

Aptim Environmental & Infrastructure, LLC

6401 Congress Avenue, Suite 140 Boca Raton, Florida 33487 Phone # 1-561-391-8102

Legend for Geotechnical Data

Grain Size Scale for Sediments

Unified Soil Classification		APTIM Standard Sieve Stack					
System (USCS) (ASTM D2487/2488)		Sieve Number	Size (phi)	Size (mm)			
	Coarse Gravel	3/4	-4.25	19.03			
		5/8	-4.00	16.00			
Gravel		7/16	-3.50	11.20			
Glavei	Fine Gravel	5/16	-3.00	8.00			
		3 ½	-2.50	5.60			
		4	-2.25	4.75			
		5	-2.00	4.00			
	Coarse Sand	7	-1.50	19.03 16.00 11.20 8.00 5.60 4.75			
		10	-1.00	2.00			
		14	-0.50	16.00 11.20 8.00 5.60 4.75 4.00 2.80 2.00 1.40 1.00 0.71 0.50 0.36 0.25 0.18 0.13 0.09			
	Medium Sand	18	0.00	1.00			
		25	0.50	0.71			
Sand		35	1.00	0.50			
		45	1.50	0.36			
		60	2.00	0.25			
	Fine Sand	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>	Range of Proportions
Sandy, gravelly, etc.	35 % to 50 %
Some	20 % to 35 %
Little	10 % to 20 %
Trace	1 % to 10 %

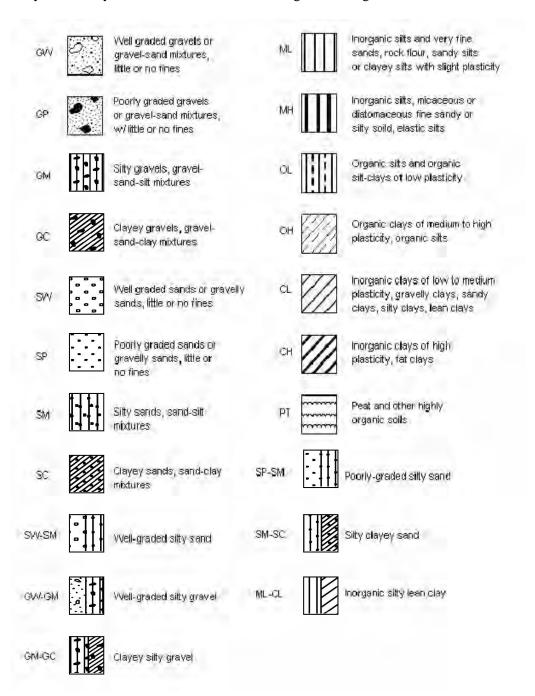
Consistency of Cohesive Soils

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

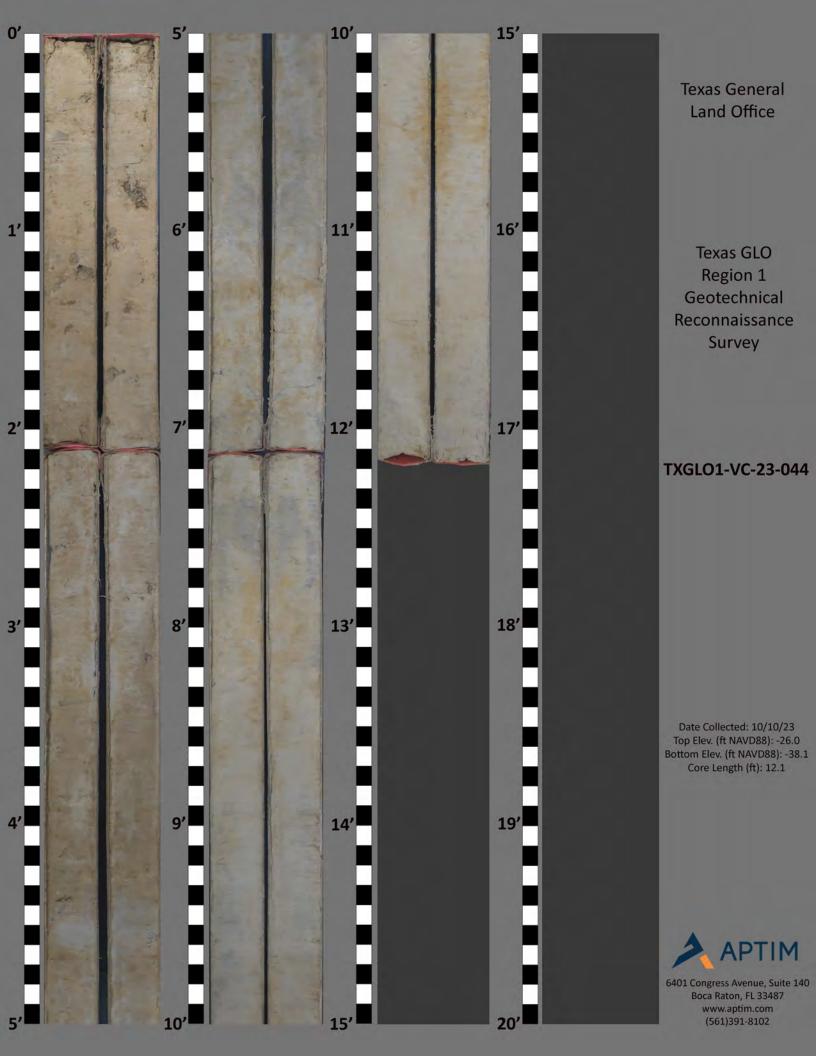
Refers to the Army Corps of Engineers Unified Soils Classification System. Class types are defined primarily by grain size, sorting and percent of material passing the #200 sieve. Classification of materials on the core logs based on visual field examinations are identified on the core logs under the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



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

Boring Designation TXGLO1-VC-23-044

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-30.2 - 4.2 Sample #T3, Depth = 5.6' Ave. Field Vane (tsf): 0.87 FAT CLAY, hard, trace rock fragments, trace silt, rock fragments are fragments of partially lithified clay up to 0.02", oxidation throughout layer, color is mottled yellowish brown (10YR-5/4) and gray (2.5Y-5/1), (CH). FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	ŀ	0.	08", oxidation throughout laye	er, color is mottled li	ght		T2				
FAT CLAY, hard, trace rock fragments, trace silt, rock fragments are fragments of partially lithified clay up to 0.02", oxidation throughout layer, color is mottled yellowish brown (10YR-5/4) and gray (2.5Y-5/1), (CH). FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	-30.2	4.2		eenish gray (10Y-6/1),			, 5. 1 ISIG VGIIG (L	,- 0.01		
fragments are fragments of partially lithified clay up to 0.02", oxidation throughout layer, color is mottled yellowish brown (10YR-5/4) and gray (2.5Y-5/1), (CH). T3 Sample #T3, Depth = 5.6' Ave. Field Vane (tsf): 0.87 FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.											
-33.6 7.6 -33.6 7.6 FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	F	F	AT CLAY, hard, trace rock fragments are fragments of per	gments, trace silt, roo	k						
FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	ļ.		0.02", oxidation throughout la	ayer, color is mottled			T3				
FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, hard, trace sand, fine grained, quartz, and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.				and gray (2.5Y-5/1),				7.vc. i ielu valie (t	o.j. 0.01		
FAT CLAY, hard, trace sand, fine grained, quartz, trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	-33.6	7.6	(3.1).								
trace silt, color is mottled brownish yellow (10YR-6/6) and light gray (2.5Y-7/1), (CH). T4 Sample #14, Depth = 9.0 Ave. Field Vane (tsf): 0.61 FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	-				\neg						
and light gray (2.5Y-7/1), (CH). -36.0 10.0 FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.		tre	FAT CLAY, hard, trace sand,	fine grained, quartz	, 6)		_{T4}				
FAT CLAY, very stiff, some sand, fine grained, quartz, sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). No recovery.	ŀ				٠,		.→	Ave. Field Vane (t	sf): 0.61		
sand distributed in laminae, color is mottled brownish yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). -38.1 12.1 No recovery.	-36.0 1	0.0			_	\vdash					
yellow (10YR-6/8) and light gray (2.5Y-7/1), (CH). -38.1 12.1 No recovery.		F/	AT CLAY, very stiff, some san	d, fine grained, quart	z,						
-38.1 12.1 No recovery.	Ţ		and distributed in laminae, co yellow (10YR-6/8) and light o	lor is mottled browni ray (2.5Y-7/1). (CH)	sh						
	-38.1 1	2.1			_						
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Mini Vane Shear Test Results

	SAMPLE DEPTH	TORVANE	TORVANE	TORVANE	1	
CORE ID	(ft)	(kg/cm²)	(tsf)	(kpa)	DESCRIPTION	
	3.0	7.5	0.77	735.50	Hard	
TXGLO1-VC-23-038	9.3	6.0	0.61	588.40	Hard	
	15.8	4.0	0.41	392.27	Hard	
	1.7	3.5	0.36	343.23	Hard	
TXGLO1-VC-23-039	5.0	3.0	0.31	294.20	Very Stiff	
1XGLO1-VC-25-059	12.2	2.0	0.20	196.13	Very Stiff	
	16.0	4.5	0.46	441.30	Hard	
TXGLO1-VC-23-040		No Tor	vane Conducte	ed		
TXGLO1-VC-23-041	1.5	2.0	0.20	196.13	Very Stiff	
1XGLU1-VC-25-041	17.5	8.0	0.82	784.53	Hard	
	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	
TXGLO1-VC-23-042	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 Tor	vane Conducte	ed		
	0.7	1.0	0.10	98.07	Stiff	
TVCI 01 VC 22 044	3.0	5.0	0.51	490.33	Hard	
TXGLO1-VC-23-044	5.6	8.5	0.87	833.57	Hard	
	9.0	6.0	0.61	588.40	Hard	
	1.1	1.5	0.15	147.10	Stiff	
	2.3	4.5	0.46	441.30	Hard	
TXGLO1-VC-23-045	5.4	5.5	0.56	539.37	Hard	
1XGLO1-VC-23-043	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	
170LO1-1C-23-04/	9.8	10.0	1.02	980.67	Hard	