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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

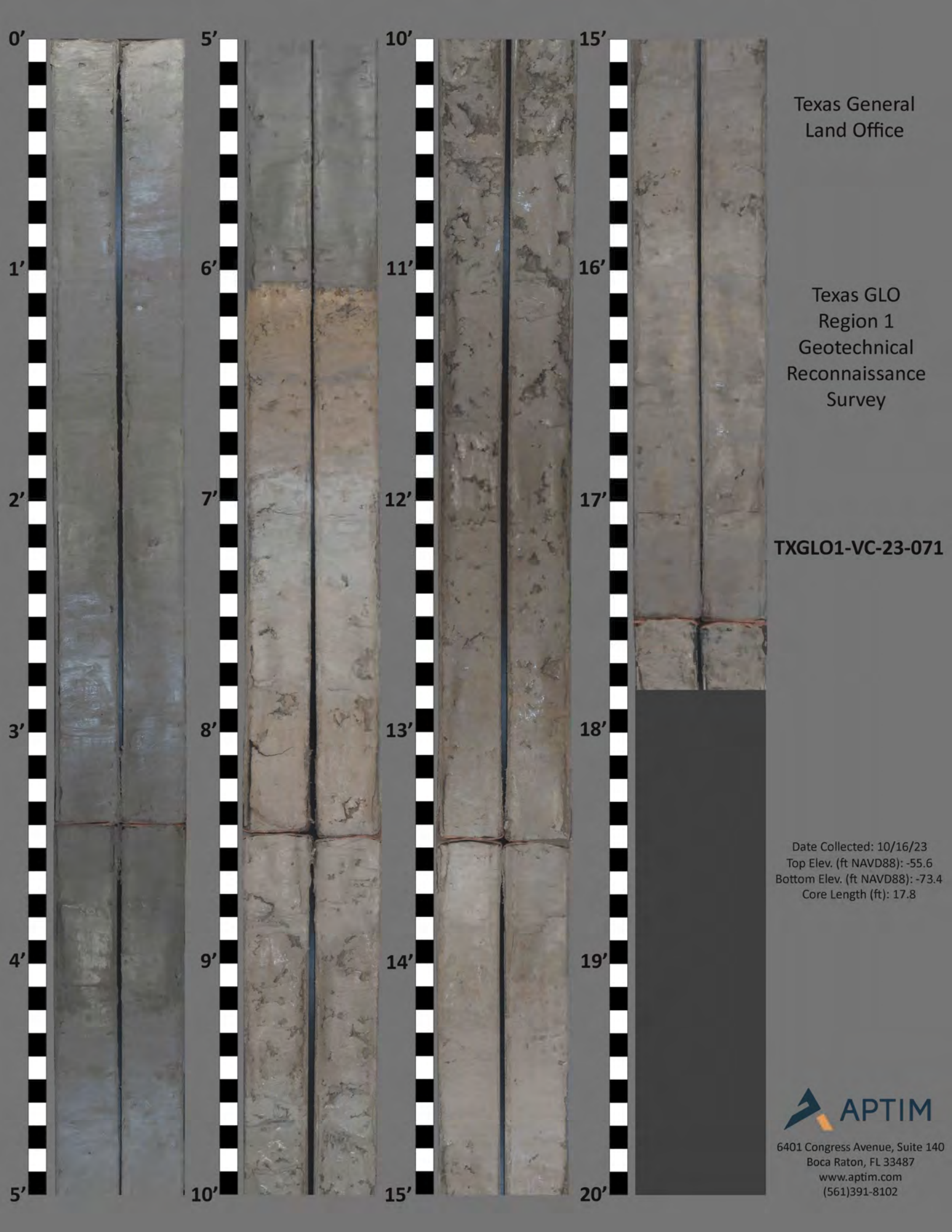
Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the 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-23-071				10. COORDINATE SYSTEM/DATUM Texas State Plane South		HORIZONTAL NAD 1983	
3. DRILLING AGENCY APTIM				11. MANUFACTURER'S DESIGNATION OF DRILL APTIM SEAS VC-700 Vibracore		VERTICAL NAVD88	
4. NAME OF DRILLER APTIM				12. TOTAL SAMPLES 0			
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 12			
6. THICKNESS OF OVERBURDEN 0.0 Ft.				14. ELEVATION GROUND WATER			
7. DEPTH DRILLED INTO ROCK 0.0 Ft.				15. DATE BORING 10-16-23			
8. TOTAL DEPTH OF BORING 17.5 Ft.				16. ELEVATION TOP OF BORING -55.6 Ft.			
				17. TOTAL RECOVERY FOR BORING 17.8 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	
-55.6	0.0						
-61.6	6.0		LEAN CLAY, soft to firm, trace sand, fine grained, quartz, trace shell fragments, trace shell hash, trace silt, shell fragments up to 0.5", silt typically distributed in laminae, shell hash distributed in silt laminae and pockets up to 1.0", 1.5" shell fragment pocket @ 0.3', 1.75" silt pockets @ 1.5', 2.6' and 4.5', 1.25" sand pocket @ 5.9', dark gray (5Y-4/1), (CL).		T1	Sample #T1, Depth = 2.0' Ave. Field Vane (tsf): 0.03	
					T2	Sample #T2, Depth = 5.0' Ave. Field Vane (tsf): 0.05	
-62.5	6.9		FAT CLAY, very stiff, 1.0" pocket of partially lithified clay @ 6.2', reddish brown (5YR-5/3), (CH).		T3	Sample #T3, Depth = 6.4' Ave. Field Vane (tsf): 0.26	
-63.4	7.8		FAT CLAY, hard, oxidation throughout layer, light olive gray (5Y-6/2), (CH).		T4	Sample #T4, Depth = 7.4' Ave. Field Vane (tsf): 0.51	
-64.0	8.4		FAT CLAY, hard, reddish brown (5YR-5/3), (CH).		T5	Sample #T5, Depth = 8.2' Ave. Field Vane (tsf): 0.44	
-65.0	9.4		FAT CLAY, hard, color is mottled gray (5Y-5/1) and brown (7.5YR-5/3), (CH).		T6	Sample #T6, Depth = 9.0' Ave. Field Vane (tsf): 0.36	
-65.7	10.1		FAT CLAY, very stiff, greenish gray (5GY-5/1), (CH).		T7	Sample #T7, Depth = 9.8' Ave. Field Vane (tsf): 0.31	
-67.2	11.6		FAT CLAY, very stiff, possible bioturbation @ 10.5', color is mottled greenish gray (5GY-5/1) and brown (10YR-5/3), (CH).		T8	Sample #T8, Depth = 11.0' Ave. Field Vane (tsf): 0.20	
-68.7	13.1		FAT CLAY, very stiff, brown (7.5YR-5/3), (CH).		T9	Sample #T9, Depth = 12.4' Ave. Field Vane (tsf): 0.31	
-71.5	15.9		FAT CLAY, very stiff, pocket of partially lithified clay @ 14.0', color is mottled brown (7.5YR-4/3) and brown (10YR-5/3), (CH).		T10	Sample #T10, Depth = 14.4' Ave. Field Vane (tsf): 0.23	
-72.6	17.0		FAT CLAY, very stiff, trace silt, (0.25" x 0.5") silt pocket @ 16.8', color is mottled dark gray (5Y-4/1) and brown (10YR-4/3), (CH).		T11	Sample #T11, Depth = 16.3' Ave. Field Vane (tsf): 0.31	
-73.4	17.8		FAT CLAY, hard, expansion from 17.5' to 17.8', Bit sample from 17.3' to 17.8', brown (7.5YR-4/2), (CH).		T12	Sample #T12, Depth = 17.2' Ave. Field Vane (tsf): 0.72	
			End of Boring				

REGION 1 RECON GEOTECH GP-1 3/25/24

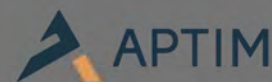


Texas General
Land Office

Texas GLO
Region 1
Geotechnical
Reconnaissance
Survey

TXGLO1-VC-23-071

Date Collected: 10/16/23
Top Elev. (ft NAVD88): -55.6
Bottom Elev. (ft NAVD88): -73.4
Core Length (ft): 17.8



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Mini Vane Shear Test Results

CORE ID	SAMPLE DEPTH (ft)	TORVANE (kg/cm ²)	TORVANE (tsf)	TORVANE (kpa)	DESCRIPTION ¹
TXGLO1-VC-23-071	2.0	0.3	0.03	24.52	Soft
	5.0	0.5	0.05	49.03	Firm
	6.4	2.5	0.26	245.17	Very Stiff
	7.4	5.0	0.51	490.33	Hard
	8.2	4.3	0.44	416.78	Hard
	9.0	3.5	0.36	343.23	Hard
	9.8	3.0	0.31	294.20	Very Stiff
	11.0	2.0	0.20	196.13	Very Stiff
	12.4	3.0	0.31	294.20	Very Stiff
	14.4	2.3	0.23	220.65	Very Stiff
	16.3	3.0	0.31	294.20	Very Stiff
	17.2	7.0	0.72	686.47	Hard
TXGLO1-VC-23-072	2.5	0.0	0.00	0.00	Very Soft
	7.5	4.3	0.44	416.78	Hard
	11.3	5.0	0.51	490.33	Hard
	14.5	3.0	0.31	294.20	Very Stiff
TXGLO1-VC-23-073	9.2	5.0	0.51	490.33	Hard
TXGLO1-VC-23-074	0.5	0.0	0.00	0.00	Very Soft
	3.0	3.5	0.36	343.23	Hard
	5.5	5.8	0.59	563.88	Hard
	8.2	3.5	0.36	343.23	Hard
	14.0	8.0	0.82	784.53	Hard
TXGLO1-VC-23-075	1.6	0.8	0.08	73.55	Firm
	13.4	0.5	0.05	49.03	Firm
	15.9	4.0	0.41	392.27	Hard
	17.1	2.5	0.26	245.17	Very Stiff
TXGLO1-VC-23-076	0.8	0.3	0.03	24.52	Soft
	2.0	0.5	0.05	49.03	Firm
	3.6	1.0	0.10	98.07	Stiff
	6.5	2.0	0.20	196.13	Very Stiff
	13.4	5.0	0.51	490.33	Hard
TXGLO1-VC-23-077	6.7	5.0	0.51	490.33	Hard
	12.6	4.0	0.41	392.27	Hard
	17.0	7.0	0.72	686.47	Hard
TXGLO1-VC-23-078	3.0	2.0	0.20	196.13	Very Stiff
	6.7	4.5	0.46	441.30	Hard
	10.6	3.0	0.31	294.20	Very Stiff
	13.7	4.0	0.41	392.27	Hard
	16.5	5.5	0.56	539.37	Hard
TXGLO1-VC-23-079	0.5	0.0	0.00	0.00	Very Soft
	1.2	1.0	0.10	98.07	Stiff
	3.5	3.5	0.36	343.23	Hard
	12.1	4.0	0.41	392.27	Hard
TXGLO1-VC-23-080	0.1	0.0	0.00	0.00	Very Soft