

Exhibit AA. Mouton Site Preliminary Geotechnical Engineering Report



September 19, 2024

One Acadiana
804 East St. Mary Boulevard
Lafayette, Louisiana 70503

Attn: Mr. Emile Lege

Mouton Site Preliminary Geotechnical Engineering Report

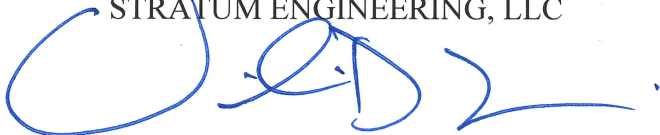
Re: Preliminary Geotechnical Investigation
LED Site Characterization
Mouton Site
St. Martin Parish, Louisiana
SE Project No. G24-073

Dear Mr. Lege:

Stratum Engineering, LLC (SE) is pleased to submit our Preliminary Geotechnical Engineering Report for the above referenced project. The report includes the results of field and laboratory testing, as well as preliminary recommendations regarding the suitability of the site for future industrial developments.

We appreciate the opportunity to perform this geotechnical study and look forward to the development of the property and our continued involvement with this project. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,
STRATUM ENGINEERING, LLC



William "Dean" McInnis, P.E.
Vice President

WDM/TYM:arh



Tony Y. Maroun, P.E.
Principal



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PROJECT INFORMATION

Project Authorization

Stratum Engineering, LLC (SE) has completed a preliminary geotechnical exploration to characterize the Mouton Site for a potential future development in St. Martin Parish, Louisiana in support of the Louisiana Economic Development (LED) Site Certification process. The exploration was accomplished in general accordance with SE Proposal No. G24-059, dated March 21, 2024.

Project Description

The Mouton property is located in an area that may be used for industrial/business developments. The site will be characterized to verify the soil conditions and provide preliminary foundation recommendations for typical structures which could be constructed at the site.

Generally, industrial developments could consist of multiple structures with associated light and heavy duty pavements. The buildings may be single or multi-story structures with steel frames and load bearing masonry or tilt up walls, or could be of cast-in-place concrete. Depending on the building spans, maximum interior column load could range from 100 to 300 kips. Maximum wall loads are assumed to be 5 to 10 kips per foot. Floor loads could range between 150 to 700 psf. The structures may be grade supported or dock high, requiring 4 to 5 feet of fill to reach the building finished floor elevation.

Traffic associated with industrial facilities of this size could consist of heavy tractor trailers with an average daily traffic (ADT) of 50 to 100 trucks per day for a design life of 20 years. For these types of facilities, rigid pavements are widely considered for their longevity and ability to support the high volume of traffic.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site in order to enable an evaluation of a suitable foundation system for potential future industrial facilities.

Based on the parcel size and the criteria provided by CSRS, the scope of services included drilling two (2) borings to a depth ranging from 30 to 50 feet at accessible locations across the site. The borings were located in the field by a Stratum Engineering representative using normal taping from existing landmarks as indicated on the attached Boring Location Plan which is a reproduction of an aerial photograph of the property.

In addition to drilling the soil borings, our scope of services included a reconnaissance of the project site, select laboratory testing, and preparation of this preliminary geotechnical report. The report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and provides results of analysis and recommendations regarding the following:

- Preliminary foundation types, depths, allowable bearing capacities, allowable pile capacities, and estimate of settlements;
- Seismic site classification;
- Typical soil parameters for flexible and rigid pavements.

The scope of geotechnical services did not include an environmental assessment for determining the presence or absence of wetlands, 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 site assessment is advisable.

SITE AND SUBSURFACE CONDITIONS

Site Description and Location

We understand the site encompasses approximately 46 acres of undeveloped property located on the north side of Smede Highway (LA Highway 92-1) between Freeman Road and Louis Records Road in the Broussard area of St. Martin Parish, Louisiana. The site is currently covered with short surface vegetation which was accessible to standard drilling equipment.

Detailed grading information was not available at the time this report was prepared. However, it was assumed that 2 to 3 feet of fill may be needed to reach the design grades.

Drilling and Sampling

The borings were drilled with an All-Terrain Vehicle (ATV) mounted drilling rig. Auger and wet rotary drilling techniques were used to advance the borings. Samples were generally obtained continuously from the ground surface to a depth of ten feet and at maximum five foot intervals thereafter. Drilling and sampling techniques were accomplished in general accordance with ASTM Standards.

Undisturbed samples of cohesive soils were generally obtained using thin-wall tube sampling procedures 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 and were wrapped in aluminum foil prior to placement in a plastic wrapping to preserve moisture. The samples were transported to the laboratory in containers to prevent disturbance.

For cohesionless soils and semi-cohesive soils, Standard Penetration Tests (SPT) were 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, required to advance the split-barrel sampler one (1) foot into the soil. 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). 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 and compressibility of the soil profile components. The split spoon samples were identified according to the project number, boring number and depth, and were also placed in polyethylene plastic wrapping to protect against moisture loss.

The laboratory testing program included supplementary visual classification and water content tests on all of the soil samples. In addition, selected samples were subjected to unconfined compression testing, percent passing the #200 sieve and Atterberg Limits determination. Additional estimates of unconfined compressive strength were made using a hand penetrometer. The laboratory testing was performed in general accordance with ASTM Standard Procedures.

Subsurface Conditions

Based on the borings, about 12 inches of silty topsoil with organics covered the surface at the site. The topsoil was underlain by very stiff lean and fat clay to a depth of 6 to 8 feet. Below the surficial material, boring B-2 encountered soft to very stiff fat clay from a depth of 6 to 30 feet. Alternately, boring B-1 encountered firm to stiff lean clay between the depths of 8 and 12 feet that was underlain by firm to stiff fat clay to a depth of approximately 22 feet. The clay in B-1 was followed by loose silty sand to around 27 feet, then a stiff lean clay layer with sand to an approximate depth of 32. The deep boring was terminated in dense to very dense silty and clayey sands at a depth of 50 feet, the maximum depth explored.

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The boring logs included in the Appendix should be reviewed for specific information at the boring locations. These records include soil descriptions, stratification, penetration resistances, and locations of the samples and laboratory test data. The stratification shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratification represents the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on the boring logs. The samples, which were not altered by laboratory testing, will be retained for 60 days from the date of this report and then will be discarded.

Groundwater Conditions

Groundwater was not encountered in the upper 20 feet in any of the borings during auger drilling, prior to converting to wet rotary drilling techniques. However, it should be noted that groundwater levels will fluctuate with seasonal variations in rainfall, extended periods of drought or surface runoff. Therefore, it is recommended that the actual groundwater level at the site be determined by the contractor at the time of the construction activities, if needed.

IBC Site Classification

The International Building Code (IBC), 2021 Edition, was reviewed to determine the site classification for seismic design. Based on the soils encountered in the borings and our experience in the general vicinity, the site can be classified as Site Class “D” as outlined in Section 1613.2.2 of the Building Code.

EVALUATION AND RECOMMENDATIONS

General

The type and depth of foundation suitable for a given structure primarily depends 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 movement which the structure can withstand without damage.

It is our understanding the site will be marketed for development of potential industrial facilities. Typical structures could be grade supported or dock high facilities requiring 4 to 5 feet of fill to reach the design grade.

Although the results of the exploration indicate the soils at the site are fair in bearing quality and suitable for supporting the potential improvements on a shallow foundation system, slightly expansive soils were noted near the surface which will require the provision of a buffer zone of structural fill to minimize the potential of vertical rise, particularly for grade supported structures. Details related to foundation recommendations and construction considerations are presented in subsequent sections of this report.

Potential Vertical Rise

Laboratory test results indicated that the soils encountered at the site within the active zone exhibit moderate shrink swell potential requiring the provision of a buffer zone consisting of low plasticity structural fill to maintain the potential vertical movement below 1 inch.

The estimated amount of vertical movement of a foundation or floor slab constructed on swelling clays is referred to as the Potential Vertical Rise (PVR). To reduce the potential for shrinkage and swelling of the site soils, it is important that consideration be given to reducing the potential for moisture changes of the site soils. At a minimum, positive drainage away from the new building should be provided. If positive drainage is not provided, water will pond around or below the structure and excessive total and differential movements may occur.

A Potential Vertical Rise (PVR) value of slightly over 1 inch was estimated using the TEX-124E method assuming an active zone of 10 feet which is typical for the area. Therefore, it is recommended that at least 2 feet of low swell potential compacted structural fill be provided under the building pad and extending for a distance of at least 5 feet beyond the building perimeter to reduce the estimated PVR to less than 1 inch. Provisions of the buffer zone should be achieved by undercutting, raising the building finished grade or a combination of both. Furthermore, the recommended buffer zone will be satisfied with the use of dock high structures.

Shallow Foundations

Based on the field data and laboratory test results, the site is suitable to support typical industrial developments on shallow foundations bearing at least 2 feet below the finished grade. Shallow spread and continuous wall footings bearing in the compacted structural fill or in the naturally occurring stiff clay can be designed for maximum allowable bearing pressures of 2,500 and 2,000 pounds per square foot, respectively. Minimum dimensions of 24 inches for spread footings and 18 inches for continuous footings should be used in the design, even if the resulting bearing pressure is less than the allowable bearing pressure, to minimize the possibility of a local bearing failure. The recommended preliminary bearing capacities include a factor of safety of three (3).

Settlement

Areal settlement under a building is generally caused by the amount of fill placed, the building footprint and the subsurface soil conditions encountered in the building area. Similarly, footing settlement depends on the footing size as well as the soil conditions below the footing. At the time this report was prepared, the type of structures had not been identified and the amount of fill needed to achieve the design grade was not known. However, based on the subsurface conditions encountered at the site, areal settlement is anticipated to be minimal with the addition of 2 to 3 feet of fill.

Furthermore, based on the assumed structural loads, foundation settlement will be less than 1 inch provided the footings are designed for the recommended bearing pressures.

Floor Slab

A slab-on-grade may be supported on compacted low plasticity structural fill. While detailed site preparation recommendations were beyond the scope of this study, stripping of at least 12 inches should be anticipated to remove the topsoil with organics and other deleterious materials. Proofrolling should be accomplished following the stripping to identify any soft or unstable soils which should be removed from the floor slab area prior to fill placement and/or floor slab construction. Any required structural fill should be placed in lifts and be compacted to meet the applicable project specifications.

Deep Foundations

Generally, deep foundations systems are used to support heavily loaded structures by transferring the structural loads through the surficial soils to more adequate bearing strata and hence minimizing long term settlements.

Typical deep foundation systems used in the area include timber piles and auger cast-in-place piles which will derive their support capabilities mainly from skin friction along with some “end bearing” when embedded in the dense sand encountered around 35 to 40 feet.

Large timber piles driven to a penetration depth of about 40 feet could yield a maximum allowable compression capacity of at least 25 tons while 14-inch diameter auger cast-in-place piles installed to a penetration depth of 40 feet could be designed for a maximum allowable compression capacity of about 60 to 70 tons. The preliminary pile capacities presented in the report include a factor of safety of two (2) in compression.

Parameters for Pavement Design

Parking areas and drives associated with an industrial park are expected to consist generally of light duty pavement for employee parking as well as heavy duty pavement for large truck staging areas, parking areas and drives.

Based on the field data and laboratory test results, the near surface soil consists of lean and fat clay. Typical California Bearing Ratio (CBR) values for the existing clay subgrade or imported clayey sand structural fill were estimated to be on the order of 4 to 5 corresponding to a Modulus of Subgrade Reaction (k) of about 125 pci which may be used for the design of flexible and rigid pavements, respectively. These values may be used along with the frequency and magnitude of anticipated traffic loads associated with the type of facility being constructed to yield adequate pavement sections for the development. Class II Base including crushed limestone or cement treated low plasticity clays for the flexible and/or rigid pavements would be viable options for the pavement.

CONSTRUCTION CONSIDERATIONS

Moisture Sensitive Soils/Weather Related Concerns

The upper silty soils encountered at the site are extremely sensitive to changes in moisture content and may lose significant strength if allowed to become saturated. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. During wet weather periods, increases in the moisture content of the upper soils can cause some reduction in the soil strength and support capabilities. Therefore, it will be advantageous to perform earthwork construction activities during dry weather. Should the near surface soils become wet, the site may be mitigated by repeated aeration and exposure to sunlight or by admixture treatment.

REPORT LIMITATIONS

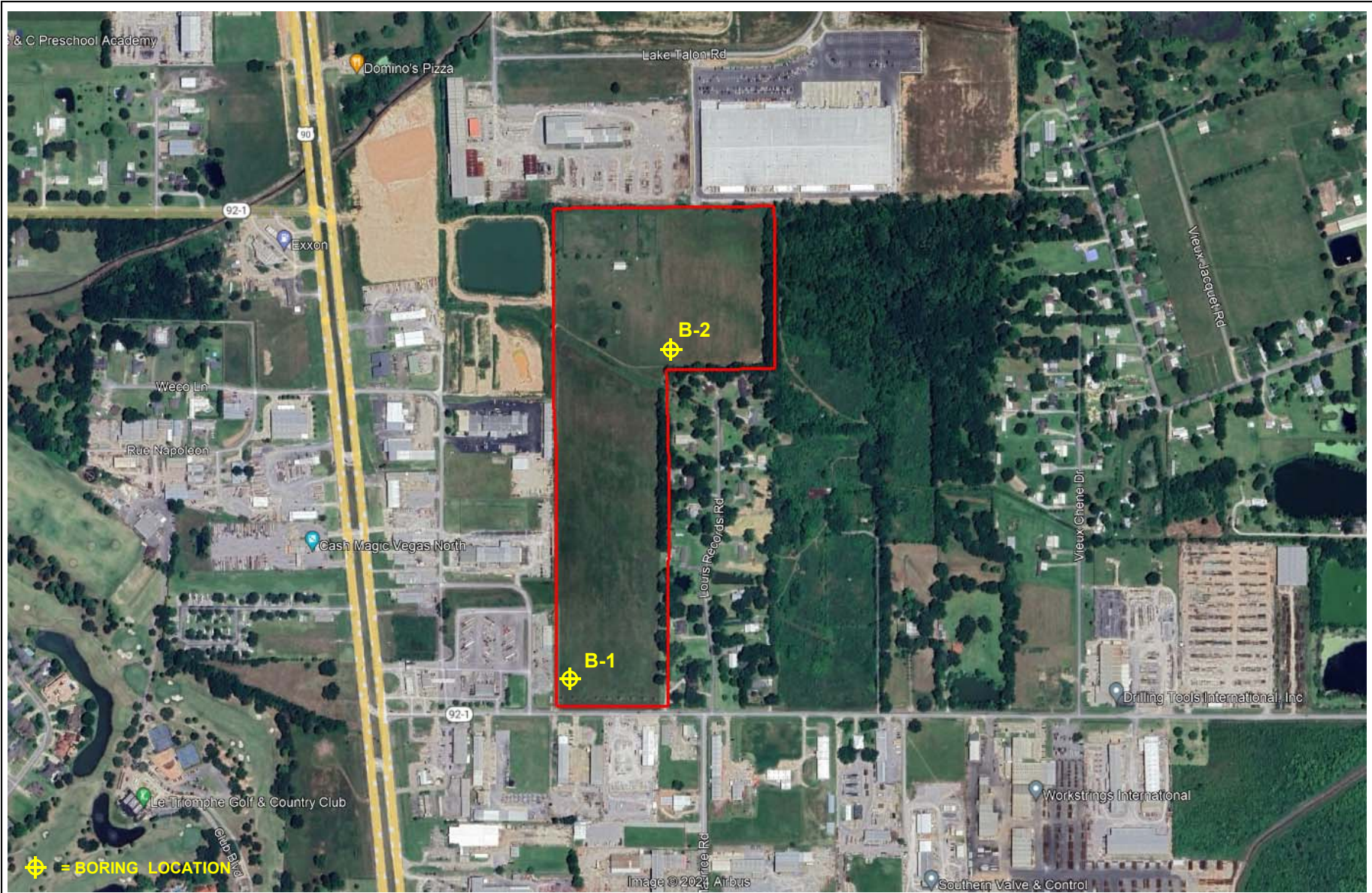
The recommendations submitted in this report are based on the available subsurface information obtained by SE and assumed typical design loads for industrial developments. These recommendations are preliminary and general in nature. They should not be used in the design of a specific structure without conducting a detailed project specific investigation to verify the subsurface soil condition and determine if revisions to the recommendations are necessary.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

Once specific plans for a potential development are prepared, Stratum Engineering may be retained and provided the opportunity to conduct a more thorough geotechnical investigation and analysis utilizing project specific plans and specifications under consideration.

This report has been prepared for the exclusive use of One Acadiana for marketing and planning of the Mouton Site in St. Martin Parish, Louisiana.

APPENDIX



BORING LOCATION PLAN
 SE PROJECT NO. G24-073

GEOTECHNICAL ENGINEERING SERVICES
LED SITE CHARACTERIZATION
MOUTON SITE
 ST. MARTIN PARISH, LOUISIANA



LOG OF BORING B-1
LED SITE CHARACTERIZATION
MOUTON SITE
ST. MARTIN PARISH, LOUISIANA

TYPE OF BORING: WET ROTARY

LOCATION: SW CORNER OF SITE

PROJECT NO.: G24-073

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENETROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	
0	Clay	X	12" Silty Topsoil with organics			4.50			21				
1			Very stiff brownish gray Fat Clay		2.82	4.00		102	21	51	28		
2							4.50			23			
3							2.25			21			
4													
5	Clay	X	Firm to stiff brownish gray Lean Clay		0.72	1.50		96	23				
6													
7													
8													
9													
10	Clay	X	Firm to stiff tannish gray Fat Clay		0.80	1.00		104	24				
11													
12													
13													
14													
15	Sand	X	Firm to stiff tannish gray Fat Clay		0.80	1.00		104	24				
16													
17													
18													
19													
20	Sand	X	Loose tannish gray Silty Sand	6					13			35	
21													
22													
23													
24													
25	Clay	X	Very stiff tannish gray Lean Clay with sand			3.25			29			78	
26													
27													
28													
29													
30	Sand	X	Very dense tannish gray Silty Sand	50					22				
31													
32													
33													
34													
35	Sand	X	Very dense tannish gray Silty Sand	50					21			41	
36													
37													
38													
39													
40	Sand	X	Dense tannish gray Clayey Sand	37					33				
41													
42													
43													
44													
45	Sand	X	Very dense tannish gray Silty Sand	50					19			31	
46													
47													
48													
49													
50			Boring Terminated at 50 Feet										

DEPTH OF BORING: 50 Feet

GROUNDWATER: Dry in Upper 20 Feet During Drilling

DATE: 8/24/2024



LOG OF BORING B-2
LED SITE CHARACTERIZATION
MOUTON SITE
ST. MARTIN PARISH, LOUISIANA

TYPE OF BORING: AUGER ROTARY

LOCATION: NE QUADRANT OF SITE

PROJECT NO.: G24-073

DEPTH, FT.	SOIL TYPE	SAMPLES	DESCRIPTION	N-BLOWS/FT.	UNCONFINED COMPRESSIVE STRENGTH tsf	HAND PENETROMETER tsf	TORVANE tsf	UNIT DRY WEIGHT pcf	MOISTURE CONTENT %	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE
0	Brown	S1	12" Silty Topsoil with organics Very stiff brownish gray Lean Clay			3.25			13			
1						4.50			19			
5						2.25			18	34	11	96
6	Brown	S2	Stiff to very stiff brownish gray Fat Clay			2.25			24			
10					1.38	3.00	98	22				
15							0.50	27				
20						1.00	1.50	94	23			
25							0.75	29				
30							2.02	2.25	112	20		
35	White	S3	Boring Terminated at 30 Feet									
40												
45												
50												
55												

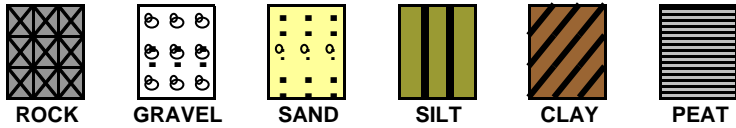
DEPTH OF BORING: 30 Feet
 DATE: 8/24/2024

GROUNDWATER: Dry Upon Completion of Drilling

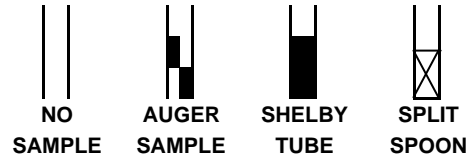


KEY TO TERMS AND SYMBOLS USED ON LOGS

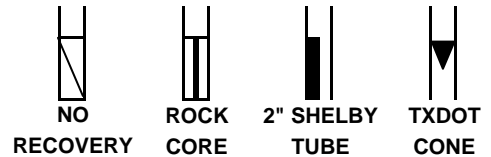
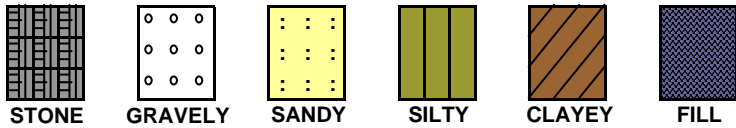
SOIL TYPE



SAMPLER TYPE



MODIFIERS



UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487 (1980)

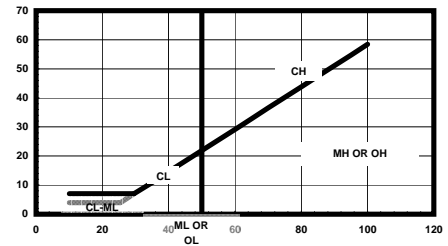
MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS	
COARSE GRAINED SOILS	GRAVEL & GRAVELLY SOILS	CLEAN GRAVEL (LITTLE OR NO FINES)	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES	
		LESS THAN 50% PASSING NO. 4 SIEVE	GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES	
	SANDS	CLEAN SANDS (LITTLE FINES)	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES	
		MORE THAN 50% PASSING NO. 4 SIEVE	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES	
	SANDS WITH APPRECIABLE FINES	CLEAN SANDS (LITTLE FINES)	SW	WELL GRADED SAND, GRAVELY SAND (LITTLE FINES)	
		MORE THAN 50% PASSING NO. 4 SIEVE	SP	POORLY GRADED SANDS, GRAVELY SAND (L.FINES)	
	SANDS WITH APPRECIABLE FINES	CLEAN SANDS (LITTLE FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES	
		MORE THAN 50% PASSING NO. 4 SIEVE	SC	CLAYEY SANDS, SAND-CLAY MIXTURES	
	FINE GRAINED SOILS	SILTS AND CLAYS	INORGANIC SILTS & VERY FINE SANDS, ROCK FLOUR	ML	SILTY OR CLAYEY FINE SANDS OR CLAYEY SILT W/ LOW PI
			LIQUID LIMIT LESS THAN 50	CL	INORGANIC CLAY OF LOW TO MEDIUM PI LEAN CLAY GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS
ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PI			OL		
SILTS AND CLAYS		FINE SANDY OR SILTY SOILS, ELASTIC SILTS	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS	
	LIQUID LIMIT GREATER THAN 50	CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS		
	ORGANIC CLAYS OF MED TO HIGH PI, ORGANIC SILT	OH			
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 0.5
STIFF	0.5 TO 1.0
VERY STIFF	1.0 TO 2.0
HARD	> 2.0 OR 2.0+

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
- TV - TORVANE
- MV - MINIATURE VANE
- UC - UNCONFINED COMPRESSION TEST
- UU - UNCONSOLIDATED UNDRAINED TRIAXIAL
- CU - CONSOLIDATED UNDRAINED

NOTE: PLOT INDICATES 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		
BOUL- -DERS	COBBLES	GRAVEL		SAND			SILT	CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE			
	152	76.2	19.1	4.76	2.0	0.42	0.075		0.002
GRAIN SIZE IN MM									