

Exhibit Z. Hornsby Industrial Park Preliminary Geotechnical Engineering Report



Hornsby Industrial Park Preliminary Geotechnical Engineering Report

October 11, 2017

Baton Rouge Area Chamber
564 Laurel Street
Baton Rouge, LA 70801

Attention : Mr. Jim A. Cavanaugh
Site Development Director
Email: jim@brac.org
Phone: (225) 339-1163

**Re: General Geotechnical Site Characterization Report
Hornsby Industrial Park
Walker, Livingston Parish, Louisiana
PSI Project No. 02591299**

Dear Mr. Cavanaugh:

Professional Service Industries, Inc. is pleased to submit this General Geotechnical Site Characterization Report for the above referenced project. This report includes the results of field and laboratory testing, and information regarding the compatibility of this site with industrial development, suitability of soils for building foundations and on-site roadways, requirements of soil augmentation for construction of a typical 100,000 square feet (sf) industrial manufacturing building and depth of groundwater.

We appreciate the opportunity to perform this Preliminary Geotechnical Site Evaluation Report. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Matthew Champagne
Staff Scientist
Geotechnical Services



Reda M. Bakeer, Ph.D., P.E.
Chief Engineer
Geotechnical Services

GENERAL GEOTECHNICAL SITE CHARACTERIZATION REPORT

**HORNSBY INDUSTRIAL PARK
WALKER, LIVINGSTON PARISH, LOUISIANA
PSI PROJECT NUMBER. 02591298**

PREPARED FOR

**BATON ROUGE AREA CHAMBER
564 LAUREL STREET
BATON ROUGE, LA 70801**

OCTOBER 11, 2017

**BY
PROFESSIONAL SERVICE INDUSTRIES, INC.
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Date: October 11, 2017

License No.: 27123

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PROJECT INFORMATION

Project Authorization

Professional Service Industries, Inc. (PSI) has completed a General Geotechnical Site Characterization Study at the above referenced project site, located in Livingston Parish, Louisiana. Our services were provided in general accordance with PSI Proposal No. 259-2213115, dated June 5, 2017. Authorization of the services was provided by Mr. Jim Cavanaugh, with the Baton Rouge Area Chamber (BRAC) on August 30, 2017 by signing our proposal.

Project Description

The primary objectives for this preliminary report are to provide general information regarding the compatibility of this site with industrial development; suitability of the naturally occurring soils for building foundations and on-site roadways; requirements of soil augmentation, if any, for construction of a typical 100,000 square feet (sf) industrial manufacturing building; and the depth of free groundwater table at the boring locations during our drilling operations. This general geotechnical site characterization report will provide an initial baseline of the site subsurface conditions that will likely be encountered during future site development. However, as with any geotechnical investigations, particularly given the size of this subject site and the relatively limited number of exploration locations, variations between exploration locations may and should be expected to exist, and there remains a distinct possibility that other conditions may exist on site that were not encountered within the scope of this investigation.

The opinions and information to be presented in this preliminary report are estimates for preliminary consideration only, are based on limited geotechnical exploration, and are not to be used for final design and construction. A detailed geotechnical exploration and analyses should be performed once design and function of the proposed development have been finalized.

Purpose and Scope of Services

The purposes of PSI's limited geotechnical services are to:

- Perform one (1) conventional soil boring and two (2) Cone Penetrometer Test (CPTu) sounding at the subject site as per the request of the Client;
- Evaluate the general subsurface soil conditions and groundwater depth at the subject site at the exploration locations during our field activities;
- Perform limited laboratory testing on selected soil samples recovered from the boring; and,
- Provide a general discussion regarding compatibility of this site for industrial development, suitability of soils for building foundations and on-site pavement improvement, and requirements of soil augmentation for construction of a typical 100,000 square foot industrial manufacturing building.

The scope of services did not include an environmental assessment for determining the presence or absence of wetland, or hazardous or toxic materials in the soil, surface water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to development of this site, an environmental assessment is advisable. Additionally, PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological

contaminants in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence or the amplification of the same. The Client acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. The Client further acknowledges that site conditions are outside of PSI's control, and that mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

It is understood that, the subject site is an approximately 127-acre tract of land located westward of North Corbin Avenue about 1,600 feet north of its intersection with Florida Boulevard (LA Highway 190) in Livingston Parish, Louisiana. The site extends northwestward approximately 0.55 miles along North Corbin Avenue. It is bound to the east by North Corbin Avenue, the south by commercial structures, and elsewhere by mostly undeveloped, rural/agricultural or wooded tracts of land. The site is used primarily at this time for agricultural purposes and contains several dirt and gravel farm roads. PSI's track-mounted drill rig was used to perform the field exploration. The explorations were made just off of existing access roads in view of the present use of the site. A Site Vicinity Map based on Google Earth Image dated October 20, 2016 is presented in the Appendix.

Field Exploration

The subsurface conditions at the subject site were explored by drilling and recovering soil samples from one (1) soil boring, and through two (2) Cone Penetrometer Test (CPTu) sounding. Boring B-1 extended to a depth of approximately 30 feet below the existing ground surface. CPTu sounding CPT-1 extended to a depth of about 100 feet below the existing ground surface and CPT-2 extended to a depth of about 30 feet below existing ground surface. Refer to the Boring Location Plan given in the Appendix for the approximate exploration locations based on a recent Google Earth Image dated October 20, 2016.

The soil boring was performed with a track-mounted drilling rig using hollow stem auger drilling techniques. Samples were generally obtained at two (2) foot intervals from the ground surface to a depth of ten (10) feet and at five (5) foot intervals thereafter to the boring termination depth. Drilling and sampling were accomplished in general accordance with ASTM Standard Procedures.

Undisturbed samples of cohesive soils were generally obtained using thin-walled tubes in general accordance with the procedures for "Thin-Walled Tube Geotechnical Sampling of Soils" (ASTM D1587). These samples were extruded in the field with a hydraulic ram.

For cohesionless and semi-cohesive soils, the Standard Penetration Test (SPT) was performed to obtain standard penetration values of the soil. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer falling 30 inches that is required to advance the split-barrel sampler one (1) foot into the soil. To perform the test and obtain a sample, the sampler is lowered to the bottom of the previously cleaned drill hole and advanced by blows from the hammer. The number of blows is recorded for each of three (3) successive increments

of six (6) inches penetration. The “N” value is obtained by adding the second and third incremental numbers. The results of the standard penetration test indicate the relative density of cohesionless soils and thereby provide a basis for estimating the relative strength of the soil profile components. Samples of granular soils were obtained utilizing a two (2) inch O.D. split-barrel sampler in general accordance with procedures for “Penetration Test and Split-Barrel Sampling of Soils” (ASTM D1586).

The CPTu sounding was performed utilizing a track-mounted Geoprobe Model 7822DT direct-push rig. The CPTu sounding was performed in general accordance with ASTM D5778, utilizing an electric cone penetrometer with a 60°, 1.4 inch diameter cone, that was hydraulically pushed. As the sounding was being performed, the cone tip resistance, sleeve friction and pore pressure were measured essentially continuously throughout the depth of exploration at each one to two inch depth interval. From this data, information regarding soil types, in-situ strength parameters and groundwater levels can be interpreted.

The samples were identified according to the project number, boring number and depth, and placed in polyethylene plastic wrapping to protect against moisture loss. In addition, undisturbed samples were wrapped in aluminum foil prior to placing in the plastic wrapping and were transported to the laboratory in containers to minimize further disturbance.

Laboratory Testing

In addition to the field exploration, selected soil samples obtained from the boring were tested in the laboratory to evaluate the subsurface soil properties. Laboratory testing on selected soil samples included natural moisture content, Atterberg limits, percent passing the number 200 sieve, and Unconsolidated-Undrained and Unconfined Compression shear strength tests. The samples which were not altered by laboratory testing will be retained for six (6) months from the date of this report and then will be discarded without further notice.

The soil samples obtained from the drilling operation were classified in general accordance with ASTM D 2487 or D 2488. Laboratory test data and detailed descriptions of the soils can be found on the boring log which is included in the Appendix. A key to terms and symbols used on the log is also given in the Appendix. The logs of the CPTu soundings are also included in the Appendix.

Subsurface Conditions

Based on the field observations and the results of the laboratory testing, the soils were classified and the boring and CPTu logs were developed. The boring and CPTu logs are presented in the Appendix along with a key to the terms and symbols used on the logs. It should be noted that due to the size of the site variations existed between the subsoil conditions encountered at the boring and CPTu locations. In view of the site size and the limited number of explorations made at this time, generalized subsurface profiles for each exploration location are presented in Table 1 through Table 3. The boreholes were performed within the presently accessible areas to our drill rig along the existing farm roads.

Table 1: Generalized Soil Profile - Boring B-1

Depth Range ¹ (feet)	Description
0 – 2	Stiff Silty Clay with Gravel (Fill)
2 – 22	Firm to Stiff Lean Clay (CL)
22 - 30	Firm to Stiff Fat Clay (CH)

⁽¹⁾ The approximate depth range is referenced from existing ground surface at the boring location.

Table 2: Generalized Soil Profile - Sounding CPT-1

Depth Range ¹ (feet)	Description
0 – 13	Clay with sand
13 – 25	Poorly Graded Sand
25 – 34	Clay
34 – 51	Poorly Graded Sand
51 – 61	Clay
61 – 71	Poorly Graded Sand
71 – 100	Clay

⁽¹⁾ The approximate depth range is referenced from existing ground surface at the CPTu location.

Table 3: Generalized Soil Profile - Sounding CPT-2

Depth Range ¹ (feet)	Description
0 – 11	Clay
11 – 16	Poorly Graded Sand
16 – 30	Clay or Clay with Sand

⁽¹⁾ The approximate depth range is referenced from existing ground surface at the CPTu location.

The above subsurface descriptions are generalized in nature to highlight the major subsurface stratification features and material characteristics at each exploration location. The boring and CPTu logs included in the Appendix should be reviewed for specific information at the individual exploration locations. These records include soil descriptions, stratifications, penetration resistances, locations of the samples, and laboratory test data. The stratifications shown on the boring and CPTu sounding logs represent the conditions only at the actual exploration

locations. Due to the size of the site, variations may occur and should be expected between exploration locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. This is particularly important considering the site size and the limited number of borings performed which were all performed within the immediate vicinity of the existing farm roads.

Groundwater Information

No groundwater was measured in the borehole (B-1) during our drilling activities. In addition, groundwater depth was estimated in CPT-1 based on the data collected. The groundwater depth measured in the borings during our drilling activities and estimated based on the data collected are shown in the following table.

Table 4: Groundwater Depth Measured During Drilling

Boring	Groundwater Depth During Drilling (feet below the existing ground surface)
B-1	Not Recorded
CPT-1	10
CPT -2	Not Determined

It should be noted that groundwater level fluctuations at this site may occur due to seasonal and climatic variations, alteration of drainage patterns, land usage and ground cover. Additionally, perched water may be encountered in discontinuous zones within the overburden. This condition develops as rainwater is entrapped in the more pervious surface cultivated soils underlain by less pervious cohesive soils. We recommend the Contractor determine the actual groundwater levels at the time any future construction activities begin. This is particularly important if the proposed construction will include relatively deep excavations.

EVALUATION AND DISCUSSIONS

The foundations suitable for a given structure primarily depend on several factors including the subsurface conditions, the function of the structure, the loads it may carry, the cost of the foundation and the criteria set by the Design Engineer with respect to vertical and differential movements which the structure can withstand without damage. Detailed column loads for a typical 100,000 sq. ft. industrial manufacturing building were not provided at the time of this study; however, the structural column loads are assumed to be on the order of 100 kips, with wall loads on the order of about 5 kips per lineal foot. Grading plans are also not available at this time, but for the purpose of our preliminary analysis, a maximum of about 4 feet to achieve final design grades is assumed.

Again, it should be noted that the exploration locations were performed on or near the shoulder of existing farm roads. No attempt was made to enter cultivated areas typically used for planting crops. It should be assumed that the upper soils encountered in the cultivated areas will require significantly more effort to achieve proper compaction and may contain far more organic material and other additives (fertilizers, etc.) in the upper soils than the areas explored during this preliminary exploration.

The choice of type of deep foundation should be based on the tolerance criteria for the performance of the structures and economics of construction. Grade supported foundations or

surface coverings will likely be governed by the anticipated load and settlement tolerances, particularly where a significant amount of new fill is placed. Driven piles should be viable foundation types considering the subsurface and groundwater conditions encountered and should be anticipated to carry the structural loads anticipating that settlement will occur as a result of new fill, building and slab loads. Lightly-loaded equipment pads may be able to be supported on shallow spread footings, or mat foundations, as long as the PVR issues described below are mitigated and settlement potential considered. Prior to new fill placement, site preparation should include removal of surficial topsoil, organic materials, and soft soil or demucking of wet areas or drainage conveyances and proofrolling in the presence of the Geotechnical Engineer to assess general stability and firmness prior to fill placement.

Based on the limited number of soil boring and CPTu sounding, field data and laboratory test results, the proposed site is generally feasible for industrial development. The subsurface soils explored are suitable for building foundations and site roadways after proper preparation. Potential Vertical Rise (PVR) should be further evaluated considering the actual fill thickness needed to raise the site to achieve final design grades. PVR in portions of this site could be mitigated by undercutting the clay soils to a predetermined depth and replacing with moisture-conditioned, properly compacted lean clay (CL) soils, or with the addition of chemical treatment such as lime mixing. Based on the anticipated new fill thickness on the order of around 4 feet, PVR is not anticipated to adversely impact the project with great significance. The effects of PVR should be considered if lesser fills are planned. The suitability of reuse of excavated soils (ponds, etc.) as structural fill may require the use of lime treatment or soil mixing.

Site pavements should be underlain by at least 12 inches of properly compacted low plasticity engineered fill material or otherwise or chemically treated with lime prior to base material placement due to the near surface fat clay soils. At this time, we assume pavement areas will receive at least two (2) to four (4) feet of fill to achieve final grades.

As stated previously, PSI's opinions and information presented in this site evaluation report are provided for planning purposes and preliminary considerations only; they are based on a very limited geotechnical exploration, and are not to be used for final design and construction.

REPORT LIMITATIONS

The preliminary information submitted in this report is based on the available subsurface data obtained by PSI at the time of our field exploration. PSI warrants that the preliminary findings contained herein have been made in accordance with generally accepted drilling procedures and visual soil classification methods in the local area. No other warranties are implied or expressed. This report has been prepared for the exclusive use of the Baton Rouge Area Chamber for the specific purpose of determining general subsurface information at the subject site to develop a general geotechnical site characterization.

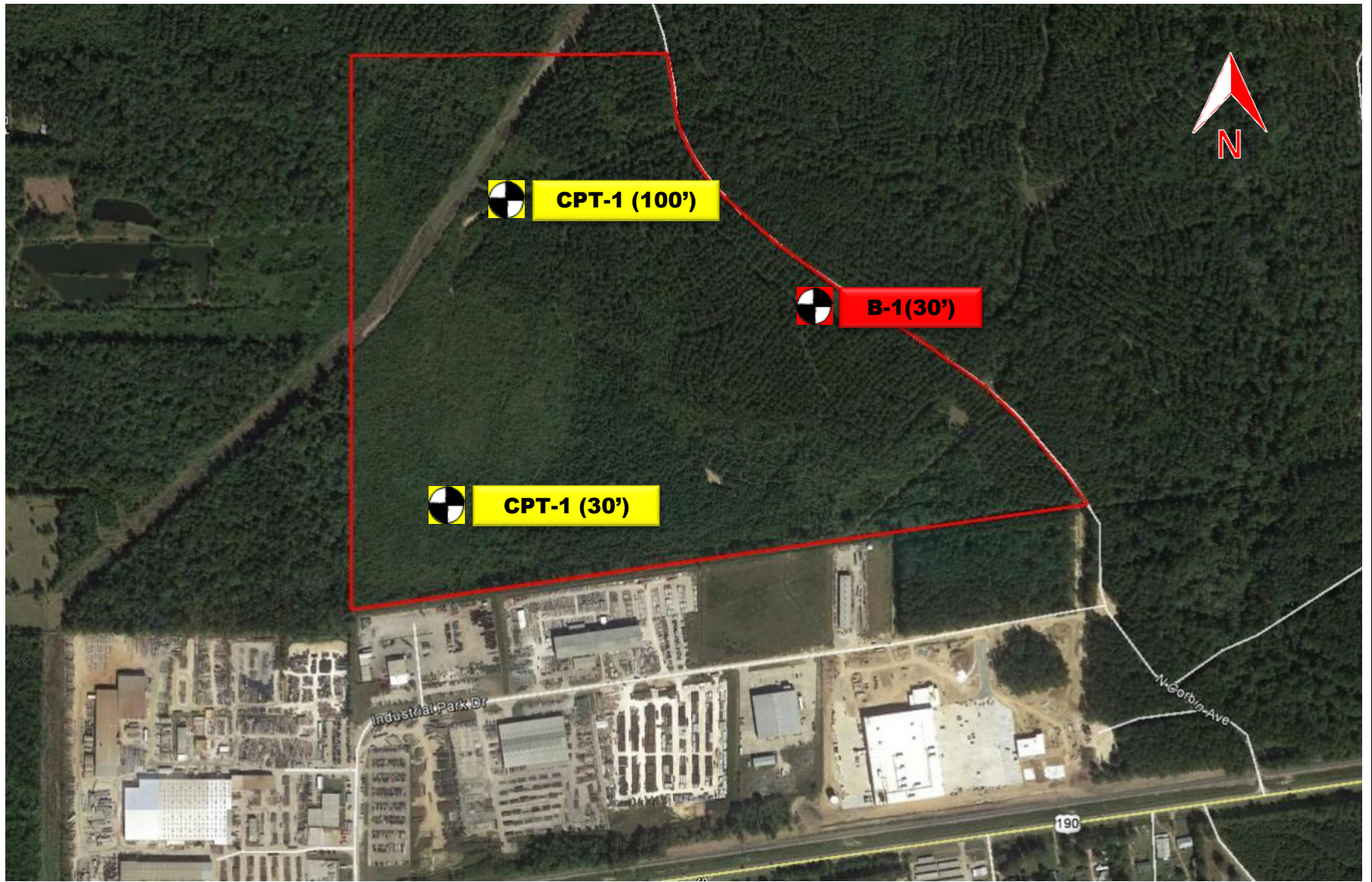
APPENDIX



GEOTECHNICAL ENGINEERING SERVICES
HORNSBY CREEK INDUSTRIAL PARK
WALKER, LOUISIANA

SITE VICINITY MAP
PSI PROJECT No. 02591299
(Google Earth Image) date October 20, 2016

psi Information
To Build On
Engineering • Consulting • Testing



GEOTECHNICAL ENGINEERING SERVICES
HORNSBY CREEK INDUSTRIAL PARK
WALKER, LOUISIANA

SITE VICINITY MAP
PSI PROJECT No. 02591299
(Google Earth Image) date October 20, 2016

psi Information
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LOG OF BORING B-1

0000
North Corbin Avenue
Livingston Parish, Louisiana

TYPE OF BORING: HOLLOW STEM AUGER

LOCATION: BUILDING AREA

PSI Project No.: 02591299

DEPTH, FT.	SOIL TYPE	USCS SYMBOL	SAMPLES	SOIL DESCRIPTION	N-BLOWS/FT.	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	% PASSING No. 200 SIEVE	SHEAR STRENGTH (tsf)				DRY UNIT WEIGHT (pcf)	
											HP (tsf)	UC (tsf)	TV (tsf)	UU (tsf)		
		FILL		Brown silty clay, with gravel (FILL)		11										
2.5		CL		Firm to stiff tan LEAN CLAY		20	41	16	25			0.42	0.53			104
5.0						17				85		0.50				
7.5						15								0.55	0.52	120
10.0				-with sand, 8 to 15 feet		16	37	15	22			1.00				
12.5																
15.0						19						0.83				
17.5																
20.0						22						0.33				
22.5		CH		Firm to stiff tan FAT CLAY		41	89	25	64			0.92			0.40	80
25.0																
27.5																
30.0				Boring terminated at 30 feet		38						0.83				
32.5																
35.0																
37.5																
40.0																
42.5																
45.0																
47.5																
50.0																

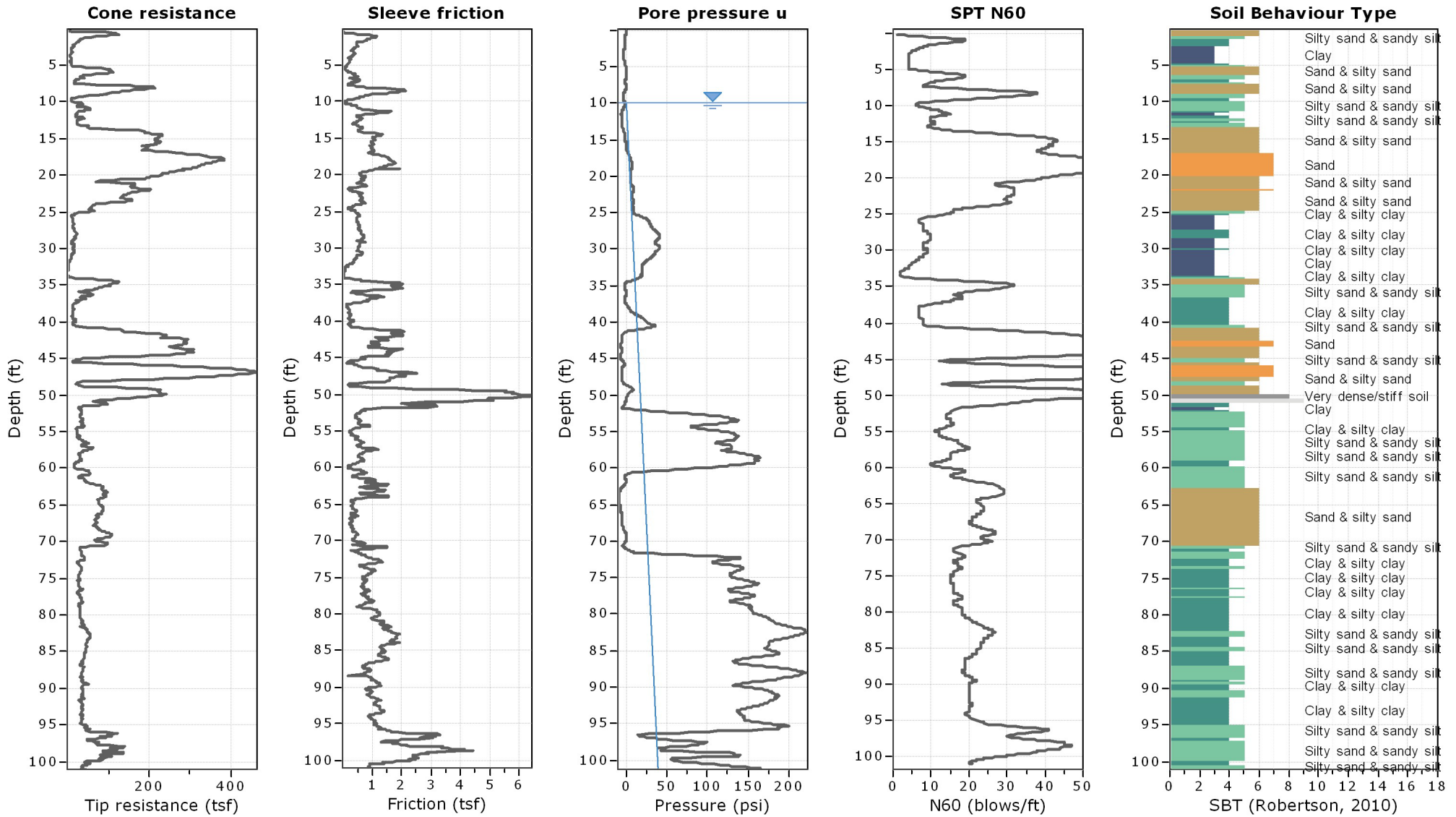
DEPTH OF BORING: 30 FEET

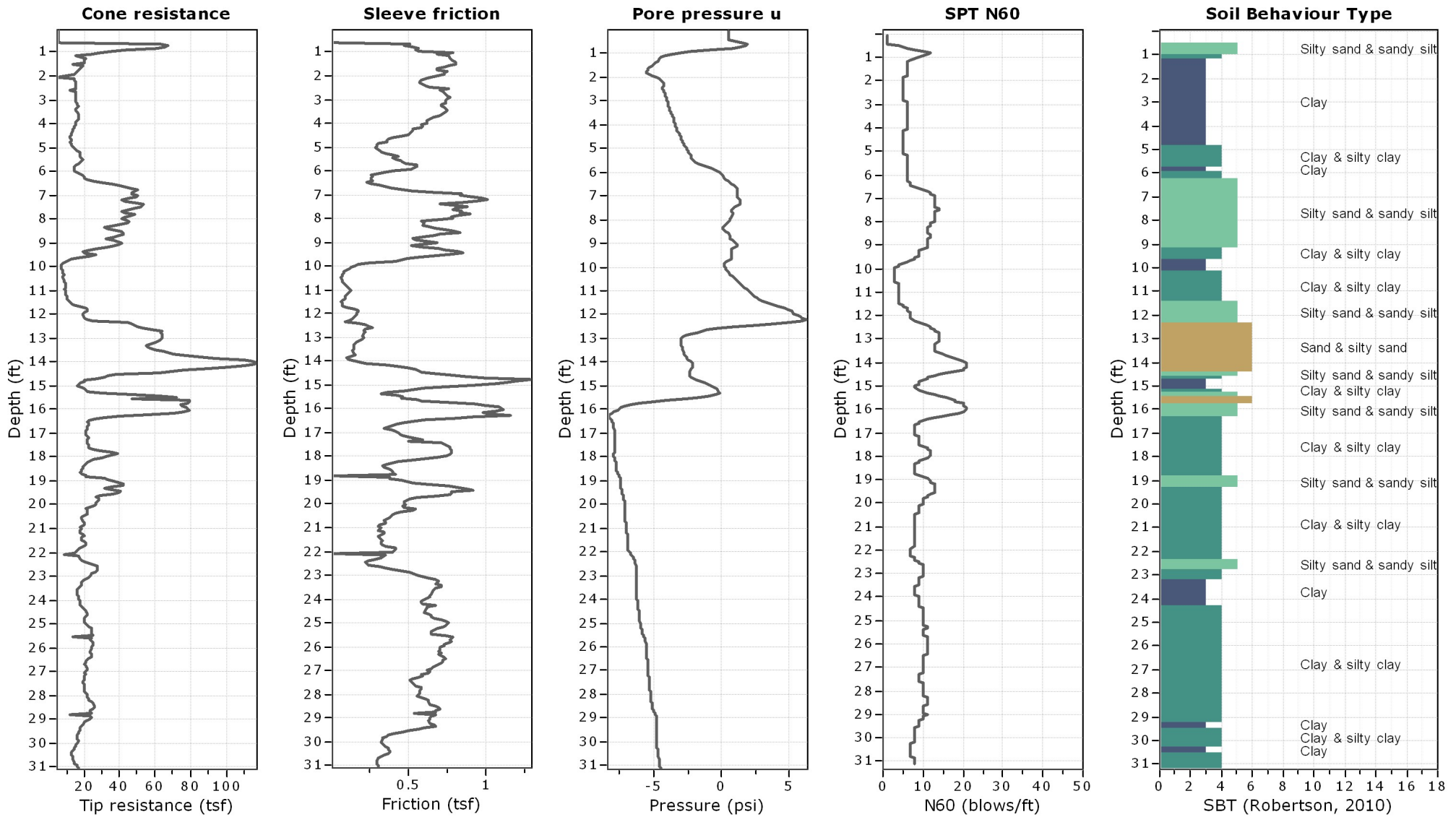
DATE DRILLED: 9/12/17

NOTE:

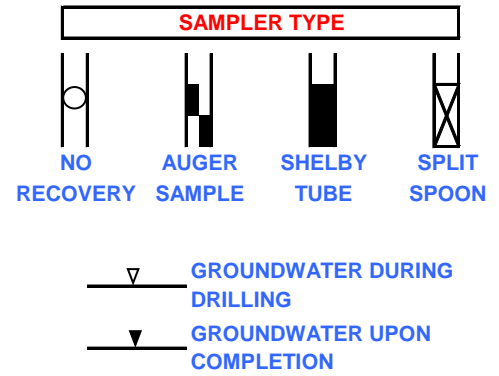
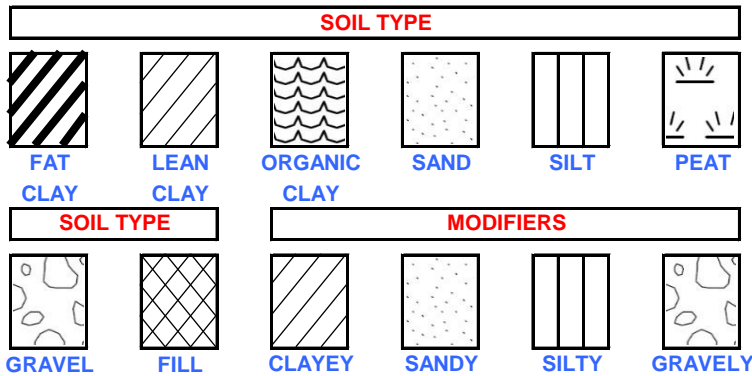
- ∇ GROUNDWATER DURING DRILLING: Not Recorded
- ▼ GROUNDWATER UPON COMPLETION: N / A
- ∇ DELAYED GROUNDWATER: N / A

BORING LOG - JEFFERSON - PSIHOUSTON.GDT - 10/2/17 13:31 - 0254





KEY TO TERMS AND SYMBOLS USED ON LOGS



UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

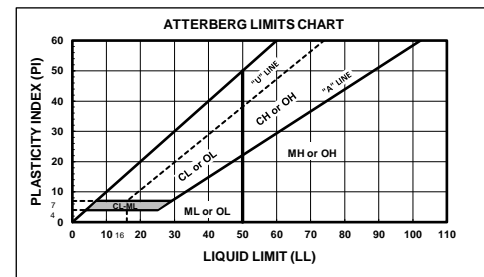
MAJOR DIVISIONS		LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELLY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	GW	WELL-GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN 50% PASSING NO. 4 SIEVE	SW	WELL-GRADED SAND
		SP	POORLY-GRADED SANDS
		SM	SILTY SANDS
		SC	CLAYEY SANDS
FINE-GRAINED SOILS MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT < 50	ML	INORGANIC SILTS & VERY FINE SANDS, CLAYEY SILT W/ LOW PLASTICITY INDEX
		CL	INORGANIC LEAN CLAYS GRAVELLY, SANDY, OR SILTY LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS W/LOW PLASTICITY INDEX
	SILTS AND CLAYS LIQUID LIMIT ≥ 50	MH	INORGANIC SILTS W/ HIGH PLASTICITY INDEX, ELASTIC SILTS
		CH	INORGANIC FAT CLAYS GRAVELLY, SANDY, OR SILTY FAT CLAYS
		OH	ORGANIC CLAYS OF MED TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOIL		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS
UNCLASSIFIED FILL MATERIALS		ARTIFICIALLY DEPOSITED AND OTHER UNCLASSIFIED SOILS AND MAN-MADE SOIL MIXTURES	

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	SHEAR STRENGTH IN TONS/FT ²
VERY SOFT	0 TO 0.125
SOFT	0.125 TO 0.25
FIRM	0.25 TO .50
STIFF	0.50 TO 1.00
VERY STIFF	1.00 TO 2.00
HARD	> 2.00 OR 2.00+

RELATIVE DENSITY - GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0-4
LOOSE	4-9
MEDIUM DENSE	10-29
DENSE	30-49
VERY DENSE	> 50 OR 50+



ABBREVIATIONS

- | | |
|------------------------|----------------------------------------|
| HP - HAND PENETROMETER | UC - UNCONFINED COMPRESSION TEST |
| TV - MINIATURE TORVANE | UU - UNCONSOLIDATED UNDRAINED TRIAXIAL |
| FV - FIELD TORVANE | CU - CONSOLIDATED UNDRAINED |

NOTE: BORING LOGS INDICATE SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)								
6"	3"	3/4"	4	10	40	200		
BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
152	76.2	19.1	4.76	2.0	0.42	0.074	0.002	
GRAIN SIZE IN MM								

