



Legend for Geotechnical Data

Grain Size Scale for Sediments

Unified Soil Classification System (USCS) (ASTM D2487/2488)		APTIM Standard Sieve Stack		
		Sieve Number	Size (phi)	Size (mm)
Gravel	Coarse Gravel	3/4	-4.25	19.03
		5/8	-4.00	16.00
	Fine Gravel	7/16	-3.50	11.20
		5/16	-3.00	8.00
		3 1/2	-2.50	5.60
Sand	Coarse Sand	4	-2.25	4.75
		5	-2.00	4.00
		7	-1.50	2.80
	Medium Sand	10	-1.00	2.00
		14	-0.50	1.40
		18	0.00	1.00
		25	0.50	0.71
	Fine Sand	35	1.00	0.50
		45	1.50	0.36
		60	2.00	0.25
80		2.50	0.18	
120		3.00	0.13	
Fines	Silt/Clay	170	3.50	0.09
		200	3.75	0.08
		230	4.00	0.06

Proportional Definition of Descriptive Terms

<u>Descriptive Term</u>	<u>Range of Proportions</u>
Sandy, gravelly, etc.	35 % to 50 %
Some	20 % to 35 %
Little	10 % to 20 %
Trace	1 % to 10 %

Consistency of Cohesive Soils

Description	Consistency Index	Approximate Undrained Shear Strength (kPa)	Field Identification
Hard		Over 300	Indented with difficulty by thumbnail, brittle.
Very Stiff	>1	150-300	Readily indented by thumbnail, still very tough.
Stiff	0.75-1	75-150	Readily indented by thumb but penetrated only with difficulty. Cannot be moulded in the fingers.
Firm	0.5-0.75	40-75	Can be penetrated several centimeters by thumb with moderate effort and moulded in fingers by strong pressure.
Soft	<0.5	20-40	Easily penetrated several centimeters by thumb, easily moulded.
Very Soft		Less than 20	Easily penetrated several centimeters by fist, exudes between fingers when squeezed in fist.

Source: Engineering Properties of Soils and Rocks, Fourth Edition by Fred G. Bell

USCS Classifications

Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the Classification of Materials Description. Classifications based on laboratory sieve analyses are identified on the core logs in the Legend and under Remarks.

GW		Well graded gravels or gravel-sand mixtures, little or no fines	ML		Inorganic silts and very fine sands, rock flour, sandy silts or clayey silts with slight plasticity
GP		Poorly graded gravels or gravel-sand mixtures, w/ little or no fines	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soil, elastic silts
GM		Silty gravels, gravel-sand-silt mixtures	OL		Organic silts and organic silt-clays of low plasticity
GC		Clayey gravels, gravel-sand-clay mixtures	OH		Organic clays of medium to high plasticity, organic silts
SW		Well graded sands or gravelly sands, little or no fines	CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
SP		Poorly graded sands or gravelly sands, little or no fines	CH		Inorganic clays of high plasticity, fat clays
SM		Silty sands, sand-silt mixtures	PT		Peat and other highly organic soils
SC		Clayey sands, sand-clay mixtures	SP-SM		Poorly-graded silty sand
SW-SM		Well-graded silty sand	SM-SC		Silty clayey sand
GW-GM		Well-graded silty gravel	ML-CL		Inorganic silty lean clay
GM-GC		Clayey silty gravel			

Note: Information is after ACOE Atlantic Division Manual # 1110-1-1 titled *Engineering and Design Geotechnical Manual for Surface and Subsurface Investigations*

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1
1. PROJECT TX GLO Region 1 Recon Geotechnical Sand Search Jefferson, Chambers, Galveston and Brazoria Co.			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION TXGLO1-VC-23-081		LOCATION COORDINATES (ft) X = 3,187,125 Y = 13,553,929		10. COORDINATE SYSTEM/DATUM Texas State Plane South
3. DRILLING AGENCY APTIM		CONTRACTOR FILE NO.		HORIZONTAL NAD 1983 VERTICAL NAVD88
4. NAME OF DRILLER APTIM			11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER APTIM SEAS VC-700 Vibracore <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES DISTURBED 0 UNDISTURBED (UD) 4	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 16.1 Ft.			15. DATE BORING STARTED 10-17-23 COMPLETED 10-17-23	
			16. ELEVATION TOP OF BORING -42.7 Ft.	
			17. TOTAL RECOVERY FOR BORING 16.9 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR BF	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS The USCS classification system defines silt as the percent passing the No.200 (0.075 mm) sieve
-42.7	0.0					
-43.4	0.7		Silty LEAN CLAY, very soft, dark gray (5Y-4/1), (CL).		T1	Sample #T1, Depth = 0.4' Ave. Field Vane (tsf): 0.00
-45.5	2.8		FAT CLAY, stiff, trace shell hash, shell hash distributed in pockets up to 1.0", color is mottled reddish brown (5YR-4/3), brown (10YR-5/3) and light brownish gray (2.5Y-6/2), (CH).		T2	Sample #T2, Depth = 1.8' Ave. Field Vane (tsf): 0.10
			FAT CLAY, hard, trace organics, trace wood fragments, organics distributed in pockets up to 2.0" and laminae, organics increase with depth in layer, wood fragments are roots, root trace from 4.6' to 4.8', (0.25" x 1.0") and (0.25" x 0.5") wood fragments @ 4.8', (0.25" x 1.5") wood fragment @ 5.0', 1.0" wood fragments @ 6.4' and 14.7', 0.25" wood fragment @ 10.4', expansion from 16.1' to 16.9', Bit sample from 16.2' to 16.9', brown (7.5YR-5/3), (CH).		T3	Sample #T3, Depth = 8.0' Ave. Field Vane (tsf): 0.72
-59.6	16.9		End of Boring		T4	Sample #T4, Depth = 13.0' Ave. Field Vane (tsf): 0.77

REGION 1 RECON GEOTECH.GPJ 3/25/24



Texas General
Land Office

Texas GLO
Region 1
Geotechnical
Reconnaissance
Survey

TXGLO1-VC-23-081

Date Collected: 10/17/23
Top Elev. (ft NAVD88): -42.7
Bottom Elev. (ft NAVD88): -59.6
Core Length (ft): 16.9



6401 Congress Avenue, Suite 140
Boca Raton, FL 33487
www.aptim.com
(561)391-8102



Mini Vane Shear Test Results

CORE ID	SAMPLE DEPTH (ft)	TORVANE (kg/cm ²)	TORVANE (tsf)	TORVANE (kpa)	DESCRIPTION ¹
TXGLO1-VC-23-081	0.4	0.0	0.00	0.00	Very Soft
	1.8	1.0	0.10	98.07	Stiff
	8.0	7.0	0.72	686.47	Hard
	13.0	7.5	0.77	735.50	Hard
TXGLO1-VC-23-082	0.6	0.3	0.03	24.52	Soft
	3.7	6.0	0.61	588.40	Hard
	8.3	6.5	0.67	637.43	Hard
TXGLO1-VC-23-083	2.0	2.1	0.22	205.94	Very Stiff
	4.1	0.3	0.03	29.42	Soft
	7.0	3.0	0.31	294.20	Very Stiff
	12.5	3.8	0.38	367.75	Hard
	16.5	3.0	0.31	294.20	Very Stiff
TXGLO1-VC-23-084	0.6	0.5	0.05	49.03	Firm
	2.6	2.0	0.20	196.13	Very Stiff
	6.0	2.5	0.26	245.17	Very Stiff
	11.2	3.5	0.36	343.23	Hard
	12.1	6.0	0.61	588.40	Hard
	15.0	6.5	0.67	637.43	Hard
TXGLO1-VC-23-085	2.7	2.0	0.20	196.13	Very Stiff
	8.7	1.8	0.18	171.62	Very Stiff
	15.0	4.0	0.41	392.27	Hard
TXGLO1-VC-23-086	1.2	0.0	0.00	0.00	Very Soft
	4.6	1.5	0.15	147.10	Stiff
	10.2	2.0	0.20	196.13	Very Stiff
	13.0	0.8	0.08	73.55	Firm
	15.1	6.0	0.61	588.40	Hard
TXGLO1-VC-23-087	No Torvane Conducted				
TXGLO1-VC-23-088	2.5	2.0	0.20	196.13	Very Stiff
	6.0	2.0	0.20	196.13	Very Stiff
	7.7	2.5	0.26	245.17	Very Stiff
	10.2	5.0	0.51	490.33	Hard
	12.8	4.0	0.41	392.27	Hard
	16.7	3.0	0.31	294.20	Very Stiff
TXGLO1-VC-23-089	14.5	2.0	0.20	196.13	Very Stiff
	17.6	2.5	0.26	245.17	Very Stiff
TXGLO1-VC-23-090	5.4	0.8	0.08	73.55	Firm
	10.8	1.5	0.15	147.10	Stiff
	16.2	4.0	0.41	392.27	Hard
TXGLO1-VC-23-091	2.2	0.5	0.05	49.03	Firm
	11.3	1.0	0.10	98.07	Stiff
TXGLO1-VC-23-092	13.3	0.5	0.05	49.03	Firm
	17.2	0.3	0.03	24.52	Soft
TXGLO1-VC-23-093	0.4	0.3	0.03	24.52	Soft
	10.0	3.0	0.31	294.20	Very Stiff
	12.3	4.5	0.46	441.30	Hard
	18.6	9.3	0.95	907.12	Hard