

LOG OF BORING BW-1

PROJECT: Oliver Point and Oliver Reef Restoration Project

CLIENT: Matagorda County, TX

ELEVATION (FT) DEPTH (FT)	SAMPLE TYPE	SYMBOL	COORDINATES: N 28° 38' 20.40" W 96° 13' 47.60"	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	N ₆₀	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
			SURFACE ELEVATION:												
			DRILLING METHOD: Dry Augered: to Wash Bored: 0' to 30'												
			MATERIAL DESCRIPTION												
0			Firm tan & reddishbrown SANDY LEAN CLAY (CL) w/ shell fragments, sand & silt pockets	(P)1.00	2/6" 3/6" 3/6"		22	111	38	21	0.66			63	LVS
5															
10			Loose reddishbrown SILTY SAND (SM) w/ clay pockets		2/6" 2/6" 3/6"	24								26	
10															
15			-light brown w/ shell fragments @ 9.5'-10'	(P)3.00	4/6" 4/6" 4/6"		16	115	34	17	2.13	15	6		
15															
20			Firm tan & reddishbrown SANDY LEAN CLAY (CL) w/ sand & silt pockets	(P)3.00											
20															
25			-very stiff w/ ferrous & calcareous nodules @ 12'-14'				31	96							
25															
30			Very stiff to hard tan & reddishbrown FAT CLAY (CH) w/ ferrous & calcareous nodules	(P)4.50+											
30															
35			Very stiff tan & reddishbrown SANDY LEAN CLAY (CL) w/ sand & silt pockets	(P)3.00											
35															
35			Medium dense light brown SILTY SAND (SM)		9/6" 12/6" 14/6"										
35															
35			-dense @ 23.5'-30'		14/6" 17/6" 20/6"	22								33	
35															
35			-w/ cemented sand @ 23.5'-25'												
35															
35			-w/ clay pockets @ 23.5'-30'												
35															
35			-w/ shell fragments @ 28.5'-30'		14/6" 19/6" 23/6"										
35															
35	Bottom @ 30'														

COMPLETION DEPTH: 30 ft
DATE BORING STARTED: 10/4/2022
DATE BORING COMPLETED: 10/4/2022
LOGGER: Charlie H.
PROJECT NO.: 21.14.259

NOTES: Water Depth at 2.9' @ 1:45pm.
Boring backfilled with soil cuttings.
SPT Hammer Type: Safety Hammer Drilling Equipment: Air Boat Rig



SUMMARY OF LABORATORY TESTS

Project No. 21.14.259

Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Boring No.	Sample No.	Depth (ft)	Pocket Pen. (tsf)	Torvane (tsf)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	pH	Lab Vane Shear (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
BW-1																		
		0																
		0.5																
		3	1.50			CL	22.4	110.9	38	17	21	63.4		0.33	0.66			
		6.5			Reddish-brown SILTY SAND	SM	24.2					25.6						
		9.5																
		10																
		12	3.00		Reddish-brown LEAN CLAY with SAND; calcareous	CL	16.2	115.1	34	17	17				2.13	14.6	6.0	Bulge
		15	3.25			CH	30.6	95.5										
		16																
		18.5																
		19																
		23.5			Reddish-brown SILTY SAND	SM	22.1					33.3						
		28.5																
		30																
BW-2																		
		0																
		0.5																
		1																
		3	3.00		Reddish-brown FAT CLAY; calcareous	CH	29.9	95.3	67	27	40				1.79	4.4	5.0	Slickensided
		6.5																
		9.5			Reddish-brown SILTY SAND	SM	25.6					23.7						
		12.5				SC-SM	26.2		NV	NP	NP							
		13																
		15.5				CH	22.1					90.1						
		18	3.00		Reddish-brown LEAN CLAY with SAND	CL	21.1	107.4	42	20	22				1.99	14.6	7.0	Bulge
		23																
		27																
		28.5				SM	23.1					40.2						
		30																
BW-3																		
		0																
		0.5																
		3.5				OL	62.6		49	26	23	77.4						
		6.5																
		9	2.50			SC	15.9	117.0				47.9						

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TOLUNAY-WONG



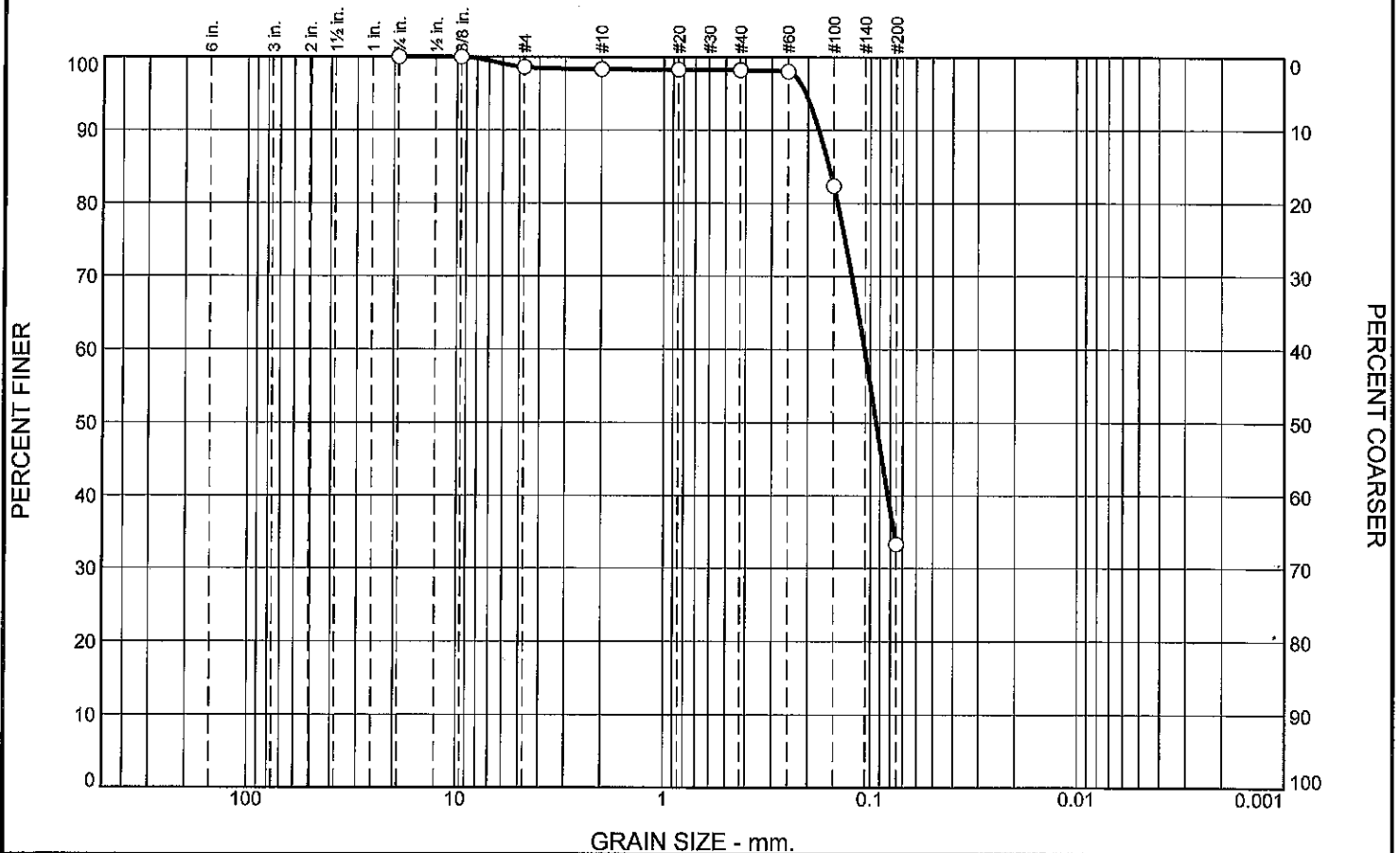
ENGINEERS, INC.

ASTM D422 & D1140

Figure

ASTM D422 Sieve Analysis

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.2	0.2	64.9	33.3	

Test Results (ASTM D422 & D1140)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/4	100.0			
3/8	100.0			
#4	98.6			
#10	98.4			
#20	98.3			
#40	98.2			
#60	98.1			
#100	82.3			
#200	33.3			

* (no specification provided)

Material Description
 Reddish-brown SILTY SAND

Atterberg Limits
 PL= LL= PI=

Classification
 USCS= SM AASHTO=

Test Remarks

Source of Sample: BW-1

Depth: 23.5

Sample Date:

**Tolunay-Wong
Engineers, Inc.
Houston, Texas**

Client: Matagorda County, TX
Project: Oliver Point and Oliver Reef Restoration Project
Project No: 21.14.259

Figure

Laboratory Miniature Vane Shear Test
ASTM D 4648

Sample Identification

Project No.	21.14.259			
Boring Number	BW-1			
Sample Number				
Depth (feet)	3-5'			
Soil Classification	CH			
Torvane/ Penetrometer, tsf	1.50			
Type of Test ¹	☐ Und. ☐ Rem. ☐ Res.	☐ Und. ☐ Rem. ☐ Res.	☐ Und. ☐ Rem. ☐ Res.	☐ Und. ☐ Rem. ☐ Res.
Vane Rotations if not Und.				

Soil Properties

Tare Number	XQ			
Wet Weight + Tare, gm	413.63			
Dry Weight + Tare, gm	385.57			
Tare Weight, gm	260.37			
Sample Length, in.	5.886			
Sample Diameter, in.	2.756			
Water Content, %	22.4			

Equipment Identification

Spring Set Serial No.	903			
Vane Spring No.	3			
Vane Size	1/2 x 1/2			

Vane Shear Test Data

Spring Rotation Data

Starting Reading, deg.	77			
Ending Reading, deg.	133			
Spring Rotation, deg.	56			
Uncorr ² . Shear Strength, tsf	0.33			

Vane Rotation Data

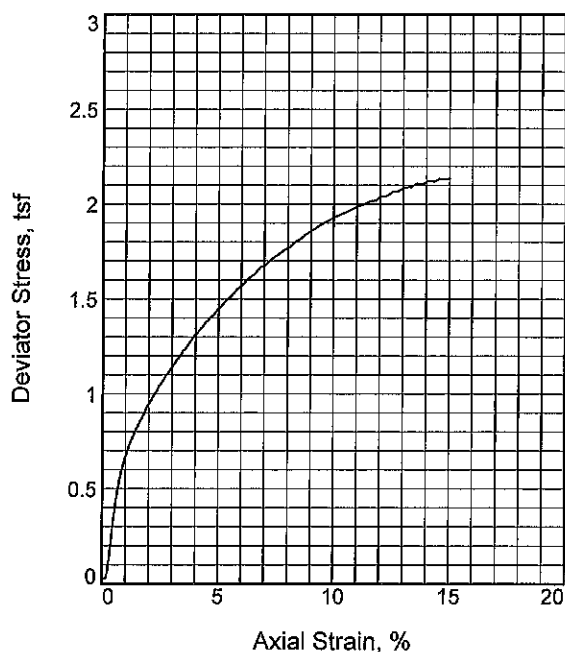
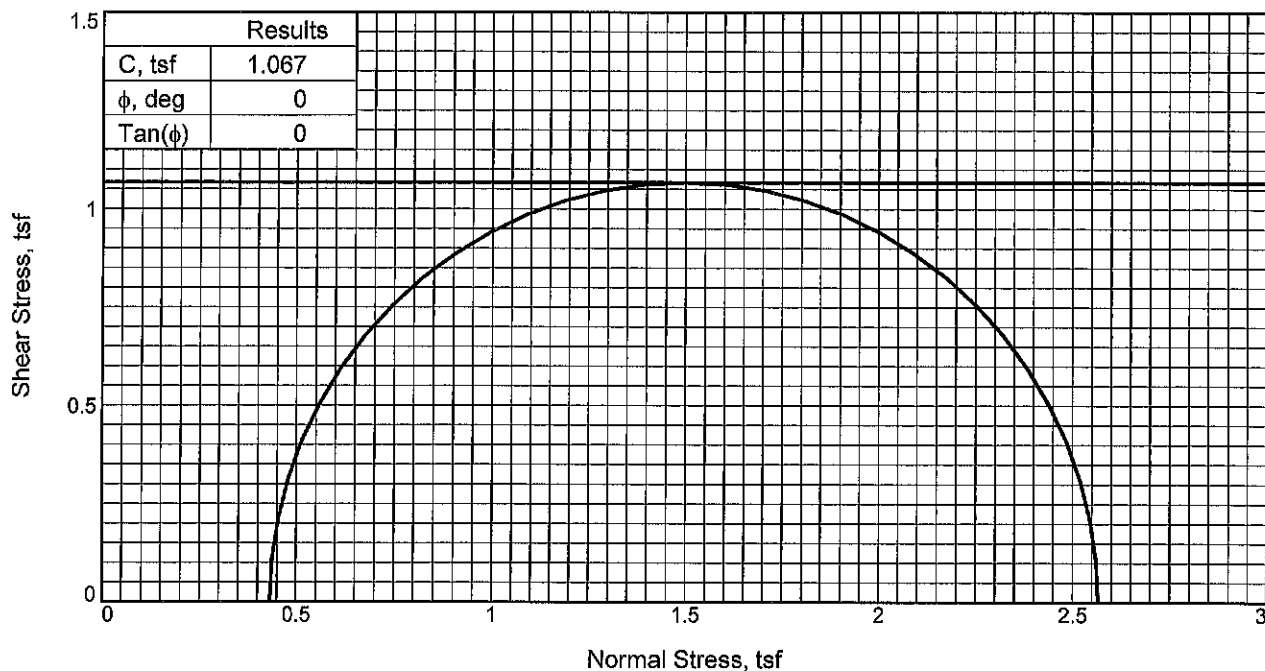
Starting Reading, deg.				
Ending Reading, deg.				
Vane Rotation, deg.				
Technician	DM			
Date of Test	11/1/2022			
Calculated By	EEH			
Date Calculated	11/2/2022			
Reviewed By	L.L			
Date Reviewed	11/3/2022			

10710 S. Sam Houston Parkway W., Suite 100 - Houston, Texas 77031 - (713) 722-7064

Note 1: Und. =Undisturbed, Rem. =Remolded, Res. =Residual

labvaneshr (Rev.C) 5/2011

Note 2: Vane shear strength not corrected per Note 11 in ASTM standard.



Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown LEAN CLAY with SAND; calcareous

LL= 34 PL= 17 PI= 17

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D2850

Failure type: Bulge

Figure _____

Sample No.		1
Initial	Water Content, %	16.2
	Dry Density, pcf	115.0
	Saturation, %	94.2
	Void Ratio	0.4653
	Diameter, in.	2.74
	Height, in.	5.92
At Test	Water Content, %	17.0
	Dry Density, pcf	115.0
	Saturation, %	98.8
	Void Ratio	0.4653
	Diameter, in.	2.74
	Height, in.	5.92
Strain rate, %/min.		1.00
Back Pressure, psi		0.00
Cell Pressure, psi		6.00
Fail. Stress, tsf		2.13
Strain, %		14.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.57
σ_3 Failure, tsf		0.43

Client: Matagorda County, TX

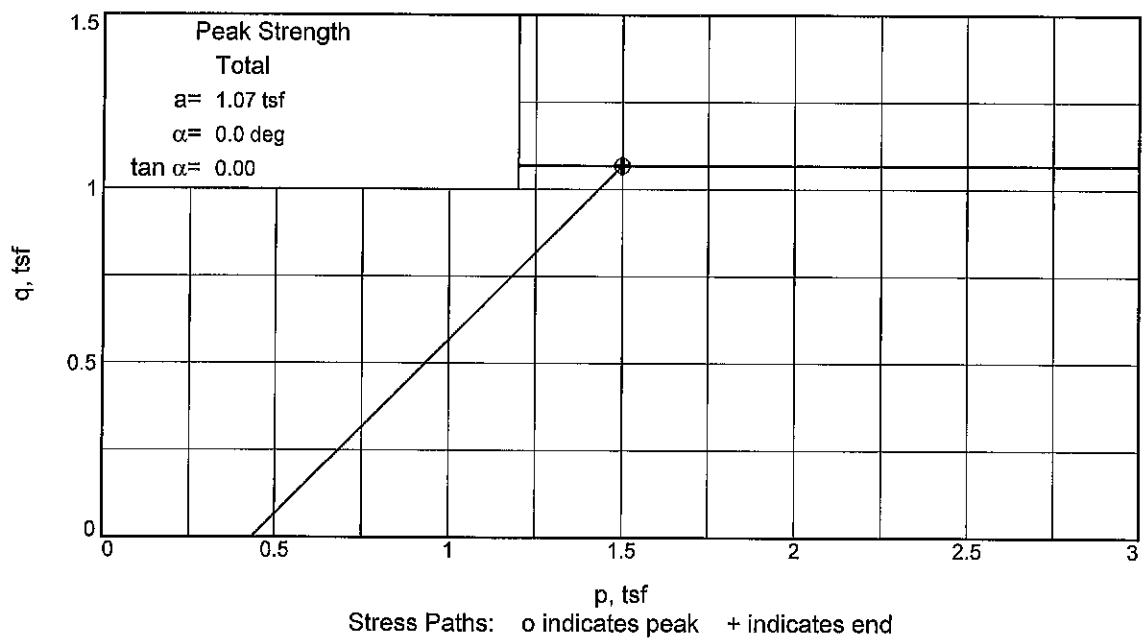
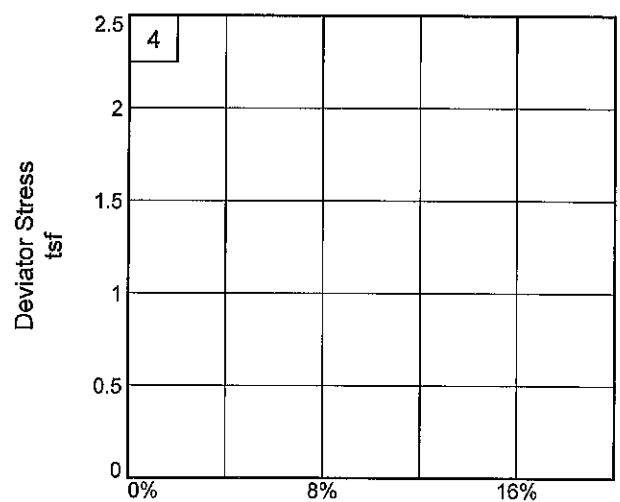
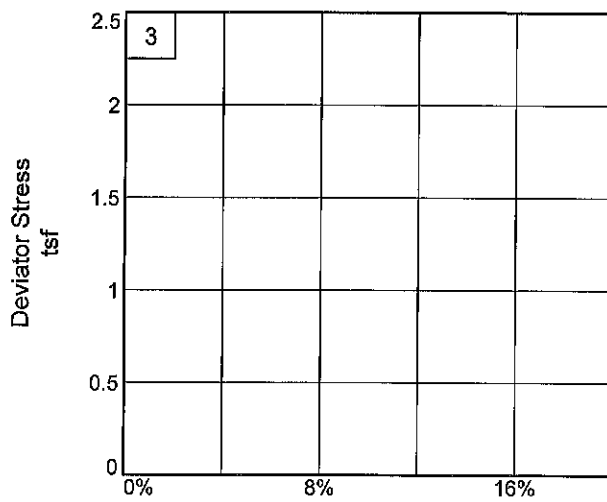
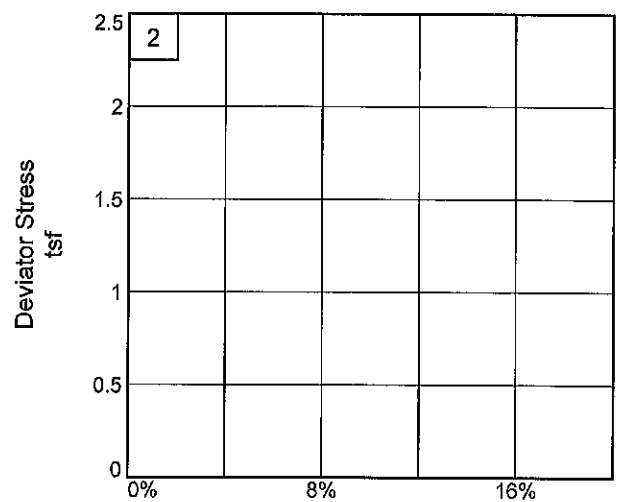
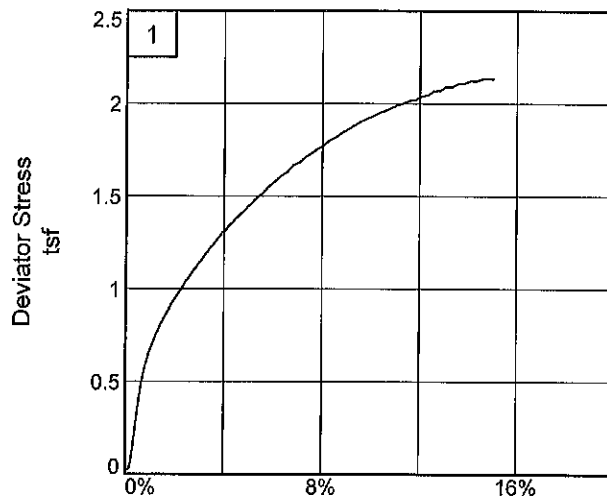
Project: Oliver Point and Oliver Reef Restoration Project

Source of Sample: BW-1 **Depth:** 12

Proj. No.: 21.14.259

Date Sampled: 11/1/22

TRIAXIAL SHEAR TEST REPORT
Tolunay-Wong Engineers, Inc.
Houston, Texas



Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Source of Sample: BW-1 **Depth:** 12

Project No.: 21.14.259

Figure _____

TOLUNAY-WONG ENGINEERS, INC.