ALL-TERRA
ENGINEERING, INC

REPORT
GEOTECHNICAL INVESTIGATION
PROPOSED WILSON FAMILY RESIDENCE
11997 HIGH BRANCH WAY
REPUBLIC GRAND RANCH SUBDIVISION
WILLIS, TEXAS 77378

All-Terra Project No.: AE26-2446
JL Boring Project No.: J-642

PREPARED FOR:

Superior Homes Custom
10075 IH 45 North
Conroe, Texas 77304

PREPARED BY:

ALL-TERRA ENGINEERING, INC
6200 ROTHWAY, SUITE 140
HOUSTON TEXAS 77040

June 29, 2026

ALL-TERRA ENGINEERING
TBPE Firm No. 9770

All-Terra Engineering, Inc.

*Geotechnical Engineering * Construction Materials Testing*

June 29, 2026

Ms. Mary Burch
Superior Homes Custom
10075 IH-45 North
Conroe, Texas 77304

Re: Report
Geotechnical Investigation
Proposed Wilson Family Residence
11997 High Branch Way
Republic Grand Ranch Subdivision
Willis, Texas 77378

Project No.: AE26-24446
JL Boring No.: J-642

Dear Ms. Burch:

All-Terra Engineering, Inc. is pleased to transmit our report of the geotechnical investigation for the above-referenced project. The report provides data, analyses results, and recommendations that may be used for the design and construction of the proposed project.

We appreciate the opportunity to perform this geotechnical investigation for the proposed project. If you have any questions pertaining to this report or if we may be of further service, please contact me at your convenience.

Respectfully submitted,
All-Terra Engineering, Inc. (F-9770)

Bonifacio F. Musngi, Jr., P.E.
Senior Geotechnical Engineer

STATE OF TEXAS
BONIFACIO F. MUSNGI, JR.
90666
LICENSED
PROFESSIONAL ENGINEER
06-29-2026

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Staff Engineer

File: c://2026/AE26-2446(J-642)_report.docx

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11997 HIGH BRANCH WAY
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WILLIS, TEXAS 77378

1.0 INTRODUCTION AND SUMMARY

1.1 Introduction

This report presents the results of the geotechnical investigation that may be used to support the design of the foundations for the proposed residential building for Wilson Family that will be constructed at 11997 High Branch Way within Republic Grand Ranch subdivision in Willis, Texas. The area for the proposed development project is a relatively flat wooded lot that was relatively dry during the field investigation. The site location for the proposed development is shown on Plate No. 1.

The objectives of this geotechnical investigation were to define the subsurface soils and groundwater conditions at the site of the proposed development project and provide geotechnical design data, parameters, and recommendations for foundations that may be used for the proposed residential building.

This geotechnical investigation was performed by All-Terra Engineering, Inc. (All-Terra) for Superior Homes Custom through JL Boring in accordance with authorization by Ms. Mary Burch on June 8, 2026.

The scope of work for this geotechnical investigation consisted of the following activities:

- Drill and sample one (1) geotechnical boring to a depth of 15 feet beneath the surface within the residential development area as shown on the attached Plate No. 2.
- Measure water level depth in the geotechnical boring during drilling.
- Backfill the bore hole with soil cuttings after the completion of the drilling activities.
- Perform laboratory soil tests on samples obtained during the drilling of the borings in order to determine the physical and engineering properties of the soil. Laboratory testing included Atterberg limits tests, moisture content tests, and percent soil finer than the No. 200 sieve tests.
- Prepare a boring log based upon visual soil classifications and the results of laboratory tests.
- Characterize the site subsoil and groundwater conditions.
- Perform potential vertical rise of the site soils within the project area.

- Perform engineering analyses as necessary to determine the design parameters for post-tensioned slab-on-grade in accordance with the Post Tensioning Institute (PTI) requirements as contained in PTI's 2004 (Third Edition) publication titled "Design and Construction of Post-Tensioned Slabs-On-Ground".

- Perform engineering analyses for the purpose of developing and providing:
  a) subgrade preparation recommendations for the proposed building, and
  b) recommendations pertaining to foundation, floor slab design, and construction for the proposed building.

- Prepare and submit an electronic file of the report that presents the data, findings, and recommendations of the geotechnical investigation.

1.2 Summary of Findings

The pertinent findings of this geotechnical investigation pertaining to the design and construction of the proposed residential building are provided below.

1.2.1 Subsurface Soil Strata

The subsurface soil strata at the boring location within the proposed residential development are described on the boring log for Boring No. B-1 as shown on Plate No. 3 in the Appendix.

Data from the geotechnical boring drilled suggest that the upper 15 feet of the overburden soils are composed of two (2) separate soil layers as described below.

Layer	Depth * (ft)	Soil Description
I	0 - 2	Light brown SILTY SAND (SM), loose.
II	2 - 15	Dark brown, light brown, yellowish brown, and reddish brown LEAN CLAY WITH SAND (CL) and SANDY LEAN CLAY (CL), soft to very stiff.

* Measured below the ground surface at the time of our field exploration activities.

Laboratory testing was performed on selected samples of the subsurface materials obtained to classify the soils in accordance with ASTM D 2487 and to define the engineering properties of the soils. Portions of the test results indicating the high and low values of specific testing are provided in the table below:

LAYER	DEPTH (FT)	LIQUID LIMIT (%)		PLASTICITY INDEX (%)		MOISTURE CONTENT (%)		PASSING NO. 200 SIEVE (%)	
		HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW
I	0 – 2	Non-Plastic				5.6		17.4	
II	2 - 15	44	36	26	19	28.1	10.8	79.4	53.2

1.2.2 Groundwater Condition

Groundwater was encountered at a depth of 12.0 feet beneath the surface during the drilling of the geotechnical boring. The bore hole was immediately backfilled with soil cuttings after the completion of the drilling activities.

It is possible that seasonal variations will cause fluctuations in the water level data obtained at the time of our field investigation. Long term monitoring of the groundwater level data within the proposed development is beyond the scope of our study. It should be noted that recommendations contained in this report are based on groundwater data at the time of this geotechnical investigation and that an accurate determination of the true groundwater levels may require several days or even months of observations, as needed for the project.

1.2.3 Potential for Vertical Rise

The site clayey soils within the project area exhibited none to high plasticity with and potential for vertical movement (shrink/swell). The maximum potential vertical rise (PVR) of the upper 8 feet of the site soils, based on worst case soil moisture condition, is less than **1.00 inch.** The potential vertical rise analyses were performed by using the Texas Department of Transportation (TxDOT) Test Method Tex-124-E and the results of laboratory index tests.

1.3 Summary of Recommendations

The recommendations, as summarized below, are provided for use in the design and construction of the proposed residential building.

1.3.1 Recommended Site and Subgrade Preparation

To provide adequate foundation support to the proposed residential building, where a slab-on-grade floor is being considered, it is vital that the proposed building area be properly prepared. It is then recommended that site and subgrade preparation include the following activities.

- Strip/remove existing vegetation and organic topsoil as well as wet, soft, loose, and/or unstable/pumping soils to a depth of at least 6 inches

(extending to at least 5 feet beyond the building perimeter) and as necessary to achieve the desired grade.

- Establish positive site drainage and install storm water drainage structures, as needed.

- Proofroll the exposed subgrade soils with a 15-ton roller or heavier or equivalent suitable equipment as approved by the engineer, observing the soils during proofrolling so as to detect any wet, soft, loose, or unstable/pumping soils and treating such soils with suitable drying or stabilizing agents, or removing the unsuitable/unstable soils and replacing with properly compacted select fill, or drying the unsuitable/unstable soils by aerating/discing/remixing/recompacting, if time allows. Proofrolling should extend at least 5 feet beyond the building limits. The geotechnical engineer or a qualified/experienced soil technician should observe proofrolling operations to delineate areas that require remediation, if any. The proofrolling activities should be properly documented to ensure that the building area had been properly prepared prior to the placement of the building pad fill soils.

- Place properly compacted select fill as necessary to achieve the desired grade elevation.

Select fill should consist of inactive lean clays (classified as CL soils) or clayey sands (classified as SC soils) with a maximum liquid limit of 35 and a plasticity index range of 8 to 20. The select fill should be placed in 8-inch thick loose lifts (6-inch compacted lifts) and compacted to an in-place dry density equal to at least 95% of the maximum standard dry density (ASTM D 698) at a moisture content within ± 2% of the optimum moisture content. Testing of each 6-inch thick lift of select fill should be at a frequency of one in-place density and moisture content test for each 2,000 square feet or less with a minimum of three tests per lift. Each lift of select fill should be tested and documented by a representative of the geotechnical engineer or a qualified/experienced personnel for compliance with density requirement prior to placement of subsequent lifts.

Depending upon weather conditions, difficulty may be encountered in adequately densifying/compacting the surficial site soils. If the surficial soils are unsuitably wet, excess pore pressures ("pumping") may develop and excessive displacement of the subgrade soils may occur during site and subgrade preparation. If the site subgrade soils become unsuitably wet, the construction contractor should:

- bring the subgrade soils to within ± 2% of the optimum moisture content by discing/raking/remixing/recompacting these materials, or

- dry the soils by blending a stabilizing agent (lime or fly ash) with the unsuitably wet soils, or

- remove the unsuitably wet soils and replace with properly compacted select fill having an acceptable moisture content.

1.3.2 Foundation Recommendations

The loads of the proposed residential building may be supported on a post-tensioned slab founded on at least **1.50 feet** of properly compacted select fill soil prepared in accordance with Section 1.3.1 of this report. The select fill should be placed over the foundation area and to a distance of at least five (5) feet beyond the perimeters of the foundation. Provided below are the parameters for the design of post-tensioned slab-on-grade in accordance with the Post Tensioning Institute (PTI) requirements and guidelines as contained in the Third Edition of the PTI's 2004 publication titled "Design and Construction of Post-Tensioned Slabs-on-Ground".

PTI Slab Design Parameters
(PTI 3rd Edition)

Design Parameters	Design Values
Allowable Net Bearing Pressures* Total Load (FS=2.0) Dead Load + Sustained Live Load (FS=3)	 1,800 psf 1,200 psf
Percentage of Fine Clay (5μ / Pass 200 Sieve)	30% **
Thornthwaite Moisture Index (Im)	+ 18
Depth to Constant Soil Suction	9.0 feet
Wet Suction Profile (pF)	2.8
Dry Suction Profile (pF)	4.5
Constant Soil Suction (pF)	3.45
Moisture Velocity (estimated)	0.70 inch/month

Design Parameters	Design Values
Edge Moisture Variation Distance (e_m) Center Lift (Shrink) Edge Lift (Swell)	 9.0 feet 4.9 feet
Differential Soil Movement (y_m) Center Lift (Shrink) Edge Lift (Swell)	 0.50 inch 0.36 inch
Effective Plasticity Index (PI)	20 Medium

* Provided the recommendations in Section 1.3.1 of this report are followed1 and grade beams are founded at least 1.50 feet beneath finished grade.

** Estimated value.

The PTI methods for design of slab-on-grade foundations are essentially empirical design techniques and the parameters provided above are based on our interpretation of the soil boring, laboratory test results, and the criteria published in the PTI's 3rd Edition with 2008 Supplement design manuals.

We recommend that the grade beams extend to a depth based on structural design and considerations. The grade beam width and depth should be properly evaluated by the structural engineer. Grade beams may be thickened and widened to serve as spread footings at concentrated load areas. Grade beam foundations should be properly prepared by excavating the overburden soils to the final foundation grade elevation and compacting the foundation subgrade soils to an in-place dry density equal to at least 95% of the maximum dry density as determined by ASTM D 698. Compaction should be performed using a tamping plate hand compactor or other suitable impact compactor to ensure stable foundation.

2.0 FIELD INVESTIGATION

For this geotechnical investigation, one (1) geotechnical boring (Boring No. B-1) was drilled and sampled on June 10, 2026 at the location as shown on Plate No. 2. GPS coordinates of the drilled boring location were obtained for documentation, for plotting of the bore location as shown on Plate No. 2, and indicated on the boring log. Soil sampling during the drilling of the geotechnical boring consisted of continuous sampling to a depth of 10 feet and intermittently thereafter, with disturbed samples being obtained.

Disturbed samples of soil were taken through the flight auger of the sampler. Estimates of the undrained shear strengths of cohesive soils were obtained with pocket torvane readings being taken on the relatively undisturbed portions of the auger samples. The samples recovered were removed from the sampler and placed into airtight plastic bags.

All samples were transported to All-Terra laboratory for purposes of performing laboratory tests on selected samples.

3.0 LABORATORY TESTING

For the current geotechnical study, a laboratory testing program was conducted to obtain engineering properties for use in performing engineering analyses and to adjust field soil classifications. The following laboratory tests were performed:

LABORATORY TEST	TEST STANDARD
Moisture Content of Soils	ASTM D 2216
Percent Soil Particles Passing a No. 200 Sieve	ASTM D 1140
Liquid Limit, Plastic Limit, and Plasticity Index of Soils	ASTM D 4318

The number of tests and the test results are presented on the attached boring log for Boring No. B-1 in the Appendix. All tests were performed in accordance with applicable ASTM procedures and methods and soil classifications were completed in accordance with the procedures and guidelines of ASTM D 2487 and ASTM D 2488.

4.0 SUBSURFACE CONDITIONS

4.1 Subsoils

The subsurface soil conditions as determined from the drilling of the geotechnical boring are provided in Section 1.2.1 of this report and on the boring log presented on Plate No. 3 in the Appendix.

The boring log was prepared by using both field visual classifications and the results of laboratory testing. The stratification lines shown on the boring log represent the approximate boundaries between soil types and the transitions between soil types may be gradual.

4.2 Groundwater

Groundwater conditions are described in Section 1.2.2 of this report and on the boring log provided in the Appendix. The groundwater data was obtained by observing the drilling operations and the free moisture contained in the samples recovered during drilling and measuring water level depth in the boring during drilling.

5.0 FOUNDATION MAINTENANCE

Differential movements usually result from non-uniform changes in soil moisture that may result from climatic and non-climatic factors. Design methods for slab-on-grade construction consider only climatic factors and are based on average climatic conditions being present before construction and throughout the structure life. Maintaining balanced soil moisture conditions throughout the life of the structure reduces the potential for differential movements.

Factors unrelated to climate may result in soil movements that may be greater than those resulting only from climatic influence. The presence or absence of many non-climatic factors is generally beyond the direct influence of the design team. The non-climatic factors are often manifested during the structure life.

Non-climatic factors that affect soil moisture include trees (present and removed) and landscaping, inadequate or altered drainage during the structure life, and the availability of moisture from unplanned sources such as roof drains, air conditioning drains, or below-grade utility or irrigation system leaks. Non-climatic factors and their potential effects on structure performance are discussed in the following paragraphs.

Trees and Landscaping

Trees and other landscaping have dynamic effects on soil moisture content. As a tree or other landscaping grows and matures, an increasing amount of moisture is needed to sustain its growth. If sufficient moisture in unavailable from infiltration of water from the surface, either through rainfall or irrigation, the moisture within the soil becomes the available source resulting in decreases in the soil moisture content and soil shrinkage adjacent to trees. The lower moisture contents generally are observed throughout the area of influence of the tree's root system. The lateral extent where moisture changes occur is generally taken as canopy width of the tree.

A uniform reduction in moisture usually does not occur; the changes in moisture content are often greatest near the tree and decrease with distance from the tree. The vertical extent of moisture changes caused by trees is not well defined since little information is known about the suction potential of trees in the area. From forensic investigations, the depth of influence appears to extend below 6 feet to 8 feet and may extend to 12-foot to 15-foot depths for large, mature trees. Trees should be located a distance away from the foundation at least equal to the mature height of the tree. Tree selection should consider the water capacity needed to sustain a mature tree. Irrigation systems may not be effective in supplying sufficient water for growth.

Drainage for Structures

Improper drainage can have significant negative effects on structure performance, especially if the structure was constructed during or immediately after a dry period. The following are general notes concerning proper drainage considerations:

- Positive drainage away from the structure must be designed, constructed, and maintained throughout the structure life.

- Landscaping systems must be laid out to provide/maintain positive drainage away from the structure and not permit water to impound adjacent to the structure.

- Downspouts from roof drainage systems should be designed to discharge water away from the structure foundation.

6.0 CONSTRUCTION CONSIDERATIONS

The following recommendations should be followed with regard to construction of the proposed residential building:

- Fill material and fill compaction should comply with the recommendations provided in Section 1.3.1 of this report.

- Construction operations should be monitored by a representative of the design engineer/owner/geotechnical engineer.

- Materials testing should be performed to assure that acceptable materials and construction methods are provided by the contractor.

7.0 CLOSING REMARKS

All-Terra Engineering, Inc. has performed a geotechnical investigation pertaining to the design of the foundations for the proposed residential building for Wilson Family that will be constructed at 11997 High Branch Way within Republic Grand Ranch subdivision in Willis, Texas. This report has been prepared for the exclusive use of Superior Homes Custom and its authorized representatives in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

In the event that changes are made in the nature, design, or location of the proposed development, the conclusions, parameters, and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the findings/recommendations of this report are modified or verified in writing. The analyses and recommendations presented in this report are based upon data obtained from a geotechnical boring drilled/sampled on June 10, 2026. The nature and extent of variations within the subsurface materials may not become evident until after construction is initiated. If significant variations in the subsurface materials are encountered during construction, it may be necessary to re-evaluate the recommendations provided in this report.

APPENDIX

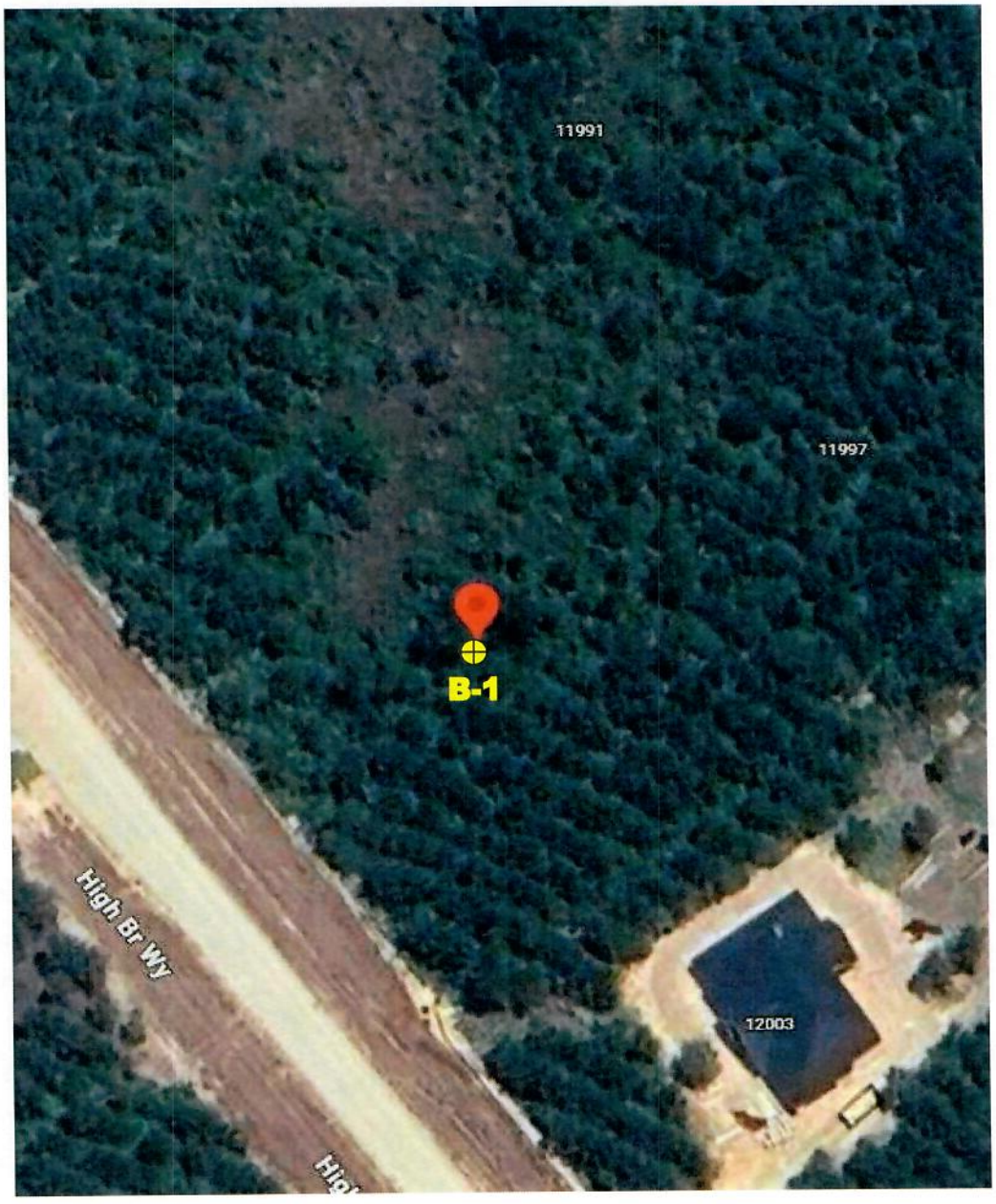
Plate Nos. 1 through 4

ALL TERRA ENGINEERING

** within Republic Grand Ranch Subdivision

JL Boring Job No: ***J-642**

ALL-TERRA ENGINEERING	N	Proposed Wilson Family Residence 11997 High Branch Way ** Willis, Texas 77378	Project No. **AE26-2446***
6200 Rothway, Ste 140 Houston, Texas 77040	Date: 06/23/26	**SITE LOCATION**	**Plate No. 1**



** within Republic Grand Ranch Subdivision

⊕ - --- Geotechnical boring included in the study

JL Boring Job No: *J-642

ALL-TERRA ENGINEERING	N	Proposed Wilson Family Residence 11997 High Branch Way ** Willis, Texas 77378	Project No. **AE26-2446***
6200 Rothway, Ste 140 Houston, Texas 77040	Date: 06/23/26	**LOCATION OF BORING**	**Plate No. 2**

LOG OF BORING

PROJECT: **Proposed Wilson Family Residence**

PROJECT LOCATION: **11997 High Branch Way**
Republic Grand Ranch Subdivision
Willis, Texas 77378

CLIENT: **Superior Homes Custom**

BORING NO.: **B-1**

BORING LOCATION: **See Plate No. 2**

BORING TYPE: **Auger:**

PROJECT NO.: **AE26-2446 (J-642)**

DATE: **June 10, 2026**

DEPTH, FT.	SAMPLE	GROUNDWATER	SOIL TYPE	DESCRIPTION OF STRATUM	POCKET TORVANE READING**	SPT BLOWS (PER 6")	MOISTURE CONTENT, %	ATTERBERG LIMITS (%) LL	PL	PI	PASS #200 SIEVE, %	DRY DENSITY (PCF)	COMPRESSIVE STRENGTH (TSF)
	J			**SILTY SAND (SM)**, loose, light brown			5.6	Non-Plastic			17.4		
				2'									
				SANDY LEAN CLAY (CL), very stiff, dark brown	5.25		10.8						
5				- reddish brown at 4'	5.50		14.4	36	17	19	53.2		
				- light brown at 6'	5.00		15.4						
				8'									
10				**LEAN CLAY WITH SAND (CL)**, soft to very stiff, reddish brown	5.50		22.4	44	18	26	79.4		
		▼											
15				- yellowish brown at 13'	0.25		28.1						
				15'									

(Boring terminated at 15')

Silty Sand when wet can loose bearing and become a muddy,slippery wet mess. When silty sand is sitting on top of lean clay, the clay does not allow water to escape. This site has the potential to require a contingency budget should rain be encountered during the site work / pad building phase of construction to avoid potntial budgetary surprises to the customer.

Torvane size used: 3/4"

** (x 0.1 kg/cm^2)

GPS Coordinates of Boring: **N 30.506136° / W -95.367365°**

Groundwater = **12.0'** during the drilling of the geotechnical boring. The boring was immediately backfilled w/ soil cuttings after the drilling activities.

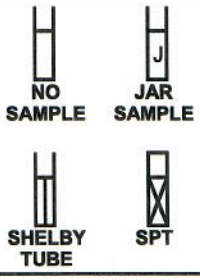
Plate No. 3

TERMS AND SYMBOLS USED ON BORING LOGS

SOIL STRUCTURE

Slickensided ------	Having planes of weakness that appear slick and glossy. The degree of slickensidedness depends upon the spacing of slickensides and the ease of breaking along these planes.
Fissures ----------	Containing shrinkage or relief cracks, often filled with fine sand or silt; usually more or less vertical.
Pocket ----------	Inclusion of material of different texture that is smaller than the diameter of the sample.
Parting ----------	Inclusion less than 1/8 inch thick extending through the sample.
Seam ----------	Inclusion 1/8 inch to 3 inches thick extending through the sample.
Layer ----------	Inclusion greater than 3 inches thick extending through the sample.
Laminated -------	Soil sample composed of alternating partings or seams of different soil types.
Interlayered-------	Soil sample composed of alternating layers of different soil types.
Intermixed -------	Soil sample composed of pockets of different soil types and layered or laminated structure is not evident.
Calcareous------	Having appreciable quantities of carbonate.

SAMPLER TYPE



SPLIT-SPOON SAMPLER DRIVING RECORD

Blows Per Foot	
8-10-12	Number of blows for each 6-inch increment of split spoon penetration.
50/5"	Number of blows of split spoon penetration for the indicated depth of penetration in inches.

GROUNDWATER DATA

▼ Water Level after 24 hours.

▽ Water level during drilling.

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	GRAVEL & GRAVELY SOILS LESS THAN 50% PASSING NO. 4 SIEVE	CLEAN GRAVEL (LITTLE OR NO FINES)	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		W/ APPRECIABLE FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN 50% PASSING NO. 4 SIEVE	CLEAN SANDS LITTLE FINES	SW	WELL GRADED SAND, GRAVELY SAND (LITTLE FINES)
			SP	POORLY GRADED SANDS, GRAVELY SAND (L.FINES)
		SANDS WITH APPRECIABLE FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS,SAND-CLAY MIXTURES
FINE GRAINED SOILS LESS THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS & VERY FINE SANDS,ROCK FLOUR SILTY OR CLAYEY FINE SANDS OR CLAYEY SILT W/ LOW PI
			CL	INORGANIC CLAY OF LOW TO MEDIUM PI LEAN CLAY GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PI
	SILTS AND CLAYS LIQUID LIMIT 50 OR GREATER		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 MED TO HIGH PI, ORGANIC SILT
HIGHLY ORGANIC SOIL			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS
UNCLASSIFIED FILL MATERIALS			ARTIFICIALLY DEPOSITED AND OTHER UNCLASSIFIED SOILS AND MANMADE SOIL MIXTURES	

COHESIVE SOILS (1)

A) Degree of Plasticity

Degree		Plasticity Index
None	------	0 - 4
Slight	------	5 - 10
Medium	------	11 - 20
High	------	21 - 40
Very High	------	> 40

B) Unconfined Compressive Strength

Very Soft	------	< 0.25	ksf
Soft	------	0.25 - 0.50	ksf
Firm	------	0.50 - 1.00	ksf
Stiff	------	1.00 - 2.00	ksf
Very Stiff	------	2.00 - 4.00	ksf
Hard	------	> 4.00	ksf

GRANULAR SOILS (1)

Density/Consistency

	SPT (bpf)	Torvane (tsf)
Very Loose	0 - 4	0 - 0.25
Loose	5 - 10	0.25 - 0.75
Med. Dense	11 - 30	0.75 - 2.00
Dense	31 - 50	2.00 - 2.25
Very Dense	> 50	> 2.25

bpf = blows/ft

CLASSIFICATION OF GRANULAR SOILS (2)

U.S. STANDARD SIEVE SIZE(S)

6"	3"	3/4"	No.4	No.10	No.40	No.200

BOULDERS	COBBLES	GRAVEL		SAND			SILT	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		

152	76.2	19.1	4.76	2.0	0.42	0.074	0.005	0.001

GRAIN SIZE IN MM

NOTES:

The boring logs and related information depict subsurface conditions only at the specific locations and dates indicated. Soil conditions and water levels at other locations may differ from conditions occuring at these boring locations. Also the passage of time may result in a change in the conditions at these boring locations.

REFERENCES:

(1) Soil Mechanics in Engineering Practice, Terzhagi and Peck, 1967
(2) ASTM D 422

Plate No. 4