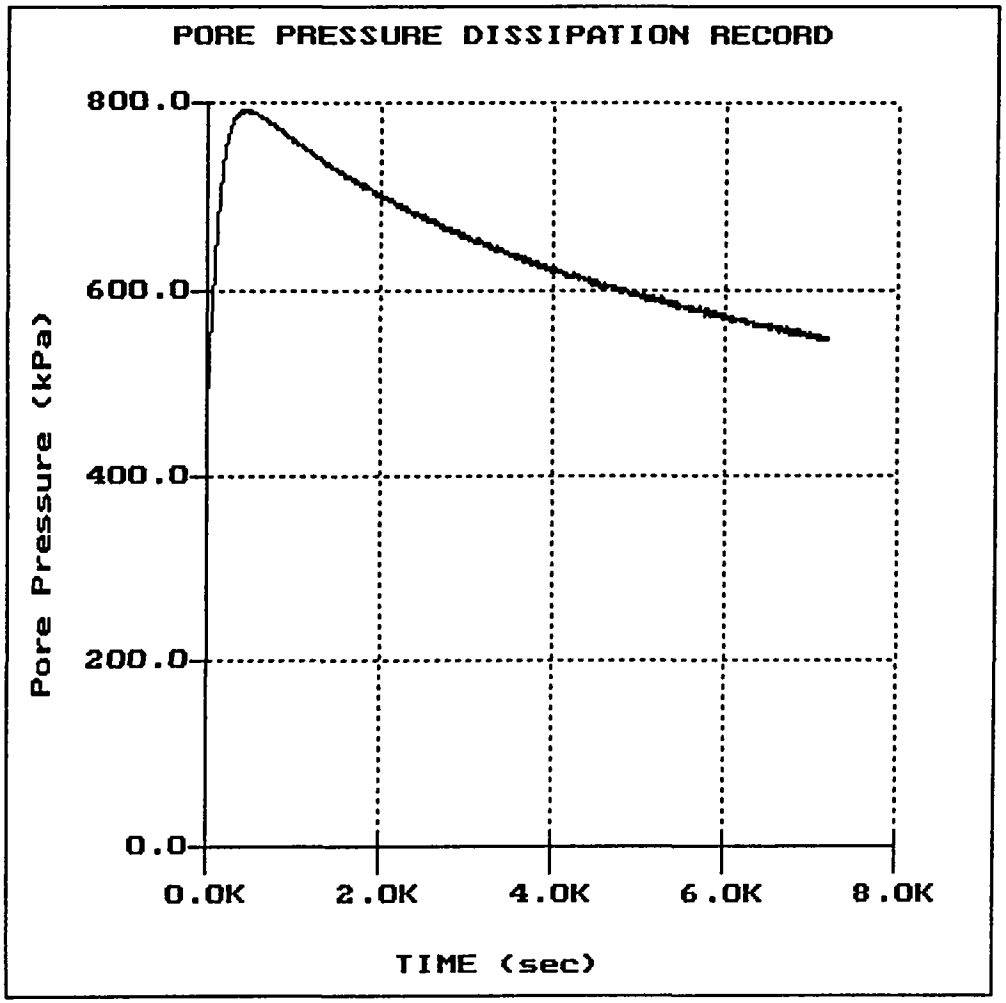
File: 300SC324.PPR
Depth (m): 10.85
(ft): 35.60
Duration : 6500.0s
U-min: 132.70 5875.0s
U-max: 337.70 270.0s

PLATE G-14

Legacy Parkway

SC-10-302
Location:STRUCTURE 10

Cone:20 TON A 092
Date:01:28:00 09:05



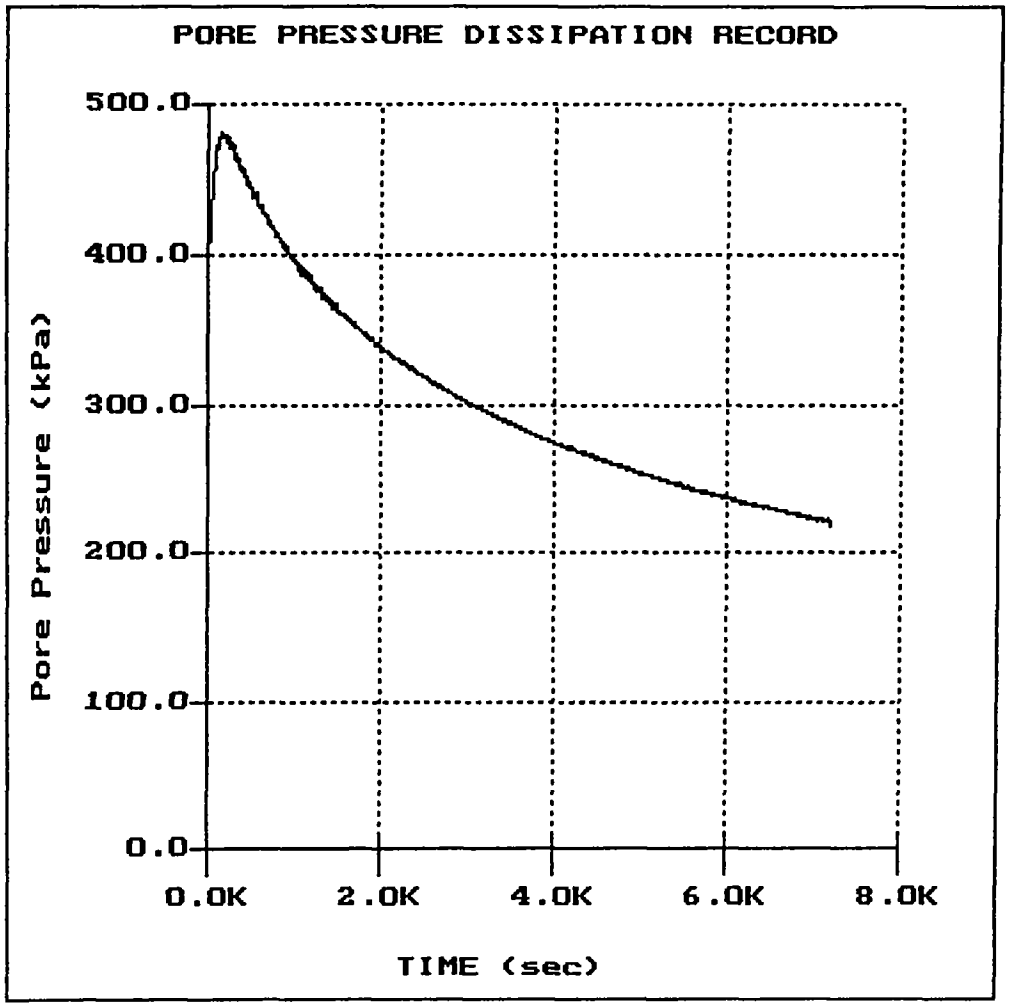
File: 300SC302.PPR
Depth (m): 25.00
(ft): 82.02
Duration : 7200.0s
U-min: 479.00 5.0s
U-max: 791.10 445.0s

PLATE G-31

Legacy Parkway

SC-11-260
Location:STRUCTURE 11

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



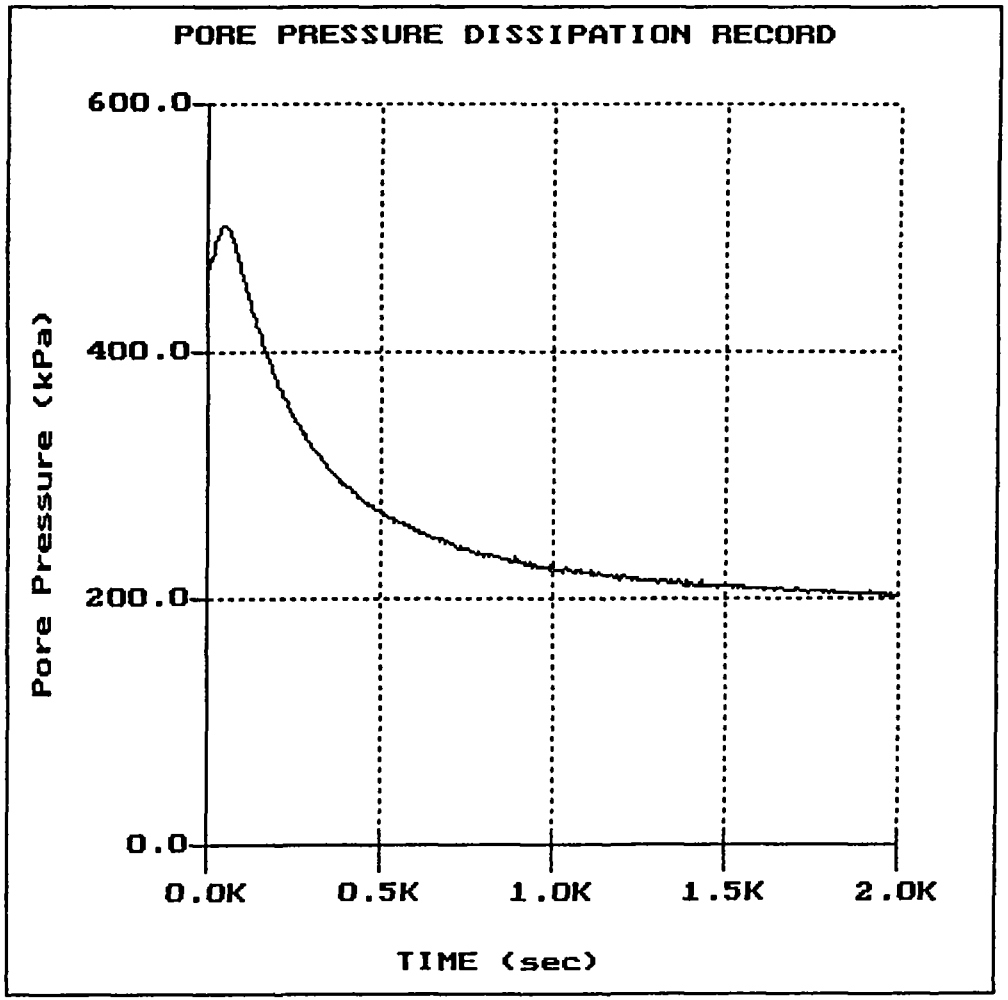
File: 300SC260.PPR
Depth (m): 12.00
(ft): 39.37
Duration : 7200.0s
U-min: 217.70 7180.0s
U-max: 481.50 160.0s

PLATE G-32

Legacy Parkway

SC-11-260
Location:STRUCTURE 11

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



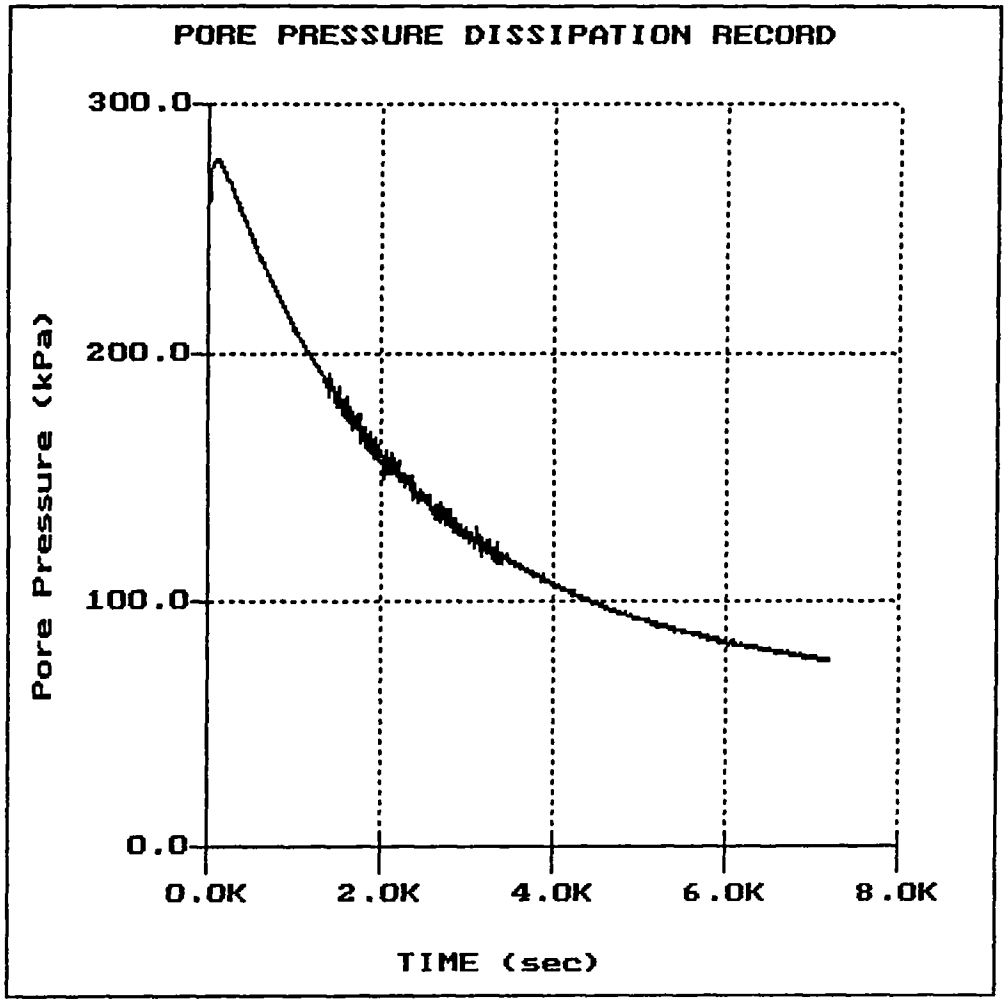
File: 300SC260.PPR
Depth (m): 17.30
(ft): 56.76
Duration : 2000.0s
U-min: 202.40 1970.0s
U-max: 501.80 50.0s

PLATE G-33

Legacy Parkway

SC-11-261
Location:STRUCTURE 11

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



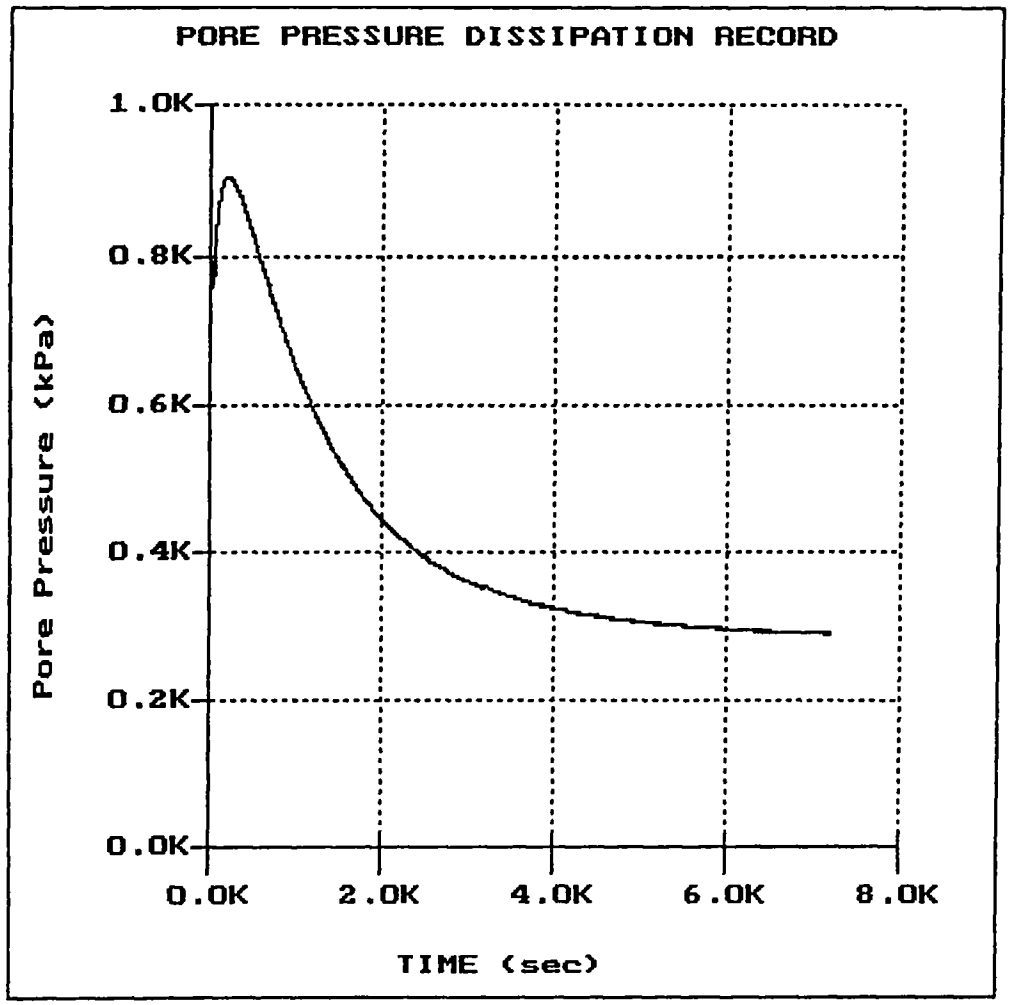
File: 300SC261.PPR
Depth (m): 6.40
(ft): 21.00
Duration : 7200.0s
U-min: 76.30 7185.0s
U-max: 278.10 105.0s

PLATE G-34

Legacy Parkway

SC-11-261
Location:STRUCTURE 11

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



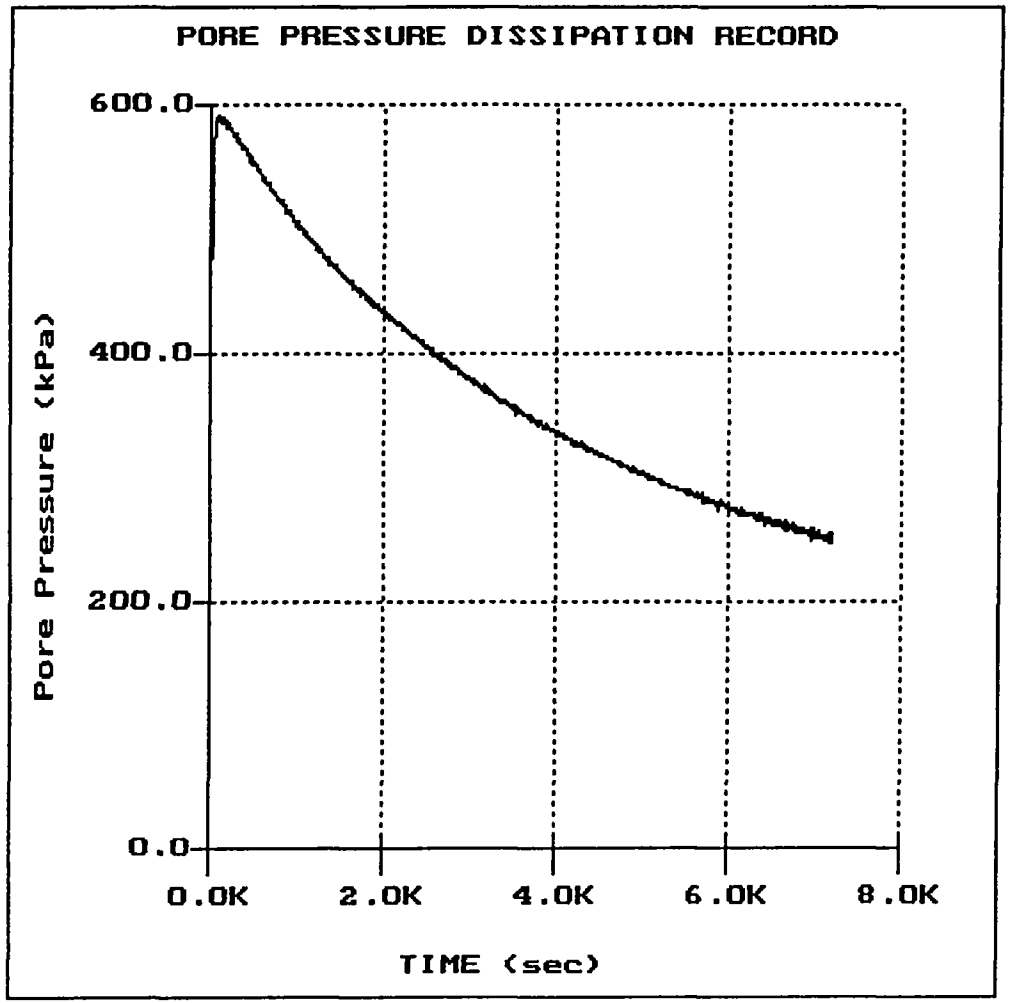
File: 300SC261.PPR
Depth (m): 26.25
(ft): 86.12
Duration : 7200.0s
U-min: 289.40 7170.0s
U-max: 904.10 195.0s

PLATE G-35

Legacy Parkway

SC-12-264
Location:STRUCTURE 12

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



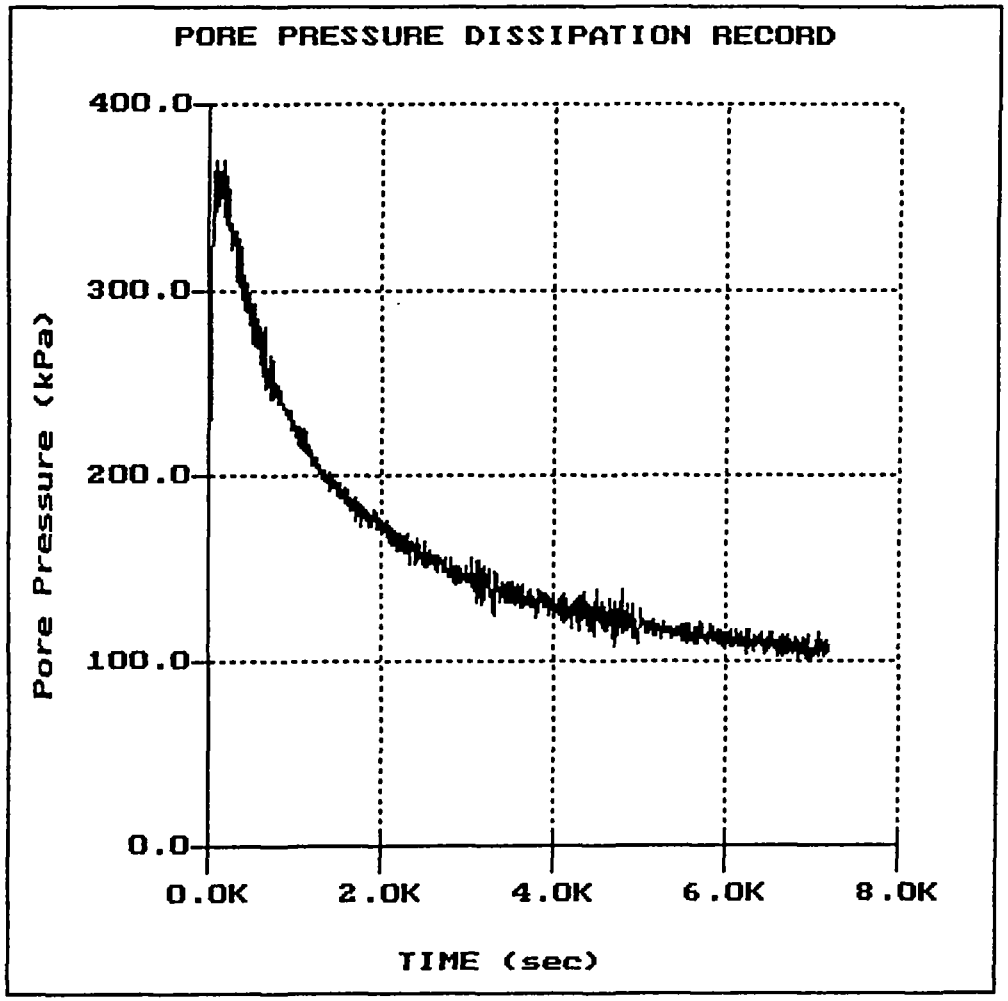
File: 300SC264.PPR
Depth (m): 13.25
(ft): 43.47
Duration : 7200.0s
U-min: 245.70 7185.0s
U-max: 590.80 95.0s

PLATE G-36

Legacy Parkway

SC-33-358
Location:STRUCTURE 33

Cone: 20 TON A 070
Date:05:04:00 18:34



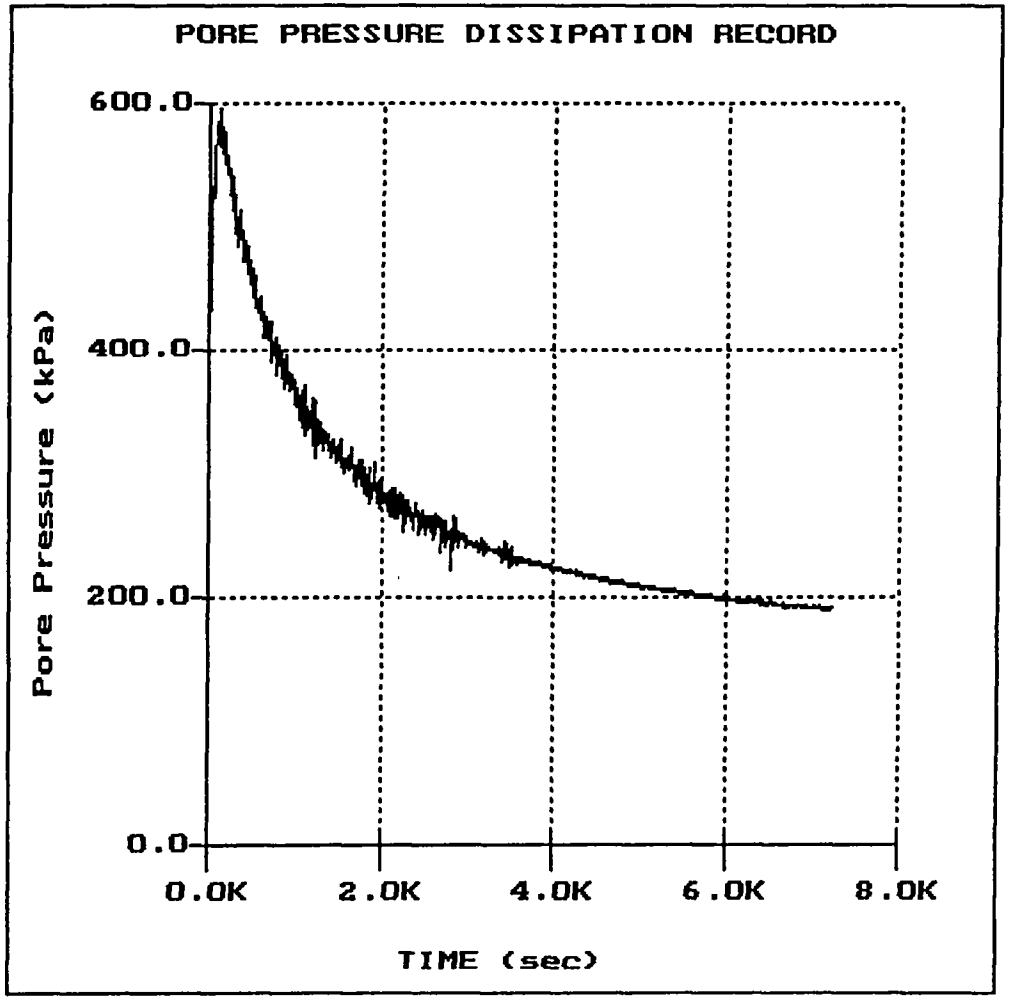
File: 300SC358.PPR
Depth (m): 10.85
(ft): 35.60
Duration : 7200.0s
U-min: 100.46 6955.0s
U-max: 369.64 80.0s

PLATE G-93

Legacy Parkway

SC-33-358
Location:STRUCTURE 33

Cone: 20 TON A 070
Date:05:04:00 18:34



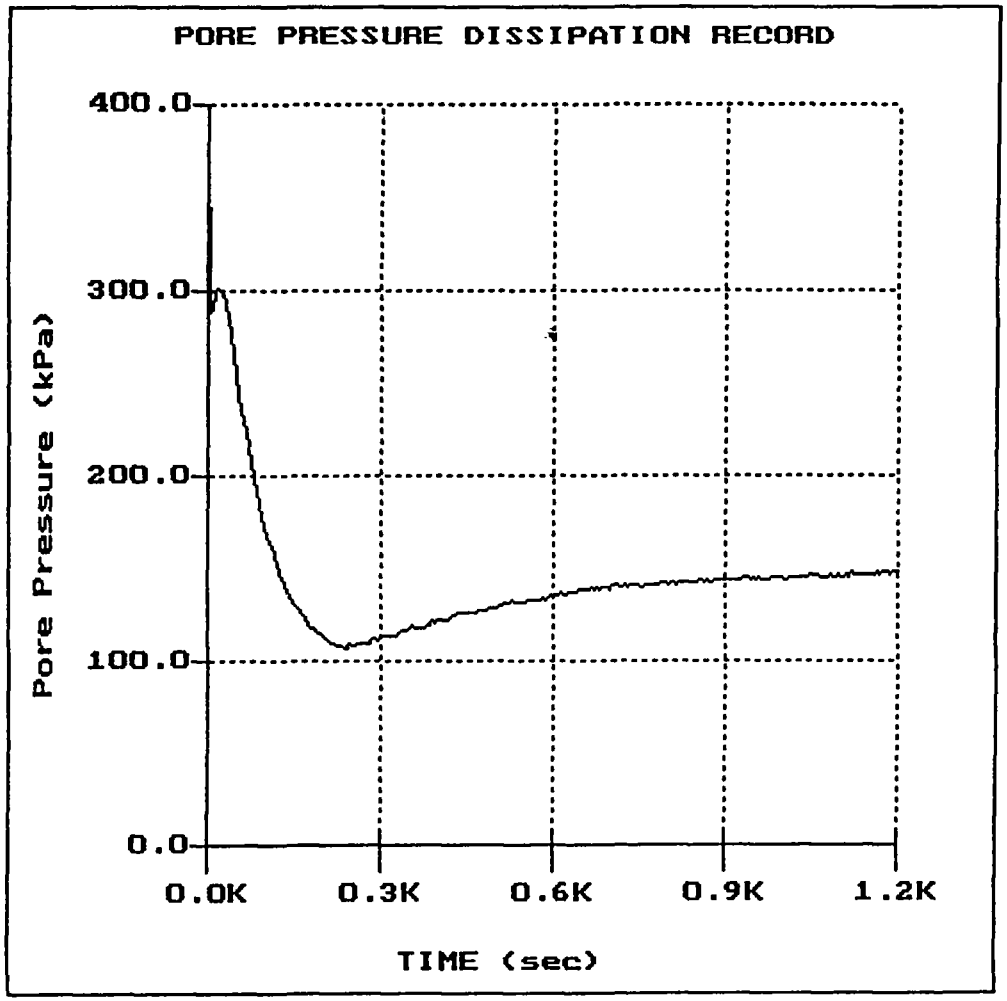
File: 300SC358.PPR
Depth (m): 17.85
(ft): 58.56
Duration : 7210.0s
U-min: 189.73 7200.0s
U-max: 596.06 130.0s

PLATE G-94

Legacy Parkway

RC-373
Location:ROAD BORING-373

Cone: 20 TON A 070
Date:05:09:00 09:14



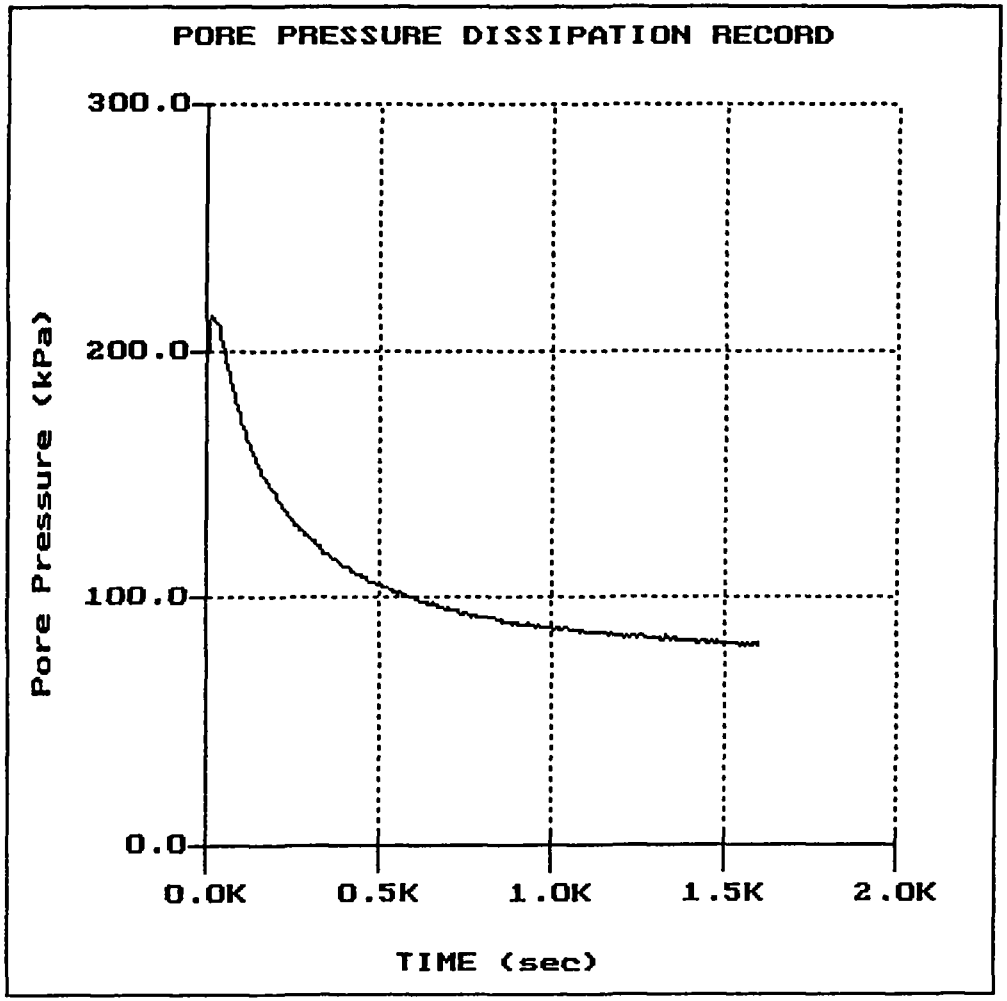
File: 300RC373.PPR
Depth (m): 15.90
(ft): 52.17
Duration : 1200.0s
U-min: 107.61 240.0s
U-max: 454.40 0.0s

PLATE G-113

Legacy Parkway

WC-29-321
Location:RET. WALL 29

Cone:20 TON A 092
Date:02:01:00 09:39



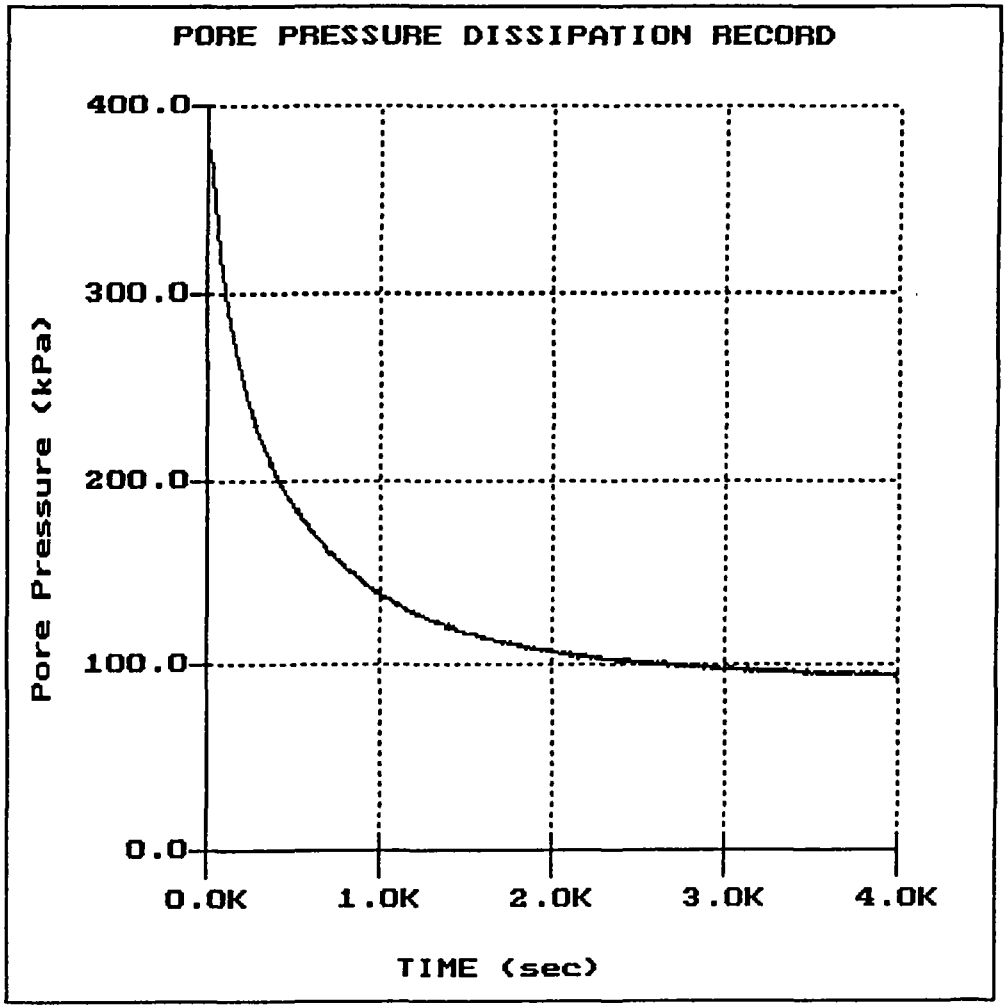
File: 300WC321.PPR
Depth (m): 8.50
(ft): 27.89
Duration : 1600.0s
U-min: 80.10 1575.0s
U-max: 214.10 15.0s

PLATE G-111

Legacy Parkway

RC-373
Location:ROAD BORING-373

Cone: 20 TON A 070
Date:05:09:00 09:14



File: 300RC373.PPR
Depth (m): 10.15
(ft): 33.30
Duration : 4000.0s
U-min: 93.58 3990.0s
U-max: 376.21 10.0s

PLATE G-112

Appendix F

CONETEC

Seismic Wave Velocity Calculations

Job No.: 00-300
Client: Kleinfelder
Location Legacy Parkway
CPT Date: 5/1/00
CPT No.: SC-33-358

Geophone Offset (m): 0.20
Source Offset (m): 0.56

Test Depth (m)	Ray Path (m)	Incremental Distance (m)	Interval Depth (m)	Vs Interval Time (ms)	Vs Interval Velocity (m/s)
0.85	0.86				
1.85	1.74	0.88	1.15	9.40	94.1
2.85	2.71	0.97	2.15	9.59	100.7
3.85	3.69	0.98	3.15	9.58	102.7
4.85	4.68	0.99	4.15	9.40	105.4
5.85	5.68	0.99	5.15	7.52	132.2
6.85	6.67	1.00	6.15	6.58	151.3
7.85	7.67	1.00	7.15	5.64	176.8
8.85	8.67	1.00	8.15	6.01	166.0
9.85	9.67	1.00	9.15	6.21	160.7
10.85	10.66	1.00	10.15	6.91	144.5
11.85	11.66	1.00	11.15	5.27	189.5
12.85	12.66	1.00	12.15	6.01	166.2
13.85	13.66	1.00	13.15	6.32	158.1
14.85	14.66	1.00	14.15	5.71	175.0
15.85	15.66	1.00	15.15	5.72	174.7
16.85	16.66	1.00	16.15	6.16	162.2
17.85	17.66	1.00	17.15	5.57	179.4
18.85	18.66	1.00	18.15	5.86	170.6
19.85	19.66	1.00	19.15	6.62	151.0
20.85	20.66	1.00	20.15	5.03	198.7
21.85	21.66	1.00	21.15	4.37	228.8
22.85	22.66	1.00	22.15	5.07	197.2
23.85	23.66	1.00	23.15	4.37	228.8
24.85	24.66	1.00	24.15	4.65	215.0
25.85	25.66	1.00	25.15	4.94	202.4
26.85	26.66	1.00	26.15	4.93	202.8
27.85	27.66	1.00	27.15	3.67	272.4
28.85	28.66	1.00	28.15	3.66	273.2
29.85	29.66	1.00	29.15	4.09	244.5
30.85	30.66	1.00	30.15	3.71	269.5
31.85	31.65	1.00	31.15	3.67	272.4
32.85	32.65	1.00	32.15	4.04	247.5
33.85	33.65	1.00	33.15	3.85	259.7
34.85	34.65	1.00	34.15	4.14	241.5
35.85	35.65	1.00	35.15	3.38	295.8
36.55	36.35	0.70	36.00	2.35	297.8

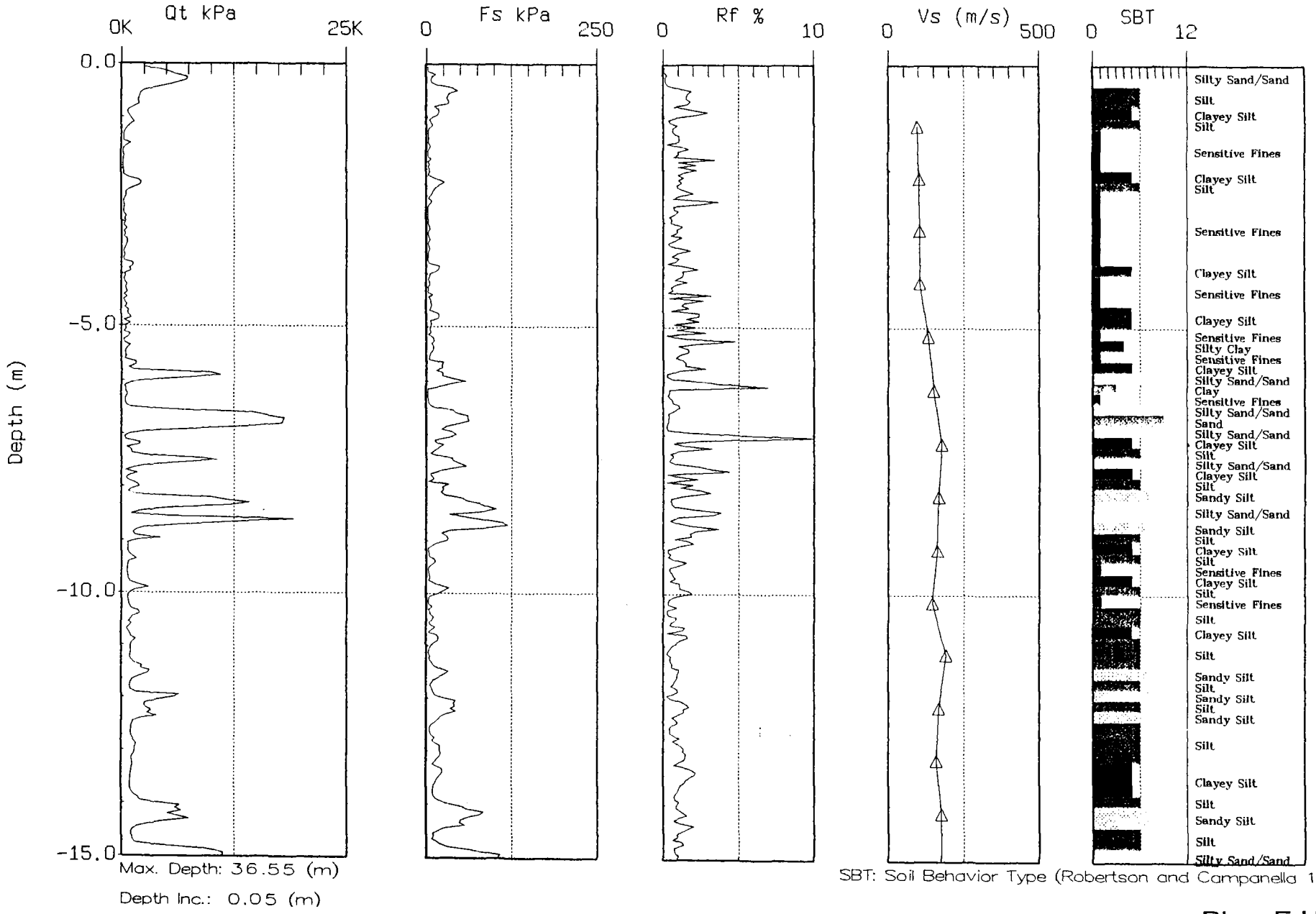
PLATE H-9

CONETEC

Legacy Parkway

Site: SC-33-358
Location: STRUCTURE 33

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)

Depth Inc.: 0.05 (m)

SBT: Soil Behavior Type (Robertson and Campanella 19

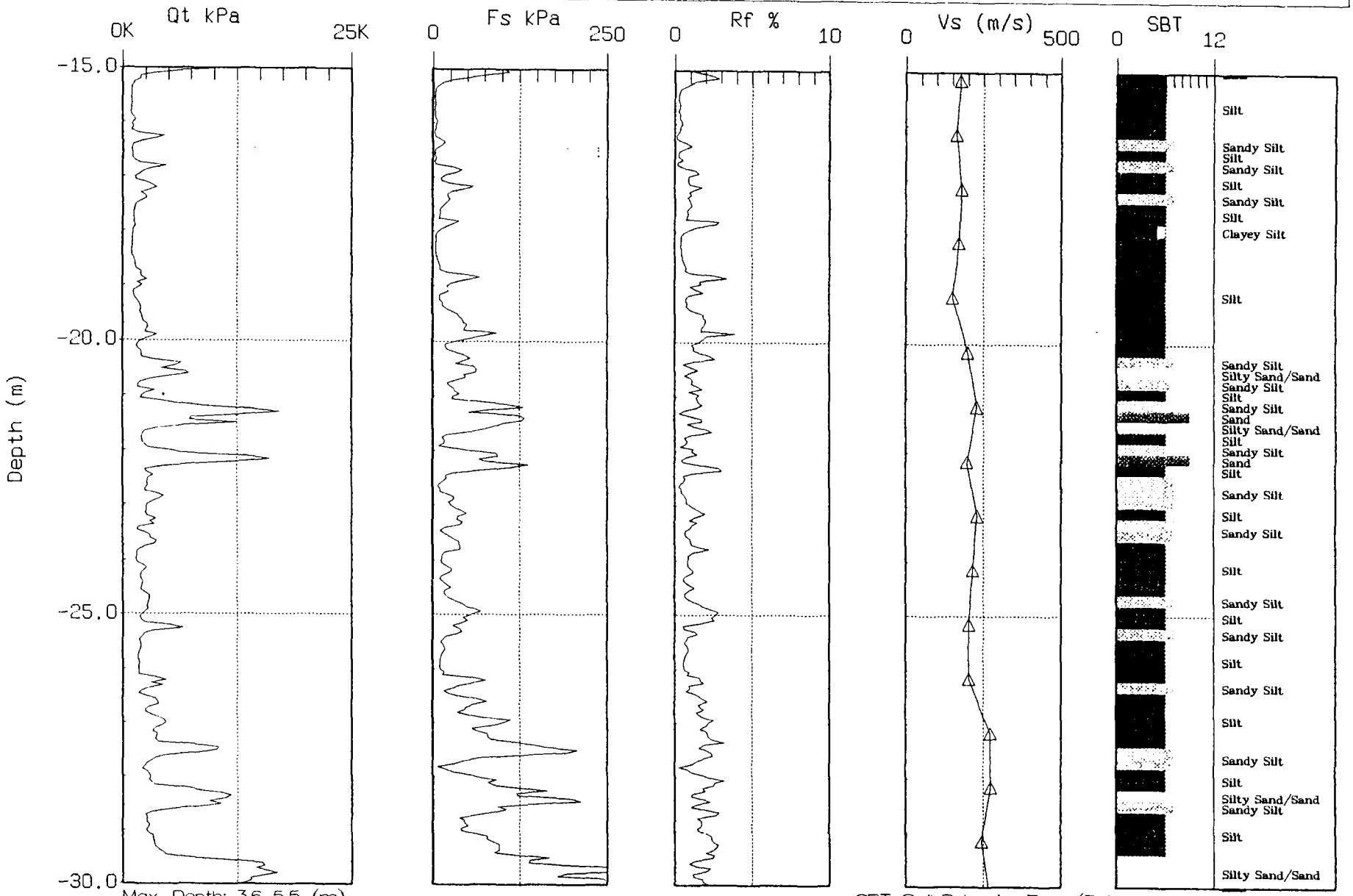
PL E H-10

CON. .C

Legacy Parkway

Site: SC-33-358
Location: STRUCTURE 33

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)
Depth Inc.: 0.05 (m)

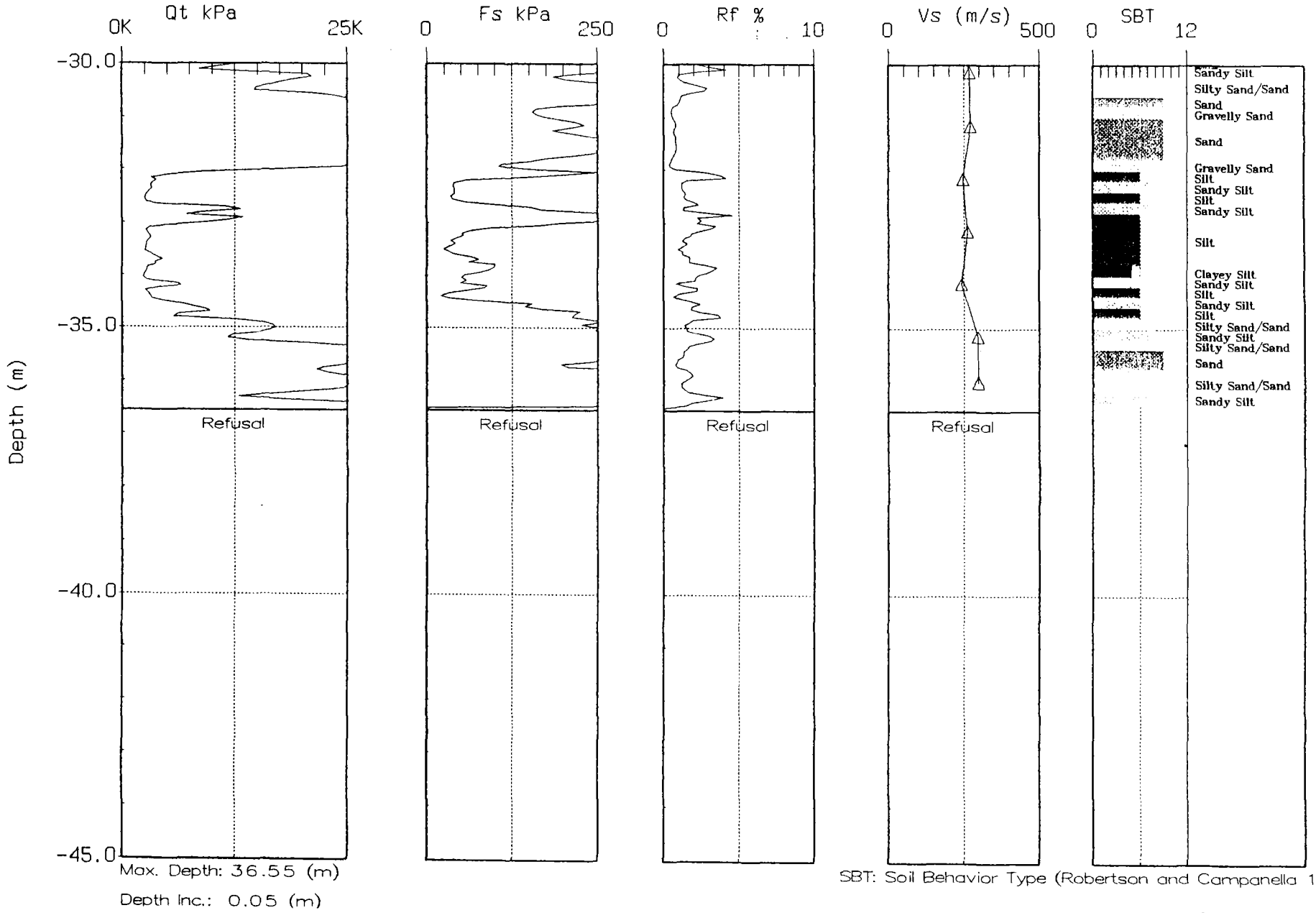
SBT: Soil Behavior Type (Robertson and Campanella 19

PLATE H-11

Legacy Parkway

Site: SC-33-358
Location: STRUCTURE 33

Cone: 20 TON A 070
Date: 05:04:00 18:34



Max. Depth: 36.55 (m)
Depth Inc.: 0.05 (m)

SBT: Soil Behavior Type (Robertson and Campanella 19

Appendix G

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Haz-Tech Date: 2-9-2000

Drilling Company Address: 3131 Lanark suite B; Meridian, ID 83607 Phone: 800-359-1502

Drill Rig Make and Model: Kilman Brainer (BK)-81 Equipment No. BK-81-0192-105 (1992 Model)

Driller: Mike Corn SPT Hammer Type: Automatic

Condition of Hammer: Weather: P.C. Temp: 45

Drill Rod Size: NWJ OD(in) ID(in) Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Bischoff

Location of Boring: I-15 / US-89, Lagoon Int. Drilling Method: Mud Rotary

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY1

PDA qFile Name (*.*Q01*) LEGACY1 PDA Blow Numbers: From 71 To 90

Depth from 30' to 31.5' **SPT Blow Counts** 21 total blows in 18"

BPF(2nd + 3rd 6 inches)

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 77.1 Comments: 20 total good blows

High 91.4

Avg. 84.4

Std. 3.9

PLATE I-1

Second Depth

PDA xFile Name (*.*X01*) LEGACY1

PDA qFile Name (*.*Q01*) LEGACY1 PDA Blow Numbers: From 91 To 99

Depth from 35' to 37.5' **SPT Blow Counts** (each 6 inches) 5 3

BPF(2nd + 3rd 6 inches) 8

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 80 Comments: 9 total good blows

High 105.7

Avg. 88.9

Std. 8.2

Third Depth

PDA xFile Name (*.*X01*) LEGACY1

PDA qFile Name (*.*Q01*) LEGACY1 PDA Blow Numbers: From 100 To 156

Depth from 40' to 42.5' **SPT Blow Counts** (each 6 inches) 16 20 20

BPF(2nd + 3rd 6 inches) 40

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 68.5 Comments: 57 total good blows

High 94.3

Avg. 82.6

Std. 5.2

Averge EMX/0.35 (All Depths): 83.7 %

Standard Deviation (All Depths): 5.7 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Haz-Tech Date: 2-9-2000

Drilling Company Address: 3131 Lanark suite B; Meridian, ID 83607 Phone: 800-359-1502

Drill Rig Make and Model: CME-75 Equipment No. SN 227807

Driller: Chris Peterson SPT Hammer Type: Auto-Hydraulic

Condition of Hammer: Fair Weather: P.C. Temp: 50

Drill Rod Size: NWJ OD(in)____ ID(in)____ Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Bischoff

Location of Boring: I-15 / US-89 Drilling Method: Mud Rotary

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY2

PDA qFile Name (*.*Q01*) LEGACY2 PDA Blow Numbers: From 1 To 68

Depth from 61' to 62.5' **SPT Blow Counts** (each 6 inches) 20 30 19

BPF(2nd + 3rd 6 inches) 49

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 77 Comments: 68 total good blows

High 82.9

Avg. 80

Std. 1.3

PLATE I-3

Second Depth

PDA xFile Name (*.*X01*) LEGACY2

PDA qFile Name (*.*Q01*) LEGACY2 PDA Blow Numbers: From 69 To 113

Depth from 71' to 72.5' **SPT Blow Counts** (each 6 inches) 13 19 12

BPF(2nd + 3rd 6 inches) 31

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 74.3 Comments: Blow 69, bad; 44 total good blows

High 80

Avg. 78.2

Std. 1.5

Third Depth

PDA xFile Name (*.*X01*) LEGACY2

PDA qFile Name (*.*Q01*) LEGACY2 PDA Blow Numbers: From 114 To 161

Depth from 76' to 77.5' **SPT Blow Counts** (each 6 inches) 17 20 20

BPF(2nd + 3rd 6 inches) 40

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 74.3 Comments: Blow 114, bad; 47 total good blows

High 80

Avg. 77.4

Std. 1.3

Averge EMX/0.35 (All Depths): 78.7 %

Standard Deviation (All Depths): 1.8 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Layne Christensen Date: 2-23-2000

Drilling Company Address: 1707 S. 4490 W., SLC Phone: (801)972-3333

Drill Rig Make and Model: Mobile B-53 Equipment No. 5908

Driller: Christian Davis SPT Hammer Type: Automatic-Hydraulic

Condition of Hammer: Fair Weather: Cloudy Temp: 40

Drill Rod Size: AWJ OD(in) ID(in) Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Graham California OD(in) 2.5 ID(in) 2

Location of Boring: I-215 / Redwood Rd. Int. Drilling Method: Rotary Wash

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY3

PDA qFile Name (*.*Q01*) LEGACY3 PDA Blow Numbers: From 1 To 6

Depth from 35' to 37' **SPT Blow Counts** 2 3 1

BPF(2nd + 3rd 6 inches) 4

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 42.9 Comments: 6 total good blows

High 57.1

Avg. 51.4

Std. 5.2

PLATE I-5

Second Depth

PDA xFile Name (*.*X01*) LEGACY3

PDA qFile Name (*.*Q01*) LEGACY3 PDA Blow Numbers: From 7 To 24

Depth from 35' to 37.5' **SPT Blow Counts** (each 6 inches) 5 3 3 6

BPF(2nd + 3rd 6 inches) 6

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 34.3 Comments: 17 total good blows, blow #7 bad

High 74.3

Avg. 51.4

Std. 9.3

Third Depth

PDA xFile Name (*.*X01*) LEGACY3

PDA qFile Name (*.*Q01*) LEGACY3 PDA Blow Numbers: From 25 To 56

Depth from 42' to 44' **SPT Blow Counts** (each 6 inches) 7 13 11

BPF(2nd + 3rd 6 inches) 24

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 34.3 Comments: 31 total good blows, blow #56 bad

High 71.4

Avg. 58.3

Std. 8.7

Averge EMX/0.35 (All Depths): 55.4 %

Standard Deviation (All Depths): 8.8 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: R C Exploration Date: 2-28-2000

Drilling Company Address: Gusher Utah Phone: 801-722-3307

Drill Rig Make and Model: Diedrich D-120 Equipment No. 072009

Driller: Mike Labenski SPT Hammer Type: Automatic

Condition of Hammer: Good Weather: Cloudy Temp: 40

Drill Rod Size: AWJ OD(in)____ID(in)____ Sampler Size: SPT OD(in) 2.0" ID(in) 1 3/8"

PDA Operators: Sjoblom, Bischoff

Location of Boring: Legacy, Farmington (23-289) Drilling Method: HSA

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) Legacy4

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 1 To 45

Depth from 19' to 21' **SPT Blow Counts** (each 6 inches) 8 8 18 11

BPF(2nd + 3rd 6 inches) 26

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 34.3 Comments: 45 good blows recorded

High 65.7 _____

Avg. 44.3 _____

Std. 7.5

PLATE I-7

Second Depth

PDA xFile Name (*.*X01*) Legacy4

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 46 To 209

Depth from 24' to 26' **SPT Blow Counts** (each 6 inches) 24 54 49 57

BPF(2nd + 3rd 6 inches) 103

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 31.4 Comments: 163 good blows recorded; Blow #46 bad

High 65.7 ---

Avg. 43.6 ---

Std. 8.5

Third Depth

PDA xFile Name (*.*X01*) Legacy4

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 210 To 346

Depth from 28' to 30' **SPT Blow Counts** (each 6 inches) 13 26 48 50

BPF(2nd + 3rd 6 inches) 74

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 34.3 Comments: 137 good blows recorded

High 71.4 ---

Avg. 49.2 ---

Std. 8.2

Averge EMX/0.35 (All Depths): 46.0 %

Standard Deviation (All Depths): 8.7 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Haz-Tech Date: 3-1 & 3-2-2000

Drilling Company Address: 3131 Lanark suite B; Meridian, ID 83607 Phone: 800-359-1502

Drill Rig Make and Model: CME 850 Equipment No. 267652 (1995 Model)

Driller: Rick Knott SPT Hammer Type: Automatic

Condition of Hammer: Good Weather: Cloudy Temp: 45

Drill Rod Size: NWJ OD(in)____ ID(in)____ Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Graham

Location of Boring: I-215 / South side of Jordan River Drilling Method: Mud Rotary

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY5

PDA qFile Name (*.*Q01*) LEGACY5 PDA Blow Numbers: From 1 To 4

Depth from 20' to 22' **SPT Blow Counts** 2 2 1 1

BPF(2nd + 3rd 6 inches) 3

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 60.0 Comments: 4 total good blows

High 62.8

Avg. 62.1

Std. 1.2

PLATE I-9

Second Depth

PDA xFile Name (*.*X01*) LEGACY5

PDA qFile Name (*.*Q01*) LEGACY5 PDA Blow Numbers: From 7 To 14

Depth from 25' to 27' **SPT Blow Counts** (each 6 inches) 2 1 1

BPF(2nd + 3rd 6 inches) 2

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 60.0 Comments: 4 total good blows

High 65.7

Avg. 61.4

Std. 2.5

Third Depth

PDA xFile Name (*.*X01*) LEGACY5

PDA qFile Name (*.*Q01*) LEGACY5 PDA Blow Numbers: From 12 To 23

Depth from 30' to 32' **SPT Blow Counts** (each 6 inches) 1 2 3 6

BPF(2nd + 3rd 6 inches) 5

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 60.0 Comments: 12 total good blows

High 71.4

Avg. 65.5

Std. 4.4

Fourth Depth

PDA xFile Name (*.*X01*) LEGACY5A

PDA qFile Name (*.*Q01*) LEGACY5A PDA Blow Numbers: From 7 To 14

Depth from 50' to 52' **SPT Blow Counts** (each 6 inches) 4 4

BPF(2nd + 3rd 6 inches) 8

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 57.1 Comments: 8 total good blows; Readings taken on

High 60.0 3-2-00

Avg. 59.3

Std. 1.2

Third Depth

PDA xFile Name (*.*X01*) LEGACY5A

PDA qFile Name (*.*Q01*) LEGACY5A PDA Blow Numbers: From 16 To 16

Depth from 70' to 72' **SPT Blow Counts** (each 6 inches) 1 blow in 18"

BPF(2nd + 3rd 6 inches)

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 62.9 Comments: 1 total good blow; Reading taken on

High 62.9 3-2-00

Avg. 62.9

Std. 0.0

Averge EMX/0.35 (All Depths): 62.7 %

Standard Deviation (All Depths): 4.0 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Layne Christiansen Date: 3-7-2000

Drilling Company Address: 1707 S. 4490 W., SLC Phone: (801)972-3333

Drill Rig Make and Model: CME 750 Equipment No. 5908

Driller: Christian Davis SPT Hammer Type: Automatic

Condition of Hammer: Fair Weather: Cloudy Temp: 40

Drill Rod Size: AWJ OD(in) ID(in) Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Graham SPT OD(in) 2.5 ID(in) 2

Location of Boring: I-15 / US-89 Drilling Method: Rotary Wash

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY6

PDA qFile Name (*.*Q01*) LEGACY6 PDA Blow Numbers: From 1 To 7

Depth from 22' to 24' **SPT Blow Counts** 1 3 1 2

BPF(2nd + 3rd 6 inches) 4

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 60.0 Comments: 7 total good blows; California Sampler Used

High 62.9 _____

Avg. 60.4 _____

Std. 1.0

PLATE I-12

Second Depth

PDA xFile Name (*.*X01*) LEGACY6

PDA qFile Name (*.*Q01*) LEGACY6 PDA Blow Numbers: From 9 To 16

Depth from 25' to 27' **SPT Blow Counts** (each 6 inches) 0 1 3 4

BPF(2nd + 3rd 6 inches) 4

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 60.0 Comments: 8 total good blows; California Sampler Used

High 65.7

Avg. 63.9

Std. 2.0

Third Depth

PDA xFile Name (*.*X01*) LEGACY6

PDA qFile Name (*.*Q01*) LEGACY6 PDA Blow Numbers: From 18 To 31

Depth from 27' to 29' **SPT Blow Counts** (each 6 inches) 0 0 7 7

BPF(2nd + 3rd 6 inches) 7

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 62.9 Comments: 14 total good blows; SPT Sampler Used

High 68.6

Avg. 66.9

Std. 1.8

Fourth Depth

PDA xFile Name (*.*X01*) LEGACY6

PDA qFile Name (*.*Q01*) LEGACY6 PDA Blow Numbers: From 57 To 105

Depth from 32' to 34' **SPT Blow Counts** (each 6 inches)___ ___ ___ ___

BPF(2nd + 3rd 6 inches)____

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

_____

EMX/.35

Low 65.7 Comments: 49 total good blows

High 71.4 _____

Avg. 67.9 _____

Std. 1.6

Averge EMX/0.35 (All Depths): 66.6 %

Standard Deviation (All Depths): 2.8 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Layne Christensen Date: 3-7-2000

Drilling Company Address: 1707 S. 4490 W., SLC Phone: (801)972-3333

Drill Rig Make and Model: Terramec 1000 Equipment No. 5708

Driller: Jay Hulse SPT Hammer Type: Rope and Cathead

Condition of Hammer: Fair Weather: P. Cloudy Temp: 40

Drill Rod Size: AWJ OD(in) ID(in) Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Graham

Location of Boring: Layne Christensen's Yard Drilling Method: HSA

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY7

PDA qFile Name (*.*Q01*) LEGACY7 PDA Blow Numbers: From 2 To 67

Depth from 20' to 22' **SPT Blow Counts** 7 15 22 22

BPF(2nd + 3rd 6 inches) 37

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 45.7

High 74.3

High 74.3

Avg. 63.2

Std. 6.1

Comments: 66 total good blows; Used Mobile B-53 to auger down to 20' depth, then tested Terramec 1000 hammer in hole; Scott Church actually operated hammer on the Legacy project, but was unable to be there for energy test

Second Depth

PDA xFile Name (*.*X01*) LEGACY7

PDA qFile Name (*.*Q01*) LEGACY7 PDA Blow Numbers: From 69 To 115

Depth from 22' to 24' **SPT Blow Counts** (each 6 inches) 9 16 12 9

BPF(2nd + 3rd 6 inches) 28

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 48.6 Comments: 47 total good blows

High 77.1

Avg. 64.5

Std. 7.4

Averge EMX/0.35 (All Depths): 63.7 %

Standard Deviation (All Depths): 6.7 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: Layne Christensen Date: 3-7-2000

Drilling Company Address: 1707 S. 4490 W., SLC Phone: (801)972-3333

Drill Rig Make and Model: Mobile B-80 Equipment No. 6164

Driller: Jay Hulse SPT Hammer Type: Rope and Cathead

Condition of Hammer: Fair (Rusty- small 6" diam. cathead) Weather: P. Cloudy Temp: 40

Drill Rod Size: AWJ OD(in)____ ID(in)____ Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Graham

Location of Boring: Layne Christensen's Yard Drilling Method: HSA

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY8

PDA qFile Name (*.*Q01*) LEGACY8 PDA Blow Numbers: From 2 To 45

Depth from 25' to 27' **SPT Blow Counts** 6 16 11 12

BPF(2nd + 3rd 6 inches) 27

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 48.6

High 68.6

Avg. 61.3

Std. 4.6

Comments: 43 total good blows; Used Mobile B-53 to auger down to 25' depth, then tested Mobile B-80 hammer in hole; not sure who actually operated hammer on the Legacy project

Second Depth

PDA xFile Name (*.*X01*) LEGACY8

PDA qFile Name (*.*Q01*) LEGACY8 PDA Blow Numbers: From 46 To 120

Depth from 27' to 29' **SPT Blow Counts** (each 6 inches) 7 6 25 36

BPF(2nd + 3rd 6 inches) 31

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 48.6 Comments: 75 total good blows

High 68.6

Avg. 61.2

Std. 4.9

Averge EMX/0.35 (All Depths): 61.2 %

Standard Deviation (All Depths): 4.8 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: R C Exploration Date: 3-14-2000

Drilling Company Address: Gusher Utah Phone: 801-722-3307

Drill Rig Make and Model: Diedrich D-120 Equipment No. LX1366 (licence plate#)

Driller: Nathan Young SPT Hammer Type: Automatic

Condition of Hammer: Fair Weather: Cloudy Temp: 45

Drill Rod Size: AWJ OD(in) ID(in) Sampler Size: SPT OD(in) 2.0" ID(in) 1 3/8"

PDA Operators: Sjoblom, Bischoff, Ryan CAL OD(in) 2.5" ID(in) 2"

Location of Boring: Glover's Layne, West of I-15 Structure Drilling Method: HSA

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) Legacy9

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 2 To 17

Depth from 30' to 32' **SPT Blow Counts** (each 6 inches) 2 3 5 7

BPF(2nd + 3rd 6 inches) 8

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 82.9

High 105.7

Avg. 91.3

Std. 6.7

Comments: 16 good blows recorded; California Sampler used

PLATE I-19

Second Depth

PDA xFile Name (*.*X01*) Legacy9

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 18 To 43

Depth from 32' to 34' **SPT Blow Counts** (each 6 inches) 5 6 9 6

BPF(2nd + 3rd 6 inches) 15

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 68.6 Comments: 26 good blows recorded; Standard SPT Sampler

High 102.9 used

Avg. 85.4

Std. 8.2

Third Depth

PDA xFile Name (*.*X01*) Legacy9

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 45 To 65

Depth from 35' to 37' **SPT Blow Counts** (each 6 inches) 4 4 6 8

BPF(2nd + 3rd 6 inches) 10

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 80.0 Comments: 21 good blows recorded

High 100.0

Avg. 91.0

Std. 5.9

Averge EMX/0.35 (All Depths): 88.8 %

Standard Deviation (All Depths): 8.0 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: R C Exploration Date: 4-3-2000

Drilling Company Address: Gusher Utah Phone: 801-722-3307

Drill Rig Make and Model: Kilman Brainer (BK)-66 Equipment No. BK-660693-108

Driller: Rich Ibarra SPT Hammer Type: Automatic

Condition of Hammer: Fair Weather: Sunny Temp: 50

Drill Rod Size: AWJ OD(in)____ ID(in)____ Sampler Size: SPT OD(in) 2 ID(in) 1 3/8

PDA Operators: Sjoblom, Bischoff

Location of Boring: Pages Ln. South of BARD Landfill Drilling Method: HSA-8"

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 80 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) LEGACY10

PDA qFile Name (*.*Q01*) LEGACY10 PDA Blow Numbers: From 36 To 89

Depth from 50' to 52' **SPT Blow Counts** 8 10 15 19

BPF(2nd + 3rd 6 inches) 25

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 60.0 Comments: 54 total good blows

High 74.3 _____

Avg. 69.3

Std. 3.2

Second Depth

PDA xFile Name (*.*X01*) LEGACY10

PDA qFile Name (*.*Q01*) LEGACY10 PDA Blow Numbers: From 91 To 133

Depth from 60' to 62' **SPT Blow Counts** (each 6 inches) 9 8 12 13

BPF(2nd + 3rd 6 inches) 20

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 54.3 Comments: 43 total good blows

High 80.0

Avg. 67.7

Std. 5.0

Averge EMX/0.35 (All Depths): 68.6 %

Standard Deviation (All Depths): 4.2 %

Utah Department of Transportation

Geotechnical Division-SPT Hammer Calibration

Calibration Set Up Data:

Drilling Company: R C Exploration Date: 4-11-2000

Drilling Company Address: Gusher Utah Phone: 801-722-3307

Drill Rig Make and Model: Diedrich D-120 Equipment No. 072009

Driller: Mike Labenski SPT Hammer Type: Automatic

Condition of Hammer: Good-Cleaned since 2-28-00 test Weather: Sunny Temp: 55

Drill Rod Size: AWJ OD(in)____ID(in)____ Sampler Size:__ OD(in)___ID(in)___

PDA Operators: Sjoblom, Graham

Location of Boring: 4100 S. 4800 W. - West Valley Drilling Method: HSA

PDA Equipment Used: PAC S.N.1247K Strain Transducers: F1 30NWJ1 F2 30NWJ2

Accel. Transducers: A1 340 A2 353

Monitored Data:

Recommend monitoring at 3 depths between 15 and 50 feet, 2 foot interval each.

First Depth

PDA xFile Name (*.*X01*) Legacy4a

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 79 To 141

Depth from 15' to 17' **SPT Blow Counts** (each 6 inches) 6 16 21 20

BPF(2nd + 3rd 6 inches) 37

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 71.4

High 91.4

Avg. 81.3

Std. 6.3

Comments: Retest of hammer which was cleaned and lubricated since test performed on 2-28-00: 63 blows recorded

Second Depth

PDA xFile Name (*.*X01*) Legacy4a

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 143 To 210

Depth from 25' to 27' **SPT Blow Counts** (each 6 inches) 5 9 25 28

BPF(2nd + 3rd 6 inches) 34

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM*):

EMX/.35

Low 68.6 Comments: 68 blows recorded

High 94.3

Avg. 78.7

Std. 5.0

Third Depth

PDA xFile Name (*.*X01*) Legacy4a

PDA qFile Name (*.*Q01*) " PDA Blow Numbers: From 212 To 273

Depth from 35' to 37' **SPT Blow Counts** (each 6 inches) 4 9 23 26

BPF(2nd + 3rd 6 inches) 32

PDA Parameters Monitored (*Recommend EMX, ETR set ER to 0.35, EF2, FMX, DFN, BPM,*):

EMX/.35

Low 71.4 Comments: 62 blows recorded

High 85.7

Avg. 79.8

Std. 4.4

Averge EMX/0.35 (All Depths): 79.9 %

Standard Deviation (All Depths): 5.4 %

Fifteen Square cm Cone Calibration Sheet

Cone Info:

Serial #:	**AD058**		
Date:	**12-Oct-99**		
Tip Load Capacity:	1500	bar @	7.5 volts
Tip End Area	15	cm2	
Fric. Load Capacity:	15	bar @	7.5 volts
Friction Area	225	cm2	
Pressure Capacity:	500	psi @	7.5 volts
x accelerometer:	none	g	
y accelerometer:	none	g	
RTD Location:	load cell		
Geophone:	installed		

Calibrator Info:

Sensitivity:	0.000313	volt/lb.
Area Conversion:	6.4516	cm2/in2
Pressure Conversion	14.5038	psi/bar

Tip Calibration:

Baseline: -0.039 volts 301.2 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.0000	0.000	0.000	
100	1.0555	0.500	0.500	0.00%
200	2.1110	1.000	1.000	0.00%
300	3.1664	1.500	1.500	0.00%
400	4.2219	2.000	2.001	0.05%

Sleeve Calibration:

Baseline: 0.035 volts 201.7 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0.00	0.0000	0.000	0.000	
3.00	0.4750	1.500	1.501	0.07%
6.00	0.9499	3.000	2.999	-0.03%
9.00	1.4249	4.500	4.503	0.07%
12.00	1.8999	6.000	6.001	0.02%
15.00	2.3748	7.500	7.503	0.04%

Fifteen Square cm Cone Calibration Sheet

Pressure Calibration: Kulite S/N 6177-4-95 Alpha Code 046-72

Baseline: 0.111 volts 972 ohms

Pressure (psi)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.000	0.000	
100	1.500	1.497	-0.20%
200	3.000	3.003	0.10%
300	4.500	4.515	0.33%
400	6.000	6.030	0.50%
500	7.500	7.545	0.60%

X Accelerometer Calibration:

Baseline: 0 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output (volts)	Error (%)
-1	-3.530	0.000	-100.00%
1	3.530	0.000	-100.00%

Y Accelerometer Calibration:

Baseline: 0 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output	Error (%)
-1	-3.530	0.000	-100.00%
1	3.530	0.000	-100.00%

Temperature Calibration:

Baseline 3.104 volts installed in load cell

Cone Info:

Serial #:	**AD070**			
Date:	**04-May-99**			
Tip Load Capacity:	1500	bar @	7.5	volts
Tip End Area	15	cm2		
Fric. Load Capacity:	15	bar @	7.5	volts
Friction Area	225	cm2		
Pressure Capacity:	500	psi @	7.5	volts
x accelerometer:	none	g		
y accelerometer:	none	g		
RTD Location:	load cell			
Geophone:	installed			

Calibrator Info:

Sensitivity:	0.000315	volt/lb.
Area Conversion:	6.4516	cm2/in2
Pressure Conversion	14.5038	psi/bar

Tip Calibration:

Baseline: -0.225 volts 303.1 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.0000	0.000	0.000	
100	1.0622	0.500	0.501	0.20%
200	2.1244	1.000	1.002	0.20%
300	3.1867	1.500	1.504	0.27%
400	4.2489	2.000	2.007	0.35%

Sleeve Calibration:

Baseline: 0.086 volts 935.4 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0.00	0.0000	0.000	0.000	
3.00	0.4780	1.500	1.494	-0.40%
6.00	0.9560	3.000	2.998	-0.07%
9.00	1.4340	4.500	4.509	0.20%
12.00	1.9120	6.000	6.022	0.37%
15.00	2.3900	7.500	7.531	0.41%

Pressure Calibration:

Transducer: Kulite S/N 5853-2-127 Alpha Code R37-68

Baseline: -0.294 volts 935.4 ohms

Pressure (psi)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.000	0.000	
100	1.500	1.497	-0.20%
200	3.000	2.998	-0.07%
300	4.500	4.503	0.07%
400	6.000	6.011	0.18%
500	7.500	7.520	0.27%

X Accelerometer Calibration:

Baseline: 0 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output (volts)	Error (%)
-1	-3.530	0.000	-100.00%
1	3.530	0.000	-100.00%

Y Accelerometer Calibration:

Baseline: 0 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output	Error (%)
-1	-3.530	0.000	-100.00%
1	3.530	0.000	-100.00%

Temperature Calibration:

Baseline 3.221 volts installed in load cell

Fifteen Square cm Cone Calibration Sheet

Deep Cone Calibration
Adara Systems Ltd.

Cone Info:

Serial #:	**AD092**		
Date:	**01-Nov-99**		
Tip Load Capacity:	1500	bar @	7.5 volts
Tip End Area	15	cm2	
Fric. Load Capacity:	15	bar @	7.5 volts
Friction Area	225	cm2	
Pressure Capacity:	500	psi @	7.5 volts
x accelerometer:	none	g	
y accelerometer:	none	g	
RTD Location:	Geophone carrier		
Geophone:	installed		
Tilt Sensor	Adara		

Calibrator Info:

Sensitivity:	0.000313	volt/lb.
Area Conversion:	6.4516	cm2/in2
Pressure Conversion	14.5038	psi/bar

Tip Calibration:

Baseline: -0.033 volts 295.4 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.0000	0.000	0.000	
100	1.0555	0.500	0.499	-0.20%
200	2.1110	1.000	0.999	-0.10%
300	3.1664	1.500	1.499	-0.07%
400	4.2219	2.000	2.001	0.05%

Sleeve Calibration:

Baseline: 0.056 volts 199.3 ohms

Stress (bar)	Cal. Output (volts)	Desired Output (volts)	Actual Output (volts)	Error (%)
0.00	0.0000	0.000	0.000	
3.00	0.4750	1.500	1.500	0.00%
6.00	0.9499	3.000	3.001	0.03%
9.00	1.4249	4.500	4.503	0.07%
12.00	1.8999	6.000	6.000	0.00%
15.00	2.3748	7.500	7.492	-0.11%

Fifteen Square cm Cone Calibration Sheet

Pressure Calibration:

Transducer: Kulite S/N Q46-44

Baseline: 0.155 volts 1004.5 ohms

Pressure (psi)	Desired Output (volts)	Actual Output (volts)	Error (%)
0	0.000	0.000	
100	1.500	1.496	-0.27%
200	3.000	3.000	0.00%
300	4.500	4.506	0.13%
400	6.000	6.015	0.25%
500	7.500	7.525	0.33%

X Accelerometer Calibration:

Baseline: -0.817 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output (volts)	Error (%)
-15 degrees	-1.500	-1.511	0.73%
+15 degrees	1.500	1.511	0.73%

Y Accelerometer Calibration:

Baseline: -0.03 volts not installed on creation

Acceleration (g)	Desired Output (volts)	Actual Output	Error (%)
-15 degrees	-1.500	-1.538	2.53%
+15 degrees	1.500	1.538	2.53%

Temperature Calibration:

Baseline 3.413 volts installed in geophone carr

Daily Baseline Summary

Project No.: 00-300	Date: 12/20/99
Project Location: LEGACY – PARISH LANE	Rig TRUCK
Client/Rep: KLEINFELDER/ GREG	Operator: REP/ JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1:392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 058/.015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. WC-24-203	Tip	-.107	-.096	.011	220.0	-220.0
Elevation (ft)	Sleeve	.040	.036			—
Northing or Latitude	PP	.149	.116	-.033	-15.2	+15.2
Easting or Latitude	Temp	1.200	2.359			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP01.DAT

Sounding Info Cone/Size 058/.015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. WC 17-214	Tip	-.101	-.101			—
Elevation (ft)	Sleeve	.038	.042			—
Northing or Latitude	PP	.124	.148	.024	11.0	-11.0
Easting or Latitude	Temp	2.138	1.933			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP02.DAT

Sounding Info Cone/Size 058/.015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. WC 15-220	Tip	-.106	-.100			—
Elevation (ft)	Sleeve	.030	.043	.013	2.6	-2.6
Northing or Latitude	PP	.126	.130			—
Easting or Latitude	Temp	2.102	2.009			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP03.DAT

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-7

GREGG

Daily Baseline Summary

CONETEC

Project No.: CC-300	Date: 12/21/99
Project Location: Legacy Highway Parish Lane	Rig Truck
Client/Rep: Kleinfelder / Greg	Operator: RP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 05B/.015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. CC-15-221	Tip	-.113	-.100	.013	260.0	-260.0
Elevation (ft)	Sleeve	.028	.041	.013	2.6	-2.6
Northing or Latitude	PP	.157	.130	-.027	-12.4	+12.4
Easting or Latitude	Temp	.619	1.917			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300PC4.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Ma. (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-8

GREGG

Daily Baseline Summary

CONETEC

Project No.: OC-300 Project Location: LEGACY HIGHWAY - PARISH LANE Client/Rep: KLEINFELDER / JEFF	Date: 01-06-00 Rig TRUCK Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-15-220B	Tip	-.107	-.104			
Elevation (ft)	Sleeve	.028	.034			
Northing or Latitude	PP	.145	.125	-.020	-9.2	+9.2
Easting or Latitude	Temp	1.234	2.032			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP05.DAT

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-17-214B	Tip	-.102	-.103			
Elevation (ft)	Sleeve	.031	.033			
Northing or Latitude	PP	.127	.138	.011	5.1	-5.1
Easting or Latitude	Temp	2.107	2.312			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP06.DAT

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-16-223B	Tip	-.099	-.104			
Elevation (ft)	Sleeve	.029	.037			
Northing or Latitude	PP	.118	.147	.029	13.3	-13.3
Easting or Latitude	Temp	2.547	1.678			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25 m)	Water Table (ft):	CPT File: 300CP07.DAT

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-9

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-07-00
Project Location: LEGACY HIGHWAY / HWY 89	Rig TRUCK
Client/Rep: KLEINFELDER / MARK	Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 058/1015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-13-235	Tip	-.106	-.101			
Elevation (ft)	Sleeve	.023	.032			
Northing or Latitude	PP	.121	.118			
Easting or Latitude	Temp	1.689	2.103			

Pre-bore (ft):	Start Depth (ft): 0	Final Depth (ft): 46.75 (14.25m)	Water Table (ft):	CPT File: 300CP08.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-10-232	Tip	-.099	-.107			
Elevation (ft)	Sleeve	.040	.050			
Northing or Latitude	PP	.113	.129	.016	7.4	-7.4
Easting or Latitude	Temp	2.219	2.403			

Pre-bore (ft):	Start Depth (ft): 0	Final Depth (ft): 50.03 (15.25 m)	Water Table (ft):	CPT File: 300CP09.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-9-227	Tip	-.097	-.101			
Elevation (ft)	Sleeve	.041	.051			
Northing or Latitude	PP	.108	.126	.018	8.3	-8.3
Easting or Latitude	Temp	2.700	2.271			

Pre-bore (ft):	Start Depth (ft): 0	Final Depth (ft): 47.24 (14.4 m)	Water Table (ft):	CPT File: 300CP10.DAT

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-10

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-10-00
Project Location: LEGACY HIGHWAY - PARISH LANE	Rig TRUCK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP / JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size OSB .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-22-207	Tip	-.107	-.100			
Elevation (ft)	Sleeve	.032	.037			
Northing or Latitude	PP	.132	.122			
Easting or Latitude	Temp	1.241	1.806			

Pre-bore (ft): CASED	Start Depth (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP11.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-16-269	Tip	-.099	-.100			
Elevation (ft)	Sleeve	.038	.040			
Northing or Latitude	PP	.120	.116			
Easting or Latitude	Temp	1.891	2.165			

Pre-bore (ft): CASED	Start Depth (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP12.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-15-267	Tip	-.099	-.103			
Elevation (ft)	Sleeve	.040	.053	.013	2.6	-2.6
Northing or Latitude	PP	.119	.119			
Easting or Latitude	Temp	2.036	2.567			

Pre-bore (ft): CASED	Start Depth (ft): 0	Final Depth (ft): 48.23 (14.7m)	Water Table (ft):	CPT File: 300CP13.DAT

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-11

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-12-00
Project Location: LEGACY HIGHWAY - PARISH LANE	Rig TRUCK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-16-269A	Tip	-.101	-.097			—
Elevation (ft)	Sleeve	.032	.053	.021	4.2	-4.2
Northing or Latitude	PP	.117	.145	.028	12.9	-12.9
Easting or Latitude	Temp	1.915	2.441			

Pre-bore (ft): CASED	Start Depth: (ft): 0	Final Depth (ft): 181.59 (55.35m)	Water Table (ft):	CPT File: 300CP12A.DAT

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Ma (-Δ Eng.)
Hole No. WC-10-234	Tip	-.094	-.106	-.012	-240.0	+240.0
Elevation (ft)	Sleeve	.046	.054			—
Northing or Latitude	PP	.114	.124			—
Easting or Latitude	Temp	2.258	2.273			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 (15.25m)	Water Table (ft):	CPT File: 300CP14.DAT

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-14-237	Tip	-.098	-.096			—
Elevation (ft)	Sleeve	.045	.048			—
Northing or Latitude	PP	.109	.112			—
Easting or Latitude	Temp	2.365	2.416			

Pre-bore (ft): 42.0'	Start Depth: (ft): 0	Final Depth (ft): 48.23 14.7m	Water Table (ft):	CPT File: 300CP15.DAT

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-12

Daily Baseline Summary

Project No.: 00-300	Date: 01-13-00
Project Location: LEGACY HIGHWAY	Rig TREKK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-15-2666	Tip	-.106	-.108			
Elevation (ft)	Sleeve	.034	.036			
Northing or Latitude	PP	.106	.112			
Easting or Latitude	Temp	2.023	2.345			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
CASED	0	170.11 (51.85 m)		300CP16.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values:	Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-14-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP / JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-13-307	Tip	-.112	-.099	.013	260.0	-260.0
Elevation (ft)	Sleeve	.029	.052	.023	4.6	-4.6
Northing or Latitude	PP	.149	.201	.052	23.9	-23.9
Easting or Latitude	Temp	.674	2.026			

Pre-bore (ft):	Start Depth (ft): 0	Final Depth (ft): 196.34 (63.75 m)	Water Table (ft):	CPT File: 300CP17.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Ma (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-14

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300 Project Location: LEGACY HIGHWAY Client/Rep: KLEINFELDER / MARTIN	Date: 01-17-00 Rig TRACK RIG Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 056 .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-14-311	Tip	-.100	-.092			
Elevation (ft)	Sleeve	.044	.053			
Northing or Latitude	PP	.142	.131	-.011	-5.1	+5.1
Easting or Latitude	Temp	1.918	1.818			

Pre-bore (ft):	Start Depth: (ft): Ø	Final Depth (ft): 133.04 (40.55m)	Water Table (ft):	CPT File: 300CP18.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-15

GREGG

Daily Baseline Summary

CONETEC

Project No.: CO-300	Date: 01-18-00
Project Location: LEGACY HIGHWAY	Rig TRACK RIG
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-13-306	Tip	-.101	-.093			—
Elevation (ft)	Sleeve	.043	.054	.011	2.2	-2.2
Northing or Latitude	PP	.152	.168	.016	7.4	-7.4
Easting or Latitude	Temp	.964	1.787			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 160.26 (45.8m)	Water Table (ft):	CPT File: 300CP19.DAT

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Mac (-Δ Eng.)
Hole No. SC-14-310	Tip	-.094	-.092			—
Elevation (ft)	Sleeve	.040	.054	.014	2.8	-2.8
Northing or Latitude	PP	.125	.139	.014	6.4	-6.4
Easting or Latitude	Temp	1.951	1.810			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 160.43 (48.9m)	Water Table (ft):	CPT File: 300CP20.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-16

GREGG

CONETEC

Daily Baseline Summary

Project No.: 00-300	Date: 01-19-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JOSH

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. WC-24-203B	Tip	-.102	-.092	.010	200	-200
Elevation (ft)	Sleeve	.040	.048			—
Northing or Latitude	PP	.145	.124	-.021	-9.7	+9.7
Easting or Latitude	Temp	1.048	1.819			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	50.03 (15.25m)		300CP21.DAT

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. WC-18-217	Tip	-.090	-.094			—
Elevation (ft)	Sleeve	.049	.049			—
Northing or Latitude	PP	.117	.148	.031	14.3	-14.3
Easting or Latitude	Temp	2.513	1.515			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	50.03 (15.25m)		300CP22.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-17

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-20-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-17-207	Tip	-.100	-.092			/
Elevation (ft)	Sleeve	.043	.055	.012	2.4	-2.4
Northing or Latitude	PP	.157	.165			/
Easting or Latitude	Temp	.644	1.815			

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	135.5 (41.3m)		300CP23.DAT

Sounding Info 058 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Mad (-△ Eng.)
Hole No. SC-18-273	Tip	-.093	-.091			/
Elevation (ft)	Sleeve	.049	.056			/
Northing or Latitude	PP	.124	.197 ?			
Easting or Latitude	Temp	2.083	1.944			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	142.88 (43.55 m)		300CPZ4.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-18

GREGG

Daily Baseline Summary

CONETEC

Project No.: CC-300	Date: 01-21-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info / Cone/Size 058 / 1015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-28-318	Tip	-.104	-.099			—
Elevation (ft)	Sleeve	.035	.046	.011	2.2	-2.2
Northing or Latitude	PP	.127	.127			—
Easting or Latitude	Temp	1.626	2.096			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.03 / 15.25 m	Water Table (ft):	CPT File: 300CPZS.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth. (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft)	Final Depth (ft)	Water Table (ft)	CPT File.

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-19

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-26-00
Project Location: LEGACY HIGHWAY	Rig TRACK RIG
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/GBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1 333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size 1015	Channel	Start Baseline (Volts)	End Baseline (Volts)	⌐ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-12-269	Tip	-.097	-.094			—
Elevation (ft)	Sleeve	.044	.064	.02	4.0	-4.0
Northing or Latitude	PP	.131	.204 ?			
Easting or Latitude	Temp	2.388	1.890			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 111.56 (33.7m)	Water Table (ft):	CPT File: 300CP26.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	⌐ Eng Value (△ Volt X Calib)	Correction Ma (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft)	Start Depth: (ft)	Final Depth (ft):	Water Table (ft).	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Volt End-Start	⌐ Eng Value (△ Volt X Calib)	Correction Made (-⌐ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft)	Start Depth (ft)	Final Depth (ft).	Water Table (ft)	CPT File:

Conversion Values	Depth. 1m=3.28 ft — Pressure/Stress 1 bar=100 kPa = 1 044 tsf = 14 50 psi = 10 19m = 33 4 ft.

PLATE J-20

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-27-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133 3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1:392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 058 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-27-316	Tip	-.102	-.095			/
Elevation (ft)	Sleeve	.042	.052	.010	2.0	-2.0
Northing or Latitude	PP	.172	.133	-.039	-17.9	+17.9
Easting or Latitude	Temp	.540	1.590			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 30.02 (9.15m)	Water Table (ft).	CPT File: 300CP27.DAT

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-10-301	Tip	-.045	-.031			/
Elevation (ft)	Sleeve	.049	.062	.013	2.6	-2.6
Northing or Latitude	PP	.006	.018	.012	5.5	-5.5
Easting or Latitude	Temp	.017	.027			

Pre-bore (ft).	Start Depth: (ft) 0	Final Depth (ft): 172.36 (52.55m)	Water Table (ft):	CPT File: 300CP28.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft).	Start Depth: (ft)	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values. Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-21

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 01-28-00
Project Location: LEGACY HIGHWAY	Rig TRACK RIG
Client/Rep: KLEINFELDER / MARTIN	Operator: REP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-10-302	Tip	-.047	-.067	-.02	-400	+400
Elevation (ft)	Sleeve	.045	.056	.011	2.2	-2.2
Northing or Latitude	PP	.009	.006			—
Easting or Latitude	Temp	-.009	.022			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 17.06 (5.2m)	Water Table (ft):	CPT File: 300CP29.DAT

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction M. (-△ Eng.)
Hole No. SC-10-302	Tip	-.067	-.063			—
Elevation (ft)	Sleeve	.056	.064			—
Northing or Latitude	PP	.006	.025	.019	8.74	-8.7
Easting or Latitude	Temp	.022	.025			

Pre-bore (ft): SEE ABOVE	Start Depth: (ft): 0	Final Depth (ft): 146.0 (44.5m)	Water Table (ft):	CPT File: 300CP29A.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-22

GREGG

Daily Baseline Summary

CONETEC

Project No.: CO-300	Date: 01-31-00
Project Location: LEGACY HIGHWAY	Rig TRUCK RIG
Client/Rep: KLEINFELDER/	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-11-261	Tip	-.067	-.062			—
Elevation (ft)	Sleeve	.048	.058	.010	2.0	-2.0
Northing or Latitude	PP	.004	.008			—
Easting or Latitude	Temp	.005	.020			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 168.96 (51.5 m)	Water Table (ft):	CPT File: 300CP30.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-11-260	Tip	-.062	-.059			—
Elevation (ft)	Sleeve	.058	.063			—
Northing or Latitude	PP	.008	.013			—
Easting or Latitude	Temp	.020	.023			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 169.13 (51.55m)	Water Table (ft):	CPT File: 300CP31.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 1/31/00
Project Location: GROVERS LANE	Rig TRUCK
Client/Rep: KLEINFELDER / JEFF	Operator: SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 010	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-19-277	Tip	-.023	-.038			—
Elevation (ft)	Sleeve	.080	.079			—
Northing or Latitude	PP	-.156	-.124	.032	14.7	-14.7
Easting or Latitude	Temp	2.802	1.825			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 99.90 (30.45m)	Water Table (ft):	CPT File: 300PZT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Mad (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-01-00
Project Location: LEGACY HIGHWAY	Rig TRACK RIG
Client/Rep: KLEINFELDER / MARTIN	Operator: REP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-29-321	Tip	-.0606	-.060			—
Elevation (ft)	Sleeve	.048	.062	.014	2.8	-2.8
Northing or Latitude	PP	.009	.012			—
Easting or Latitude	Temp	.000	.024			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	50.03 8.5 m		300CP33.DAT

Sounding Info 092 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-5-296	Tip	-.064	-.061			—
Elevation (ft)	Sleeve	.054	.064	.010	2.0	-2.0
Northing or Latitude	PP	.009	.040	.031	14.3	-14.3
Easting or Latitude	Temp	.014	.026			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	135.83 (41.4m)		300CP34.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft).	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-02-00
Project Location: LEGACY HIGHWAY	Rig TRUCK RIG
Client/Rep: KLEINFELDER/GREG	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .019	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-5-295	Tip	-.072	-.059	.013	260	-260
Elevation (ft)	Sleeve	.041	.064	.023	4.6	-4.6
Northing or Latitude	PP	.008	.021	.013	6.0	-6.0
Easting or Latitude	Temp	-.001	.025			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 135.8 (41.4m)	Water Table (ft):	CPT File: 300CP35.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction I. (-Δ Eng.)
Hole No. SC-6-329	Tip	-.060	-.058			
Elevation (ft)	Sleeve	.060	.064			
Northing or Latitude	PP	.010	.026	.026	12.0	-12.0
Easting or Latitude	Temp	.022	.026			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 131.56 (40.1m)	Water Table (ft):	CPT File: 300CP37.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETE

Project No.: 00-300	Date: 2/2/00
Project Location: LEGACY (GLOVERS LANE)	Rig TRUCK
Client/Rep: KLEINFELDER/NICKEL	Operator: SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 610	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Mac (-△ Eng.)
Hole No. SC-19-275	Tip	-.025	-.025			—
Elevation (ft)	Sleeve	0.075	.084			—
Northing or Latitude	PP	-.144	-.141			—
Easting or Latitude	Temp	1.966	2675			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
CASED	0	133.37 (40.65m)		300xP01

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Mac (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Ma (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-27

Daily Baseline Summary

Project No.: 00-300	Date: 02-03-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER/ GREG-	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info / Cone/Size 092 / .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-5-294	Tip	-.070	-.061			—
Elevation (ft)	Sleeve	.047	.063	.016	3.2	-3.2
Northing or Latitude	PP	.011	.019			—
Easting or Latitude	Temp	-.010	.024			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	123.03 (37.5m)		300CP38.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Mac (-Δ Eng.)
Hole No. SC-1-245	Tip	-.065	-.060			—
Elevation (ft)	Sleeve	.057	.063			—
Northing or Latitude	PP	.011	.013			—
Easting or Latitude	Temp	.020	.025			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	130.58 (39.8m)		300CP39.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-28

Daily Baseline Summary

Project No.: 00-300 Project Location: LEGACY HIGHWAY Client/Rep: KLEINFELDER/MARTIN	Date: 02-04-00 Rig TRUCK Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 070 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. S-13-305	Tip	-.096	-.099			/
Elevation (ft)	Sleeve	.043	.048			/
Northing or Latitude	PP	.133	.145	.012	5.5	-5.5
Easting or Latitude	Temp	1.836	1.985			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 145.01 (44.2m)	Water Table (ft):	CPT File: 305CP40.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft)	Start Depth: (ft):	Final Depth (ft):	Water Table (ft).	CPT File

Conversion Values:	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1 044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-07-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/JBS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66 67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .015"	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No SC-6-330	Tip	-.077	-.060	.017	340	-340
Elevation (ft)	Sleeve	.038	.063	.075	5.0	-5.0
Northing or Latitude	PP	.003	.013	.010	4.6	-4.6
Easting or Latitude	Temp	.001	.025			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 147.14 (44.85m)	Water Table (ft):	CPT File: 300CP41.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Mad (-Δ Eng.)
Hole No. SC-6-331	Tip	-.061	-.059			—
Elevation (ft)	Sleeve	.061	.063			—
Northing or Latitude	PP	.013	.035	022	10.1	-10.1
Easting or Latitude	Temp	.024	.026			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft) 117.29 35.75 m	Water Table (ft).	CPT File: 300CP42.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft)	Start Depth: (ft)	Final Depth (ft).	Water Table (ft)	CPT File

Conversion Values	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1 044 tsf = 14 50 psi = 10 19m = 33 4 ft

PLATE J-30

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-08-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER/ MARTIN	Operator: REP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size 1015	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-6-332	Tip	-.065	-.061			✓
Elevation (ft)	Sleeve	.054	.060			✓
Northing or Latitude	PP	.006	.007			✓
Easting or Latitude	Temp	.022	.024			

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	120.08 (36.6m)		300CP43.DAT

Sounding Info Cone/Size --	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-31

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-09-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER /	Operator: REP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-6-324	Tip	-.060	-.058			
Elevation (ft)	Sleeve	.058	.063			
Northing or Latitude	PP	.000	.005			
Easting or Latitude	Temp	.032	.025			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 142.06 / 43.3	Water Table (ft):	CPT File: 300CP44.DAT
	0			

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Ma (-Δ Eng.)
Hole No. SC-6-325	Tip	-.062	-.060			
Elevation (ft)	Sleeve	.060	.061			
Northing or Latitude	PP	.005	.003			
Easting or Latitude	Temp	.028	.024			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 137.14 (41.8m)	Water Table (ft):	CPT File: 300CP45.DAT
	0			

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-32

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-10-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER/MARTIN	Operator: REP/SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 Cone/Size .015"	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-23-290B	Tip	-.067	-.120	-.053	-1060	1060
Elevation (ft)	Sleeve	.054	.062			—
Northing or Latitude	PP	-.006	-.002			—
Easting or Latitude	Temp	.043	.025			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 50.52 (15.4m)	Water Table (ft):	CPT File: 300CP46.DAT 300CP46.DFT

Sounding Info Cone/Size 090	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-24-257	Tip	-.129	-.115	.014	280	-280
Elevation (ft)	Sleeve	.042	.037	.025	5.0	-5.0
Northing or Latitude	PP	-.008	-.005			—
Easting or Latitude	Temp	.022	.024			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft): 61.35 (18.7m)	Water Table (ft):	CPT File: 300cp47

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-14-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER / MARTIN	Operator: REP/SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139 2 tsf/volt–133.3 bar/volt	1500 bar 208 8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4 80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-19-278	Tip	-.123				
Elevation (ft)	Sleeve	.051				
Northing or Latitude	PP	.009				
Easting or Latitude	Temp	.008				

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): Refusal 35m	Water Table (ft):	CPT File: 300CP48.DAT

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Ma. (-Δ Eng.)
Hole No. SC-19-278	Tip	-.113	-.114			
Elevation (ft)	Sleeve	.059	.067			
Northing or Latitude	PP	.008	.011			
Easting or Latitude	Temp	.012	.025			

Pre-bore (ft) 3'	Start Depth: (ft) 0	Final Depth (ft) 180.94 (55.15 m)	Water Table (ft)	CPT File: 300CP48A.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth. (ft)	Final Depth (ft)	Water Table (ft)	CPT File

Conversion Values: Depth. 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10 19m = 33 4 ft

PLATE J-34

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-15-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / MARTIN	Operator: RED/SAS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-27-342	Tip	-.111	-.103			—
Elevation (ft)	Sleeve	.066	.075			—
Northing or Latitude	PP	.002	.005			—
Easting or Latitude	Temp	.031	.027			

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	45.28 (13.8 m)		300CP49.DAT

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-27-343	Tip	-.108	-.104			—
Elevation (ft)	Sleeve	.066	.076	.010	2.0	-2.0
Northing or Latitude	PP	.003	.003			—
Easting or Latitude	Temp	.021	.032			

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	39.53 (12.05m)		300CP50.DAT

Sounding Info 092 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-22-286	Tip	-.113	-.104			—
Elevation (ft)	Sleeve	.061	.078	.017	3.4	-3.4
Northing or Latitude	PP	.011	.010			—
Easting or Latitude	Temp	.030	.027			

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	77.20 (23.55m)		300CP51.DAT

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-35

GREGG

Daily Baseline Summary

CONETEC

Project No.: CC-300	Date: 2/16/00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER/MOSTIN	Operator: REP/SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 092 / Cone/Size 15	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-21-283	Tip	-.122	-.113			—
Elevation (ft)	Sleeve	.049	.068	.019	3.8	-3.8
Northing or Latitude	PP	-.099	-.096			—
Easting or Latitude	Temp	.005	.025			

Pre-bore (ft): ~3.5' OF CASING	Start Depth: (ft): 0	Final Depth (ft): 77.07 (24.10m)	Water Table (ft):	CPT File: 300P52

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Mac (-Δ Eng.)
Hole No. SC-27-3A1	Tip	-.113	-.118			—
Elevation (ft)	Sleeve	.0606	.068			—
Northing or Latitude	PP	-.005	-.004			—
Easting or Latitude	Temp	.010	.022			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 49.05 (14.95m)	Water Table (ft):	CPT File: 300P53

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-36

GREGG

Daily Baseline Summary

CONETE

Project No.: 00-300	Date: 2/22/00
Project Location: Highway Hwy	Rig TRUCK
Client/Rep: KLEINFELDER / GREGG	Operator: SDS/TRP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info / Cone/Size 092	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-2A-256	Tip	-.116	-.105	.011	2.20	-2.20
Elevation (ft)	Sleeve	.108	.121	.013	2.6	-2.6
Northing or Latitude	PP	.004	.003			✓
Easting or Latitude	Temp	.020	.025			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
0	0	39.37 (12.0m)		300cp54

Sounding Info / Cone/Size 058 .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-23-290A	Tip	-.095	-.093			✓
Elevation (ft)	Sleeve	.040	.056	.016	3.2	-3.2
Northing or Latitude	PP	.120	.132	.012	5.52	-5.5
Easting or Latitude	Temp	2.457	2.051			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	42.98' 13.10m		300CP55.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-37

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 02-23-00
Project Location: LEGACY HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / GREG	Operator: REP/SDS

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-1-244	Tip	-.099	-.090			—
Elevation (ft)	Sleeve	.040	.060	.020	A.O	-4.0
Northing or Latitude	PP	.145	.197	.052	239	-24.0
Easting or Latitude	Temp	1.324	1.811			

Pre-bore (ft):	Start Depth: (ft) 0	Final Depth (ft): 125.0 (38.1 m)	Water Table (ft):	CPT File: 300CP56.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-38

GREGG

CONETEC

Daily Baseline Summary

Project No.: CC-300	Date: 02-28-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER/BRYANT	Operator: REP/TOM

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2 00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 070 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No CC-29-349	Tip	.018	-.024	-.042	-840	+840
Elevation (ft)	Sleeve	-.005	.083	.088	17.6	-17.6
Northing or Latitude	PP	.026	-.134	-.160	-73.7	+73.7
Easting or Latitude	Temp	.012	2.492			

Pre-bore (ft): 2.0	Start Depth: (ft):	Final Depth (ft): 55.94 (17.05m)	Water Table (ft):	CPT File: 300PS7.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft).	Start Depth: (ft).	Final Depth (ft):	Water Table (ft).	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft).	Start Depth: (ft).	Final Depth (ft)	Water Table (ft):	CPT File:

Conversion Values:	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10 19m = 33.4 ft.

Daily Baseline Summary

Project No.: 00-300	Date: 02-29-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER / TIM	Operator: REP / TOM

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 070 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-25-335	Tip	-.017	-.017			
Elevation (ft)	Sleeve	.081	.085			
Northing or Latitude	PP	-.150	-.155			
Easting or Latitude	Temp	2.094	2.265			

Pre-bore (ft): ± 2.0	Start Depth: (ft): 0	Final Depth (ft): 51.51 (15.7m)	Water Table (ft):	CPT File: 300CPS8.DAT

Sounding Info 070 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Ma (-Δ Eng.)
Hole No. SC-26-338	Tip	-.020	-.017			
Elevation (ft)	Sleeve	.079	.085			
Northing or Latitude	PP	-.153	-.140	.013	6.0	-6.0
Easting or Latitude	Temp	2.256	2.487			

Pre-bore (ft): ± 2.0	Start Depth: (ft): 0	Final Depth (ft): 53.97 (16.45m)	Water Table (ft):	CPT File: 300CPS9.DAT

Sounding Info / Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-27-344	Tip	-.017	-.017			
Elevation (ft)	Sleeve	.085	.086			
Northing or Latitude	PP	-.160	-.163			
Easting or Latitude	Temp	2.543	2.412			

Pre-bore (ft): ± 2.0	Start Depth: (ft): 0	Final Depth (ft): 48.23 (14.7m)	Water Table (ft):	CPT File: 300CP60.0 AJ

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-40

GREGG

CONETEC

Daily Baseline Summary

Project No.: 00-300 Project Location: Legacy Highway Client/Rep: Kleinfelder / NIGILE	Date: 03-01-00 Rig TRUCK Operator: REP/TOM

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2 088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 070 Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	∠ Volt End-Start	△ Eng. Value (∠ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-22-287	Tip	-.019	-.022			
Elevation (ft)	Sleeve	.076	.084			
Northing or Latitude	PP	-.146	-.162	-.016	-7.4	+7.4
Easting or Latitude	Temp	1.604	2.681			

Pre-bore (ft): 2.0	Start Depth (ft):	Final Depth (ft): 76.11 23.2m	Water Table (ft):	CPT File: 300CP61.DAT

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	∠ Volt End-Start	△ Eng. Value (∠ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth (ft):	Final Depth (ft):	Water Table (ft).	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	∠ Volt End-Start	△ Eng. Value (∠ Volt X Calib)	Correction Made (-△ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft).	Start Depth: (ft)	Final Depth (ft)	Water Table (ft):	CPT File

Conversion Values:	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar≈100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-41

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 03-02-00
Project Location: LEGACY HIGHWAY	Rig TRUCK
Client/Rep: KLEINFELDER / NIBIL	Operator: REP/TOM

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info 070 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. WC-9-230	Tip	-.018	-.015			/
Elevation (ft)	Sleeve	.089	.088			/
Northing or Latitude	PP	-.149	-.143			/
Easting or Latitude	Temp	1.568	1.765			

Pre-bore (ft): ≈ 2.0'	Start Depth: (ft): 0	Final Depth (ft): 38.55 (11.75m)	Water Table (ft):	CPT File: 300CPT02.DAT

Sounding Info 070 / Cone/Size .015	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction (-Δ Eng.)
Hole No. SC-19-280	Tip	-.023	-.024			/
Elevation (ft)	Sleeve	.076	.083			/
Northing or Latitude	PP	-.147	-.124	.023	10.6	-10.6
Easting or Latitude	Temp	1.649	2.475			

Pre-bore (ft): ≈ 2.0'	Start Depth: (ft): 0	Final Depth (ft): 66.76' (20.35m)	Water Table (ft):	CPT File: 300CPT03.DAT

Sounding Info / Cone/Size 070	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-6-326	Tip	-.024	-.022			/
Elevation (ft)	Sleeve	.083	-.0894			/
Northing or Latitude	PP	-.161	-.122	.039	17.9	-17.9
Easting or Latitude	Temp	1.980	2.237			

Pre-bore (ft): 0	Start Depth: (ft): 0	Final Depth (ft): 139.1 (42.4m)	Water Table (ft):	CPT File: 300CPT04

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-42

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 5/1/00
Project Location: CELERY HIGHWAY	Rig: TRACK
Client/Rep: KLEINFELDER / MICHELLE	Operator: EEP/DP

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

SE/SEISMIC

Sounding Info 070 Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-14-312	Tip	-.008	-.006			
Elevation (ft)	Sleeve	.090	.092			
Northing or Latitude	PP	-.151	-.117	.034	15.64	-15.64
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 122.5 (37.2m)	Water Table (ft):	CPT File: 300P05

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values:	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-43

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 5/2/00
Project Location: LEGACY HIGHWAY	Rig: TRUCK
Client/Rep: KLEINFELDER/MICHELLE	Operator: REP/DB

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 010	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	∠ Eng. Value (Δ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No. SC-31-356	Tip	-.011	-.008			
Elevation (ft)	Sleeve	.088	.090			
Northing or Latitude	PP	-.157	-.124	.033	15.18	-15.18
Easting or Latitude	Temp	2.083	2.533			

Pre-bore (ft)	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:
	0	155.51 (47.4m)		300pa

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	∠ Eng. Value (∠ Volt X Calib)	Correction Ma (-Δ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft)	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	Δ Volt End-Start	Δ Eng. Value (∠ Volt X Calib)	Correction Made (-Δ Eng.)
Hole No	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft)	Start Depth: (ft)	Final Depth (ft)	Water Table (ft)	CPT File

Conversion Values. Depth. 1m=3,28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14 50 psi = 10.19m = 33.4 ft

PLATE J-44

GREGG

CONETEC

Daily Baseline Summary

Project No.: 00-300 Project Location: LEGACY HIGHWAY Client/Rep: KLEINFELDER	Date: MAY 3, 00 Rig TRUCK Operator: DB, RAY

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 07C	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SL-31-353	Tip	-.008	-.007			
Elevation (ft)	Sleeve	.097	.093			
Northing or Latitude	PP	-.163	-.139	.024	11.04	-11.0
Easting or Latitude	Temp	3.287	2.697			

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File: 300pc07

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values:	Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

GREGG

Daily Baseline Summary

CONETEC

Project No.: 00-300	Date: 5/4/00
Project Location: CECIL CO. HIGHWAY	Rig TRACK
Client/Rep: KLEINFELDER / NIGEL	Operator: REP / DB

Calibrations @ 7.5Volts	Standard 10 cm² cone	Standard 15 cm² cone
Tip	1000 bar–139.2 tsf/volt–133.3 bar/volt	1500 bar 208.8 tsf/volt–200 bar/volt
Friction	10 bar–1.392 tsf/volt–1.333 bar/volt	15 bar 2.088 tsf/volt–2.00 bar/volt
Pore Pressure	Both cones: 500 psi–66.67 psi/volt–4.80 tsf/volt–153.8 ft/volt–46.87 m/volt	

Sounding Info Cone/Size 010	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No. SC-33-358	Tip	-.002	-.003			
Elevation (ft)	Sleeve	.093	.094			
Northing or Latitude	PP	-.136	-.111	.025	11.50	-11.50
Easting or Latitude	Temp	3.439	2.275			

Pre-bore (ft):	Start Depth: (ft): 0	Final Depth (ft): 119.91 (36.55m)	Water Table (ft):	CPT File: 300pc010

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction I (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Sounding Info Cone/Size	Channel	Start Baseline (Volts)	End Baseline (Volts)	△ Volt End-Start	△ Eng. Value (△ Volt X Calib)	Correction Made (-△ Eng.)
Hole No.	Tip					
Elevation (ft)	Sleeve					
Northing or Latitude	PP					
Easting or Latitude	Temp					

Pre-bore (ft):	Start Depth: (ft):	Final Depth (ft):	Water Table (ft):	CPT File:

Conversion Values: Depth: 1m=3.28 ft — Pressure/Stress: 1 bar=100 kPa = 1.044 tsf = 14.50 psi = 10.19m = 33.4 ft.

PLATE J-46

Appendix H

KLEINFELDER
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MEMORANDUM

To: Mr. K.N. Gunalan, P.E.
Parsons, Brinckerhoff

From: Chris T. Garris, P.E.
Corbett M. Hansen, E.I.T.
Curt Christensen, P.E.

Date: May 8, 2001

File # 03CDR	Doc. # 002
Route to:	
Scanned 5.14.01	

Subject: Methodology for Evaluating Liquefaction Potential and Estimating Liquefaction-Induced Settlement

This memorandum describes the methodology proposed for evaluation of the liquefaction potential and estimation of liquefaction-induced settlement for the proposed Legacy Parkway alignment.

BACKGROUND

Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to pore 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 settlement of overlying layers as excess pore water pressures are dissipated. The primary factors affecting liquefaction of a soil deposit are: (1) level and duration of seismic ground motions; (2) soil type and relative density; and (3) depth to groundwater.

Results of a preliminary investigation of the subsurface soil conditions along the proposed roadway alignment were presented in the Report of Geotechnical Field and Laboratory Investigations, Legacy Parkway Preferred Alternative, Salt Lake and Davis Counties, Utah, dated June 2, 2000. Section 5.2.2 of the above-referenced report, Surficial Geology, indicates the proposed alignment is underlain predominately by unconsolidated Quaternary deposits overlying bedrock at depths ranging from approximately 180 to 770 meters. The Quaternary deposits consist predominately of fine-grained soils related to regressive lake cycles. Lateral-spread deposits derived from older lacustrine deposits, which failed due to liquefaction are located near the northern portion of the proposed alignment. These deposits are reported to have moved on four different occasions in response to prehistoric earthquake loads and/or high water levels on the Great Salt Lake.

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FIELD INVESTIGATION

Available subsurface data from the above-referenced report include soil classification, Standard Penetration Test (SPT) blow count, Cone Penetration Test (CPT) soundings, and laboratory test data.

METHODOLOGY

Liquefaction potential will be calculated using available SPT and CPT data and methods presented in Youd and Idriss, 1997. Peak horizontal ground acceleration (PHA) values for the proposed alignment will be obtained from Frankel et. al. as presented on the U. S. Geologic Survey web site (USGS 2001). The maximum PHA from a large earthquake, having a 10 percent probability of exceedence in a 50 year time period is 0.24g to 0.29g near the north and south ends of the proposed alignment, respectively. A moment magnitude, Mw = 7.1 will be used in the liquefaction analysis considering the location of the proposed alignment with respect to the Weber and Salt Lake segments of the Wasatch Fault (Hecker, 1993).

Liquefaction-induced settlement will be estimated using relationships presented by Tokimatsu and Seed (1987). This method estimates volumetric strain for clean sand based on cyclic stress ratio and SPT blow count or relative density. SPT blow counts obtained in the field will be corrected for overburden pressure, hammer energy, rod length, sampler size, and fines content to obtain $(N_1)_{60\text{-}CS}$ (Seed and Idriss, 1982).

To estimate liquefaction-induced settlement using the CPT data, an equivalent clean-sand SPT blow count, $(N_1)_{60\text{-}CS}$ will be estimated from relationships originally presented by Seed and Idriss (1982) using the cyclic stress ratio and the factor of safety against liquefaction calculated from the CPT data.

The factor of safety against liquefaction is calculated using the following equation:

$$FOS_\lambda = CRR/CSR$$

Where:

FOS_λ = factor of safety against liquefaction (using CPT data and procedure)
CRR = cyclic resistance ratio (obtained from CPT data)
CSR = cyclic stress ratio induced from earthquake motions

The terms may be rearranged as follows to calculate the CRR:

$$CRR = FOS_\lambda * CSR$$

This calculated cyclic resistance ratio will then be used with the Seed and Idriss (1982) relationships to estimate an equivalent SPT blow count for clean sands, or $(N_1)_{60\text{-}CS}$. This estimated blow count and the CSR will then be used with the Tokimatsu and Seed (1987) procedure to evaluate liquefaction-induced settlement.

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Liquefiable layer thicknesses used to calculate liquefaction-induced settlement will be estimated based on available subsurface information for each location. The evaluation of the thickness of potentially liquefiable layers will include "thin layer" effects of potentially liquefiable sand deposits within a soft non-liquefiable clay deposit. We will include in our analysis sand deposits having a marginal liquefaction potential (i.e., a factor of safety against liquefaction between 1.0 and 1.1). The geologic age of sand deposits will be considered in evaluating liquefaction potential and liquefaction-induced settlement at depths greater than approximately 14 meters.

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REFERENCES

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Frankel, A., Mueller, C., Perkins, D., Leyendecker, E.V., Dickman, N., Hanson, S., and Hopper, M., 1996, National Seismic Hazard Maps: Documentation June 1996: U.S. Geologic Survey Open File Report 96-532, p. 110.

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Seed, H. Bolton, and Idriss, I.M., 1982, Ground Motions and Soil Liquefaction During Earthquakes, Earthquake Engineering Research Institute, Berkeley, California.

Tokimatsu, K., and Seed, H.B., 1987, "Evaluation of Settlements in Sands Due to Earthquake Shaking," Journal of Geotechnical Engineering, ASCE, vol. 113, No. 8, pp, 861-878.

U.S. Geological Survey Web Page, 2001, U.S. Geological Survey National Seismic Hazard Mapping Project, http://geohazards.cr.usgs.gov/eq/

Youd, T. L., and Idriss, I.M., 1997, Proceedings of the NCEER Workshop on the Evaluation of Liquefaction Resistance of Soils. Technical Report NCEER-97-0022, National Center for Earthquake Engineering Research (NCEER), State University of New York at Buffalo, Red Jacket quadrangle, Buffalo, N.Y.

LEGACY PARKWAY

December 18, 2001

K.N. Gunalan, FAK Deputy Design Manager
Fluor Ames Kraemer, LLC
360 North 700 West, Suite F
North Salt Lake, UT 84054

Re: Acceptance of Proposed Magnitude/Fault Rupture Methodology
for Liquefaction Evaluation
Legacy Parkway Design-Build Project
PC-DOCS #2605

Gentlemen:

As requested, this letter presents our acceptance of the proposed methodology for determining the mean moment magnitude ("Mw-bar") and fault rupture distance (R) terms for use in the liquefaction and lateral spread evaluation for the project. The methodology outlined by Kleinfelder in their letter to you dated July 30, 2001 appears acceptable to us as proposed for use on the project.

Should any abnormalities be observed using this methodology, we reserve the right to reconsider this approach.

Sincerely,

Jim Higbee
Geotechnical Oversight Engineer

cc: Michael Blomquist, Design Oversight Manager
Todd Jensen, Deputy Project Manager

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MEMORANDUM

Date: July 30, 2001

To: K.N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E.
Curt Christensen, P.E.

Subject: **Legacy Parkway**
Suggested Mw and R Values for Evaluation of Liquefaction and Lateral Spread Hazards

While UDOT has specified the peak horizontal ground accelerations (PHA) for seismic hazard analyses (e.g., dynamic slope stability and liquefaction) and structure design, earthquake magnitudes have not been specified. Although not necessary for slope stability, earthquake magnitude is one parameter required to assess liquefaction and lateral spread hazards. Kleinfelder has previously used a deterministic magnitude value of 7.3, as presented in the RFP Geotechnical Report, as the largest credible magnitude-event generated by the Wasatch Fault Zone. This value has been used in our analyses to date regardless of whether the associated PHA was based on a 2 or 10 percent probability of exceedance in fifty years (2PE50 & 10PE50).

To be consistent in evaluating these hazards on a probabilistic basis, we propose a weighted mean moment-magnitude ("Mw-bar") be used. Mw-bar will be derived from the de-aggregation of the probabilistic seismic hazard assessment made by the USGS (as shown on the 1996 NEHRP mapping). This is the same source from which the specified values of PHA were interpolated by UDOT. For the 1996 NEHRP maps, the seismic hazard has been evaluated only at specific grid points (spaced at approximately 0.05 degrees for most of Utah and 0.1 degrees for the remainder of the state). We propose to evaluate Mw-bar by interpolation using the four grid points closest to each bridge site. To check the compatibility of the de-aggregated Mw-bar values with the PHA values previously specified, we will use the same interpolation technique to re-estimate PHA values and then compare them with those previously specified.

Another parameter needed in conducting a lateral spread analysis is R, the horizontal distance from the site being analyzed to the closest fault trace or rupture. The R-bar value that accompanies Mw-bar in the seismic hazard de-aggregation cannot be used directly in lateral spread analyses because R-bar appears to represent a weighted mean epicentral distance. To evaluate values of R for use in lateral spread analyses which are consistent with the specified probabilities of exceedance, we propose to use available fault maps and evaluate the distances from each principal seismic source (i.e., those contributing more than 10%, and excluding

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background seismicity) used in estimating the seismic hazard. We will then weight each of those distances according to its source's contribution to the seismic hazard and use the resulting mean value as R. This value is expected to be somewhat conservative in that minor contributors (which typically have large values of R) are neglected.

The effect of this approach can be illustrated with the following values evaluated for Salt Lake City (–111.890 West, 40.761 N) by the USGS, very near the south end of the Legacy Parkway. Note that the peak magnitude for the Salt Lake City Segment of the Wasatch Fault is taken as 7.2 in these particular calculations, but it contributes only 33 and 46 percent to the overall hazard for the 10PE50 and 2PE50, respectively. Other contributing seismic sources include the West Valley Fault (Mw=6.5), Weber Segment of the Wasatch Fault (Mw=7.1), and Western US Background Seismicity (Mw =6.03).

Event	PGA	Mw-bar	R-bar (km)	R (km)
10PE50	0.27	6.69	8.4	3.8
2PE50	0.71	6.80	3.6	2.9

We expect the value of Mw-bar to generally increase (but PHA to decrease) for sites north of Salt Lake for both 10P50 and 2PE50 because of the diminishing contribution of the West Valley Fault to the overall hazard.

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KLEINFELDER

MEMORANDUM

TO: Mr. K. N. Gunalan, P.E.

FROM: Nigel Miller, E.I.T. NPM
Curt Christensen, P.E. CC

DATE: August 3, 2001

SUBJECT: Design Protocol for Evaluation of Axial Pile Capacity

The intent of this memorandum is to provide a consistent, documented protocol for the evaluation of axial pile capacity, pile head settlement, and driveability analysis. Pile capacity and settlement will be evaluated using the program Unipile®. The pile driveability will be evaluated using GRLWEAP®. Should you have any questions regarding the procedure, please see Nigel Miller or Curt Christensen.

Pile downdrag and dragload will be evaluated. Downdrag is settlement of the soil below the neutral plane. Downdrag is a settlement problem and will be evaluated using conventional methods of estimating soil consolidation and compression. Downdrag will not be subtracted from the geotechnical capacity of the pile. Dragload will be evaluated and the magnitude compared to the structural capacity of the pile to prevent a structural failure. Although dragload always develops, it is rare for a pile shorter than about 30 m to experience an excessive dragload.

I. Assemble the subsurface soil profile for the area using the appropriate boring and CPT sounding logs. Evaluate the soil profile with the ground surface of each log located at the appropriate elevation. Evaluate the depth to the bottom of each generalized soil layer to the maximum depth explored. If available from field data, evaluate the average uncorrected blow count (N_{ave} value). If there are any changes in soil type, consistency, or density, it will be identified by a new layer. A maximum of **twenty** soil layers may be defined in UniPile.

II. Open the Excel® file LP Pile Design.xls and save the file with the following name:

AAPD XX-Y,Y,Y
AA = project area (NI, GL, PL, VS, SI)
PD = pile design
XX = structure number
Y = support number(s)

III. Required input cells in the "Input" worksheet tab are shaded yellow. Orange shaded cells contain values that can be changed according to site-specific lab test results or engineering judgement. Beginning at the top left hand side of the Input worksheet, enter the following:

- Structure
- Support (A-1 for Abutment 1, B-2 for Bent 2, etc.)
- Lowest Finished Grade Elevation (of the deck at the abutment or the finished grade at the bent) from current situation and layout sheets.
- Groundwater Table Depth
  This depth is the distance from the lowest finished grade of the bridge deck or the ground adjacent to a bent to the groundwater. It must consider any new embankment or excavation from the existing ground surface.

IV. Enter the depth at the **bottom** of each soil layer, including new fill (embankment) both above and below the pile cap, with a soil type number from the table on the input sheet. For this project, Fill A is new fill **above** the cap and Fill B is new fill **below** the cap, by definition. Since the pile capacity model considers the soil layers to be of semi-infinite extent, the unit weight of the fill material must be reduced. An analysis of the soil stresses due to a semi-infinite embankment versus the vertical or sloped abutments indicates that using one-half of the embankment unit weight provides a reasonably accurate model. This model is somewhat conservative, as the actual soil stresses induced by the fill are greater in the upper portion of the soil profile than predicted using the reduced unit weight value. For our analyses, a unit weight of 2,070 kg/m^3 is used based on the results of laboratory tests of potential fill materials. When Fill A or Fill B is selected as the soil type, the reduced unit weight of the fill is automatically calculated and placed in the correct cell of the spreadsheet. A Beta value is assigned to Fill B **only** since Fill A, above the bottom of the pile cap, does not contribute to the pile shaft resistance.

Enter N_{ave} (uncorrected field blows) value for each layer. This will define the soil consistency or relative density of each layer and assist in evaluating other parameters. If there are any changes in soil consistency or relative density, it will be identified as a new layer. If N_{ave} is not available, use an average correlated N_{60} value from CPT data. Orange cells contain values that can be changed according to site-specific laboratory test results or engineering judgment. The most critical value that should be changed according to site-specific lab test results is the total unit weight.

V. Save the file and print the output sheet for use in UniPile. On the output worksheet, initial and date next to "Prepared By". The input and output worksheets should be checked by someone who is familiar with UniPile.

VI. Open UniPile® and save the file with the following nomenclature:

SXXYZZ.unp

Where: XX = structure number
Y = support type (A = Abutment, B = Bent)

ZZ = support number

VII. Input the following:

1. Info
   a. Project: Legacy Parkway, Structure XX, Y-ZZ, (and compass direction for abutments)
   b. Project ID: (Kleinfelder's job number)
   c. Engineer: (your initials)
   d. Date: (today's date)

2. Units: Metric

3. Settings
   a. Ground Elevation: (lowest finished grade of the bridge deck at the abutment or the lowest adjacent ground surface elevation at the bent under consideration).
   b. Groundwater Table Depth: (the depth from the lowest finished grade of the bridge deck at the abutment or the lowest adjacent ground surface elevation at the bent under consideration, to the groundwater).

4. Soil Data
   a. Enter the soil data for each layer as shown in the output table from Step V.

5. Pile Data
   a. Description: Driven Steel Pile
   b. Pile Type: Round
   c. Embedment: (start with 30 m and adjust in Step VIII to obtain FS = 2.25)
   d. Diameter: 406 mm
   e. Dead Load: (from structural engineer)
   f. Live Load: (from structural engineer)
   g. Number of Piles: (start with 1)
   h. L group: (for abutments start with L = 0.1295; for bents use the pile group length)
   i. B group: (for abutments start with B = 1; for bents use the pile group length)

VIII. Save the file and execute the program with the "Capacity vs. Embedment" analysis option selected. Print the Capacity vs. Embedment graph. Evaluate an appropriate pile embedment depth that provides a Factor of Safety of 2.25 (AASHTO, 1996, Table 4.5.6.2A with WEAP and PDA). Evaluate that end bearing piles are founded in a layer with sufficient thickness to support the piles. Change the assumed input pile length to the new length, run the "Capacity" analysis, and print the table of results.

IX. Compare the load at the neutral plan (i.e. dragload) to verify it is less than the maximum allowable value, 7,100 kN, provided by the Parsons Brinckerhoff structural engineers. The neutral plane is where there is no relative movement between the pile and soil. The maximum dragload generally occurs at the neutral plane and is of concern only for the

structural strength of the pile. Dragload does not reduce the geotechnical capacity of the pile.

X. Next evaluate the seismic uplift resistance of a single pile. Subtract the contributing friction resistance of the potentially liquefiable layers (from liquefaction hazard evaluation) from the ultimate shaft resistance (R_s). The "Incremental R_s" column shows the contribution for each layer.

XI. Next evaluate the seismic compressive resistance of a single pile. Subtract the contributing friction resistance of the potentially liquefiable layers (from liquefaction hazard evaluation) from the ultimate resistance (R_u). The "Incremental R_s" column shows the contribution for each layer.

XII. For abutment pile groups in a single row with a minimum three-diameter spacing, execute the settlement analysis for a single pile with the equivalent footing at the pile tip. The settlement analysis is complete if the maximum settlement is less than 25 mm. Since using the equivalent footing is a conservative procedure as it considers a smaller footing area, if the magnitude of settlement is greater than 25 mm, refer to the toe movement vs. tip resistance curve below. Evaluate the maximum tip resistance developed under service load conditions and find the toe movement required to develop the maximum tip resistance. The toe movement plus elastic compression of the pile is the estimated settlement magnitude. The elastic compression of the pile will be evaluated by the structural engineer.

XIII. Next evaluate the capacity of the pile after installation, but prior to embankment construction. This step is required to evaluate the required driving resistance without the embankment in place. Save the file as the same file name with the letter "D" at the end. Change the soil profile by deleting the new fill layers. Change the pile length to reflect the same tip elevation from part VIII. Save the file, run the "Capacity" Analysis, and print the table of results.

XIV. Prepare the GRLWEAP input file.

1. Use the total pile length and embedment depth from the Unipile analyses. Initially, analyses with the IHC Hydrohammer S70 and S90 hammers will be required. As additional hammers are used by the contractor, additional analyses will be required for these hammers also. If the required driving resistance, percent shaft resistance, pile length, and penetration length are similar to previous analyses, these should be considered rather than a new analyses.

2. The cross-sectional area of the PP406 x 9.53 pile is 118.73 cm^2. The circumference of the pile is 1.275 m and the yield strength is 448 MPa. The pile hammer cushion properties, area, elastic modulus, and thickness as well as the pile hammer helmet weight should be obtained from the contractor's pile hammer submittal. The specific weight is calculated by GRLWEAP based on the pile material selected. Use the

default coefficient of restitution and roundout values unless specific information, such as PDA or CAPWAP data, is available to override the default values.

3. Enter a series of ultimate loads (up to ten), including the required ultimate load, for evaluation.

XIII Perform the GRLWEAP analysis.

1. Required input parameters include:

   a. Pile
      i. Overall pile length (from Unipile Analysis)
      ii. Penetration length (from Unipile Analysis)
      iii. Cross-sectional area (118.73 cm^2 for PP 406 x 9.53)
      iv. Modulus of Elasticity (199,948 Mpa)
      v. Specific Weight (76.98 kN/m^3)
      vi. Circumference (1.275 m for PP 406 x9.53)
      vii. Yield Strength (448 MPa)
      viii. Coefficient of Restitution (0.8 to 1.0, must be less than 1.0)
      ix. Roundout (3 mm unless other, more specific information is available)
   b. Pile Hammer
      At the present time this will be the IHC S70, IHC S90, or Junttan HHK-7A
   c. Pile Cushion (Parameters provided by Contractor)
      i. Thickness
      ii. Modulus of Elasticity
      iii. Area
      iv. Coefficient of Restitution (for steel 0.8 to 1.0, must be less than 1.0)
      v. Weight
      vi. Roundout (3 mm unless other, more specific information is available)

   d. Ultimate Capacities

      Up to ten capacities may be entered. Generally include the required ultimate capacity with two or three capacities below this value and five or six greater than this value. To provide a reasonable graph use increments of about 100 kN. Increment the two or three values greater than the required ultimate value by 25 kN.

   e. Soil Parameters (Use the values shown below unless better information, such as PDA data, is available)
      i. Quake
         Shaft (2.5 mm)
         Toe (D/60 or 406/60 = 6.8 mm)
      ii. Damping
         Shaft (0.16 s/m for non-cohesive soils, 0.65 s/m for cohesive soils)
         Toe (0.5 s/m)

f. Percentage Shaft Resistance (From Unipile analysis)

1. Analyze the current input. Review the output to assure that the allowable driving stresses are not exceeded. If the stresses are exceeded, depending on the pile-driving hammer, the following methods may be used to evaluate other driving options:

   a. Reduce the hammer energy.

   b. Include the end plate at the tip of the pile in the model by including a second pile segment.

   c. Reduce the ultimate capacity (This will also reduce the allowable capacities, requiring additional Unipile analyses).

2. If the driving stresses in the pile are less than the maximum allowable (90 percent of the yield stress or 403 MPa), print the Bearing Graph sheets (both the graphs and the text table indicating the values used for generation of the graph).

	Name	Date
Prepared By:	NPM	8/3/01
Reviewed By:		3 August 01

Memorandum

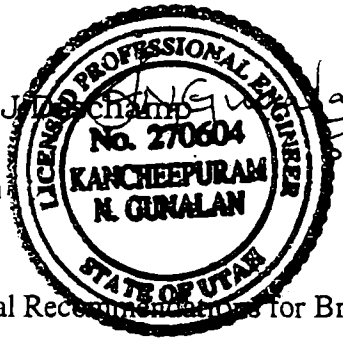
LEGACY

Date: 05/06/2004

File Code: GDM-STR-~~011Rev2~~ 031

To: Dan Church/J[illegible]Champ

From: K. N. Gunalan



5/6/04

FILE COPY

Subject: Geotechnical Recommendations for Bridge 1

Cc: DocC, Kleinfelder, Farid Nobari

SCANNED 5-7-04

Introduction

This memorandum presents our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridge 1. Included herein is our evaluation of liquefaction concerns at the bridge-abutment locations. Detailed descriptions of our understanding of the project, geology, soils encountered etc. will be incorporated into the Segment 1 geotechnical report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations and a subsequent investigation undertaken by FAK, the profile at the south interchange can be defined as consisting of very soft to medium stiff clay/silt layers with inter bedded sand and gravel layers. Based upon the site specific subsurface information for this bridge, we recommend that AASHTO Soil Type IV be used for design.

Liquefaction Potential

Information obtained from exploratory borings located near the bridge abutments and bents were used in this evaluation. Evaluations indicated layers of silts and sands may liquefy under an earthquake of magnitude 7.1 with a peak horizontal ground acceleration of 0.60g.

Bridge 1 is located over layers that have a potential to liquefy during an earthquake. Potential liquefaction-induced settlement of these layers have been estimated to range from 11 to 15 centimeters. Lateral spreading may also occur at the site, and based on conditions observed in borings SB-1-243 and SB-1-247, the resulting horizontal displacement is estimated to be in the

range of 63 to 95 centimeters. However, the liquefiable layers contributing to the lateral spread do not appear to be continuous through the area of Structures 1 to 4. This together with other factors indicate that remediation does not appear to be necessary.

Foundation Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the target vertical capacity per pile at abutments is anticipated to range from 1638 kN to 2432 kN and at the bent to be 2549 kN . Recommended pile capacity and Geotechnical parameters required for analysis and design are presented in attached table. The required driving resistance and pile tip elevations for all three foundations are controlled by the required ultimate vertical service load capacities.

LEGACY PARKWAY
BRIDGE 1
PILE CAPACITY SUMMARY - PP 466x9.53 (18" x 3/8")
YIELD STRENGTH = 448 MPa

	Initials	Date
Completed By:	NM	7/22/02
Reviewed By:	cc	7/22/02

A-1 Target Geotechnical Capacity per Pile (2.25xService Load): 2,432 kN
B-2 Target Geotechnical Capacity per Pile (2.25xService Load): 2,549 kN
A-3 Target Geotechnical Capacity per Pile (2.25xService Load): 1,638 kN
(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est. Embankm. Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Required Seismic Compression Resistance (kN)	Required Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est. Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
Bridge 1, Abutment 1	1290.5	1286.1	6.5	1249.5	1250.5	771	N/A	N/A	1,081	2,432	37	3,571	1268.1	2
Bridge 1, Bent 2	1285.0	1283	n/a	1253.0	1254.0	647	1,655	214	1,133	2,549	30	2,437	1253.6	2
Bridge 1, Abutment 3	1282.2	1287.6	8.2	1254.2	1255.0	1,150	N/A	N/A	728	1,638	34	2,930	1256.6	1

Location	Borings Used for Soil Profile
Bridge 1, Abutment 1	SB-1-243; SC-1-244
Bridge 1, Bent 2	SB-1-246; SC-1-245
Bridge 1, Abutment 3	SB-1-246; SC-1-245

Description of Information Presented in Each Column:

A: Finished Grade Elevation - Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided.

B: Bottom of Pile Cap Elevation - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided.

C: Estimated Embankment Height - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided.

D: Estimated Pile Tip Elevation - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria. (Additional depth may be required to reach required resistance during driving.)

E: Minimum Pile Tip Elevation - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement, minimum length, or minimum depth criteria should the required driving resistance be obtained above the Target Pile Tip Elevation.

F: Service Uplift Load Resistance = (Ultimate Friction Resistance)/(FS=2.25) Per comment resolution meeting with UDOT (8/15/01)

G: Seismic Compression Resistance = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate resistance values to resist seismic loads.)

H: Seismic Uplift Resistance = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads.)

I: Service Load (DL + LL) - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity.

J: Required Driving Resistance - The minimum load (service load x 2.25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA.

K: Estimated Pile Length w/ Fill - The estimated length of pile required Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter. (Actual lengths may vary depending on driving conditions encountered at each pile location.)

L: Estimated Structural Load in the Pile - The largest load that will develop in the pile due to structural service dead loads and drag loads. This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction and the sum of upward acting positive shaft resistance and mobilized toe resistance.

M: Estimated Elevation of Neutral Plane - The level in the pile where relative movement between the pile and soil is zero.

N: Estimated Pile Tip Settlement - The magnitude of pile tip settlement required to mobilize estimated pile tip loads. This does not include elastic compression of the pile.

Rev. 7/22/02

Memorandum

LEGACY

Date: 11/27/2002

File Code: GDM-STR-016

To: Joe Showers

From: K. N. Gunalan
Curt Christensen

LICENSED PROFESSIONAL ENGINEER
No. 270604
KANCHEEPURAM N. GUNALAN
STATE OF UTAH

# 13GDM	Doc. # 021
Route to: FJL	Geo Staff
Rev. To	Doc C FL

Subject: Geotechnical Recommendations for Bridges 2 & 3

Cc: DocC, Kleinfelder, Tom Cooper

Introduction

1-23-03

This memorandum presents our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridges 2 & 3. Included herein is our evaluation of liquefaction concerns at the bridge abutment locations. Detailed descriptions of our understanding of the project, geology, soils encountered etc. will be incorporated into the Project Segment Geotechnical Report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations and a subsequent investigation undertaken by FAK, the profile at the south interchange can be defined as consisting of very soft to medium stiff clay/silt layers with inter bedded sand and gravel layers. Based on the site specific subsurface information for this bridge, we recommend that AASHTO Soil Type III be used for design.

Liquefaction Potential

Information obtained from exploratory borings located near the bridge abutments and bents were used in this evaluation. Evaluations indicated layers of silts and sands may liquefy under an earthquake of magnitude 7.2 with a peak horizontal ground acceleration of 0.60g.

Bridges 2 & 3 are located over layers that have a potential to liquefy during an earthquake. Potential liquefaction induced settlement of these layers have been estimated to range from 0 to 11 centimeters. Lateral spreading is expected to occur at borings SB-2-248 and SB-3-249 and estimated to be in the range of 60 to 180 centimeters. However, the liquefiable layer

contributing to the lateral spread does not appear to be continuous through the area of Structures 1 to 4. Therefore remediation does not appear to be necessary.

Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the anticipated service load per pile at abutments is anticipated to be 1520 kN. Recommended pile capacity and Geotechnical parameters required for analysis and design are presented in attached table. The required driving resistance and pile tip elevations are controlled by the required ultimate vertical service load capacities.

LEGACY PARKWAY
BRIDGE 2 and BRII
PILE CAPACITY SUMMARY - PP 406x9.53 (16" x 3/8")
YIELD STRENGTH = 448 MPa

	Initials	Date
Completed By:	NM	3/25/02
Reviewed By:	cc	4/3/02

A-1 Target Geotechnical Capacity per Pile (2.25xService Load): 3,420 kN
A-2 Target Geotechnical Capacity per Pile (2.25xService Load): 3,420 kN
(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est. Embankm. Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Required Seismic Compression Resistance (kN)	Required Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est. Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
S-2 and S-3, Abutment 1	1288.7	1284.3	4.7	1248.7	1249.7	931	N/A	N/A	1,520	3,420	36	3,935	1249.8	3
S-2 and S-3, Abutment 3	1288.8	1284.4	4.8	1251.0	1252.0	1,132	N/A	N/A	1,520	3,420	33	3,866	1252.1	3

Location	Borings Used for Soil Profile
S-2 and S-3, Abutment 1	SB-2-247; SB-3-249
S-2 and S-3, Abutment 3	SB-2-248, SB-3-250

Description of Information Presented in Each Column:

A: Finished Grade Elevation - Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided.

B: Bottom of Pile Cap Elevation - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided.

C: Estimated Embankment Height - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided.

D: Estimated Pile Tip Elevation - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria. (Additional depth may be required to reach required resistance during driving.)

E: Minimum Pile Tip Elevation - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement, minimum length, or minimum depth criteria should the required driving resistance be obtained above the Target Pile Tip

F: Service Uplift Load Resistance = (Ultimate Friction Resistance)/(FS=2.25) Per comment resolution meeting with UDOT (6/15/01)

G: Seismic Compression Resistance = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate resistance values to resist seismic loads.)

H: Seismic Uplift Resistance = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads.)

I: Service Load (DL + LL) - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity.

J: Required Driving Resistance - The minimum load (service load x 2.25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA.

K: Estimated Pile Length w/ Fill - The estimated length of pile required. Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter. (Actual lengths may vary depending on driving conditions encountered at each pile location.)

L: Estimated Structural Load in the Pile - The largest load that will develop in the pile due to structural service dead loads and drag loads. This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction and the sum of upward acting positive shaft resistance and mobilized toe resistance.

M: Estimated Elevation of Neutral Plane - The level in the pile where relative movement between the pile and soil is zero.

N: Estimated Pile Tip Settlement - The magnitude of pile tip settlement required to mobilize estimated pile tip loads. This does not include elastic compression of the pile.

1 of 1

Memorandum

LEGACY

Date: 07/11/2002 *File Code:* GDM-STR-014Rev1

To: Joe Showers

From: K. N. Gunalan
Curt Christensen

Subject: Geotechnical Recommendations for Bridge 4

Cc: DocC, Kleinfelder, Tom Cooper

Introduction

This memorandum presents our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridge 4. Included herein is our evaluation of liquefaction concerns at the bridge abutment locations. Detailed descriptions of our understanding of the project, geology, soils encountered etc. will be incorporated into the project Geotechnical report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations, the profile at the south interchange can be defined as consisting of very soft to stiff clay/silt layers with inter bedded sand and gravel layers. Ground water was encountered in certain borings at depths ranging from 3.0 to 5.0 meters.

Liquefaction Potential

Information obtained from exploratory borings located near the bridge abutments were used in this evaluation. Evaluations indicated layers of silts and sands may liquefy under an earthquake of magnitude 7.1 with a peak horizontal ground acceleration of 0.61g.

Liquefaction potential was evaluated at this bridge site using data from boring SB-4-251 and SB-4-252 and was found to be not an issue. Consequently the potential for lateral spread was also determined to be not an issue.

Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the anticipated service load per pile at abutments is anticipated to be 1675 kN . The governing condition for the pile design at the abutments is the service loads. Recommended pile capacity and Geotechnical parameters required for analysis and design are presented in attached table.

LEGACY PARQ

BRIDGE 4

PILE CAPACITY SUMMARY - PP 406x9.53 (16" x 3/8")

YIELD STRENGTH = 448 MPa

	Initials	Date
Completed By:	NM	6/14/02
Reviewed By:	CC	6/15/02

A-1 Target Geotechnical Capacity per Pile (2.25xService Load): 3,769 *kN*

A-2 Target Geotechnical Capacity per Pile (2.25xService Load): 3,769 *kN*

(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est. Embankm. Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Required Seismic Compression Resistance (kN)	Required Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est. Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
Bridge 4, Abutment 1	1292.0	1287.2	7.8	1252.0	1252.5	1,191	N/A	N/A	1,675	3,769	35	3,983	1264.5	3
Bridge 4, Abutment 2	1291.8	1287.6	7.2	1251.8	1252.8	1,553	N/A	N/A	1,675	3,769	36	4,587	1263.8	3

Location	Borings Used for Soil Profile		
Bridge 4, Abutment 1	SB-4-251		
Bridge 4, Abutment 2	SB-4-242		

Description of Information Presented in Each Column:

A: Finished Grade Elevation - Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided.

B: Bottom of Pile Cap Elevation - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided.

C: Estimated Embankment Height - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided.

D: Estimated Pile Tip Elevation - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria. (Additional depth may be required to reach required resistance during driving.)

E: Minimum Pile Tip Elevation - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement, minimum length, or minimum depth criteria should the required driving resistance be obtained above the Target Pile Tip Elevati

F: Service Uplift Load Resistance = (Ultimate Friction Resistance)/(FS=2.25) Per comment resolution meeting with UDOT (8/15/01)

G: Seismic Compression Resistance = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate resistance values to resist seismic loads.)

H: Seismic Uplift Resistance = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads.)

I: Service Load (DL + LL) - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity.

J: Required Driving Resistance - The minimum load (service load x 2.25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA.

K: Estimated Pile Length w/ Fill - The estimated length of pile required. Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter. (Actual lengths may vary depending on driving conditions encountered at each pile location.)

L: Estimated Structural Load in the Pile - The largest load that will develop in the pile due to structural service dead loads and drag loads. This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction and the sum of upward acting positive shaft resistance and mobilized toe resistance.

M: Estimated Elevation of Neutral Plane - The level in the pile where relative movement between the pile and soil is zero.

N: Estimated Pile Tip Settlement - The magnitude of pile tip settlement required to mobilize estimated pile tip loads. This does not include elastic compression of the pile.

hor fe 1

Memorandum

LEGACY

Date: 02/28/2002 *File Code:* GDM-STR-010

SCANNED: 3.1.02

To: Joe Showers

From: K. N. Gunalan
Curt Christensen

Subject: Geotechnical Recommendations for Bridge 5

Cc: DocC, Kleinfelder, Tom Cooper

Introduction

This memorandum presents our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridge 5. Included herein is our evaluation of liquefaction concerns at the bridge abutment locations. Detailed descriptions of our understanding of the project, geology, soils encountered etc. will be incorporated into the project Geotechnical report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations and a subsequent investigation undertaken by FAK, the profile at the south interchange can be defined as consisting of clay/silt layers with inter bedded sand and gravel layers.

Liquefaction Potential

Information obtained from exploratory borings located near the bridge abutments and bents were used in this evaluation. Evaluations indicated layers of silts and sands may liquefy under an earthquake of magnitude 7.1 with a peak horizontal ground acceleration of 0.63g.

Bridge 5 is located over layers that have a potential to liquefy during an earthquake. Liquefaction potential of these layers have been estimated to range from 81 to 173 millimeters. No lateral spreading is expected to occur at three (SB-5-293, SB-5-297, and SB-32-357) of the four borings in the area of bridge 5. Lateral spreading has been estimated to be less than 0.1 meters for the fourth boring, LSB-5-429 and therefore is of no concern.

Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the anticipated service load per pile at abutments is 1557 kN and at the bents range from 534 kN to 667 kN. Recommended pile capacity and Geotechnical parameters required for analysis and design are presented in attached table.

LEGACY PARKW
BRIDGE 5
PILE CAPACIT .Y - PP 406x9 53 (16" x 3/8")
YIELD STRENG 48 MPa

	Initials	Date
Completed By	NM	1/30/02
Reviewed By	CC	2/8/02

A-1 Target Geotechnical Capacity per Pile (2 25x Service Load)	3 503	kN
B-2 Target Geotechnical Capacity per Pile (2 25x Service Load)	1,451	kN
B-3 Target Geotechnical Capacity per Pile (2 25x Service Load)	1 501	kN
B 4 Target Geotechnical Capacity per Pile (2 25x Service Load)	1,202	kN
A 5 Target Geotechnical Capacity per Pile (2 25x Service Load)	3 503	kN

(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est. Embankm Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Required Seismic Compression Resistance (kN)	Required Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est. Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
Bridge 5, Abutment 1	1297 0	1291 6	12 5	1254 0	1255 0	1,429	N/A	N/A	1,557	3,503	38	2,598	1273 2	2
Bridge 5, Bent 2	1284 5	1281 8	N/A	1249 5	1250.5	889	2,206	1,237	646	2,317	32	1,490	1261.2	1
Bridge 5, Bent 3	1285 0	1281 6	N/A	1257.0	1258 0	830	2,202	1,241	667	2,316	25	1,857	1257 0	1
Bridge 5, Bent 4	1288 0	1283 6	N/A	1258 0	1259 0	804	2,037	1,299	534	2,215	26	2,164	1258.0	1
Bridge 5, Abutment 5	1297 6	1292 7	12 5	1267 5	1258 5	1,348	N/A	N/A	1,557	3,503	36	4,282	1259.2	3

Location	Borings Used for Soil Profile
Bridge 5 Abutment 1	SB-5-293 SC-5-294
Bridge 5 Bent 2	SB-5-293, SC-5-294
Bridge 5, Bent 3	SB-32-357, SC-5-294 SB-5-297
Bridge 5 Bent 4	SC-5-295 SC-5-296 SB-5-297
Bridge 5 Abutment 5	SC-5-295, SC-5-296 SB-5-297

Description of Information Presented in Each Column.

A Finished Grade Elevation - Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided

B Bottom of Pile Cap Elevation - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided

C Estimated Embankment Height - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided

D Estimated Pile Tip Elevation - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria (Additional depth may be required to reach required resistance during driving)

E Minimum Pile Tip Elevation - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement minimum length or minimum depth criteria should the required driving resistance be obtained above the Target Pile Tip

F Service Uplift Load Resistance = (Ultimate Friction Resistance)/(FS=2 25) Per comment resolution meeting with UDOT (8/15/01)

G Seismic Compression Resistance = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones (AASHTO allows the use of the ultimate resistance values to resist seismic loads)

H Seismic Uplift Resistance = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads)

I Service Load (DL + LL) - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity

J Required Driving Resistance - The minimum load (service load x 2 25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA

K Estimated Pile Length w/ Fill The estimated length of pile required Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter (Actual lengths may vary depending on driving conditions encountered at each pile location)

L Estimated Structural Load in the Pile - The largest load that will develop in the pile due to structural service dead loads and drag loads This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction and the sum of upward acting positive shaft resistance and mobilized toe resistance

M Estimated Elevation of Neutral Plane - The level in the pile where relative movement between the pile and soil is zero

N Estimated Pile Tip Settlement - The magnitude of pile tip settlement required to mobilize estimated pile tip loads This does not include elastic compression of the pile

LGI for 1

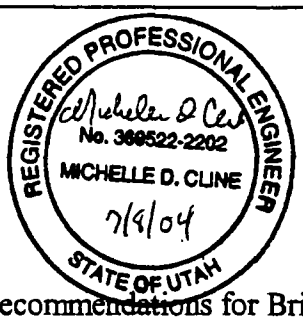
Memorandum

LEGACY

Date: 07/08/2004

To: J. Deschamp

From: M. D. Cline



File Code: GDM-STR-042
(revised GDM-STR-037)

Subject: Geotechnical Recommendations for Bridge 11 – 2nd Revision

Cc: DocC, Kleinfelder, Farid Nobari

Introduction

This memorandum summarizes our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridge 11. Included herein are a summary of general geotechnical conditions at the bridge location, our evaluation of liquefaction concerns, and a summary of geotechnical parameters for pile design. Detailed descriptions of our understanding of the project, geology, design analysis, and recommendations will be incorporated into the Segment 1 geotechnical report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations, the subsurface profile can be defined as consisting of clay/silt layers with occasional layers of sand. The clay/silt layers above an elevation of about 1272 meters are generally very soft to medium stiff, and those below are generally medium stiff to very stiff. Layers of medium dense to dense sand were encountered primarily between elevations of about 1259 and 1277 meters. Groundwater was not measured during drilling but is anticipated to be at shallow depths. Based upon the site-specific information for this bridge, we recommend that AASHTO Soil Type III be used for design.

Liquefaction Potential

Information obtained from exploratory borings and CPT soundings located near the Bridge 11 abutments and bent were used in this evaluation. Evaluations indicated that layers of silt and sand may liquefy under an earthquake magnitude of 7.3 with a peak horizontal ground acceleration of 0.60g. Potential liquefaction-induced settlement in these layers has been estimated to range from about 13 to 23 centimeters. Based on data obtained from the borings, liquefaction-induced lateral

spreading is not anticipated; therefore, no mitigation measures are recommended at this bridge site.

Foundation Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the target vertical capacity per pile at the abutments and bent are 2,025 kN and 1,125 kN, respectively. Required driving resistance for abutment foundations is controlled by the required ultimate service load capacities and that for the bent is controlled by seismic compression plus estimated loss during liquefaction. Recommended pile capacities and Geotechnical parameters required for analysis and design are presented in the attached table.

LEGACY PARKWAY
BRIDGE 11
PILE CAPACITY & [illegible] - PP 406x9.53 (16" x 3/8")
YIELD STRENGTH = 448 MPa

	Initials	Date
Completed By	NM	12/11/02
Reviewed By	[illegible]	12/11/02

A-1 Target Geotechnical Capacity per Pile (2.25xService Load): 2,025 kN
B-2 Target Geotechnical Capacity per Pile (2.25xService Load): 1,125 kN
A-3 Target Geotechnical Capacity per Pile (2.25xService Load): 2,025 kN
(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est Embankm Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Required Seismic Compression Resistance (kN)	Required Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
Bridge 11, Abutment 1	1295.0	1290.5	10.0	1266.0	1267.0	752	N/A	N/A	900	2,025	25	2,591	1266.0	2
Bridge 11, Bent 2	1283.0	1282.0	n/a	1257.5	1258.5	764	1,900	750	500	2,042	25	2,219	1257.5	1
Bridge 11, Abutment 3	1294.5	1290.0	9.5	1268.0	1267.0	739	N/A	N/A	900	2,025	24	2,563	1266.0	2

Location	Borings Used for Soil Profile
Bridge 11, Abutment 1	SB-11-259; SC-11-260,SC-11-261,SB-11-262
Bridge 11, Bent 2	SB-11-259; SC-11-260,SC-11-261;SB-11-262
Bridge 11, Abutment 3	SB-11-259; SC-11-260,SC-11-261;SB-11-262

Description of Information Presented in Each Column:

A. *Finished Grade Elevation* - *Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided.*

B: Bottom of Pile Cap Elevation - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided

C: Estimated Embankment Height - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided.

D: Estimated Pile Tip Elevation - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria. (Additional depth may be required to reach required resistance during driving.)

E: Minimum Pile Tip Elevation - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement, minimum length, or maximum depth criteria should the required driving resistance be obtained above the Target Pile Tip Elevation.

F. Service Uplift Load Resistance = (Ultimate Friction Resistance)/(F.S.=2.25) *Per conference resolution meeting with UDOT (8/15/01)*

G. Seismic Compression Resistance = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate resistance values to resist seismic loads.)

H. Seismic Uplift Resistance = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads.)

I: Service Load (DL + LL) - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity.

J: Required Driving Resistance - The minimum load (service load x 2.25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA.

K: Estimated Pile Length w/ Fill - The estimated length of pile required. Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter. (Actual lengths may vary depending on driving conditions encountered at each pile location.)

L: Estimated Structural Load in the Pile - The largest load that will develop in the pile due to structural service dead loads and drag loads. This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction *and the sum of upward acting positive shaft resistance and mobilized toe resistance.*

M: Estimated Elevation of Neutral Plane - The level in the pile where relative movement between the pile and soil is zero.

N: Estimated Pile Tip Settlement - The magnitude of pile tip settlement required to mobilize estimated pile tip loads. This does not include elastic compression of the pile.

1 of 2

Memorandum

LEGACY

Date: 02/13/2002 *File Code:* GDM-STR-009

To: Joe Showers

From: K. N. Gunalan
Curt Christensen

Subject: Geotechnical Recommendations for Bridges 32 & 33

SCANNED: 6-8-04

Cc: DocC, Kleinfelder, Tom Cooper

Introduction

This memorandum presents our Geotechnical evaluation and recommendations developed in accordance with UDOT's Geotechnical MOI for Bridges 32 & 33. Included herein is our evaluation of liquefaction concerns at the bridge abutment locations. Detailed descriptions of our understanding of the project, geology, soils encountered etc. will be incorporated into the project Geotechnical report and submitted along with other documents as part of final submittal for the project. This information will be maintained in the project files for reference until being incorporated into the final report.

General Geotechnical Conditions

Geotechnical conditions at the site are defined by previous investigations performed for UDOT. Based on the information obtained during those investigations and a subsequent investigation undertaken by F.A.K, the profile at the south interchange can be defined as consisting of clay/silt layers with inter bedded sand and gravel layers.

Liquefaction Potential

Information obtained from a exploratory boring located near the bridge abutments were used in this evaluation. Evaluations indicated layers of silts and sands may liquefy under an earthquake of magnitude 7.3 with a peak horizontal ground acceleration of 0.6g.

Bridges 32 & 33 are located over layers that have a potential to liquefy during an earthquake. Liquefaction potential of these layers have been estimated to range from 31 to 173 millimeters. No lateral spreading is expected to occur at three (SB-5-293, SB-5-297, and SB-32-357) of the four borings in the area of bridges 32 & 33.. Lateral spreading has been estimated to be less than 0.1 meters for the fourth boring, LSB-5-429 and therefore is of no concern.

Recommendations

It is our understanding that 406 mm (16 in.) diameter pipe piles are being proposed for the bridge foundations and that the anticipated service load per pile at abutments range from 1227 kN to 1337 kN. Recommended pile capacity and Geotechnical parameters required for analysis and design are presented in attached table.

LEGACY PARKWAY
BRIDGE 32/33
REVISED PILE CAPACITY SUMMARY - PP 406x9.53 (16" x 3/8")
YIELD STRENGTH = 448 MPa

	Initials	Date
Completed By:	NM	2/8/02
Reviewed By:	cc	2/8/02

S-32 Target Geotechnical Capacity per Pile (2.25xService Load). 2,761 kN
S-33 Target Geotechnical Capacity per Pile (2.25xService Load). 3,008 kN
(Target Service Load Provided by Structural Engineer)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Location	Finished Grade Elevation (m)	Bottom of Pile Cap Elevation (m)	Est. Embankm. Height (m)	Estimated Pile Tip Elevation (m)	Minimum Pile Tip Elevation (m)	Service Uplift Load Resistance (kN)	Seismic Compression Resistance (kN)	Seismic Uplift Resistance (kN)	Service Load (DL + LL) (kN)	Required Driving Resistance (kN)	Est. Pile Length w/ fill (m)	Estimated Maximum Structural Load in Pile (kN) (Service Load + Drag Load)	Est. Elevation of Neutral Plane (m)	Estimated Pile Tip Settlement (mm)
Bridge 32	1289.8	1284.5	5.1	1256.0	1257.0	796	n/a	n/a	1,227	2,761	28.5	2,144	1262.2	3
Bridge 33	1289.8	1284.9	5.1	1256.0	1257.0	800	n/a	n/a	1,337	3,008	28.9	2,194	1262.8	3

Location	Borings Used for Soil Profile
Bridge 32 and Bridge 33	SC-S-294, SC-33-358, SB-32-357, SC-S-295

Description of Information Presented in Each Column:

A: **Finished Grade Elevation** - Top of approach slab elevation at abutment locations and adjacent ground elevation at bent locations as shown on the structure Plan and Profile drawing provided

B: **Bottom of Pile Cap Elevation** - Elevation at the bottom of the pile cap as scaled from the structure Plan and Profile drawing provided

C: **Estimated Embankment Height** - Elevation difference between the top of the approach slab and the native ground surface at the abutment as scaled from the structure Plan and Profile drawing provided.

D: **Estimated Pile Tip Elevation** - Estimated elevation to which the bottom of the pile will need to be driven to develop the required capacity and meet the settlement criteria. (Additional depth may be required to reach required resistance during driving)

E: **Minimum Pile Tip Elevation** - Estimated minimum elevation to which the bottom of the pile will need to be driven to meet settlement criteria should the required capacity be reached above the Target Pile Tip Elevation

F: **Service Uplift Load Resistance** = (Ultimate Friction Resistance)/(FS=2.25)

G: **Seismic Compression Resistance** = Ultimate Friction and End Bearing Resistance neglecting the contribution of potentially liquefiable zones (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads)

H: **Seismic Uplift Resistance** = Ultimate Friction Resistance neglecting the contribution of potentially liquefiable zones. (AASHTO allows the use of the ultimate friction resistance value to resist seismic uplift loads)

I: **Service Load (DL + LL)** - The maximum load that can be applied at the top of the pile by the structure provided the pile is driven to the assumed capacity.

J: **Required Driving Resistance** - The minimum load (service load x 2.25 or required seismic resistance plus estimated loss during liquefaction, whichever is greater) that must be verified in the field by PDA.

K: **Estimated Pile Length w/ Fill** - The estimated length of pile required Calculated as (Bottom Of Pile Cap - Estimated Tip Elevation) rounded up to the nearest meter. (Actual lengths may vary depending on driving conditions encountered at each pile location)

L: **Estimated Structural Load in the Pile** - The largest load that will develop in the pile due to structural service dead loads and drag loads. This load occurs at the neutral plane where equilibrium exists between the sum of the downward acting permanent load (service load) applied at the top of the pile and drag load due to negative skin friction and the sum of upward acting positive shaft resistance and mobilized toe resistance.

M: **Estimated Elevation of Neutral Plane** - The level in the pile where relative movement between the pile and soil is zero

N: **Estimated Pile Tip Settlement** - The magnitude of pile tip settlement required to mobilize estimated pile tip loads. This does not include elastic compression of the pile.

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Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	2
Support(s)	1
Water Depth (m)	1.3
Bottom of Cap Elevation (m)	1284 3
Soil Borings Used for Profile	SB-2-247

	Initials	Date
Completed By:	NM	5/22/02
Checked By:	CMH	5/22/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	1 3	20 4	-	-	50,000	34	0	7	0	790
2	Sand	1 3	2.4	10.6	-	-	30,000	34	7	11	790	1,140
3	Soft Clay	2.4	6 3	8 0	5	0.020	3,500	-	7	14	130	240
4	Soft Clay	6.3	9 3	9.6	76	0.021	87,665	-	16	23	650	930
5	Soft Clay	9.3	30 0	7.9	24	0.023	9,665	-	20	55	500	1,340

Press the "Copy" button to copy this tab to a new spreadsheet. The new file should be saved in the same directory with the name "S-XX-Y,Y,Y LPILE Parameters" (XX is the structure number and Y is the support numbers for which this file applies. Complete renaming of the spreadsheet immediately after it is copied by adding the structure and support numbers.

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	2
Support(s)	2
Water Depth (m)	1 4
Bottom of Cap Elevation (m)	1284.4
Soil Borings Used for Profile	SB-2-248

	Initials	Date
Completed By:	NM	5/22/02
Checked By:	CMH	5/22/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	1 4	20.4	-	-	50,000	34	0	8	0	850
2	Sand	1.4	2 4	10.6	-	-	30,000	34	8	11	850	1,170
3	Soft Clay	2.4	6 5	8 0	5	0.020	3,500	-	7	14	130	250
4	Soft Clay	6.5	9 9	9.6	96	0.021	116,165	-	17	25	790	1,160
5	Soft Clay	9.9	30 0	9 6	76	0.021	87,665	-	24	70	990	2,820

Press the "Copy" button to copy this tab to a new spreadsheet. The new file should be saved in the same directory with the name "S-XX-Y,Y,Y LPILE Parameters" (XX is the structure number and Y is the support numbers for which this file applies. Complete renaming of the spreadsheet immediately after it is copied by adding the structure and support numbers.

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	3
Support(s)	1
Water Depth (m)	1.3
Bottom of Cap Elevation (m)	1284.3
Soil Borings Used for Profile	SB-3-249

	Initials	Date
Completed By:	NM	5/22/02
Checked By:	CMH	5/22/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0 0	1.3	20 4	-	-	50,000	34	0	7	0	790
2	Sand	1.3	2.4	10 6	-	-	30,000	34	7	11	790	1,140
3	Soft Clay	2 4	8 3	8 0	5	0.020	3,500	-	7	17	130	300
4	Soft Clay	8.3	10.3	9 6	50	0.021	48,665	-	19	23	620	760
5	Soft Clay	10 3	22 3	7.9	24	0.023	9,665	-	22	42	530	1,020
6	Soft Clay	22 3	30 0	7.9	18	0.023	3,500	-	41	54	920	1,200

Press the "Copy" button to copy this tab to a new spreadsheet. The new file should be saved in the same directory with the name "S-XX-Y,Y,Y LPILE Parameters" (XX is the structure number and Y is the support numbers for which this file applies. Complete renaming of the spreadsheet immediately after it is copied by adding the structure and support numbers.

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	3
Support(s)	2
Water Depth (m)	1.4
Bottom of Cap Elevation (m)	1284.4
Soil Borings Used for Profile	SB-3-250

	Initials	Date
Completed By:	NM	5/22/02
Checked By:	CMH	5/22/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	1.4	20.4	-	-	50,000	34	0	8	0	850
2	Sand	1.4	2.4	10.6	-	-	30,000	34	8	11	850	1,170
3	Soft Clay	2.4	8.4	8.0	11	0.020	3,500	-	8	17	150	350
4	Soft Clay	8.4	10.4	9.6	76	0.021	87,665	-	20	25	820	1,000
5	Soft Clay	10.4	22.4	9.3	37	0.024	29,165	-	23	47	660	1,350
6	Soft Clay	22.4	30.0	9.8	115	0.018	146,165	-	55	74	2,760	3,710

Press the "Copy" button to copy this tab to a new spreadsheet. The new file should be saved in the same directory with the name "S-XX-Y,Y,Y LPILE Parameters" (XX is the structure number and Y is the support numbers for which this file applies. Complete renaming of the spreadsheet immediately after it is copied by adding the structure and support numbers.

03COR 185

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	2,3,4
Support(s)	All
Water Depth (m)	1.0
Finished Grade Elevation (m)	1284.0
Soil Borings Used for Profile	SB-2-247 thru SB-4-252

	Initials	Date
Completed By:	NM	1/23/02
Checked By:	CMH	1/23/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m3)	Shear Strength (kN/m2)	Strain, e50	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, φ (degrees)	Maximum Side Friction (kN/m2)		Maximum Tip Resistance (kN/m2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	1.0	17.8	11	0.020	3,500	-	0	3	0	70
2	Soft Clay	1.0	6.4	8.0	11	0.020	3,500	-	3	12	70	240
3	Soft Clay	6.4	8.1	9.6	63	0.015	68,165	-	14	17	510	640
4	Soft Clay	8.1	18.7	9.3	31	0.015	18,665	-	16	37	440	1,000
5	Sand	18.7	21.6	10.5	-	-	19,200	32	85	100	18,320	21,500
6	Soft Clay	21.6	30.0	9.8	102	0.018	126,665	-	51	71	2,390	3,350

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	5
Support(s)	1,2
Water Depth (m)	1 0
Existing Ground Elevation (m)	1284 5

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0 0	1 0	17 8	11	0 020	3,500	-	0	3	-	70
2	Soft Clay	1 0	5 2	6 4	11	0 020	3,500	-	3	9	70	180
3	Silt	5 2	8 8	9 6	57	0 021	57,665	30	10	18	350	620
4	Soft Clay	8 8	13 4	8 1	26	0 015	12,665	-	17	25	490	720
5	Silt	13 4	14 6	7 9	18	0 023	3,500	28	24	26	530	580
6	Soft Clay	14 6	20 5	8 5	31	0 024	18,665	-	27	37	710	1,000
7	Sand	20 5	21 9	10 1	-	-	11,390	33	73	79	13,730	14,830
8	Silt	21 9	30 0	9 3	44	0.024	38,165	30	42	58	1,280	1,790

03 COK 117

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	11
Support(s)	1, 2, 3
Water Depth (m)	1 0
Finished Grade Elevation (m)	1285 0
Soil Borings Used for Profile	SB-11-259, SC-11-261, SB-11-262

	Initials	Date
Completed By	NM	1/11/02
Checked By	CMH	1/11/02

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, φ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0 0	1 0	17 8	5	0 020	3,500	-	0	3	0	60
2	Soft Clay	1 0	2 5	8 0	5	0 020	3,500	-	3	6	60	100
3	Soft Clay	2 5	4 0	8 0	11	0 020	3,500	-	6	8	120	170
4	Soft Clay	4 0	5 5	8 0	5	0 020	3,500	-	8	10	140	190
5	Soft Clay	5 5	8 5	8 0	11	0 020	3,500	-	11	16	210	310
6	Soft Clay	8 5	12 5	7 9	24	0 023	9,665	-	16	23	400	560
7	Silt	12 5	15 5	9 3	31	0 024	18,665	29	30	37	2,400	3 010
8	Soft Clay	15 5	17 5	7 9	24	0 023	9,665	-	29	32	700	780
9	Sand	17 5	23 5	10 1	-	-	14,940	34	68	96	13,750	19 200
10	Silt	23 5	30 0	9 6	96	0 021	116,165	32	69	89	5,540	7 170

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	26
Support(s)	1,2,3
Water Depth (m)	1 5
Existing Ground Elevation (m)	1297 0

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0 0	1 5	20 7	-	-	57,600	42	0	18	-	4 650
2	Silt	1 5	3 0	10 0	37	0 027	29,165	29	8	12	690	1,030
3	Sand	3 0	4 0	10 1	-	-	16,360	35	21	25	4,360	5,310
4	Soft Clay	4 0	10 0	10 0	39	0 038	32,165	-	11	24	280	590
5	Sand	10 0	29 5	10 1	-	-	10,680	33	48	129	8,760	23,640

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	29
Support(s)	1,2
Water Depth (m)	3 0
Boring Elevation (m)	1296 3

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0 0	1 5	19 9	-	-	21,150	34	0	13	0	2 540
2	Silt	1 5	3 0	19 8	37	0 027	29,165	29	8	16	660	1,330
3	Silt	3 0	13 3	10 5	38	0 028	29,165	30	17	49	1,400	3,950
4	Sand	13 3	16 5	10 1	-	-	18,490	36	80	95	17,090	20,380
5	Silt	16 5	18 0	9 7	96	0 034	116,165	32	64	69	5,190	5,570
6	Sand	18 0	21 4	10 5	-	-	25,590	39	115	135	27,020	31,510
7	Silt	21 4	22 6	11 4	161	0 063	213,665	34	93	98	7,500	7,910
8	Sand	22 6	30 2	10 5	-	-	29,140	40	150	195	36,400	47,400
9	Stiff Clay with Free Water	30 2	33 2	11 4	115	0 063	146,165	-	87	95	4 360	4 800
10	Sand	33 2	34 7	10 5	-	-	25,590	39	203	212	47,580	49,560

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	29
Support(s)	3
Water Depth (m)	11 5
Boring Elevation (m)	1304 8

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0 0	10 0	20 3	-	-	37,350	37	0	103	-	23,140
2	Silt	10 0	13 4	10 0	44	0 027	38,165	30	57	67	4,620	5 400
3	Silt	13 4	17 4	11 4	128	0 063	165,665	33	82	98	6,630	7,900
4	Sand	17 4	22 0	10 1	-	-	10,680	33	116	136	21,350	24,860
5	Sand	22 0	27 0	10.9	-	-	32,690	41	197	229	49,320	57,490
6	Sand	27 0	31 7	10 1	-	-	9,260	32	154	173	27,130	30,490
7	Sand	31 7	35 1	10 5	-	-	25,590	39	232	251	54,270	58,760
8	Silt	35 1	37 4	10 8	24	0 015	9,665	29	125	132	10,070	10,610
9	Sand	37 4	38 8	10 9	-	-	32,690	41	294	303	73,680	75,960

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	5
Support(s)	1,2
Water Depth (m)	1 0
Existing Ground Elevation (m)	1284 5

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0 0	1 0	17 8	11	0 020	3,500	-	0	3	-	70
2	Soft Clay	1 0	5 2	6 4	11	0 020	3,500	-	3	9	70	180
3	Silt	5 2	8 8	9 6	57	0 021	57,665	30	10	18	350	620
4	Soft Clay	8 8	13 4	8 1	26	0 015	12,665	-	17	25	490	720
5	Silt	13 4	14 6	7 9	18	0 023	3,500	28	24	26	530	580
6	Soft Clay	14 6	20 5	8 5	31	0 024	18,665	-	27	37	710	1,000
7	Sand	20 5	21 9	10 1	-	-	11,390	33	73	79	13,730	14,830
8	Silt	21 9	30 0	9 3	44	0 024	38,165	30	42	58	1,280	1,790

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Structure	5
Support(s)	3,4,5
Water Depth (m)	1 0
Existing Ground Elevation (m)	1284 9

	Initials	Date
Completed By		
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0 0	1 0	17 8	5	0 020	3,500	-	0	3	-	60
2	Soft Clay	1 0	5 2	7 7	17	0 020	3,500	-	3	10	70	200
3	Silt	5 2	8 2	9 6	70	0 021	77,165	31	11	18	440	700
4	Soft Clay	8 2	13 0	9 3	37	0 024	29,165	-	17	26	490	770
5	Silt	13 0	14 4	7 9	18	0 023	3,500	28	25	28	570	620
6	Soft Clay	14 4	19 4	9 5	18	0 023	3,500	-	28	38	620	840
7	Sand	19 4	21 4	10 5	-	-	27,010	39	100	112	23,800	26,540
8	Stiff Clay with Free Water	21 4	26 8	9 6	63	0 021	68,165	-	46	58	1,700	2 140
9	Sand	26 8	30 0	10 9	-	-	32,690	41	153	173	38,250	43,480

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KLEINFELDER MEMORANDUM

To: Mr. K. N. Gunalan, P.E.

From: Corbett M. Hansen, E.I.T. CMH 7/16/01
Curt Christensen, P.E. CC 7/16/01

Date: July 16, 2001

Subject: **Protocol for estimating primary and secondary settlement magnitude, surcharge height, and wick drain spacing**

The intent of this protocol is to provide a consistent, documented method for evaluation of primary and secondary settlement magnitude, time rate of settlement, surcharge height, and wick drain spacing using the Excel® spreadsheet "LP Embankment".

Should you have any questions regarding the procedure, please see Corbett Hansen or Curt Christensen.

I. Assemble the subsurface soil profile for the selected embankment alignment using the appropriate boring and CPT logs with the ground surface of each log at the appropriate elevation. Evaluate the depth to the bottom of each generalized soil layer to the maximum depth explored. If available from field or laboratory data, evaluate the average uncorrected blow count (N_{ave} value), average unit weight (γ_{ave}), average over consolidation ratio (OCR_{ave}), compression ratio ($C_{c\text{™}}$), recompression ratio ($C_{r\text{™}}$), secondary compression ratio ($C_{\alpha\text{™}}$), Coefficient of Vertical Consolidation (C_v), Coefficient of Horizontal Consolidation (C_h), and drainage path for each layer. If there are any changes in soil type, consistency, or density, it should be identified by a new layer. A maximum of **twenty** soil layers may be defined.

II. Evaluate coordinates for the existing ground surface, including existing embankments if present, and the proposed embankment from the cross sections provided. A maximum of **eleven** coordinates may be used to define each cross-section. Coordinates are entered from left to right and cannot decrease in absolute value from the previous offset coordinate, however, subsequent coordinates can be equal in value. Vertical coordinates are entered as elevations.

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III. Open the file LP Embankment-p.xls. Select "options" under the Tools" pull-down menu. Under the "Calculations" tab, select "Manual" calculations option. Also, uncheck the box next to "Recalculate before save". Select "OK". Save the working file using the following nomenclature:

AASE_XXXX_Y+YYY_ZZ-ZZ-ZZ

Where: AA = Legacy project segment (NI, GL, PL, 5S, SI)
XXXX = alignment name (do not abbreviate)
Y+YYY = station
ZZ-ZZ-ZZ = cross section print date

IV. Cells requiring input in the "Input" worksheet tab are shaded yellow. Orange cells contain values that can be changed according to site specific information. Beginning at the top left hand side of the Input worksheet, enter the following:

- Alignment Name
- Station
- Cross section drawing date
- Nearest structure number
- Section centerline elevation
- Scheduled settlement time (from FAK construction schedule)
- Soil Profile Identification
- Stage identification (from FAK)
- Fill identification (from FAK)
- Feature (e.g., S-29 Abutment 1, MSE embankment, or Embankment)

Values in the following override cells should be changed according to the accompanying directions:

- METRIC? – The spreadsheet is set to calculate in metric units. Because the project will be completed in metric units, this value will not change.

- Proposed Embankment Fill Unit Weight – The value entered, 20.4 kN/m^3, was obtained from tests performed on soil from the potential borrow areas. This value should be used for most of the embankment fill on the project.

- Increment Width – The spreadsheet calculates settlement at 75 points along the cross section. The increment width is set at 2 meters, which will calculate settlement for 150 meters. This value can be changed to accommodate the overall cross section width.

- Min x-coordinate – This value is the far-left offset point at which settlement is calculated. Because it is set at =75 meters and the increment width is set at 2 meters, settlement will be calculated from –75 meters to 75 meters along the

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cross section. This value can be changed to accommodate the cross section width.

- Water Level – The depth of the ground water surface is evaluated by the spreadsheet based on studies performed by others during preparation of the environmental document. Groundwater observations recorded during the field exploration may be used to override the tabulated spreadsheet values.

- Existing Ground Unit Weight – The set value was obtained through testing. This value can be changed is site specific test results are available.

- Time 1 for secondary – This value will not change for the Legacy Parkway project.

- Time 2 for secondary – This value will not change for the Legacy Parkway project.

- Average Degree of Consolidation – This value will not change for the Legacy Parkway project.

- Number of Construction Stages – This value will vary according to the stability analysis.

- Surcharge Method – This value will not change for the Legacy parkway project.

V. Enter the coordinates for the existing ground, proposed embankment, proposed embankment with surcharge, and proposed embankment with surcharge for time calculations. **X coordinates may not decrease in value from left to right,** although identical, subsequent x-coordinates are allowed.

VI. Enter the depth to the **bottom** of each soil layer with a soil type number from the table on the input sheet. Enter N_{ave} for each layer. This will define the soil consistency or density of each layer and assist in determining other parameters. If there are any changes in soil consistency or density, it must be identified as a new layer. If an N_{ave} value is not available, use an average correlated N_{60} value from CPT data.

VII. Press key F9.

VIII. For each layer the spreadsheet will estimate γ_{ave}, OCR, preconsolidation pressure, $C_{c™}$, $C_{r™}$, $C_{\alpha™}$, C_v, and C_h. If available, use laboratory test results for the layer to overwrite the range of values.

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IX. The spreadsheet is currently set for two-way drainage of each layer. Change the drainage to one-way drainage for the layers that will likely exhibit single drainage.

X. Calculate the settlement by pressing key F9.

XI. Check the "Settlement Chart" worksheet and adjust the "proposed embankment with surcharge coordinates" until the settlement due to the surcharge (green line with plus symbols) matches the upper bound "primary plus secondary settlement estimate" (lowest red line).

XII. Execute the "Find Maximum Offset" macro to find the offset at which maximum settlement occurs. The offset at maximum settlement value will change after striking key F9. Calculations for surcharge height and consolidation time are based on the induced stresses at this offset. If another offset location is preferable, an "o" can be typed in place of the "m" in cell F6 and a location can be entered in the cell F5.

XIII. Execute the "Surcharge Time" (1 and 2) macros (Method 1, 2, and 3). Adjust the "proposed embankment with surcharge coordinates for time calculations" until the Surcharge Time 1 for the preferred method fits the contractor's scheduled settlement time. The surcharge times must be reset (reset macro) and the spreadsheet recalculated (F9) before re-executing the "Surcharge Time" macros.

XIV. Enter the estimated Wick Drain Installation Length. This should be evaluated from the soil profile. When a dense sand or gravel layer is likely to cause refusal, evaluate the need for wick drains below that layer. The wick drain length is always evaluated as the depth below native ground. Wick drain thickness and width dimensions are fixed values that will not change for the Legacy Parkway project.

XV. Execute the "Wick Time" macro and the "Wick Plus Surcharge Time" macro. Default values of 2.0, 2.5, and 3.0 meters are entered into the worksheet for wick drain spacing values. The values can be decreased to meet the contractor's time requirements or increased to maximizing spacing. Before re-running either macro, reset the time using the macro button located beneath.

XVI. On the "Output" worksheet, adjust the scale of the settlement figure as required. The scales should stay consistent for a group of cross sections. Review all values on the "Output" worksheet. Reported settlement magnitudes are rounded up in 25-millimeter increments and time calculations are rounded up in 15-day increments. The time calculations are set at a minimum 45 days. Considering construction staging needs for stability, determine a recommended combination of surcharge height and triangular wick drain spacing to meet the contractor's schedule. Print the input and output worksheets. On the input worksheet, initial and date next to the "Prepared By:" cell in the table

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similar to the one shown below. The input and output worksheets should be checked by someone who is familiar with "LP Embankment".

	Name	Date
Prepared By:		
Checked By:		

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Embankment and Grading Summary

Pavement Package: 1-P-1

Alignment: Mainline

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
6001+000[b]	6001+840	<1.5	0.0	—	N/R	—	—	—
6001+840	6002+320	1.5 - 3.0	0.5	0.5	2.0	1257.0	To Be Evaluated	To Be Evaluated
6002+320	6002+450	3.0 - 5.0	1.0	1.0	2.0	1257.0	To Be Evaluated	To Be Evaluated

a Compact surcharge to embankment standards

b Beginning of alignment

N/R - wick drains do not appear to be required according to current construction schedule information provided to Kleinfelder

	Initials	Date
Completed By:	CMH	11/8/01
Reviewed By:	NPM	11/8/01

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Embankment and Grading Summary

Grading Package: 1-G-1

Alignment: Mainline

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
6002+445	6002+655	4.0 - 5.0	0.7	0.7	2.0	1258.0	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards

	Initials	Date
Completed By:	CMH	9/21/01
Reviewed By:		

Embankment and Grading Summary

Grading Package: 1-G-2

Alignment: Mainline

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
6002+620	6002+850	3.0 - 5.0	0.7	0.7	2.0	1258.0	To Be Evaluated	To Be Evaluated
6002+850	6003+700	1.5 - 3.0	0.5	0.5	2.0	1258.0	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards

	Initials	Date
Completed By:	CMH	9/26/01
Reviewed By:	[signature]	9/26/01

Embankment and Grading Summary

Pavement Package: 1-P-1

Alignment: I.PNB to I-215

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
54+000[b]	54+160	<1.5	0.0	—	N/R	—	—	—
54+160	54+380	1.5 - 4.0	1.0	0.7	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+380	54+520	4.0 - 7.0	1.5	1.3	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+520	54+700	7.0 - 7.8	2.0	1.5	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+700	54+840	3.7 - 6.9	1.5	1.5	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+840	54+880	2.1 - 3.7	1.0	0.7	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+880	54+940	1.5 - 2.1	0.5	0.4	2.0	1257.0	To Be Evaluated	To Be Evaluated
54+940	55+376[c]	<1.5	0.0	—	N/R	—	—	—

a Compact surcharge to embankment standards

b Beginning of alignment

c End of alignment

N/R - wick drains do not appear to be required according to current construction schedule information provided to Kleinfelder.

	Initials	Date
Completed By:	CMH	11/8/01
Reviewed By:	NPM	11/8/01

Embankment and Grading Summary

Pavement Package: 1-P-1

Alignment: I-215 to LPSB

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
58+000[b]	58+080	<4.0	0.5	0.5	2.0	1257.0	To Be Evaluated	To Be Evaluated
58+080	58+150	4.0 - 5.5	1.5	0.9	2.0	1257.0	To Be Evaluated	To Be Evaluated

a Compact surcharge to embankment standards

b Beginning of alignment

	Initials	Date
Completed By:	CMH	11/2/01
Reviewed By:	NPM	11/8/01

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Embankment and Grading Summary

Grading Package: 1-G-2

Alignment: I-215 to LPSB

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
58+150	58+207.5[b]	4.5 - 5.5	1.0	1.0	2.0	1257.0	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards.

b. Beginning of Structure 1.

	Initials	Date
Completed By:	CMH	9/21/01
Reviewed By:	[signature]	9/21/01

Embankment and Grading Summary

Grading Package: 1-G-1

Alignment: I-215 to LPSB

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
58+300.5[b]	58+340	7.5 - 10.3	3.0	2.0	2.0	1257.0	To Be Evaluated	To Be Evaluated
58+340	58+356	10.3-12.2	3.3	2.5	2.0	1257.0	To Be Evaluated	To Be Evaluated
58+356	58+439.0[c]	10.3-12.2	1.5 - 3.3[d]	1.5	2.0	1257.0	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards.

b. Approximate ending station of Structure 1.

c. Approximate beginning station of Structure 5.

d. Surcharge geometry altered due to MSE walls.

	Initials	Date
Completed By:	CMH	9/26/01
Reviewed By:	[signature]	9/26/01

Embankment and Grading Summary

Grading Package: 1-G-2

Alignment: I-215 to LPSB

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
58+577[b]	58+651	10.6 - 12.3	1.5 - 3.5[c]	1.5	2.0	1258.0	To Be Evaluated	To Be Evaluated
58+651	58+680	10.6 - 12.3	3.5	2.5	2.0	1258.0	To Be Evaluated	To Be Evaluated
58+680	58+760	7.9 - 10.6	2.5	2.0	2.0	1258.0	To Be Evaluated	To Be Evaluated
58+760	58+840	4.0 - 7.9	1.8	1.5	2.0	1258.0	To Be Evaluated	To Be Evaluated
58+840	58+920	1.5 - 4.0	0.8	0.8	2.0	1258.0	To Be Evaluated	To Be Evaluated
58+920	59+040	<1.5	0.0	---	N/R	---	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards

b Approximate ending station of Structure 5.

c. Surcharge geometry altered due to MSE walls.

N/R = wick drains do not appear to be required according to current construction schedule information provided to Kleinfelder

	Initials	Date
Completed By:	CMH	9/26/01
Reviewed By:	[signature]	9/26/01

Embankment and Grading Summary

Pavement Package: 1-P-1

Alignment: LPNB to Redwood Rd

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
50+260[b]	50+360	<1.5	0.0	—	N/A	—	—	—
50+360	50+600	1.5 - 2.5	0.5	0.4	2.0	1264.7	To Be Evaluated	To Be Evaluated
50+600	50+649[c]	<1.5	0.0	—	N/A	—	—	—

a Compact surcharge to embankment standards

b Approximate beginning station for ramp at Redwood Rd.

c Approximate ending station for ramp at LPNB.

N/A - wick drains not required for construction

	Initials	Date
Completed By:	CMH	11/6/01
Reviewed By:	NPM	11/7/01

2 of 2

Embankment and Grading Summary

Pavement Package: 1-P-1

Alignment: I-215 to Redwood Rd

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
59+000	59+100	3.2 - 5.0	1.0	0.9	2.0	1257.0	To Be Evaluated	To Be Evaluated
59+100	59+140	2.0 - 3.4	0.8	0.7	2.0	1257.0	To Be Evaluated	To Be Evaluated
59+140	59+240	1.5 - 2.0	0.5	0.4	2.0	1257.0	To Be Evaluated	To Be Evaluated
59+240	59+300[c]	<1.5	0.0	—	N/A	—	To Be Evaluated	To Be Evaluated

a Compact surcharge to embankment standards.

b Approximate beginning station for ramp at Redwood Rd

c. Approximate ending station for ramp at I-215.

N/A - wick drains not required for construction.

	Initials	Date
Completed By:	CMH	11/8/01
Reviewed By:	NPM	11/8/01

Embankment and Grading Summary

Grading Package: 1-G-2

Alignment: Redwood Rd to LPSB

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
52+100[b]	52+280	1.5 - 3.0	0.5	0.5	2.0	1259.0	To Be Evaluated	To Be Evaluated
52+280	52+340[c]	3.0 - 4.0	0.8	0.8	2.0	1259.0	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards

b. Approximate beginning station for ramp at Redwood Road.

c. Approximate ending station for ramp at Redwood Road.

	Initials	Date
Completed By:	CMH	9/21/01
Reviewed By:		9/21/01

Embankment and Grading Summary

Grading Package: 1-G-2

Alignment: Center Street

Station		Embankment Height (m)	Surcharge Height (m)	Compacted Surcharge Height Above Embankment[a] (m)	Wick Drain Spacing (m)	Wick Drain Tip Elevation (m)	Height of First Stage (m)	Height of Second Stage (m)
Beginning	Ending							
4+980[b]	5+100	<1.5	0.0	0.0	N/R	--	To Be Evaluated	To Be Evaluated
5+100	5+160	1.5 - 3.7	0.5	0.4 m	2.5	1267.0	To Be Evaluated	To Be Evaluated
5+160	5+220	3.7 - 6.5	1.0	0.9 m	2.5	1267.0	To Be Evaluated	To Be Evaluated
5+220	5+386[d]	6.5 - 10	1.5	1.3 m	2.5	1266.5	To Be Evaluated	To Be Evaluated
5+476[d]	5+560	7.0 - 10	1.5	1.1 m	2.5	1267.5	To Be Evaluated	To Be Evaluated
5+560	5+640	4.0 - 7.0	1.0	0.95 m	2.5	1267.5	To Be Evaluated	To Be Evaluated
5+640	5+700	1.5 - 4.0	0.5	0.3 m	2.5	1268.0	To Be Evaluated	To Be Evaluated
5+700	5+811[c]	<1.5	0.0	0.0	N/R	--	To Be Evaluated	To Be Evaluated

a. Compact surcharge to embankment standards

b. Approximate Beginning Station

c Approximate Ending Station

d. Approximate Stationing at Bridge Abutments

N/R = wick drains do not appear to be required according to current construction schedule information provided to Kleinfelder.

Completed By: [signature] 9/20/01

Reviewed By: CMH 9/21/01

calculations attached

SUMMARY OF GLOBAL STABILITY CALCULATIONS

South Interchange

		HSG		Staged Construction			Long Term			Pseudo-Static and Dynamic							
Type	Classification	#	Length	# of Stages	Target F.S.	Max. Stage Height	Target F.S.	Max. Final Height	Height w/ Surcharge	Target F.S.	Seismic Design Criteria (g)		Max. Final Height	Height w/ Surcharge	Post-EQ F.S.	Yield Accel (g)	Deformation (cm)
Sloped Embankment	Non-Impact	0	0	1	1.1	= 3.5	1.25	> 3.0	3.5	1	10PE50	0.29	> 3.0	3.5	1.37		
				2	1.1	= 5.0	1.25	> 3.9	5.0	1	10PE50	0.29	= 3.8	4.9	1.27		
				3	1.1	= 5.8	1.25	> 4.4	5.8	1	10PE50	0.29	< 4.4	5.8	1.22		
		1	40	1	1.1	= 7.8	1.25	> 5.8	7.8	1	10PE50	0.29	> 5.8	7.8	1.62		
				2	1.1	= 12.0	1.25	> 8.9	12.0	1	10PE50	0.29	> 8.9	12.0	1.35		
				3	1.1	= 14.2	1.25	> 10.6	14.2	1	10PE50	0.29	> 10.6	14.2	1.24		
		2	60	1	1.1	= 10.2	1.25	> 7.6	10.2	1	10PE50	0.29	> 7.6	10.2	1.61		
				2	1.1	= 15.7	1.25	> 11.7	15.7	1	10PE50	0.29	> 11.7	15.7	~~1.31~~	1.30	
				3	1.1	= 18.7	1.25	> 14.2	18.7	1	10PE50	0.29	> 14.2	18.7	1.20		
		3	70	1	1.1	= 11.8	1.25	> 8.7	11.8	1	10PE50	0.29	> 8.7	11.8	1.62		
				2	1.1	= 18.4	1.25	> 13.9	18.4	1	10PE50	0.29	> 13.9	18.4	1.29		
				3	1.1		1.25			1	10PE50	0.29					
Sloped Embankment	At Bridge	0	0	1	1.1	= 3.5	1.3	> 3.0	3.5	1	2PE50	0.60	= 1.9	2.4	> 1.37		
				2	1.1	= 5.0	1.3	> 3.9	5.0	1	2PE50	0.60	<< 3.9	5.0	> 1.27		
				3	1.1	= 5.8	1.3	= 4.4	5.8	1	2PE50	0.60	<< 4.4	5.8	>1.22		
		1	40	1	1.1	= 7.8	1.3	> 5.8	7.8	1	2PE50	0.60	> 5.8	7.8	1.62		
				2	1.1	= 12.0	1.3	> 8.9	12.0	1	2PE50	0.60	> 8.9	12.0	1.35		
				3	1.1	= 14.2	1.3	> 10.6	14.2	1	2PE50	0.60	= 10.6	14.2	1.24		
		2	60	1	1.1	= 10.2	1.3	> 7.6	10.2	1	2PE50	0.60	> 7.6	10.2	1.61		
				2	1.1	= 15.7	1.3	> 11.7	15.7	1	2PE50	0.60	> 11.7	15.7	~~1.31~~	1.30	
				3	1.1	= 18.7	1.3	> 14.2	18.7	1	2PE50	0.60	> 14.2	18.7	1.20		
		3	70	1	1.1	= 11.8	1.3	> 8.7	11.8	1	2PE50	0.60	> 8.7	11.8	1.62		
				2	1.1	= 18.4	1.3	> 13.9	18.4	1	2PE50	0.60	> 13.9	18.4	1.29		
				3	1.1		1.3			1	2PE50	0.60					

Notes and Assumptions:

1. The values presented in this table are in meters unless otherwise indicated.
2. The values presented in this table are calculated values or linearly interpolated from calculated values; Actual heights will be dictated by instrumentation data and field performance.
3. "At Bridge" classification is applicable to fill within 15m from the back of the bridge abutment (i.e., length of the approach slab).
4. Embankment geometry no steeper than 1V:1.5H for temporary conditions (i.e., surcharge) and 1V:2H for permanent slopes. Fill properties: friction angle = 32 degrees, cohesion = 5 kP, unit weight = 21.2 kN/m^3
5. MSE wall reinforcement length is equal to the final design height. Gobal stability controlled by failure behind reinforced zone.
6. HSG = High Strength Geotextile; Woven polyester with warp strengths of 730 and 290 kN/m at ultimate and 5% strain, respectively; Allowable static and dynamic strengths = 400 and 690 kN/m, respectively.
7. HSG rotates tangentially to failure surface, HSG placed at the base of the fill, HSG length extends from toe of slope (or face of wall) for the length indicated, HSG lengths do NOT include extra length for anchorage.
8. When calculated HSG length exceeds entire base width of fill, or HSG extending from opposite sides of fill overlap, use HSG length equal to base width of fill.
9. HSG strength is unidirectional. Consequently, at bridge abutments, the number of HSG indicated should be placed with the warp direction oriented both parallel and perpendicular to roadway centerline.
10. Pseudo-static analysis assumes kh = 0.5*pga applied to critical failure surface from static, long-term conditions without HSG. Deformation estimated from simplified Makdisi-Seed procedure.
11. Piles are 406-mm O.D. pipe piles, spaced c-c 1.5-m or closer; Resistance in pseudostatic case equal to yield strength, 448 MPa; Contribution of concrete core neglected.

Completed by TMG 10/2/01
Reviewed by JBM 10/2/01

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SUMMARY OF GLOBAL STABILITY CALCULATIONS

Center Street

		HSG		Staged Construction			Long Term			Pseudo-Static and Dynamic							
Type	Classification	#	Length	# of Stages	Target F.S.	Max. Stage Height	Target F.S.	Max. Final Height	Height w/ Surcharge	Target F.S.	Seismic Design Criteria (g)		Max. Final Height	Height w/ Surcharge	Post-EQ F.S.	Yield Accel (g)	Deformation (cm)
Sloped Embankment	Non-Impact	0	0	1	1.1	= 5.2	1.25	> 4.0	5.2	1	10PE50	0.29	> 4.0	5.2			
				2	1.1	= 7.8	1.25	> 5.8	7.8	1	10PE50	0.29	= 5.8	7.8			
				3	1.1		1.25			1	10PE50	0.29					
		1	45	1	1.1	= 9.0	1.25	> 6.6	9.0	1	10PE50	0.29	> 6.6	9.0			
				2	1.1	= 13.6	1.25	> 10.1	13.6	1	10PE50	0.29	> 10.1	13.6			
				3	1.1		1.25			1	10PE50	0.29					
		2	60	1	1.1	= 11.0	1.25	> 8.1	11.0	1	10PE50	0.29	> 8.1	11.0			
				2	1.1	= 16.5	1.25	> 12.3	16.5	1	10PE50	0.29	> 12.3	16.5			
				3	1.1		1.25			1	10PE50	0.29					
		3	65	1	1.1	= 12.6	1.25	> 9.3	12.6	1	10PE50	0.29	> 9.3	12.6			
				2	1.1	= 19.5	1.25	> 14.8	19.5	1	10PE50	0.29	> 14.8	19.5			
				3	1.1		1.25			1	10PE50	0.29					
Sloped Embankment	At Bridge	0	0	1	1.1	= 5.2	1.3	> 4.0	5.2	1	2PE50	0.60	= 4.0	5.2			
				2	1.1	= 7.8	1.3	> 5.8	7.8	1	2PE50	0.60	<< 5.8	7.8			
				3	1.1		1.3			1	2PE50	0.60					
		1	45	1	1.1	= 9.0	1.3	> 6.6	9.0	1	2PE50	0.60	> 6.6	9.0			
				2	1.1	= 13.6	1.3	> 10.1	13.6	1	2PE50	0.60	> 10.1	13.6			
				3	1.1		1.3			1	2PE50	0.60					
		2	60	1	1.1	= 11.0	1.3	> 8.1	11.0	1	2PE50	0.60	> 8.1	11.0			
				2	1.1	= 16.5	1.3	> 12.3	16.5	1	2PE50	0.60	> 12.3	16.5			
				3	1.1		1.3			1	2PE50	0.60					
		3	65	1	1.1	= 12.6	1.3	> 9.3	12.6	1	2PE50	0.60	> 9.3	12.6			
				2	1.1	= 19.5	1.3	> 14.8	19.5	1	2PE50	0.60	> 14.8	19.5			
				3	1.1		1.3			1	2PE50	0.60					

Notes and Assumptions:

1. The values presented in this table are in meters unless otherwise indicated.
2. The values presented in this table are calculated values or linearly interpolated from calculated values, Actual heights will be dictated by instrumentation data and field performance.
3. "At Bridge" classification is applicable to fill within 15m from the back of the bridge abutment (i.e., length of the approach slab).
4. Embankment geometry no steeper than 1V:1.5H for temporary conditions (i.e., surcharge) and 1V:2H for permanent slopes. Fill properties: friction angle = 32 degrees, cohesion = 5 kP, unit weight = 21.2 kN/m^3
5. MSE wall reinforcement length is equal to the final design height, Gobal stability controlled by failure behind reinforced zone.
6. HSG = High Strength Geotextile; Woven polyester with warp strengths of 730 and 290 kN/m at ultimate and 5% strain, respectively, Allowable static and dynamic strengths = 400 and 690 kN/m, respectively.
7. HSG rotates tangentially to failure surface, HSG placed at the base of the fill; HSG length extends from toe of slope (or face of wall) for the length indicated; HSG lengths do NOT include extra length for anchorage.
8. When calculated HSG length exceeds entire base width of fill, or HSG extending from opposite sides of fill overlap, use HSG length equal to base width of fill.
9. HSG strength is unidirectional, Consequently, at bridge abutments, the number of HSG indicated should be placed with the warp direction oriented both parallel and perpendicular to roadway centerline.
10. Pseudo-static analysis assumes kh = 0.5*pga applied to critical failure surface from static, long-term conditions without HSG; Deformation estimated from simplified Makdisi-Seed procedure.
11. Piles are 406-mm O.D. pipe piles, spaced c-c 1.5-m or closer; Resistance in pseudostatic case equal to yield strength, 448 MPa; Contribution of concrete core neglected.

Completed by TMB Oct 2, 20c
Reviewed by NPM 10/2/01

Page 1 of 11.2

Q3OR094

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MEMORANDUM

Date: October 8, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. CC

Subject: **High Strength Geotextile and Staging Options**
Center Street: Stage 1, Fill 6
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankments. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for these embankments. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 6: Center Street over Legacy Parkway

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	4+980	5+165	1/0	N/A	N/A	N/A	N/A
1	5+165	5+225	1/1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+225	5+320	1/2	N/A	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+320	5+335	1/3	N/A	Grade + 0.2m Grade + 0.6m Grade + 1.0m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1,2	5+335	West Abutment, Bridge 11 (~ 5+385)	2/1	9.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1,2	5+333	West Abutment, Bridge 11 (~ 5+385)	2/1	9.0	Grade + 0.2m	52 m	Parallel to Center Street CL

KLEINFELDER 2677 East Parley's Way, Salt Lake City, UT 84109-1617 (801) 466-6769 (801) 466-6788 fax

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	East Abutment, Bridge 11 (~5+475)	5+530	1/3	N/A	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	East Abutment, Bridge 11 (~5+475)	5+547	1/3	N/A	Grade + 0.2m Grade + 0.6m Grade + 1.0m	72 m	Parallel to Center Street CL
1	5+530	5+585	1/2	N/A	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+585	5+645	1/1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+645	5+810	1/0	N/A	N/A	N/A	N/A
2	4+980	5+205	2/0	5.2	N/A	N/A	N/A
2	5+205	5+335	2/1	9.0	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
2	East Abutment, Bridge 11 (~5+475)	5+605	2/1	9.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
2	East Abutment, Bridge 11 (~5+475)	5+527	2/1	9.0	Grade + 0.2m	52 m	Parallel to Center Street CL
2	5+605	5+810	2/0	5.2	N/A	N/A	N/A

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MEMORANDUM

Date: October 8, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. cc

Subject: **High Strength Geotextile and Staging Options**
Center Street: Stage 1, Fill 6
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankments. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for these embankments. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 6: Center Street over Legacy Parkway

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	4+980	5+165	1/0	N/A	N/A	N/A	N/A
1	5+165	5+225	1/1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+225	5+320	1/2	N/A	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+320	5+335	1/3	N/A	Grade + 0.2m Grade + 0.6m Grade + 1.0m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1,2	5+335	West Abutment, Bridge 11 (~ 5+385)	2/1	9.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1,2	5+333	West Abutment, Bridge 11 (~ 5+385)	2/1	9.0	Grade + 0.2m	52 m	Parallel to Center Street CL

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Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	East Abutment, Bridge 11 (~5+475)	5+530	1/3	N/A	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	East Abutment, Bridge 11 (~5+475)	5+547	1/3	N/A	Grade + 0.2m Grade + 0.6m Grade + 1.0m	72 m	Parallel to Center Street CL
1	5+530	5+585	1/2	N/A	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+585	5+645	1/1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
1	5+645	5+810	1/0	N/A	N/A	N/A	N/A
2	4+980	5+205	2/0	5.2	N/A	N/A	N/A
2	5+205	5+335	2/1	9.0	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
2	East Abutment, Bridge 11 (~5+475)	5+605	2/1	9.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Center Street CL
2	East Abutment, Bridge 11 (~5+475)	5+527	2/1	9.0	Grade + 0.2m	52 m	Parallel to Center Street CL
2	5+605	5+810	2/0	5.2	N/A	N/A	N/A

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MEMORANDUM

Date: October 8, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. CC

Subject: **High Strength Geotextile and Staging Options**
I-215 to LP SB: Stage 1, Fill 3
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankments. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for these embankments. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Roadway elevations prior to Station 58+140 have not been provided; HSG may be needed for embankments higher than 3 meters prior to Station 58+140.

Stage 1, Fill 3: I-215 to Legacy Parkway Southbound

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1,2	58+149	South Abut. Bridge 1 (~58+219)	1 / 2	N/A	Grade + 0.2m Grade + 0.6m	70	Parallel to Ramp CL
1	58+140	58+149	1 / 1	N/A	Grade + 0.2m	52	Perpendicular to Ramp CL
1	58+149	58+200	1 / 1	N/A	Grade + 0.4m	52*	Perpendicular to Ramp CL
1	58+200	South Abut. Bridge 1 (~58+219)	1 / 2	N/A	Grade + 0.4m Grade + 0.8m	72*	Perpendicular to Ramp CL
2	58+140	58+149	2 / 1	5.8	Grade + 0.2m Grade + 0.4m	52*	Perpendicular to Ramp CL
2	58+149	South Abut. Bridge 1 (~58+219)	2 / 1	5.8	Grade + 0.4m Grade + 0.8m	52*	Perpendicular to Ramp CL

*Removal of existing embankment required to provide sufficient overburden for anchorage.

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File # C5UR Doc. # 0095

Route to:

SIGNED 10/9/01

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Legacy Parkway Project

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MEMORANDUM

Date: October 4, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. CC

Subject: **High Strength Geotextile and Staging Options**
South Interchange: Stage 1, Fill 1
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankment. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for this embankment. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 1

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1,2	North Abutment Bridge 1 (~58+280)	58+348	2 / 2	10.2	Grade + 0.2m Grade + 0.6m	68 m	Parallel to Ramp CL
1	North Abutment, Bridge 1 (~58+280)	58+375	2 / 2	10.2	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+375	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	North Abutment, Bridge 1 (~58+280)	58+350	3 / 1	7.8, 12.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+350	58+375	3 / 2	10.2, 15.7	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+375	South Abutment Bridge 5 (~58+427)	3 / 2	10.2, 15.7	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1,2	58+361	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.2m Grade + 0.6m Grade + 1.0m	66	Parallel to Ramp CL

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MEMORANDUM

Date: October 4, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. CC

Subject: **High Strength Geotextile and Staging Options**
South Interchange: Stage 1, Fill 1
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankment. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for this embankment. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 1

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1,2	North Abutment Bridge 1 (~58+280)	58+348	2 / 2	10.2	Grade + 0.2m Grade + 0.6m	68 m	Parallel to Ramp CL
1	North Abutment, Bridge 1 (~58+280)	58+375	2 / 2	10.2	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+375	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	North Abutment, Bridge 1 (~58+280)	58+350	3 / 1	7.8, 12.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+350	58+375	3 / 2	10.2, 15.7	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+375	South Abutment Bridge 5 (~58+427)	3 / 2	10.2, 15.7	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1,2	58+361	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.2m Grade + 0.6m Grade + 1.0m	66	Parallel to Ramp CL

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KLEINFELDER
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MEMORANDUM

Date: October 8, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. cc

Subject: **High Strength Geotextile and Staging Options**
South Interchange: Stage 1, Fills 2, 4, and 5
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankments. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for these embankments. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 2: I-215 to LP Southbound

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1, 2, 3	Northeast Abutment Bridge 5 (~58+574)	58+649	2 / 3	11.8	Grade + 0.2m Grade + 0.6m Grade + 1.0m	75 m	Parallel to Ramp CL
1, 3	Northeast Abutment Bridge 5 (~58+574)	58+649	2 / 3	11.8	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1, 3	58+649	58+660	2 / 2	10.2	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2, 3	Northeast Abutment Bridge 5 (~58+574)	58+649	3 / 2	10.2, 15.7	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2, 3	58+649	58+660	3 / 2	10.2, 15.7	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1, 3	58+660	58+720	2 / 2	10.2	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2, 3	58+660	58+675	2 / 2	10.2	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL

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Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
2, 3	58+675	58+720	3 / 1	7.8, 12.0	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+720	58+730	2 / 2	10.2	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+730	58+760	1 / 3	N/A	Grade + 0.2m Grade + 0.4m Grade + 0.6m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+760	58+810	1 / 2	N/A	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+810	58+830	1 / 1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+720	58+725	2 / 2	10.2	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+725	58+830	2 / 1	7.8	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
3	58+720	58+830	3 / 1	7.8, 12.0	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL

Stage 1, Fill 4: Legacy Parkway

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	6002+441	South Abutment, Bridges 32&33 (~6002+495)	1 / 1	N/A	Grade – 0.2m	54m	Parallel to CL Legacy Parkway
1	6002+400	6002+441	1 / 1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
1	6002+441	South Abutment, Bridges 32&33 (~6002+495)	1 / 1	N/A	Grade – 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
1	North Abutment, Bridges 32&33 (~6002+526)	6002+580	1 / 1	N/A	Grade – 0.2m	54 m	Parallel to CL Legacy Parkway

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Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	North Abutment, Bridges 32&33 (~6002+526)	6002+580	1 / 1	N/A	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
1	6002+580	6002+620	1 / 1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway

Stage 1, Fill 5: Legacy Parkway

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	6002+620	6002+880	1 / 1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
1	6002+880	6003+000	1 / 0	N/A	N/A	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
2	6002+620	6002+790	1 / 1	N/A	Grade + 0.2m	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway
2	6002+790	6003+000	2 / 0	3.5	N/A	Varies; From toe of slope to toe of slope	Perpendicular to CL Legacy Parkway

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KLEINFELDER

MEMORANDUM

Date: November 8, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG by CMA
Curt Christensen, P.E. cc

Subject: **High Strength Geotextile and Staging Options**
Pavement Package 1-P-1
South Interchange
Legacy Parkway
Kleinfelder Project No. 35-8440-05.001

At your request we have evaluated the slope stability requirements for the embankments in the above referenced pavement package. The following tables provide summaries of the high strength geotextile and staging options that appear to be suitable for these embankments. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal. We should be informed of the construction and staging options selected. Instrumentation data observations and reports, as well as construction notification, should be provided in accordance with our memorandum dated October 10, 2001.

Table 1

Legacy Parkway (6001+000 to 6002+400) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation, m)	Length (m)	Warp Direction Orientation
1	6001+000	6001+800	1 / 0	N/A	N/A	N/A	N/A
	~6001+800	South Abut., Bridges 2 & 3 (~6002+233)	1 / 2	N/A	Grade + 0.2 * (1,285)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
					Grade + 0.4 *	54 m from toe of spill slope	Parallel to Alignment CL & Spill Slope
	North Abut., Bridges 2 & 3 (~6002+268)	~6002+400	1 / 2	N/A	Grade + 0.2 * (1,285)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
					Grade + 0.2 *	54 m from toe of spill slope	Parallel to Alignment CL & Spill Slope

* Removal of existing embankment required to install HSG at design elevation.

Legacy Parkway (6002+400 to 6003+000)

High strength geotextile and staging options for this reach are presented in a previous memorandum. Refer to the memorandum entitled "High Strength Geotextile and Staging Options, South Interchange: Stage 1, Fills 2, 4 and 5," dated October 8, 2001.

Table 2
LP NB to I-215 (54+000 to 55+400) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation , m)	Length (m)	Warp Direction Orientation
1	54+000	54+240	1 / 0	N/A	N/A	N/A	N/A
	54+240	54+460	1 / 1	N/A	Grade + 0.2 * (1,284.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+460	54+570	1 / 2	N/A	Grade + 0.2 * (1,284.2) Grade + 0.4 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+570	~54+589	1 / 3	N/A	Grade + 0.2 * (1,284.2) Grade + 0.4 * Grade + 0.6 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	~54+589	South Abut., Bridge 4 (~54+639)	1 / 6	N/A	Grade + 0.4 * (1,284.4) Grade + 0.8 * Grade + 1.2*	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
					Grade + 0.2 * (1,284.2) Grade + 0.6 * Grade + 1.0 *	50 m from toe of spill slope	Parallel to Alignment CL & Spill Slope
	North Abut., Bridge 4 (~54+687)	~54+737	1 / 4	N/A	Grade + 0.4 * (1,285.4) Grade + 0.8 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
					Grade + 0.2 * (1,285.2) Grade + 0.6 *	50 m from toe of spill slope	Parallel to Alignment CL & Spill Slope
	~54+737	54+800	1 / 2	N/A	Grade + 0.2 * (1,285.2) Grade + 0.4 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+800	54+880	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL

Table 2 (Continued)
LP NB to I-215 (54+000 to 55+400) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation, m)	Length (m)	Warp Direction Orientation
1 (continued)	54+880	54+915	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+915	55+400	1 / 0	N/A	N/A	N/A	N/A
2	54+000	54+240	1 / 0	N/A	N/A	N/A	N/A
	54+240	54+460	1 / 1	N/A	Grade + 0.2 * (1,284.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+460	~54+589	2 / 1	7.8	Grade + 0.2 * (1,284.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	~54+589	South Abut., Bridge 4 (~54+639)	2 / 2	7.8	Grade + 0.2 * (1,284.2)	50 m from toe of spill slope	Parallel to Alignment CL & Spill Slope
					Grade + 0.4 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	North Abut., Bridge 4 (~54+687)	~54+737	2 / 2	7.8	Grade + 0.2 * (1,285.2)	50 m from toe of spill slope	Parallel to Alignment CL & Spill Slope
					Grade + 0.4 *	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	~54+737	54+800	2 / 1	7.8	Grade + 0.2 * (1,285)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+800	54+880	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	54+880	54+915	2 / 0	N/A	N/A	N/A	N/A
	54+915	55+360	1 / 0	N/A	N/A	N/A	N/A

* Removal of existing embankment required to install HSG at design elevation.

2677 East Parley's Way, Salt Lake City, UT 84109-1622

Table 3
I-215 to LP SB (58+000 to 58+140) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation , m)	Length (m)	Warp Direction Orientation
1	58+000	58+140	1 / 1	N/A	Grade + 0.2 * (1,284.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL

* Removal of existing embankment required to install HSG at design elevation.

I-215 to LP SB (58+140 to 58+830)

High strength geotextile and staging options for this reach are presented in three previous memoranda. Refer to memoranda entitled "High Strength Geotextile and Staging Options, South Interchange: Stage 1, Fill 1," dated October 4, 2001; "High Strength Geotextile and Staging Options, South Interchange: Stage 1, Fills 2, 4 and 5," dated October 8, 2001; and "High Strength Geotextile and Staging Options, South Interchange: Stage 1, Fill 3," dated October 8, 2001.

Table 4
I-215 to LP SB (58+830 to 59+040) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation , m)	Length (m)	Warp Direction Orientation
1	58+830	58+910	1 / 1	N/A	Grade - 0.2 * (1,286.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	58+910	59+040	1 / 0	N/A	N/A	N/A	N/A

* Removal of existing embankment required to install HSG at design elevation.

Table 5

LP NB to Redwood (50+260 to 50+650) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1	50+260	50+650	1 / 0	N/A	N/A	N/A	N/A

Redwood to I-215

Analysis was not performed due to lack of cross-sections.

Table 6

I-215 to Redwood (59+000 to 59+260) [based on cross-sections received 11/02/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation, m)	Length (m)	Warp Direction Orientation
1	59+000	59+180	1 / 1	N/A	Grade + 0.2 * (1,286.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	59+180	59+260	1 / 0	N/A	N/A	N/A	N/A

Table 7
Redwood to LP SB (52+060 to 52+340) [based on cross-sections dated 10/26/01]

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	HSG Location (Approx. Elevation, m)	Length (m)	Warp Direction Orientation
1	52+060	52+175	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	52+175	52+200	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	52+200	52+275	1 / 0	N/A	N/A	N/A	N/A
	52+275	52+340	1 / 1	N/A	Grade + 0.2 (1,286.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
2	52+060	52+175	1 / 1	N/A	Grade + 0.2 * (1,285.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL
	52+175	52+200	2 / 0	7.8	N/A	N/A	N/A
	52+200	52+275	1 / 0	N/A	N/A	N/A	N/A
	52+275	52+300	2 / 0	7.8	N/A	N/A	N/A
	52+300	52+340	1 / 1	N/A	Grade + 0.2 (1,286.2)	Varies; From toe of slope to toe of slope	Perpendicular to Alignment CL

* Removal of existing embankment required to install HSG at design elevation.

[illegible] 2617 East Paden [illegible] Sun Lake [illegible] T 62[illegible] [illegible]

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Route to:

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Parsons Brinckerhoff
Legacy Parkway Project

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MEMORANDUM

Date: October 4, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. CC

Subject: **High Strength Geotextile and Staging Options**
South Interchange: Stage 1, Fill 1
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankment. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for this embankment. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 1

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1,2	North Abutment Bridge 1 (~58+280)	58+348	2 / 2	10.2	Grade + 0.2m Grade + 0.6m	68 m	Parallel to Ramp CL
1	North Abutment, Bridge 1 (~58+280)	58+375	2 / 2	10.2	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+375	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	North Abutment, Bridge 1 (~58+280)	58+350	3 / 1	7.8, 12.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+350	58+375	3 / 2	10.2, 15.7	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+375	South Abutment Bridge 5 (~58+427)	3 / 2	10.2, 15.7	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1,2	58+361	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.2m Grade + 0.6m Grade + 1.0m	66	Parallel to Ramp CL

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MEMORANDUM

Date: October 4, 2001

To: K. N. Gunalan, P.E.
Parsons Brinckerhoff

From: Travis Gerber, P.E. TG
Curt Christensen, P.E. cc

Subject: **High Strength Geotextile and Staging Options**
South Interchange: Stage 1, Fill 1
Legacy Parkway
Kleinfelder Project No. 35-8440-05

At your request we have evaluated the slope stability calculations and requirements for the above referenced embankment. This memo provides a summary of the high strength geotextile and staging options that appear to be suitable for this embankment. Each stage will require approximately 75 days to obtain the required degree of consolidation prior to commencing construction of the next stage or surcharge removal.

Stage 1, Fill 1

Option	From Station	To Station	Stages/ Layers of HSG	Max. Prev. Stage Height (m)	Elevation (m)	Length (m)	Warp Direction Orientation
1,2	North Abutment Bridge 1 (~58+280)	58+348	2 / 2	10.2	Grade + 0.2m Grade + 0.6m	68 m	Parallel to Ramp CL
1	North Abutment, Bridge 1 (~58+280)	58+375	2 / 2	10.2	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1	58+375	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.4m Grade + 0.8m Grade + 1.2m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	North Abutment, Bridge 1 (~58+280)	58+350	3 / 1	7.8, 12.0	Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+350	58+375	3 / 2	10.2, 15.7	Grade + 0.2m Grade + 0.4m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
2	58+375	South Abutment Bridge 5 (~58+427)	3 / 2	10.2, 15.7	Grade + 0.4m Grade + 0.8m	Varies; From toe of slope to toe of slope	Perpendicular to Ramp CL
1,2	58+361	South Abutment Bridge 5 (~58+427)	2 / 3	11.8	Grade + 0.2m Grade + 0.6m Grade + 1.0m	66	Parallel to Ramp CL

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Geotechnical Instrumentation Plan
Legacy Parkway Project

Submitted to
Utah Department of Transportation

Submitted by
Fluor Ames Kraemer LLC
February 16, 2001

Introduction

The Utah Department of Transportation (UDOT) has contracted with Fluor Daniel, Ames Construction and Ed Kraemer & Sons, LLC (FAK) to construct the Legacy Parkway in Salt Lake/Davis Counties, Utah. As a part of this contract, the FAK team is required to submit a Geotechnical Instrumentation Plan to the UDOT Legacy Team. The FAK team, through the technical proposal, has indicated its overall approach to addressing the geotechnical challenges it anticipates during the design and construction of the parkway. This brief plan presents the details of instrumentation and monitoring to be used by the FAK team to verify design assumptions or assist in making any modifications to the approach to ensure that UDOT is provided with a very functional facility that provides a very pleasant experience for the travelling public.

Purpose

The purpose of geotechnical instrumentation is to monitor induced pore pressures, settlement, peak ground velocities, and horizontal movement of embankment and foundation soils under the given loads during construction. Observed behavior will be compared to predicted behavior and design assumptions to either confirm or form the basis for appropriate design modifications and/or construction procedures. Geotechnical instrumentation will be used to:

a) define existing insitu state prior to any construction,
b) monitor pore pressures of foundation soils during construction of embankments to establish construction staging,
c) evaluate rates of consolidation settlement to determine surcharging magnitude and duration,
d) evaluate lateral displacement of foundation soils due to loading and their implications on the stability of the embankments and adjacent properties and
e) monitor impact of operating heavy construction equipment on adjacent properties.

Organization

Parameters to be monitored, instrumentation needs, location of various instruments, data collection/compilation etc. will be established by FAK's geotechnical team. Installation and monitoring of the instruments will actually be performed by FAK. Data will be reduced and reviewed by the geotechnical team and appropriate conclusions/decisions will be arrived at and any recommendations will be made by the geotechnical group.

QA/QC Plan

All of the equipment used for monitoring will be inspected, calibrated and maintained per manufacturer's recommendations to ensure quality in the data obtained. Accuracy of data will be checked. Some redundancy will be incorporated into the monitoring program to ensure the decision making process is not hampered.

Approach

The FAK team's basic approach is to use the simplest and most reliable instruments that will produce data in the range of values required to make the best engineering decisions for the project.

The preliminary instrumentation layout developed during the proposal phase will be used. Settlement plates will be used to monitor surface settlements, differential settlements, and heave at the toe of walls or embankments. Benchmarks and reference controls will be established for QC. Open standpipe piezometers will be installed where ever possible to monitor pore pressure fluctuations at shallow depths. Isolated tip piezometers will be installed where open standpipe piezometers cannot be used effectively. Vibrating wire piezometers will be used in relatively thick clay layers. Closed tip piezometers will be used where artesian conditions are anticipated. Inclinometers will be installed at the toe of high embankments to monitor lateral movements in conjunction with settlement monitoring. Magnetic extensometers will be used to measure magnitude and rate of settlement at various elevations within the lake bed deposits.

The geotechnical group will develop specifications on required range of measurements and sensitivities. The group will also develop installation details.

It is proposed to take two readings every week initially and based on the observed rate of parameter change, the frequency may be reduced to one reading per week. Data will be collected either using read out units or manually. Data collected will include source; readings; construction features and activities in the area; other pertinent information as it affects data collected; necessary corrective action to be undertaken; QA/QC verification; interpretations etc. Information will then be transferred into spread sheets for generation of plots and reports. This information will be presented on a biweekly basis.

Information obtained will form the basis for assessing behavior of the embankment and foundation soils, including decisions on addition of fills and release of surcharges.

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance: Settlement Platforms No.	Type*	Est. Depth, m	Slope Inclinometer No.	Est. Depth, m	Piezometers No.	Est. Depth, m	Long-Term Performance Instrumentation: Settlement Platforms No.	Type*	Est. Depth, m	Slope Inclinometer No.	Est. Depth, m	Piezometers No.	Est. Depth, m
Structure Approach Embankments																		
South Interchange																		
I-215 to LP SB		1	9	58+224	2	VW		2	30	1	5							
										1	20							
			12	58+300	1	ME	36	2	30	1	5							
					1	VW				1	20							
LP -- Jordan River		2	7	6002+225	2	VW		2	30	1	5							
										1	20							
			7	6002+280	2	VW		2	30	1	5							
										1	20							
LP -- Jordan River		3	7	6002+225	2	VW		2	30	1	5							
										1	20							
			7	6002+280	2	VW		2	30	1	5							
										1	20							
LP NB to I-215 Jordan R.		4	6	54+655	2	VW		2	30	1	5							
										1	20							
			5	54+715	2	VW		2	30	1	5							
										1	20							
I-215 to LP SB		5	16	58+430								2	ME	36	2	30	1	5
																	1	10
																	1	15
																	1	20
			16	58+590	2	VW		2	30	1	5							
										1	20							
LP -- Oil Drain		32	8	6002+490	2	VW		2	30	1	5							

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance								Long-Term Performance Instrumentation							
					Settlement Platforms			Slope Inclinometer		Piezometers			Settlement Platforms			Slope Inclinometer		Piezometers		
					No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m		No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m		
										1	20									
			7	6002+533	2	VW		2	30	1	5									
										1	20									
LP -- Oil Drain		33	8	6002+490	2	VW		2	30	1	5									
										1	20									
			7	6002+533	2	VW		2	30	1	5									
										1	20									
Center Street		11	11	5+380	2	VW		2	30	1	5									
										1	20									
			9	5+500	2	VW		2	30	1	5									
										1	20									
500 South		12	8	70+180	1	ME	36	2	30	1	5									
					1	VW				1	10									
										1	15									
										1	20									
			10	70+270	1	ME	36	2	30	1										
					1	VW				1										
Parrish Lane Interchange																				
LP -- Sheep Road	W	13	12	6013+170									2	ME	61	2	30	1	10	
																		1	20	
																		1	30	
																		1	40	
			12	6013+420	1	ME	61	2	30	1	10									
					1					1	30									
LP -- Sheep Road		14	12	6013+215									2	ME	61	2	30	1	10	
																		1	20	

					Construction Performance								Long-Term Performance Instrumentation							
					Settlement Platforms			Slope Inclinometer		Piezometers			Settlement Platforms			Slope Inclinometer		Piezometers	
Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m		No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m	
																		1	30	
																		1	40	
			12	6013+340	1	ME	61	2	30	1	10									
					1	VW				1	30									
LP -- Parrish Lane	W	15	11	6013+730	2	VW		2	30	1										
										1										
			11	6013+845	2	VW		2	30	1										
										1										
LP -- Parrish Lane	W	16	11	6013+730	2	VW		2	30	1										
										1										
			11	6013+845	2	VW		2	30	1										
LP -- 1250 West		17	9	6014+545									2	ME	61	2	30	1	10	
																		1	20	
																		1	30	
																		1	40	
			8	6014+680	1	ME	61	2	30	1	10									
					1	VW				1	30									
LP -- 1250 West		18	10	6014+570									2	ME	61	2	30	1	10	
																		1	20	
																		1	30	
																		1	40	
			8	6014+675									2	ME	60	2	30	1	10	
																		1	20	
																		1	30	
																		1	40	
North Interchange																				
Glovers Lane		19	4	50+850	2	VW		2	25	1	5									

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance								Long-Term Performance Instrumentation							
					Settlement Platforms			Slope Inclinometer		Piezometers			Settlement Platforms			Slope Inclinometer		Piezometers		
					No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m		No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m		
										1	15									
State Street		21	7	+640	2	VW		2	25	1	5									
										1	15									
US 89 SB to LP SB		22	10	70+525	2	VW		2	25	1	5									
										1	15									
			11	71+030	2	VW		2	25	1	5									
										1	15									
I-15 SB to LP SB		23	15	60+265									2	ME	25	2	25	1	5	
																		1	15	
			10	60+607	1	ME		2	25	1	5									
					1	VW				1	15									
LP NB to I-15 NB		24	10	20+785	2	VW		2	25	1	5									
										1	15									
			7	21+165	2	VW		2	25	1	5									
										1	15									
LP NB to US 89 NB		25	10	6+000	1	ME	30	2	25	1	5									
					1	VW				1	15									
			10	6+380	2	ME		2	25	1	5									
										1	15									
US 89 SB to to I-15 SB		26	10	12+590	2	VW		2	25	1	5									
										1	15									
			4	12+730	2	VW		2	25	1	5									
										1	15									
Burke Lane over UPRR	W	28	11	4+870	2	VW		2	25	1	5									
										1	15									
				4+925	2	VW		2	25	1	5									
										1	15									

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance: Settlement Platforms No.	Settlement Platforms Type*	Settlement Platforms Est. Depth, m	Slope Inclinometer No.	Slope Inclinometer Est. Depth, m	Piezometers No.	Piezometers Est. Depth, m	Long-Term Performance Instrumentation: Settlement Platforms No.	Settlement Platforms Type*	Settlement Platforms Est. Depth, m	Slope Inclinometer No.	Slope Inclinometer Est. Depth, m	Piezometers No.	Piezometers Est. Depth, m
Burke Lane over I-15		29	11	4+955	1	ME	30	2	25	1	5							
					1	VW				1	15							
				5+060	2	ME		2	25	1	5							
										1	15							
Burke Lane over US 89		30	11	5+285	2	VW		2	25	1	5							
										1	15							
				5+355	2	VW		2	25	1	5							
										1	15							
Pedestrian Bridge		31		99+995	2	VW		2	30	1	5							
										1	20							
				100+160	2	VW		2	30	1	5							
										1	20							
Ramp Embankments																		
I-15 to LP NB			11	50+850	2	VW		2	30	1	5							
										1	15							
			10	51+025	2	VW		2	30	1	5							
										1	15							
LP NB to Parrish Lane			12	800+150	1	ME	61	2	30	1	10							
					1	VW				1	20							
										1	30							
										1	40							
Parrish Lane to LP NB			6	500+600	2	VW		2	30	1	10							
										1	30							
LP SB to Parrish Lane			9	600+400	2	VW		2	30	1	10							
										1	30							

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance: Settlement Platforms No.	Type*	Est. Depth, m	Slope Inclinometer No.	Est. Depth, m	Piezometers No.	Est. Depth, m	Long-Term Performance Instrumentation: Settlement Platforms No.	Type*	Est. Depth, m	Slope Inclinometer No.	Est. Depth, m	Piezometers No.	Est. Depth, m
I-15 NB to US 89 NB	W		12	7+650								2	ME	25	2	25	1	5
																	1	15
				7+800	1	ME	25	2	30	1	5							
					1	VW				1	15							
Burke Lane to LP SB	W		9	40+550	2	VW		2	30	1	5							
										1	15							
I-15 SB to Burke Lane			9	1+040	2	VW		2	30	1	5							
										1	15							
Burke Lane to I-15 NB			6	1+090	2	VW		2	30	1	5							
										1	15							
I-15 NB to Burke Lane			7	8+100	2	VW		2	30	1	5							
										1	15							
			10	8+300	2	VW		2	30	1	5							
										1	15							
US 89 SB to Burke Lane	W		11	3+050								2	ME	25	2	25	1	5
																	1	15
Burke Lane to US 89 NB	W		11	+125	2	VW		2	30	1	5							
										1	15							
Parrish Lane to LP SB			11	700+300	2	VW		2	30	1	5							
										1	15							
LP NB to Burke			10	15+225	2	VW		2	30	1	5							
										1	15							

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance: Settlement Platforms No.	Settlement Platforms Type*	Settlement Platforms Est. Depth, m	Slope Inclinometer No.	Slope Inclinometer Est. Depth, m	Piezometers No.	Piezometers Est. Depth, m	Long-Term Performance Instrumentation: Settlement Platforms No.	Settlement Platforms Type*	Settlement Platforms Est. Depth, m	Slope Inclinometer No.	Slope Inclinometer Est. Depth, m	Piezometers No.	Piezometers Est. Depth, m
Burke to I-15 SB			9	9+150	2	VW		2	30	1	5							
											15							
Retaining Walls																		
I-15 SB TO LP SB			10	60+900	2	VW		1	30	1	5							
										1	15							
Roadway Embankment																		
LP				6001+700	1	VW												
LP				6004+500	1	VW												
LP				6006+000	1	VW												
LP				6007+500	1	VW												
LP				6009+000	1	VW												
LP				6010+600	1	VW												
LP				6012+500	1	VW												
LP				6016+000	1	VW												
LP				6017+500	1	VW												
LP				6019+125	1	VW												

NOTES:

1. Slope Inclinometer casing is 70 mm outside diameter with telescoping couplings. Casing spiral shall be measured upon completion of installation. The casing installation shall be completed flush with the ground surface with a large diameter monitoring well cover to protect the casing.
2. Settlement platforms for construction performance shall be vibrating wire (VW), or pneumatic (P), magnet extensometer (ME), or reed switch (SW), as indicated.
3. Settlement platforms for long-term performance instrumentation shall be magnet extensometer (ME) or reed switch (SW).

Alignment	Ret. Wall	Structure No.	Emb. Hgt.	Approx. Station	Construction Performance							Long-Term Performance Instrumentation						
					Settlement Platforms			Slope Inclinometer		Piezometers		Settlement Platforms			Slope Inclinometer		Piezometers	
					No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m	No.	Type*	Est. Depth, m	No.	Est. Depth, m	No.	Est. Depth, m
4. Piezometers shall be vibrating wire.																		
5. Depending on construction sequencing, i.e., if the embankment is initially constructed full width, it may be possible to reduce the number of settlement platforms to 2 and the slope inclinometers to 3 for the Legacy Parkway mainline.																		

Memorandum

LEGACY

Date: *August 20, 2001* ***File Code:*** C:D1-1:0033

To: ***Ernie Green, Deputy Project Director***

From: ***Tim Dougherty, Design Manager***

Subject: ***Unsuitable Materials – Subgrade Preparation Guidelines***

Cc: ***KN. Gunalan, DocC,***

Attached with this memo is a guideline entitled, "Unsuitable Materials – Subgrade Preparation Guidelines". These guidelines have been developed by design to define a general solution to normally occurring unsuitable materials encountered on the subgrade.

Please note that the guidelines are limited to conditions were surface compaction of the working platform is achieved. When construction forces are unable to achieve compaction after following these guidelines, the guidelines instruct that the project Geotechnical Engineer is notified before work continues in that area.

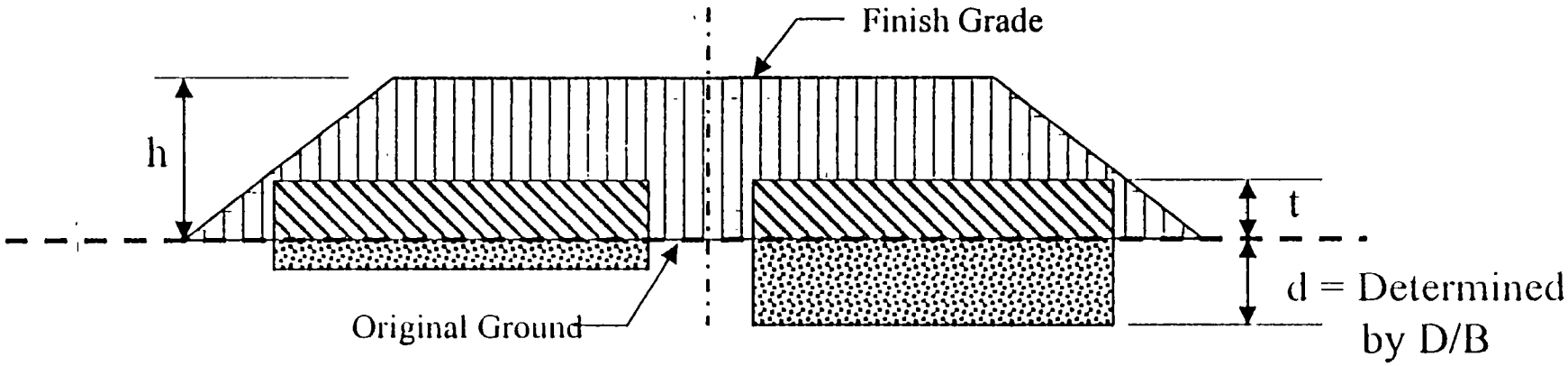
UN JITABLE MATERIALS – ʃ ɔgrade Preparation Guidelin

Bridge Lift

•Place and compact material to thickness "t" above O.G.
•If compaction is not achieved, GO TO Sub Excavate

Sub Excavate

•Excavate unsuitable material to a depth determined by the Design Builder
•Backfill with material determined by the D/B
•Obtain compaction per 02330 at surface of working platform
•See note below if compaction is not achieved



NOTE: If compaction of the sub excavation working platform material is not achieved contact the Design Builder Geotechnical Engineer before proceeding with embankment construction.

Working Platform
t = 0.5 m max. for > 3.0 m (h) embankment
t = 0.3 m max. for h < 3.0 m and > 1.0 m (h) embankment
h = < 1.0 m, compaction must be achieved at subgrade below 0.9 m pavement section

Symbol Legend

Unsuitable Material
•May be left in place and bridged with material
•Sub Excavate if working platform does not compact

Working Platform
•Maximum depth "t" above OG
•compaction per Section 02330 at surface
•material determined by D/B

Embankment or Bridge Backfill

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	I-15
Station	60+810
Water Depth (m)	0.0
Boring Elevation (m)	n/a
Soil Borings Used for Profile	n/a

	Initials	Date
Completed By:	NPM	10/3/01
Checked By.	CMH	10/3/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	10.0	10.1	11	0.020	3,500	-	0	20	0	410

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	LP NB to 215
Station	54+800
Water Depth (m)	2.0
Boring Elevation (m)	1286.0
Soil Borings Used for Profile	RB-392

	Initials	Date
Completed By:	NPM	10/9/01
Checked By:	CMH	10/9/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	2.0	20.3	-	-	36,000	37	0	20	0	4,530
2	Soft Clay	2.0	10.0	7.2	14	0.020	3,500	-	8	21	270	660

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	LP Mainline
Station	6002+940
Water Depth (m)	0.0
Boring Elevation (m)	1285.7
Soil Borings Used for Profile	WB-29-320

	Initials	Date
Completed By:	NPM	10/9/01
Checked By:	CMH	10/9/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	10.0	7.9	20	0.020	3,665	-	0	17	0	530

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	LP Mainline
Station	6003+740
Water Depth (m)	0.0
Boring Elevation (m)	1286.3
Soil Borings Used for Profile	RB-395

	Initials	Date
Completed By:	NPM	10/9/01
Checked By:	CMH	10/9/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	9.0	9.4	16	0.020	3,500	-	0	18	0	520

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	15 to LP NB
Station	50+440
Water Depth (m)	0.0
Boring Elevation (m)	1285.9
Soil Borings Used for Profile	WB-27-317

	Initials	Date
Completed By:	NPM	10/9/01
Checked By:	CMH	10/9/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	9.0	8.2	26	0.020	12,665	-	0	15	0	420

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line/Station	LP / 6000+000
	LP / 6000+520
	LP / 6000+780
	LP / 6001+120
	LP / 6001+515
	LP / 6001+680
	I-215 / 59+000
	I-15 to LP NB / 49+800
Water Depth (m)	0.0
Boring Elevation (m)	n/a
Soil Borings Used for Profile	n/a

	Initials	Date
Completed By	NPM	10/3/01
Checked By:	CMH	10/4/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	**Soft Clay**	**0.0**	**10.0**	**10.1**	**11**	**0.020**	**3,500**	**-**	**0**	**20**	**0**	**410**

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	LP NB
Station	6001+575
Water Depth (m)	1 0
Boring Elevation (m)	1285 6
Soil Borings Used for Profile	RB-376

	Initials	Date
Completed By	CMH	9/17/01
Checked By	NM	9/17/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	1.0	20.3	-	-	41,400	38	0	10	0	2,460
2	Soft Clay	1.0	3.5	9.6	89	0.021	107,165	-	4	10	210	460
3	Soft Clay	3.5	4.4	8.0	5	0.020	3,500	-	8	10	130	150
4	Sand	4.4	5.9	10.5	-	-	19,910	36	25	33	5,510	7,190
5	Soft Clay	5.9	6.7	10.1	65	0.021	71,165	-	13	15	200	220
6	Sand	6.7	7.7	9.7	-	-	740	29	24	28	3,160	3,570
7	Soft Clay	7.7	11.9	7.9	18	0.023	3,500	-	17	24	390	540

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	LP SB
Station	6003+260
Water Depth (m)	1.0
Boring Elevation (m)	1285.4
Soil Borings Used for Profile	WB-29-322

	Initials	Date
Completed By:	CMH	9/17/01
Checked By:	NM	9/17/01

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	1.0	18.0	37	0.024	29,165	-	0	3	0	110
2	Soft Clay	1.0	10.0	9.7	46	0.024	42,665	-	3	22	110	650

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	I-15 SB
Station	60+010
Water Depth (m)	3 6
Boring Elevation (m)	1298 2
Soil Borings Used for Profile	WB-3-242

	Initials	Date
Completed By	NM	9/19/01
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	3.6	20.3	-	-	46,800	39	0	40	0	9,550
2	Soft Clay	3.6	5.1	10.0	89	0.034	107,165	-	17	21	770	920
3	Soft Clay	5.1	10.0	10.0	57	0.034	57,665	-	19	31	690	1,070

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	I-15 SB
Station	59+692
Water Depth (m)	3 6
Boring Elevation (m)	1298 2
Soil Borings Used for Profile	WB-3-242

	Initials	Date
Completed By	NM	9/19/01
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0 0	3.6	20.3	-	-	46,800	39	0	40	0	9,550
2	Soft Clay	3.6	5.1	10.0	89	0.034	107,165	-	17	21	770	920
3	Soft Clay	5.1	10.0	10.0	57	0.034	57,665	-	19	31	690	1,070

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	US 89 SB
Station	72+210
Water Depth (m)	1 5
Boring Elevation (m)	1298 6
Soil Borings Used for Profile	WB-14-238

	Initials	Date
Completed By	NM	9/19/21
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, φ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Soft Clay	0.0	1.5	19.6	89	0.034	107,165	-	0	7	0	300
2	Sand	1.5	4.3	9.7	-	-	2,870	30	10	19	1,440	2,770
3	Soft Clay	4.3	5.6	10.2	60	0.034	63,665	-	13	16	590	730
4	Soft Clay	5.6	10.0	10.7	75	0.034	86,165	-	18	30	990	1,670

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	15 NB
Station	58+250
Water Depth (m)	1 5
Boring Elevation (m)	1296 5
Soil Borings Used for Profile	SC-22-287, SB-22-288

	Initials	Date
Completed By:	NM	9/19/01
Checked By:		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, ϕ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	1.5	19.5	-	-	900	29	0	9	0	1,290
2	Sand	1.5	10.0	10.5	-	-	19,200	36	14	57	3,050	12,360

Legacy Parkway
Lateral Pile Analysis
Soil Parameters for LPILE or GROUP

Line	89 SB
Station	71+710
Water Depth (m)	2 3
Boring Elevation (m)	1298 3
Soil Borings Used for Profile	SB-30-351

	Initials	Date
Completed By	NM	9/19/01
Checked By		

Layer	Soil Type	Depth to Top of Soil Layer (m)	Depth to Bottom of Soil Layer (m)	Unit Weight of Soil (kN/m^3)	Shear Strength (kN/m^2)	Strain, ε_{50}	Modulus of Subgrade Reaction, k (kPa/m)	Friction Angle, φ (degrees)	Maximum Side Friction (kN/m^2)		Maximum Tip Resistance (kN/m^2)	
									Top	Bottom	Top	Bottom
1	Sand	0.0	2.1	19.9	-	-	30,600	36	0	20	0	4,260
2	Soft Clay	2.1	4.3	10.0	37	0.027	29,165	-	9	13	260	390
3	Soft Clay	4.3	11.0	10.8	19	0.015	3,500	-	13	29	390	840