

LOG OF BORING R-3

PROJECT: Oliver Point and Oliver Reef Restoration Project

CLIENT: Matagorda County, TX

ELEVATION (FT) DEPTH (FT)	SAMPLE TYPE SYMBOL	COORDINATES: N 28.643598075° W 96.239817869° SURFACE ELEVATION: DRILLING METHOD: Dry Augered: to Wash Bored: 0' to 30'	(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
		MATERIAL DESCRIPTION											
0		Very loose dark gray SILTY SAND (SM) w/ clay pockets, shell fragments & rocks		WOH/ 18"		34						37	
5		Stiff reddishbrown, tan & gray FAT CLAY (CH) w/ ferrous nodules, sand parting & pockets	(P)2.25										
		Stiff reddishbrown, tan & gray SANDY FAT CLAY (CH) w/ ferrous nodules, calcareous pockets & disturbed	(P)2.50			23	104			1.44	15	5	
10		Very stiff reddishbrown, gray & tan FAT CLAY (CH) w/ bioturbation, sand pockets, calcareous pockets & shell fragments	(P)4.25			29	103	53	31				
		Firm reddishbrown SILTY CLAY (CL) w/ calcareous nodules	(P)1.00			22	112					92	
15		Firm reddishbrown, tan & gray SANDY LEAN CLAY (CL) w/ calcareous pockets & sand pockets	(P)1.75			22	102	31	13	0.81	15	7	
20		-stiff & ferrous nodules @ 18'-20'	(P)2.25										
25		Medium dense reddishbrown CLAYEY SAND (SC)		6/6" 7/6" 13/6"		23						36	
30		Dense reddishbrown SILTY SAND (SM) w/ rocks		6/6" 14/6" 21/6"		24						34	
		Bottom @ 30'											
35													

COMPLETION DEPTH:
DATE BORING STARTED:
DATE BORING COMPLETED:
LOGGER:
PROJECT NO.:

30 ft
10/21/2022
10/21/2022
Calib Wild
21.14.259

NOTES: Water Depth at 4' @ 8:15am.
Boring backfilled with soil cuttings.
SPT Hammer Type: Safety Hammer Drilling Equipment: Patoon 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
		12	1.75			CL	20.4	112.7	30	18	12							
		15	1.50		Gray and brown LEAN CLAY with SAND	CL	28.0	96.6							1.50	14.8	7.0	Multiple shear
		18.5																
		23.5			Reddish-brown SILTY SAND	SM	24.5					33.6						
		28.5																
		30																
R-1		0																
		0.5																
		3.5																
		5																
R-1A		0																
		0.5			Brown SANDY LEAN CLAY	CL	49.0					51.5						
		3																
		6	3.75		Reddish-brown and gray LEAN CLAY with SAND, ferrous	CL	22.6	106.6	40	18	22				2.34	12.1	5.0	Bulge
		8																
		9																
		12																
		15	2.75		Reddish-brown LEAN CLAY with SAND	CL	23.5	99.9							1.28	9.0	7.0	Multiple shear
		18.5																
		23.5			Tan SILTY SAND	SM	24.2					33.2						
		28.5																
		29																
		30																
R-3		0																
		0.5			Gray and brown CLAYEY SAND; shell fragments	SC	33.7					37.0						
		3																
		6	2.50		Reddish-brown and gray LEAN CLAY with SAND	CL	22.7	104.3							1.44	14.8	5.0	Multiple shear
		9	2.00			CH	28.8	102.8	53	22	31							
		12	2.50			CH	21.8	111.6				91.8						
		15	2.00		Reddish-brown LEAN CLAY with SAND; calcareous	CL	21.9	101.8	31	18	13				0.81	15.0	7.0	Multiple shear

Our letters and reports are for the exclusive use of the CLIENT. This document shall not be reproduced, except in full, without our prior written approval.

TOLUNAY-WONG ENGINEERS, INC.



SUMMARY OF LABORATORY TESTS

Project No. 21.14.259

Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

[illegible]

Our letters and reports are for the exclusive use of the CLIENT. This document shall not be reproduced, except in full, without our prior written approval.

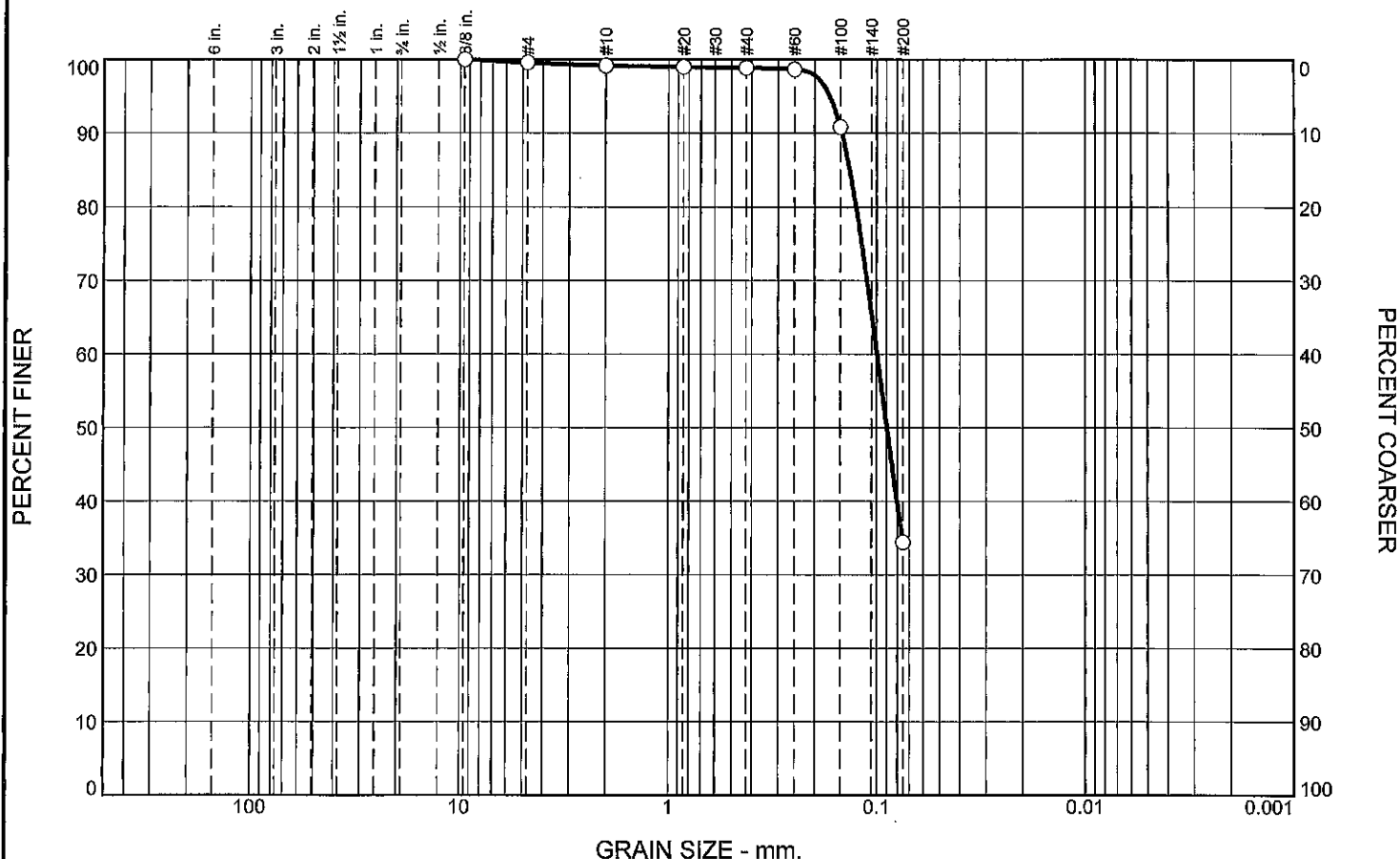


ASTM D422 & D1140

Figure

ASTM D422 Sieve Analysis

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.4	0.3	64.5	34.4	

Test Results (ASTM D422 & D1140)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/8	100.0			
#4	99.6			
#10	99.2			
#20	99.0			
#40	98.9			
#60	98.7			
#100	90.8			
#200	34.4			

* (no specification provided)

Material Description

Tan SILTY SAND

PL= Atterberg Limits LL= PI=

USCS= SM Classification AASHTO=

Test Remarks

Source of Sample: R-3 Depth: 28.5

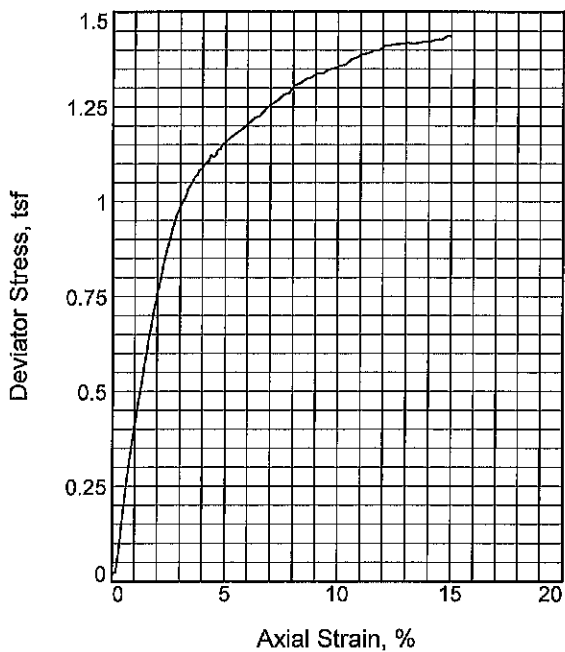
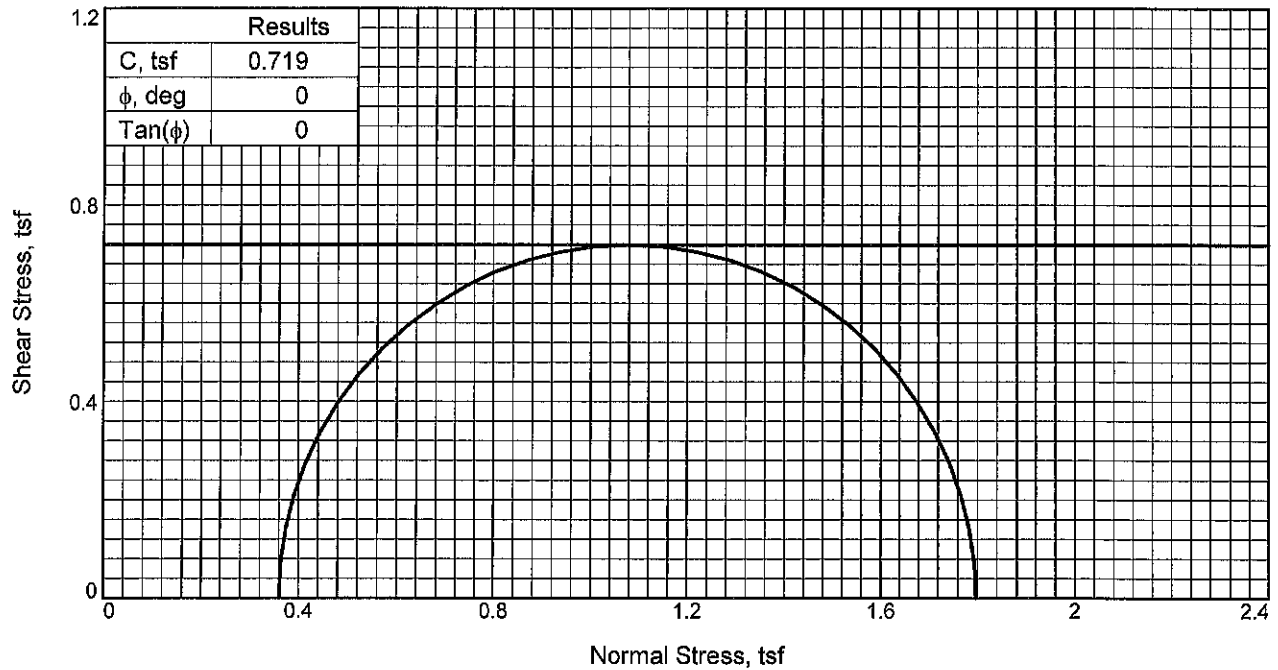
Sample Date:

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

Client: Matagorda County, TX
Project: Oliver Point and Oliver Reef Restoration Project

Project No: 21.14.259

Figure



Sample No.		1
Initial	Water Content, %	22.7
	Dry Density, pcf	104.3
	Saturation, %	99.6
	Void Ratio	0.6157
	Diameter, in.	2.71
	Height, in.	5.92
At Test	Water Content, %	22.8
	Dry Density, pcf	104.3
	Saturation, %	99.9
	Void Ratio	0.6157
	Diameter, in.	2.71
	Height, in.	5.92
Strain rate, %/min.		1.00
Back Pressure, psi		0.00
Cell Pressure, psi		5.00
Fail. Stress, tsf		1.44
Strain, %		14.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.80
σ_3 Failure, tsf		0.36

Type of Test:

Unconsolidated Undrained

Sample Type:

Undisturbed

Description: Reddish-brown and gray LEAN CLAY with SAND

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D2850

Failure type: Multiple shear

Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Source of Sample: R-3

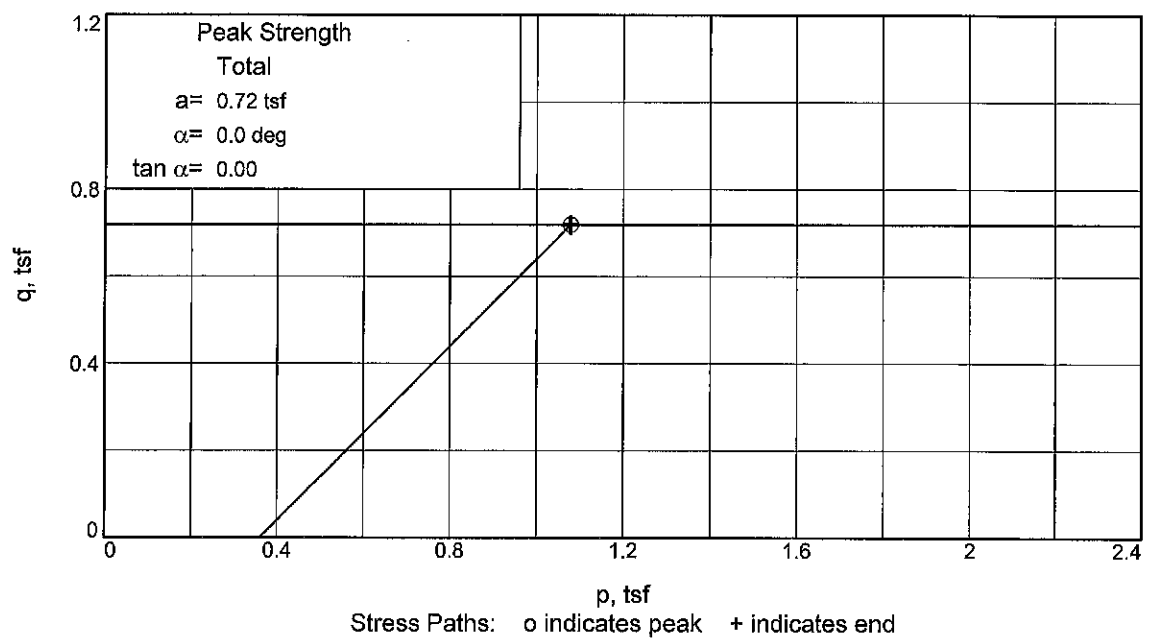
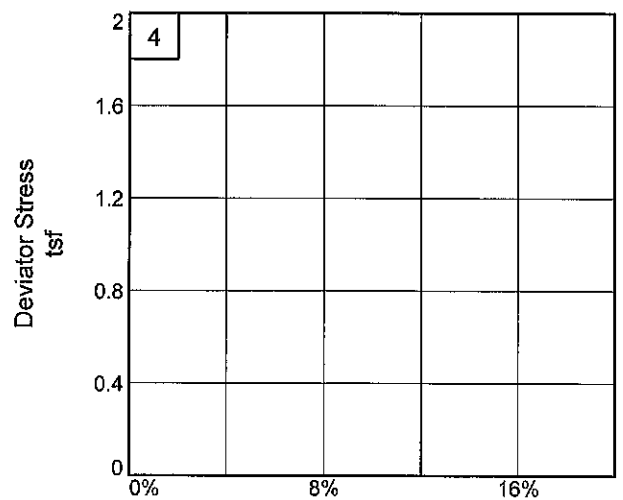
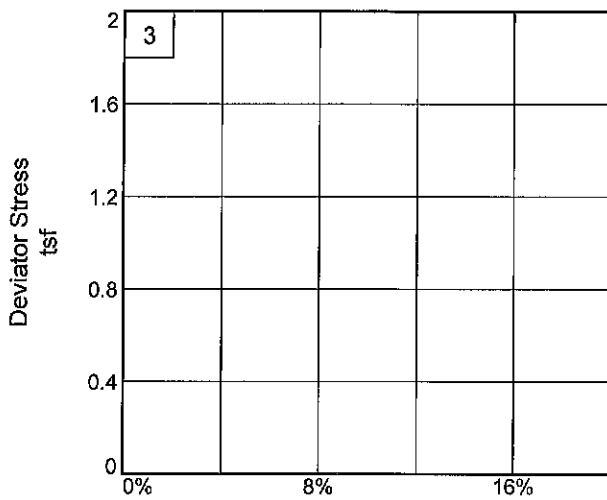
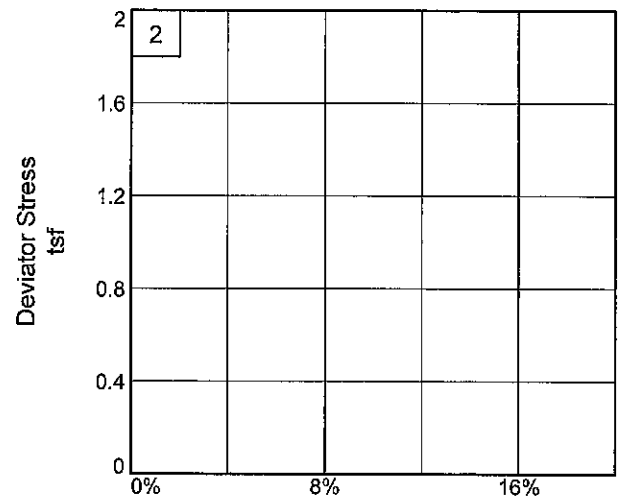
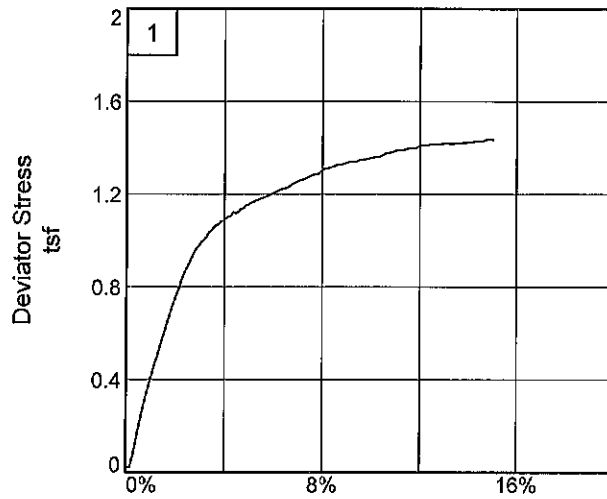
Depth: 6

Proj. No.: 21.14.259

Date Sampled: 11/1/22

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

Figure _____



Client: Matagorda County, TX

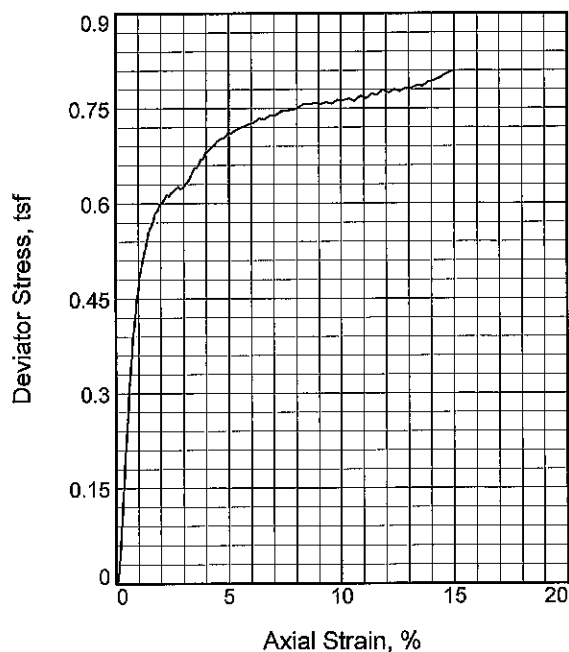
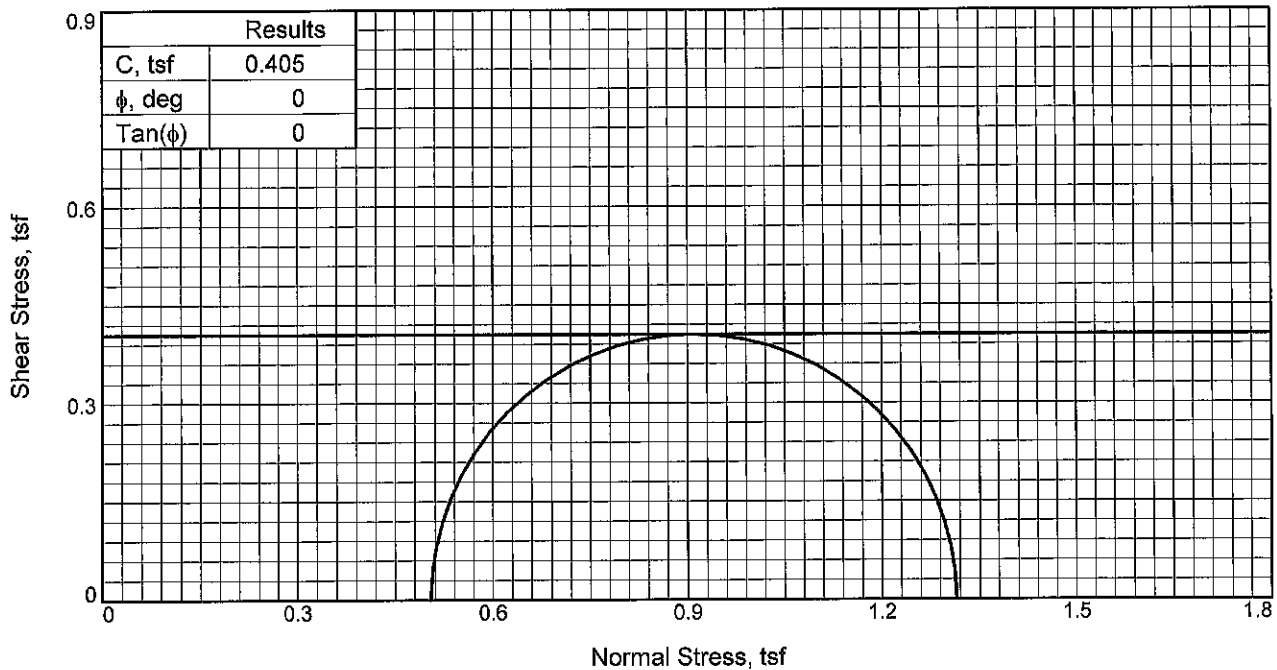
Project: Oliver Point and Oliver Reef Restoration Project

Source of Sample: R-3 **Depth:** 6

Project No.: 21.14.259

Figure _____

TOLUNAY-WONG ENGINEERS, INC.



Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown LEAN CLAY with SAND; calcareous

LL= 31 PL= 18 PI= 13

Assumed Specific Gravity= 2.75

Remarks:

Test method: ASTM D2850

Failure type: Multiple shear

Sample No. 1	
Initial	Water Content, % 21.9
	Dry Density, pcf 106.4
	Saturation, % 97.9
	Void Ratio 0.6141
	Diameter, in. 2.71
	Height, in. 5.92
At Test	Water Content, % 19.9
	Dry Density, pcf 106.4
	Saturation, % 89.2
	Void Ratio 0.6141
	Diameter, in. 2.71
	Height, in. 5.92
Strain rate, %/min. 1.00	
Back Pressure, psi 0.00	
Cell Pressure, psi 7.00	
Fail. Stress, tsf 0.81	
Strain, % 15.0	
Ult. Stress, tsf	
Strain, %	
σ_1 Failure, tsf 1.31	
σ_3 Failure, tsf 0.50	

Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

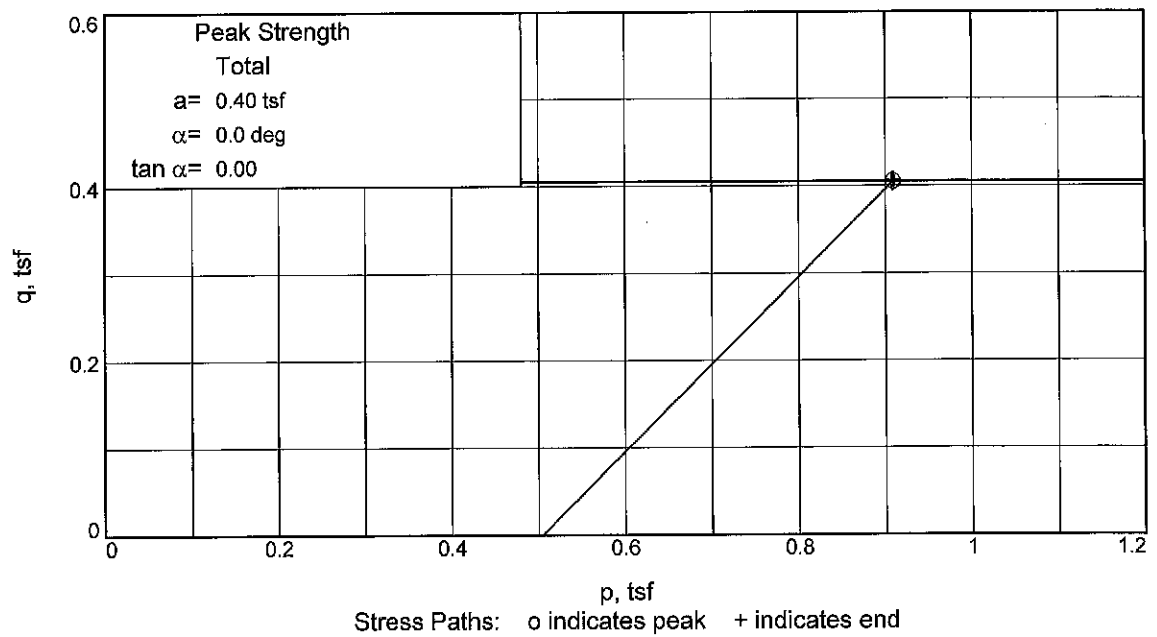
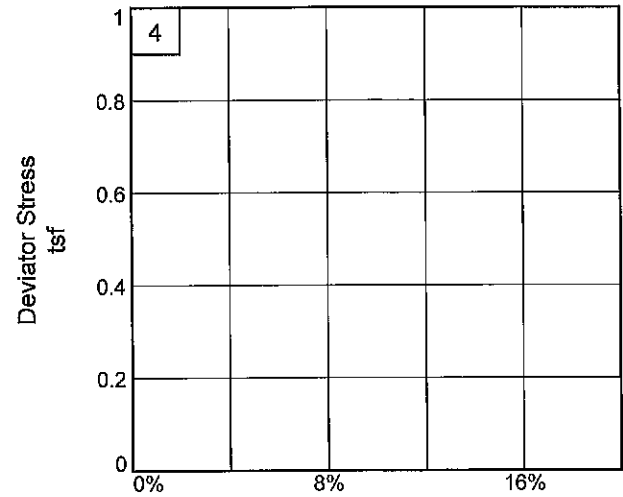
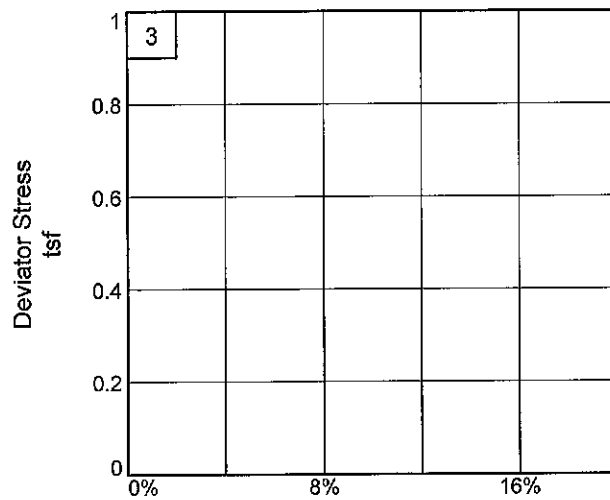
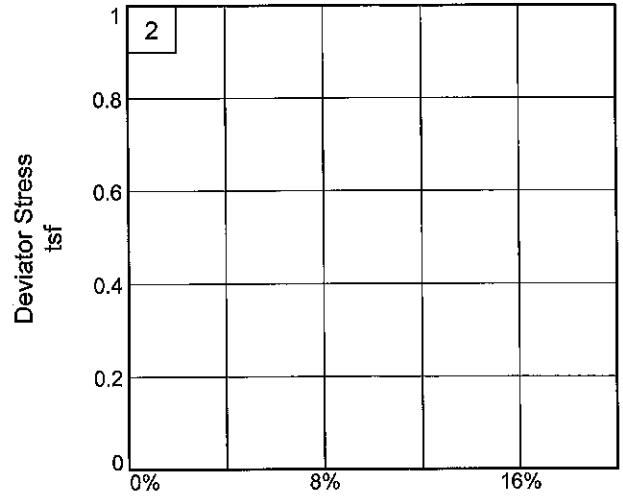
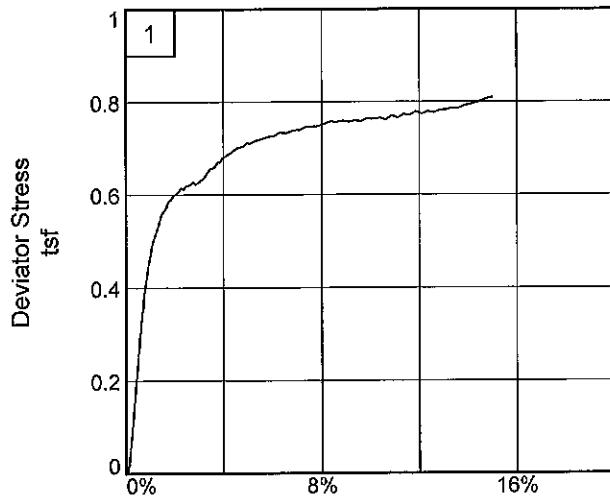
Source of Sample: R-3 **Depth:** 15

Proj. No.: 21.14.259

Date Sampled: 11/1/22

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

Figure _____



Client: Matagorda County, TX

Project: Oliver Point and Oliver Reef Restoration Project

Source of Sample: R-3

Depth: 15

Project No.: 21.14.259

Figure _____

TOLUNAY-WONG ENGINEERS, INC.