

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	Mc (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0 - 2	4.50+		Clay, w/roots, Hard, Yellowish brown	C H	16.9											
2	2 - 4	4.50+		Clay, w/roots, Hard, Yellowish brown	C H	16.5											
3	4 - 6	1.75		Clay, w/ferrous nodules & sand seams, Stiff, Yellowish brown	C H	21.7	102.6	124.9	55.0	23.0	100.0	99.5	98.1	96.5	96.0		1.27
4	6 - 8	0.25		Silty Clay, w/ferrous nodules & sand seams, Soft, Yellowish brown	C L	22.1	107.2	130.9	29.0	17.0							
5	8 - 10			Silty sand, Medium dense, Gray	S M												
6	10-11.5		24	Silty sand, Medium dense, Gray	S M						100.0	100.0	95.6	39.7	17.6		
7	13.5-15		25	Silty sand, Medium dense, Gray	S M												
8	18.5-20		23	Sand, Medium dense, Gray	S P						100.0	100.0	88.6	5.5	2.4		
9	23.5-25	3.50		Clay, w/calc nod & fer stains, slickensided, Very stiff, Yellowish brown	C H	26.8											
10	25-27	3.50		Clay, w/fer stains sand & silt seams, Very stiff, Olive gray	C H	16.7	113.4	132.3	55.0	23.0							
11	27-29	3.50		Clay, w/fer stains, Very stiff, Brown & Gray	C H	18.4											
12	29-31	3.75		Clay, w/fer stains & sand & silt seams, Very stiff, Brown & gray	C H	20.1											
13	31-33	4.50+		Clay, w/fer stains & sand seams, Hard, Brown & Gray	C H	20.3											
14	33-35	4.50+		Clay, w/fer stains & sand seams, Hard, Brown & Gray	C H	17.9	111.8	131.9	56.0	22.0	100.0	99.9	98.9	97.2	96.2		4.63
15	35-37	4.50+		Clay, w/calc nod fer stains & sand seams, Hard, Brown & Gray	C H	19.9											
16	37-39	4.50+		Silty Clay, w/calc nod & fer stains, Hard, Reddish brown & Gray	C L	22.7	107.4	131.8	37.0	18.0							
17	39-41	4.50+		Silty Clay, w/fer stains, Hard, Reddish brown & Gray	C L	19.0											
18	41-43	3.50		Silty Clay, w/calc nod & fer stains, Very stiff, Reddish brown & gray [Brown]	C L	19	110		31	16							$\phi = 24.9$ $c = .44$
19	43-45	2.25		Silty Clay, w/fer stains, Very stiff, Reddish brown & gray	C L	23.6											
20	45-47	3.50		Clay, w/fer stains & silt seams, slickensided, Very stiff, Reddish brown	C H	21.3	105.4	127.9	78.0	29.0							

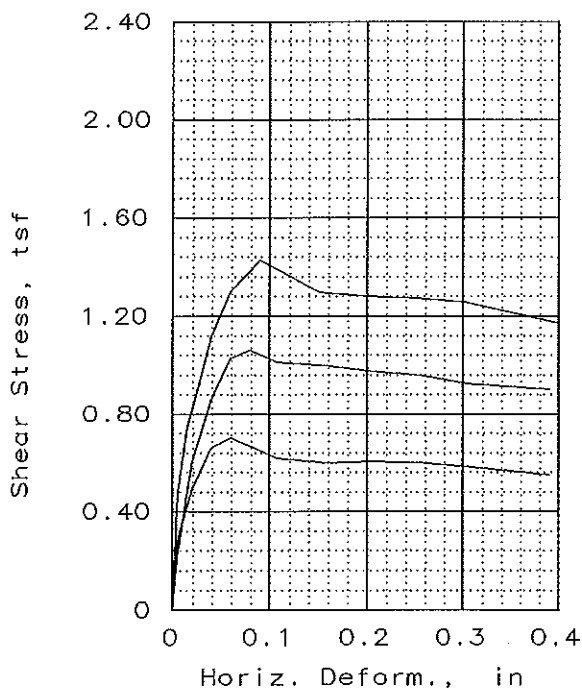
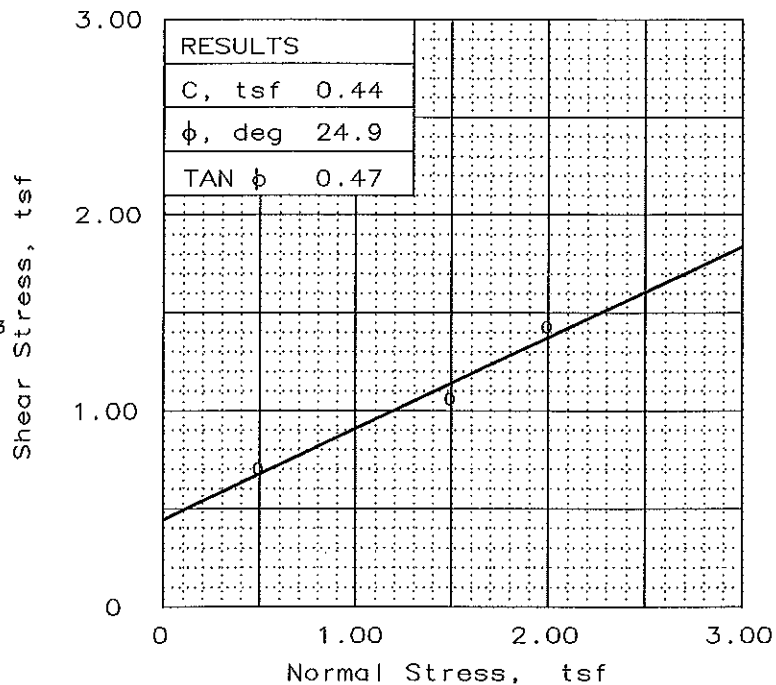
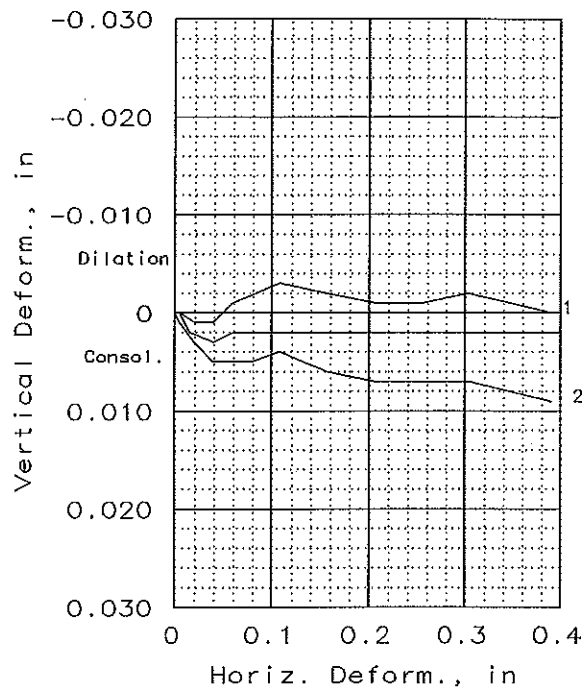
S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content

q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	M c (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	P L (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
21	47-49	3.50		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	21.5											
22	49-51	3.50		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	28.1											
23	51-53	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	30.3											
24	53-55	3.50		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	30.6											
25	55-57	4.00		Clay, w/calc nod fer stains & clay stone, slickensided, Very stiff, Reddish brown	C H	28.7	96.3	123.9	69.0	27.0							
26	57-59	4.25		Clay, w/calc nod & fer stains, slickensided, Hard, Reddish brown	C H	28.2											
27	59-61	4.25		Clay, w/calc nod & fer stains, slickensided, Hard, Reddish brown	C H	30.8											
28	61-63	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	26.4											
29	63-65	3.50		Clay, w/calc nod fer stains & silty clay layer, slickensided, Very stiff, Reddish brown	C H	25.4											
30	65-67	4.00		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	25.2											
31	67-69	4.00		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	25.8	98.0	123.3	65.0	26.0							
32	69-70	3.75		Clay, w/calc nod & fer stains, slickensided, Very stiff, Reddish brown	C H	25.5											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content

q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe



SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	18.7	17.5	18.2
	DRY DENSITY, pcf	107.2	108.7	109.5
	SATURATION, %	88.4	85.5	91.3
	VOID RATIO	0.572	0.551	0.539
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	20.1	18.8	18.4
	DRY DENSITY, pcf	109.4	112.0	112.3
	SATURATION, %	100.2	100.3	99.4
	VOID RATIO	0.541	0.505	0.501
	DIAMETER, in	2.51	2.51	2.51
	HEIGHT, in	0.98	0.97	0.98
NORMAL STRESS, tsf		0.50	1.50	2.00
MAX. SHEAR, tsf		0.70	1.06	1.43
STRAIN RATE, %/min.		0.004	0.004	0.004
ULT. SHEAR, tsf		0.55	0.90	1.17

SAMPLE DATA

SAMPLE TYPE: Undisturbed

DESCRIPTION: Lean Clay with
Sand (CL)

LL= 31 PL= 16 PI= 15.0

SPECIFIC GRAVITY= 2.70

REMARKS: Specific Gravity Est.

CLIENT: US Army Corps of Engineers

Galveston District

PROJECT: Neches River Saltwater Barriers

SAMPLE LOCATION: Boring: 97-35, Fid No. 18
41.0-43.0, Lab No. 97/1100

PROJ. NO.: 16858

DATE: October 1997

DIRECT SHEAR TEST

CORPS OF ENGINEERS - SOUTHWESTERN

FIG. NO.