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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
	Fine Gravel	5/8	-4.00	16.00
		7/16	-3.50	11.20
		5/16	-3.00	8.00
		3 1/2	-2.50	5.60
		4	-2.25	4.75
Sand	Coarse Sand	5	-2.00	4.00
		7	-1.50	2.80
		10	-1.00	2.00
	Medium Sand	14	-0.50	1.40
		18	0.00	1.00
		25	0.50	0.71
		35	1.00	0.50
	Fine Sand	45	1.50	0.36
		60	2.00	0.25
		80	2.50	0.18
		120	3.00	0.13
		170	3.50	0.09
		200	3.75	0.08
Fines	Silt/Clay	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

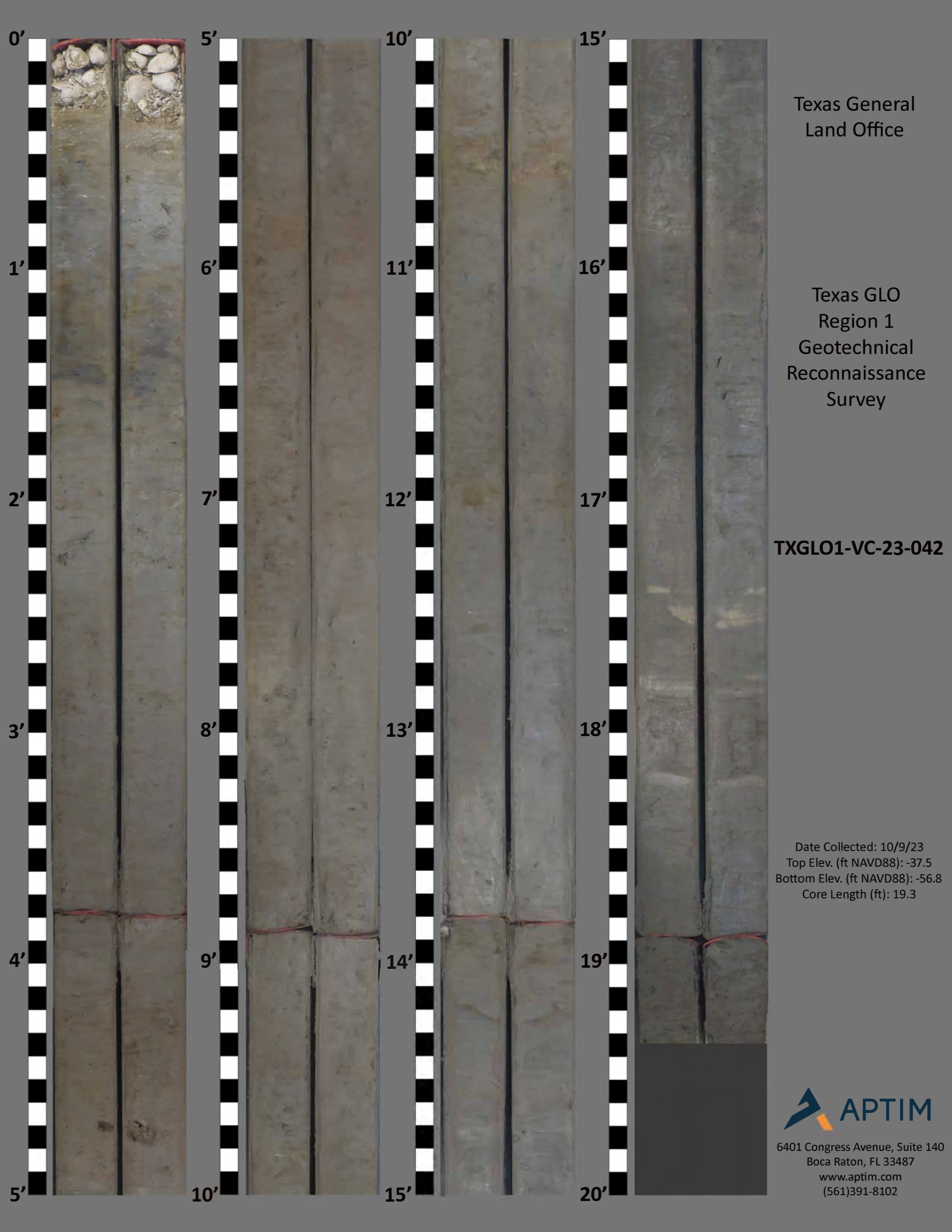
Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the 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 OF 1 SHEETS
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-23-042			10. COORDINATE SYSTEM/DATUM Texas State Plane South	
3. DRILLING AGENCY APTIM			11. MANUFACTURER'S DESIGNATION OF DRILL APTIM SEAS VC-700 Vibracore	
4. NAME OF DRILLER APTIM			<input type="checkbox"/> AUTO HAMMER <input type="checkbox"/> MANUAL HAMMER	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			12. TOTAL SAMPLES 0	
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 19.1 Ft.			15. DATE BORING 10-09-23	
			16. ELEVATION TOP OF BORING -37.5 Ft.	
			17. TOTAL RECOVERY FOR BORING 19.3 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR SM	

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
-37.5	0.0					
-38.5	1.0		FAT CLAY, hard, trace shell fragments, trace whole shell, partially lithified clay throughout layer, oxidation throughout layer, shell fragments are bivalve fragments up to 1.0", whole shells are whole bivalves up to 2.5", 3.0" pocket of whole bivalves and bivalve fragments @ top of layer, color is mottled olive (5Y-5/3) and greenish gray (5GY-5/1), (CH).		T1	Sample #T1, Depth = 0.6' Ave. Field Vane (tsf): 0.36
-40.0	2.5		FAT CLAY, hard, trace organics, trace silt, silt distributed in laminae between 1.2' & 1.6', organic lamina @ 1.4', 1.0" partially lithified clay pocket @ 2.0', color is mottled very dark greenish gray (10Y-3/1) and olive gray (5Y-5/2), (CH).		T2	Sample #T2, Depth = 1.7' Ave. Field Vane (tsf): 0.36
-41.6	4.1		FAT CLAY, hard, little silt, silt decreases with depth in layer, 3.0" partially lithified clay pocket @ 2.5', brown (10YR-5/3), (CH).		T3	Sample #T3, Depth = 3.3' Ave. Field Vane (tsf): 0.41
-44.5	7.0		FAT CLAY, hard, trace silt, trace rock fragments, silt distributed in pockets up to 0.5" and laminae, (0.75" x 1.5") rock fragment @ 4.7', brown (10YR-5/3), (CH).		T4	Sample #T4, Depth = 5.5' Ave. Field Vane (tsf): 0.36
-45.8	8.3		FAT CLAY, hard, trace silt, dark grayish brown (2.5Y-4/2), (CH).		T5	Sample #T5, Depth = 7.7' Ave. Field Vane (tsf): 0.46
-49.5	12.0		FAT CLAY, hard, trace silt, hardness increases with depth in layer, silt decreases with depth in layer, 3.0" partially lithified clay pocket @ 9.9', 2.0" oxidized pocket @ 10.5', dark grayish brown (2.5Y-4/2), (CH).		T6	Sample #T6, Depth = 10.3' Ave. Field Vane (tsf): 0.51
-51.4	13.9		FAT CLAY, very stiff, trace silt, silt typically distributed in laminae, 0.5" partially lithified clay pocket @ 12.5', 0.75" silt pockets @ 13.1' and 13.3', gray (2.5Y-5/1), (CH).		T7	Sample #T7, Depth = 13.0' Ave. Field Vane (tsf): 0.28
-56.8	19.3		FAT CLAY, stiff to very stiff, trace organics, trace silt, silt distributed in laminae, organics distributed in laminae between 13.9' & 14.3', 0.5" partially lithified clay pocket @ 17.5', expansion from 19.1' to 19.3', Bit sample from 18.8' to 19.3', dark gray (5Y-4/1), (CH).		T8	Sample #T8, Depth = 15.0' Ave. Field Vane (tsf): 0.15
			End of Boring		T9	Sample #T9, Depth = 17.0' Ave. Field Vane (tsf): 0.18



Texas General
Land Office

Texas GLO
Region 1
Geotechnical
Reconnaissance
Survey

TXGLO1-VC-23-042

Date Collected: 10/9/23
Top Elev. (ft NAVD88): -37.5
Bottom Elev. (ft NAVD88): -56.8
Core Length (ft): 19.3



Mini Vane Shear Test Results

CORE ID	SAMPLE DEPTH (ft)	TORVANE (kg/cm ²)	TORVANE (tsf)	TORVANE (kpa)	DESCRIPTION ¹
TXGLO1-VC-23-038	3.0	7.5	0.77	735.50	Hard
	9.3	6.0	0.61	588.40	Hard
	15.8	4.0	0.41	392.27	Hard
TXGLO1-VC-23-039	1.7	3.5	0.36	343.23	Hard
	5.0	3.0	0.31	294.20	Very Stiff
	12.2	2.0	0.20	196.13	Very Stiff
	16.0	4.5	0.46	441.30	Hard
TXGLO1-VC-23-040	No Torvane Conducted				
TXGLO1-VC-23-041	1.5	2.0	0.20	196.13	Very Stiff
	17.5	8.0	0.82	784.53	Hard
TXGLO1-VC-23-042	0.6	3.5	0.36	343.23	Hard
	1.7	3.5	0.36	343.23	Hard
	3.3	4.0	0.41	392.27	Hard
	5.5	3.5	0.36	343.23	Hard
	7.7	4.5	0.46	441.30	Hard
	10.3	5.0	0.51	490.33	Hard
	13.0	2.8	0.28	269.68	Very Stiff
	15.0	1.5	0.15	147.10	Stiff
	17.0	1.8	0.18	171.62	Very Stiff
TXGLO1-VC-23-043	No Torvane Conducted				
TXGLO1-VC-23-044	0.7	1.0	0.10	98.07	Stiff
	3.0	5.0	0.51	490.33	Hard
	5.6	8.5	0.87	833.57	Hard
	9.0	6.0	0.61	588.40	Hard
TXGLO1-VC-23-045	1.1	1.5	0.15	147.10	Stiff
	2.3	4.5	0.46	441.30	Hard
	5.4	5.5	0.56	539.37	Hard
	9.5	6.0	0.61	588.40	Hard
	12.4	3.0	0.31	294.20	Very Stiff
	15.0	5.5	0.56	539.37	Hard
TXGLO1-VC-23-046	3.6	5.0	0.51	490.33	Hard
	6.4	5.5	0.56	539.37	Hard
	8.1	6.0	0.61	588.40	Hard
	9.8	4.5	0.46	441.30	Hard
	12.1	5.0	0.51	490.33	Hard
	14.4	2.5	0.26	245.17	Very Stiff
	15.9	4.5	0.46	441.30	Hard
	17.4	3.5	0.36	343.23	Hard
	18.6	3.5	0.36	343.23	Hard
TXGLO1-VC-23-047	4.5	8.0	0.82	784.53	Hard
	9.8	10.0	1.02	980.67	Hard