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Exhibit AA.
Maxie & Vida Girouard Site Preliminary Geotechnical Engineering Report

Maxie & Vida Girouard Site Preliminary Geotechnical Engineering Report

ECS Southeast, LLP

Geotechnical Engineering Report

Maxie and Vida Girouard Site – Lafayette Parish, LA

Highway 90 E and N Girouard Road
Broussard, Louisiana

ECS Project Number 65-1325

February 1, 2023

February 1, 2023

Mr. Emile Lege
One Acadiana
804 E. St. Mary Blvd.
Lafayette, Louisiana 70503

ECS Project No. 65-1325

Reference: Preliminary Geotechnical Site Characterization Report
Maxie and Vida Girouard Site
Highway 90 E and N Girouard Road
Broussard, LA 70518

Dear Mr. Lege:

ECS Southeast, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the referenced project. Our services were performed in general accordance with our Proposal No. 65-1606-P dated September 26th, 2022. ***This report is not a comprehensive geotechnical engineering report but is solely intended to address specific preliminary issues posed in a September 22, 2022, document from CSRS relative to this site. It must be emphasized that <u>additional borings and testing will be required</u> prior to development of the site.*** This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted. The report also contains our findings and recommendations for design and construction.

It has been our pleasure to be of service to One Acadiana during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully,
ECS SOUTHEAST, LLP

Nathan Burke, E.I.
Project Manager

STATE OF LOUISIANA
JOSEPH C. COBENA
License No. 42069
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
2/1/2023

Joe Cobena, P.E.
Office Manager

David Marsh, P.E.
Principal Engineer

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APPENDICES

1.0 INTRODUCTION

1.1 GENERAL

The purpose of this study was to conduct a *Preliminary* Geotechnical Characterization Investigation for the site that would generally characterize the site's soil, rock, and groundwater conditions to evaluate whether geotechnical concerns were observed at the site. **This document <u>specifically</u> addresses preliminary design issues posed in the September 22, 2022, document from CSRS.**

The preliminary recommendations developed for this report are based on project information provided by the client. This report contains the results of our subsurface exploration and geotechnical laboratory testing program, site characterization, engineering analyses, and preliminary recommendations.

1.2 SCOPE OF SERVICES

In order to obtain the necessary geotechnical information required for evaluation of subsurface soil conditions, two (2) CPT Soundings varying from 30 to 50 feet below existing site grade as well as two (2) companion auger borings to a depth of 10 feet below existing site grades were performed. A laboratory-testing program was also implemented to characterize the physical and geotechnical engineering properties of the subsurface soils.

This report discusses our exploratory and testing procedures, presents our findings and evaluation, and includes the following:

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- A final copy of our preliminary CPT logs and soil test borings.
- Preliminary recommendations for site preparation.
- Preliminary Recommended foundation types.

1.3 AUTHORIZATION

Our services were provided in accordance with our Proposal No. 65-1606-P dated September 26, 2022, and authorized by the client on January 5, 2023.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project is located near the corner of Highway 90 E and N. Girouard Road in Broussard, Louisiana. The location is depicted in the Figure shown below:

General Site Location Outlined in Red

2.2 CURRENT SITE CONDITIONS

The site is mostly agricultural land with an existing residence and a few trees in a commercial and residential setting. The topography of the site varies significantly with surface elevations ranging from +18 feet to +39 feet MSL. The elevations and topographic variations were estimated from Google Earth Pro.

2.3 PROPOSED CONSTRUCTION

ECS understands that the Louisiana Economic Development (LED) Site Certification requires preliminary confirmation that the site is compatible with industrial development and that it could support the construction of a 'typical' manufacturing building encompassing 100,000 square feet and appurtenant on-site roadways and infrastructure. Detailed loadings were not provided to ECS at the time of this report. Soil augmentation that may be required for the construction of the foundations, buildings and roadways is addressed in this report.

3.0 FIELD EXPLORATION

3.1 FIELD EXPLORATION PROGRAM

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations consistent with the aforementioned CSRS criterion.

3.1.1 Test Borings

The subsurface conditions were explored by performing a total of two (2) CPT Soundings and two (2) auger borings. One (1) CPT Sounding was advanced to a target depth of 50 feet but was met with refusal of CPT cone at a depth of approximately 40 feet below existing site grades. One (1) CPT Sounding was advanced to a termination depth of 30 feet below existing site grades. Also, two (2) companion auger borings were performed, one (1) to a depth of approximately 10 feet below the existing site grades at each CPT location.

A track-mounted rig was utilized to perform the CPT soundings and drill the borings with continuous flight auger drilling techniques. The subsurface exploration was completed under the general supervision of an ECS representative.

The boring locations were selected by representatives of ECS based on the site plan provide by the client and identified in the field by ECS personnel using the supplied diagram and handheld GPS unit. The approximate as-drilled boring locations are shown on the Boring Location Diagram in Appendix A. The approximate ground surface elevations noted in this report were obtained from Google Earth Pro.

The CPT soundings were performed in general conformance with ASTM D 5778. The cone used in the sounding has a tip area of 15 cm^2 and a sleeve area of 225 cm^2. The CPT sounding recorded tip resistance, sleeve friction and pore water pressure measurements to assist in determining pertinent index and engineering properties of the site soils and the groundwater table. The ratio of the sleeve friction to tip resistance is then used to aid in assessing the soil types through which the tip is advanced.

Representative soil samples were obtained by means of auger sampling techniques. Field logs of the soils encountered in the borings were maintained by the drill crew. After recovery, each geotechnical soil sample was removed for the sampler and visually classified. Representative portions of each soil sample were then wrapped in plastic and transported to our laboratory for further visual examination and laboratory testing. After completion of the drilling operations, the boreholes were backfilled with cuttings to the existing ground surface.

3.2 SUBSURFACE CHARACTERIZATION

The following Table provides generalized characterizations of the soil strata encountered during our subsurface exploration. For subsurface specific information, please refer to the Boring Logs in Appendix B.

General Subsurface Stratigraphy

Approximate Depth (ft)	Elevation [1] (ft, MSL)	Stratum No.	Soil Description[2]
0 - 0.5 ft	EL. + 21.0 to + 20.5	-	**Topsoil**
0.5 - 2.5 ft	EL. + 20.5 to + 18.5	I	**LEAN CLAY (CL)**, Firm, Black
2.5 - 18 ft	EL. + 18.5 to + 3.0	II	**FAT CLAY (CH),** Firm to Very Stiff
18 - 40 ft	EL. + 3.0 to - 19.0	III	**SILTY SAND/SANDY SILT (SM/ML),** Medium Dense to Dense

1 Please note that the ground surface elevations were or were not surveyed by a licensed surveyor; these elevations are approximate based on Google-Earth© or topographic survey provided; therefore. Elevation ranges are approximate +/- several feet.

2 Soil descriptions show approximate strata to 40' for B-1 only. Strata in B-1 and B-2 vary, please see attached CPT and boring logs in Appendix B.

Please refer to the attached boring logs and laboratory data summary for this field exploration for a more detailed description of the subsurface conditions encountered in the borings as the stratification descriptions above are generalized for presentation purposes.

3.3 GROUNDWATER OBSERVATIONS

Groundwater levels were observed in the borings during drilling operations. In auger drilling operations, water is not introduced into the borehole and the groundwater position can often be determined by observing water flowing into and out of the excavation. Furthermore, visual observation of soil samples retrieved can often be used in evaluating the groundwater conditions. **Groundwater was encountered at a depth of approximately 10 feet in the auger borings at the time of drilling.**

The highest groundwater observations are normally encountered in the late winter or early spring, or following seasonal heavy rainfall events. Fluctuation in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff and other factors not immediately apparent at the time of his investigation. Therefore, the groundwater conditions at this site are expected to be significantly influenced by surface water runoff and rainfall.

4.0 LABORATORY TESTING

The laboratory testing was performed by ECS on selected samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples obtained from the test borings in order to aid in classifying soils according to the Unified Soil Classification System and to quantify and correlate engineering properties. The soil samples were tested for moisture content and Atterberg Limits.

An experienced geotechnical professional visually classified each soil sample from the test borings on the basis of texture and plasticity in accordance with the Unified Soil Classification System (USCS) and ASTM D-2488 (Description and Identification of Soils-Visual/Manual Procedures). After classification, the geotechnical professional grouped the various soil types into the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposition.

5.0 GEOTECHNICAL RECOMMENDATIONS

The following **preliminary recommendations** have been developed on the basis of the previously described project characteristics and subsurface conditions. These recommendations are preliminary in nature and are for planning purposes only as they are based on a very limited geotechnical exploration. <u>They should not be used for design or construction</u>. Design and construction recommendations for planned structures will require a thorough design-level geotechnical investigation and engineering analysis.

The proposed site is generally compatible with industrial development depending on the type and anticipated loads of the proposed structures. The following Sections of this document present our general recommendations with regard to the proposed site:

5.1 SITE PREPARATION

Due to the significant change in elevation across the site, mass grading will be required to level the on-site soils in anticipation for construction. In a dry and undisturbed state, the near-surface soils should provide subgrade support for engineered fill placement and construction operations. However, when wet, this soil will degrade quickly with disturbance from contractor operations. Chemical stabilization of the in-situ soils with lime, lime kiln dust (LKD), or Portland cement may be necessary depending on seasonal conditions. Therefore, good site drainage should be maintained during earthwork operations, which can help maintain the integrity of the soil.

The surface of the site should be kept properly graded to promote drainage of the surface water away from the proposed building areas during the construction phase. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern.

The soils at the site are moisture and disturbance sensitive and contain fines which are considered moderately erodible. Therefore, the contractor should carefully plan his operation to minimize exposure of the subgrade to weather and construction equipment traffic and provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surficial soils.

All erosion and sedimentation shall be controlled in accordance with sound engineering practice and current jurisdictional requirements.

In preparing the site for construction, all loose, poorly compacted existing soils, vegetation, organic soil, existing pavements, foundations or utilities, existing fill material, or other unsuitable materials should be removed from all proposed building and paving areas, and any areas receiving new fill.

5.2 SHALLOW FOUNDATIONS

Given that subgrades and structural fills are prepared properly, a typical lightly to moderately-loaded industrial structure should be able to be supported by conventional shallow spread footings. A net allowable soil bearing pressure on the order of 1,300 psf may be used for preliminary planning and budgeting purposes for footings bearing on compacted in-situ clay or on compacted select fill. Footings should extend at least 24 inches below grade in order to utilize this bearing pressure. The Table (below) provides estimated size for square footing dimensions based on assumed column loads as required by the CSRS document:

ESTIMATED SQUARE SHALLOW FOOTING SIZE Net Allowable Bearing Capacity = 1,300 psf F.S.=3		
Assumed Column Load (Kips)	Spread Footing Plan Dimensions	
	Depth (ft.)	Width (ft.)
25	2	4.5
50	2	6.5
100	2	9

These design parameters assume that positive drainage will be provided away from structures and with no excessive wetting or drying of soils adjacent to the foundations. Greater potential movements could occur with extreme wetting or drying of the soils due to ponding of water, plumbing leaks or lack of irrigation.

The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure. The final footing and/or grade beam elevation should be evaluated by competent geotechnical engineering personnel to verify that the bearing soils are capable of supporting the recommended net allowable bearing pressure and suitable for foundation construction.

5.3 DEEP FOUNDATIONS

Typical considerations are provided below for deep foundations should a more heavily loaded structure be proposed for the subject site. *It should be reemphasized that these values provided should be used for planning and budgeting purposes and should be reevaluated once a specific design is developed for the site.*

The recommended pile length and the estimated corresponding allowable capacities for 14-inch square precast prestressed concrete piles are presented in the following Table for use in feasibility studies, planning, and cost estimating purposes per the CSRS document:

PRELIMINARY ESTIMATED ALLOWABLE SINGLE PILE CAPACITIES (TONS)		
Pile Length (feet)	**14-inch Square PPC Pile**	
	Compression (TONS)	**Tension (TONS)**
20	66	18
25	87	26
30	110	36
35	135	48

The estimated pile capacities include a factor of safety of two (2) in compression and three (3) in tension which requires that a static load test will be performed. If a field load test is not performed, ECS recommends using a factor of safety of 3.0 for compression to determine the allowable capacities. The recommended pile lengths are referenced from the existing ground surface at the time of drilling. The allowable capacity estimates provided in the Table are based on field and laboratory testing and assume proper design and installation. Please note that these estimated capacities do not account for negative skin friction effects that may reduce total capacity if fill is placed on site.

6.0 REPORT LIMITATIONS AND CLOSING

ECS has prepared this report of findings, evaluations, and *preliminary* recommendations to generally characterize the sites soil and groundwater conditions to evaluate whether geotechnical concerns were observed at the site.

The preliminary recommendations provided in this report are based on the data obtained from the limited field exploration and laboratory testing at the specified boring locations for the purpose of a general site characterization. The recommendations are not intended for use in final design or construction. Final design and construction recommendations for any structure proposed on the site will require a more detailed investigation and engineering analysis.

The description of the proposed site is based on information provided to ECS by the client. If any of this information is inaccurate, either due to our interpretation of the documents provided or site that may occur later, ECS should be contacted immediately in order that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed site.

APPENDIX A – Diagrams & Reports

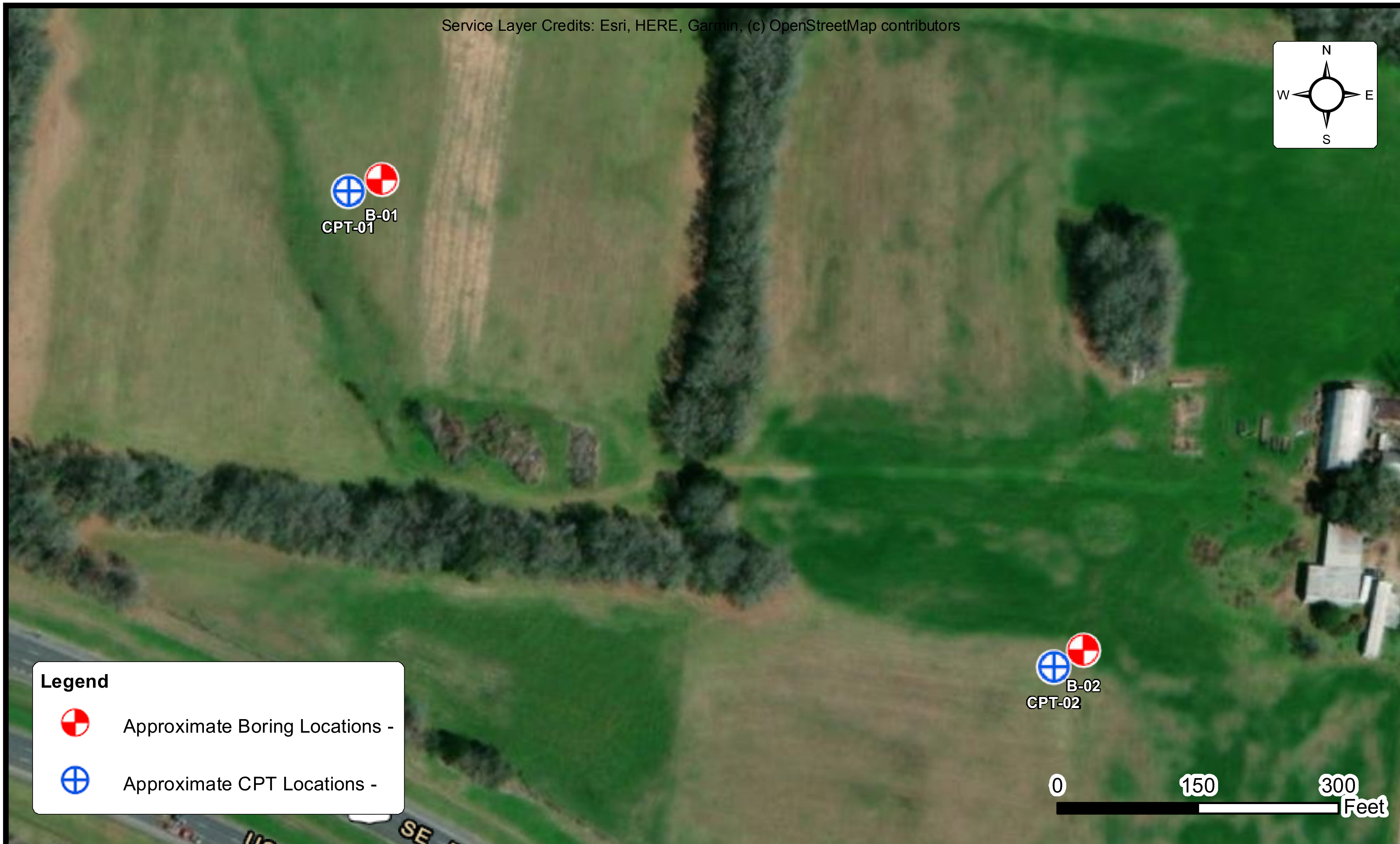
Site Location Diagram
Boring Location Diagram

SITE LOCATION DIAGRAM
MAXIE AND VIDA GIROUARD SITE

HWY 90 E & N. GIROUARD ROAD, BROUSSARD, LOUISIANA

ONEACADIANA

ENGINEER	JCC3
SCALE	AS NOTED
PROJECT NO.	65:1325
FIGURE	1 OF 1
DATE	1/18/2023



BORING LOCATION DIAGRAM
MAXIE AND VIDA GIROUARD SITE

HWY. 90 & N. GIROUARD ROAD, BROUSSARD, LOUISIANA
ONEACADIANA

ENGINEER	JCC3
SCALE	AS NOTED
PROJECT NO.	65:1325
FIGURE	1 OF 1
DATE	2/1/2023

APPENDIX B – Field Operations

Reference Notes for Boring Logs
CPT Logs CPT-1 and CPT-2
Boring Logs B-1 and B-2

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]

	Material	
	ASPHALT	
	CONCRETE	
	GRAVEL	
	TOPSOIL	
	VOID	
	BRICK	
	AGGREGATE BASE COURSE	
GW	**WELL-GRADED GRAVEL**	gravel-sand mixtures, little or no fines
GP	**POORLY-GRADED GRAVEL**	gravel-sand mixtures, little or no fines
GM	**SILTY GRAVEL**	gravel-sand-silt mixtures
GC	**CLAYEY GRAVEL**	gravel-sand-clay mixtures
SW	**WELL-GRADED SAND**	gravelly sand, little or no fines
SP	**POORLY-GRADED SAND**	gravelly sand, little or no fines
SM	**SILTY SAND**	sand-silt mixtures
SC	**CLAYEY SAND**	sand-clay mixtures
ML	**SILT**	non-plastic to medium plasticity
MH	**ELASTIC SILT**	high plasticity
CL	**LEAN CLAY**	low to medium plasticity
CH	**FAT CLAY**	high plasticity
OL	**ORGANIC SILT or CLAY**	non-plastic to low plasticity
OH	**ORGANIC SILT or CLAY**	high plasticity
PT	**PEAT**	highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, QP[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	3 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective *(ex: "Silty")*	25 - 45	30 - 45

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

WATER LEVELS[6]

- ▽ WL (First Encountered)
- ▼ WL (Completion)
- WL (Seasonal High Water)
- WL (Stabilized)

FILL AND ROCK

FILL	POSSIBLE FILL	PROBABLE FILL	ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

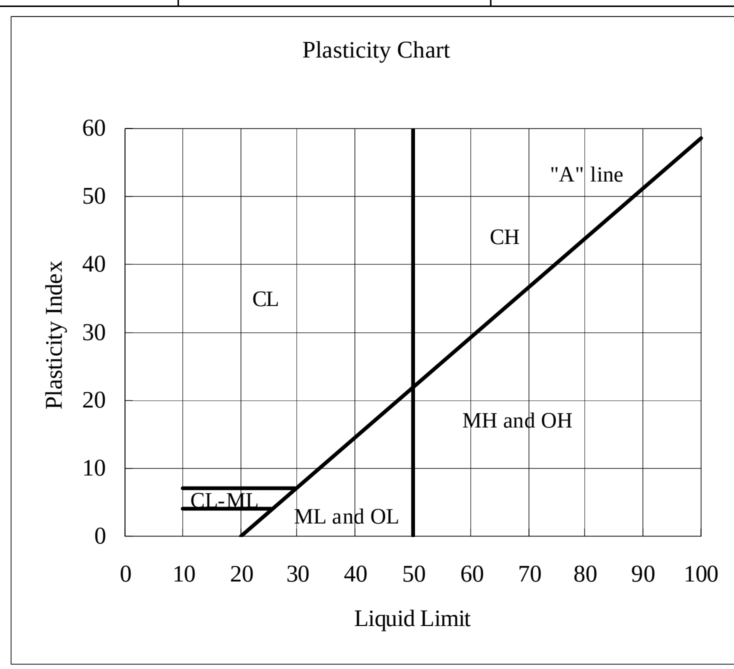
[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

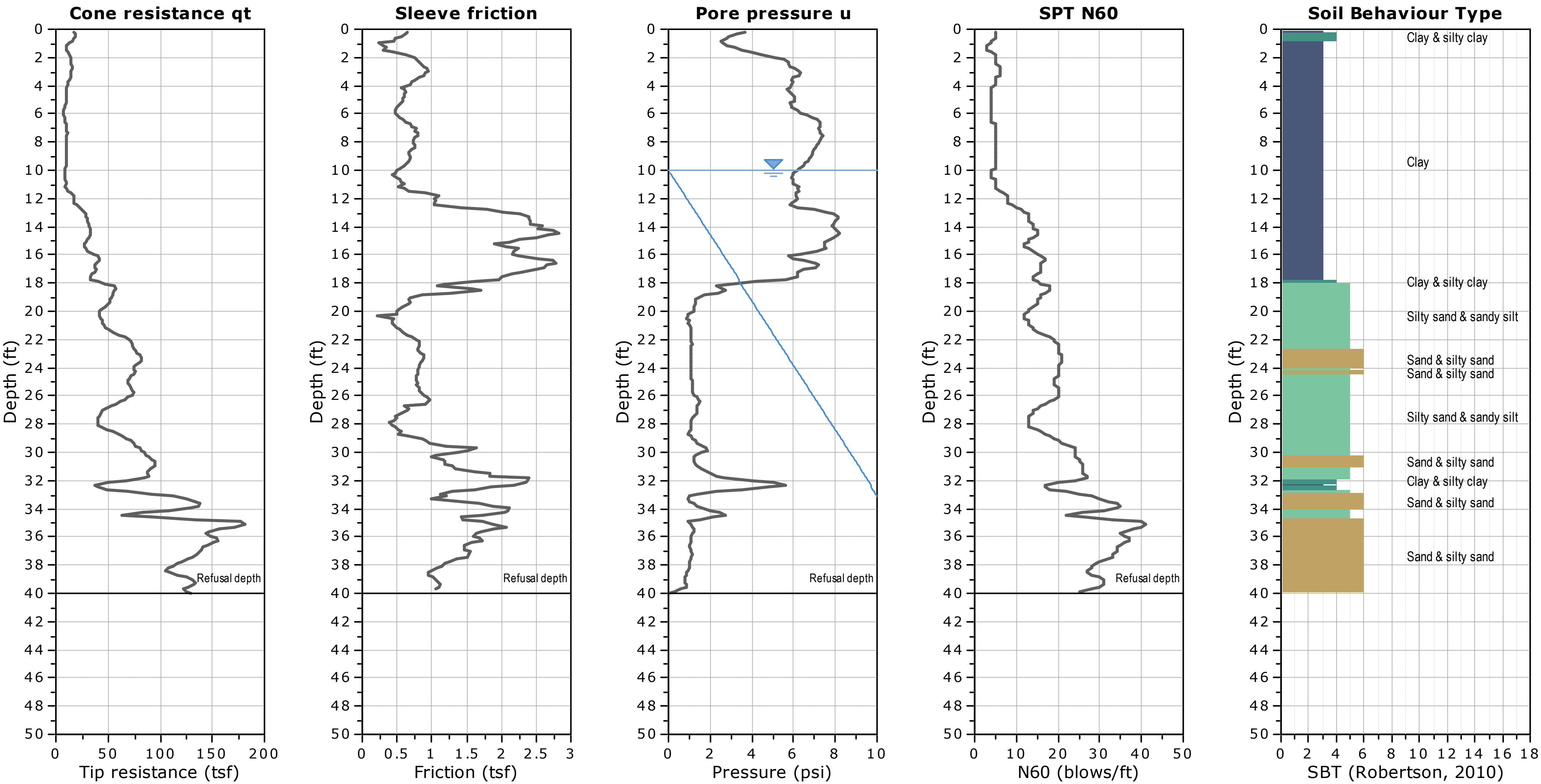
Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP; More than 12 percent GM, GC, SM, SC; 5 to 12 percent Borderline cases requiring dual symbols [b]	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2/(D_{10} x D_{60})$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line or P.I. less than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2/(D_{10} x D_{60})$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	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			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of high plasticity, fat clays			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly Organic soils		Pt		Peat and other highly organic soils			

[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.
[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC,well-graded gravel-sand mixture with clay binder. (From Table 2.16 - Winterkorn and Fang, 1975)

ECS Southeast, LLP
11211 Industriplex Blvd. Suite 300
Baton Rouge, LA
www.ecslimited.com

Project: Maxie and Vida Girouard Site
Location: Broussard, LA

CPT: CPT-1
Total depth: 40.03 ft, Date: 1/16/2023
Surface Elevation: 21.00 ft
Coords: lat 30.152783° lon -91.952084°
Cone Type: DSG1034
Cone Operator: SES



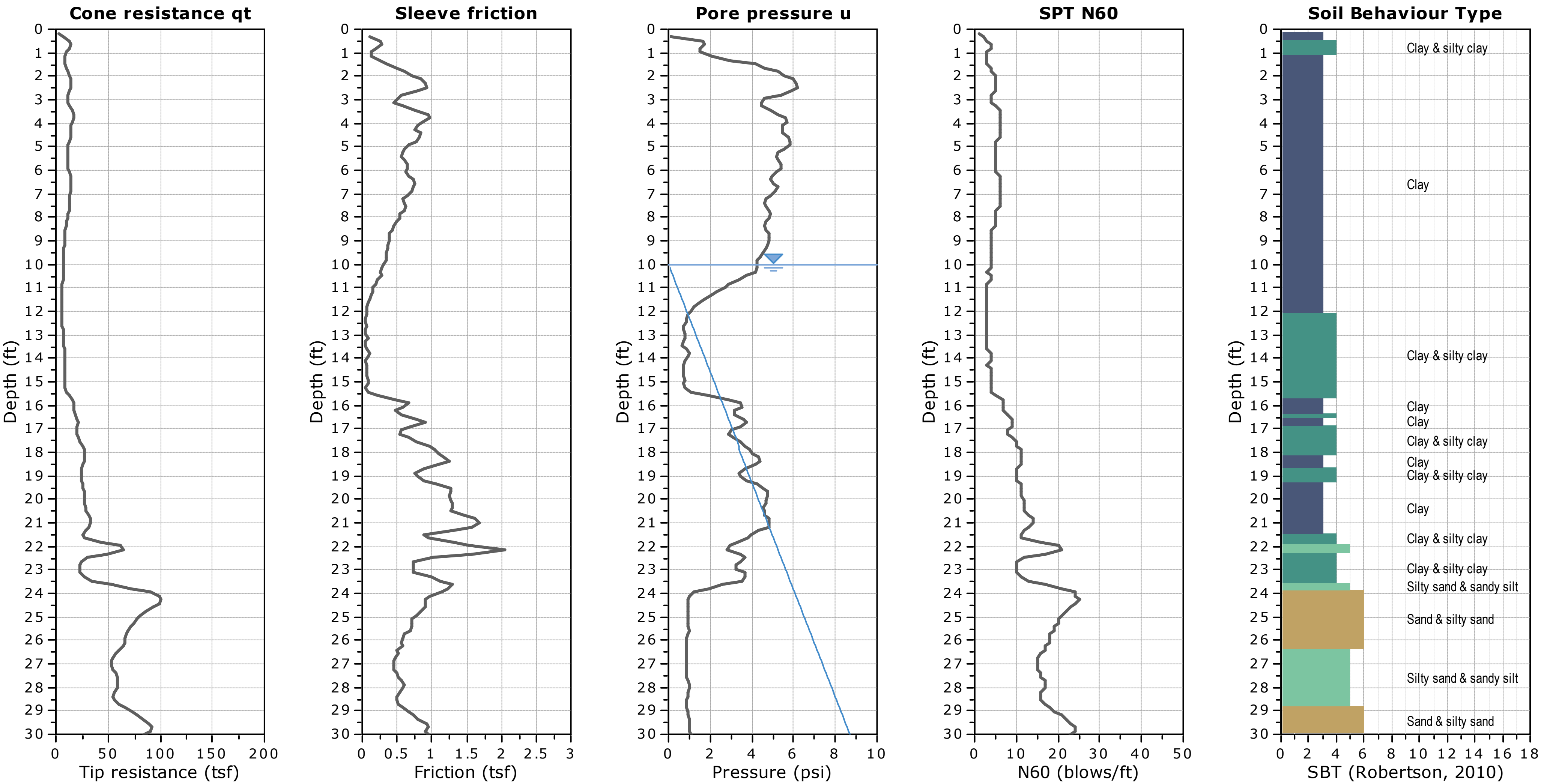
SBTn legend

- 1. Sensitive fine grained
- 2. Organic soil
- 3. Clay & silty clay
- 4. Clay
- 5. Silty sand & sandy silt
- 6. Sand & silty sand
- 7. Sand
- 8. Very dense/stiff soil
- 9. Very dense/stiff soil

ECS Southeast, LLP
11211 Industriplex Blvd. Suite 300
Baton Rouge, LA
www.ecslimited.com

CPT: CPT-2
Total depth: 35.60 ft, Date: 1/16/2023
Surface Elevation: 39.00 ft
Coords: lat 30.151221° lon -91.949647°
Cone Type: DSG1034
Cone Operator: SES

Project: Maxie and Vida Girouard Site
Location: Broussard, LA



SBTn legend

- 1. Sensitive fine grained
- 2. Organic soil
- 3. Clay & silty clay
- 4. Clay
- 5. Silty sand & sandy silt
- 6. Sand & silty sand
- 7. Sand
- 8. Very dense/stiff soil
- 9. Very dense/stiff soil

CLIENT:	PROJECT NO.:	BORING NO.:	SHEET:
OneAcadiana	**65:1325**	**B-01**	**1 of 1**

PROJECT NAME:	DRILLER/CONTRACTOR:
Maxie and Vida Girouard Site	**ECS**

SITE LOCATION: **Hwy. 90 & N. Girouard Road, Broussard, Louisiana, 70518**

LOSS OF CIRCULATION

BOTTOM OF CASING

LATITUDE:	LONGITUDE:	STATION:	SURFACE ELEVATION:
30.152783°	**-91.952084°**		**21**

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0					Topsoil Thickness[6.00"]			
	S-01	BG 1	30		(CL) LEAN CLAY, black			
	S-02	BG 1	30		(CH) FAT CLAY, brown, with silt traces			
5							17	
	S-03	BG 1	30					
	S-04	BG 1	30					
10					**END OF BORING AT 10 FT**	▽	12	
15							7	
20							2	
25							-3	
30							-8	

⊗ STANDARD PENETRATION BLOWS/FT: 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY: RQD, REC

△ LIQUID LIMIT
× PLASTIC LIMIT

○ CALIBRATED PENETROMETER TSF: 1 2 3 4 5

● WATER CONTENT % [FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) **10.00**	BORING STARTED: **Jan 16 2023**		CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: **Jan 16 2023**		HAMMER TYPE: **Auto**
WL (Seasonal High Water)	EQUIPMENT: **Track**	LOGGED BY:	DRILLING METHOD: **Dry Auger**
WL (Stabilized)			

GEOTECHNICAL BOREHOLE LOG

CLIENT: OneAcadiana	PROJECT NO.: 65:1325	BORING NO.: B-02	SHEET: 1 of 1
PROJECT NAME: Maxie and Vida Girouard Site	DRILLER/CONTRACTOR: ECS		
SITE LOCATION: Hwy. 90 & N. Girouard Road, Broussard, Louisiana, 70518	LOSS OF CIRCULATION		
LATITUDE: 30.151221°	LONGITUDE: -91.949647°	STATION:	SURFACE ELEVATION: 39

BOTTOM OF CASING

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
	S-01	BG 1	24		Topsoil Thickness[6.00"]			
					(CH) FAT CLAY, black to brown, with silt traces			
	S-02	BG 1	36					
5							34	
	S-03	BG 1	30					
	S-04	BG 1	30					
10					**END OF BORING AT 10 FT**	▽	29	
15							24	
20							19	
25							14	
30							9	

⊗ STANDARD PENETRATION BLOWS/FT: 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY: RQD, REC

△ LIQUID LIMIT
✕ PLASTIC LIMIT

○ CALIBRATED PENETROMETER TSF: 1 2 3 4 5

● WATER CONTENT % [FINES CONTENT] %: 10 20 30 40 50

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GEOTECHNICAL BOREHOLE LOG

APPENDIX C – Laboratory Testing

Laboratory Test Results Summary

Soil Boring ID	Depth Interval (ft)	D2488 Visual Description	D2216 Moisture (%)	D2166/D2850 Unit Weight (PCF)		D4318 Atterberg Limits			D422/D1140 /D6913	D2166/D2850					D4648	Comments
				Wet	Dry	LL	PL	PI	%<#200 Sieve	Shear Strength (KSF)	Remolded Strength (KSF)	Failure Strain (%)	Confining Pressure (PSI)	Failure Type	Mini Vane Shear Strength (KSF)	
B-1	0.0 - 2.5	Black lean clay with roots (CL)	28.5			35	23	12								
B-1	2.5 - 5.0	Blackish brown fat clay with silt traces (CH)	27.3													
B-1	5.0 - 7.5	Brown fat clay with silt traces (CH)	27.9													
B-1	7.5 - 10.0	Brown fat clay with silt traces (CH)	28.3													
B-2	0.0 - 2.0	Blackish brown fat clay with silt traces (CH)	25.6													
B-2	2.0 - 5.0	Brown fat clay with silt traces (CH)	28.6			55	24	31								
B-2	5.0 - 7.5	Brown fat clay with silt traces (CH)	28.0													
B-2	7.5 - 10.0	Brown fat clay with silt traces (CH)	26.9													

Multiple Shear = MS Slickensided = SLS Vertical Shear = VS Bulge = B Angle Shear = AS Crumble = C

Technical Responsibility: Stephannie Campbell

Title: Lead Lab Technician

Date: 1/20/2023

Summary of Lab Results
Project No.: 65-1325

Maxie & Vida Girouard Site
Broussard, Louisiana

ECS Limited
11211 Industriplex Blvd. Ste. 200
Baton Rouge, LA 70809
Telephone: 225.224.2583

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation*.

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL
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ASSOCIATION

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