Project: Port Arthur Boat Basin

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-98-D-0002 Delivery order No. 0106

Boring No. 03-91

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
1	0 - 2	0.00		Silty Clay,w/hydrocarbon oder,Very soft, Dark gray	C L	79.9											
2	2 - 4	0.00		Clay,w/hydrocarbon oder,Very soft,Dark gray	C H	78.5											
3	4 - 6	0.00		Clay,w/organic material,Very soft,Dark gray	C H	81.5											
4	6 - 8	0.00		Clay,w/silt seams,Very soft,Dark gray	C H	59.4											
5	8 - 10	0.50		Silty Clay,Medium stiff,Gray	C L	31.1											
6	10 - 12	0.50		Silty Clay,Medium stiff,Gray	C L	40.8											
7	12 - 14	0.50		Silty Clay,Medium stiff,Gray	C L	41.6											
8	14 - 16	0.50		Silty Clay,w/silt seams,Medium stiff,Gray	C L	37.6	80.4	110.6	44.0	20.0							0.52
9	16 - 18	0.50		Clay,w/silt seams,Medium stiff,Gray	C H	32.7											
10	18 - 20	1.00		Clay,w/silt seams,Stiff,Gray	C H	42.7											
11	20 - 22	1.00		Clay,w/silt seams,Stiff,Gray	C H	38.0											
12	22 - 24	1.00		Clay,w/silt seams,Stiff,Gray	C H	44.8											
13	24 - 26	1.00		Clay,w/silt seams,Stiff,Gray	C H	51.4	70.7	107.0	94.0	30.0							
14	26 - 28	1.25		Clay,Stiff,Gray	C H	49.1											
15	28 - 30	1.25		Clay,Stiff,Gray	C H	51.6											
16	30 - 32	1.25		Clay,w/shell fragments,Stiff,Olive gray	C H	34.1											
17	32 - 34	1.25		Clay,w/shell fragments,Stiff,Olive gray	C H	42.4	75.7	107.8	55.0	21.0							1.08
18	34 - 36	1.25		Clay,w/shell fragments,Stiff,Olive gray	C H	52.3											
19	36 - 38	1.25		Clay,w/shell fragments,Stiff,Olive gray	C H	40.0											
20	38 - 40	1.25		Clay,w/silt partings,Stiff,Gray	C H	46.9											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classifcation, M c : Moisture Content
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

Project: Port Arthur Boat Basin

SUMMARY OF LABORATORY TEST RESULTS

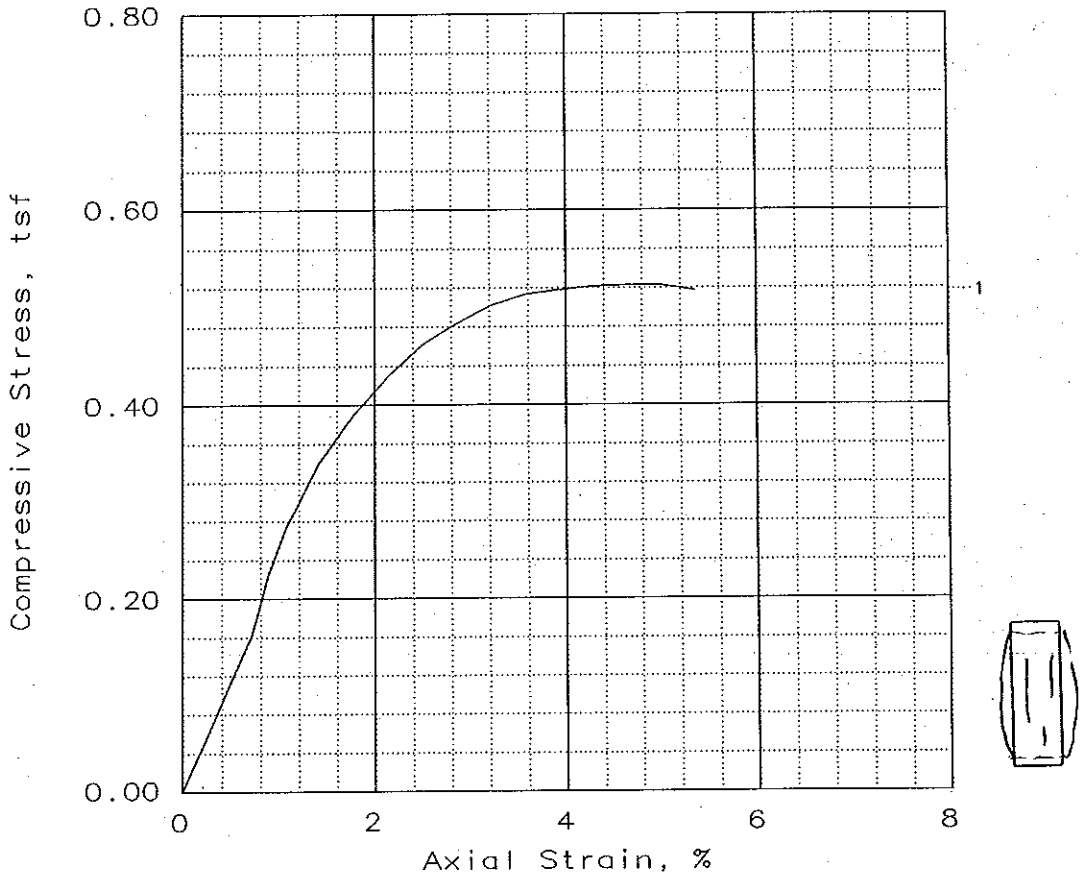
Contract No. DACW64-98-D-0002 Delivery order No. 0106

Boring No. 03-91

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		
21	40-42	1.25		Clay,Stiff,Gray	C H	45.9											
22	42-44	1.00		Clay,w/shell fragments,Stiff,Olive gray	C H	46.4											
23	44-46	1.00		Clay,Stiff,Gray	C H	50.4											
24	46-48	1.25		Clay,w/organic material,Stiff,Gray	C H	37.8											
25	48-50	1.25		Clay,w/organic material,Stiff,Gray	C H	36.6											
26	50-52	1.25		Clay,w/organic material,Stiff,Gray	C H	43.0											
27	52-54	1.25		Clay,w/organic material,Stiff,Gray	C H	42.9											
28	54-56	1.25		Clay,w/organic material,Stiff,Olive gray	C H	40.4											
29	56-58	1.25		Clay,w/organic material,Stiff,Olive gray	C H	37.0											
30	58-60	1.25		Clay,w/organic material,Stiff,Olive gray	C H	33.1											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classifcation, M c : Moisture Content
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	0.52			
Undrained shear strength, tsf	0.26			
Failure strain, %	4.6			
Strain rate, %/min	1.07			
Water content, %	37.6			
Wet density, pcf	110.6			
Dry density, pcf	80.4			
Saturation, %	94.1			
Void ratio	1.0576			
Specimen diameter, in	2.83			
Specimen height, in	5.60			
Height/diameter ratio	1.98			

Description: Silty Clay,w/silt seams,Medium stiff,Gray

LL = 44	PL = 20	PI = 24	ASS. GS= 2.65	Type: Undisturbed

Project No.: 11401272106

Date: 09-30-2003

Remarks:

Client: U.S Army Corps of Engineers
Galveston District Office

Project: Port Arthur Boat Basin

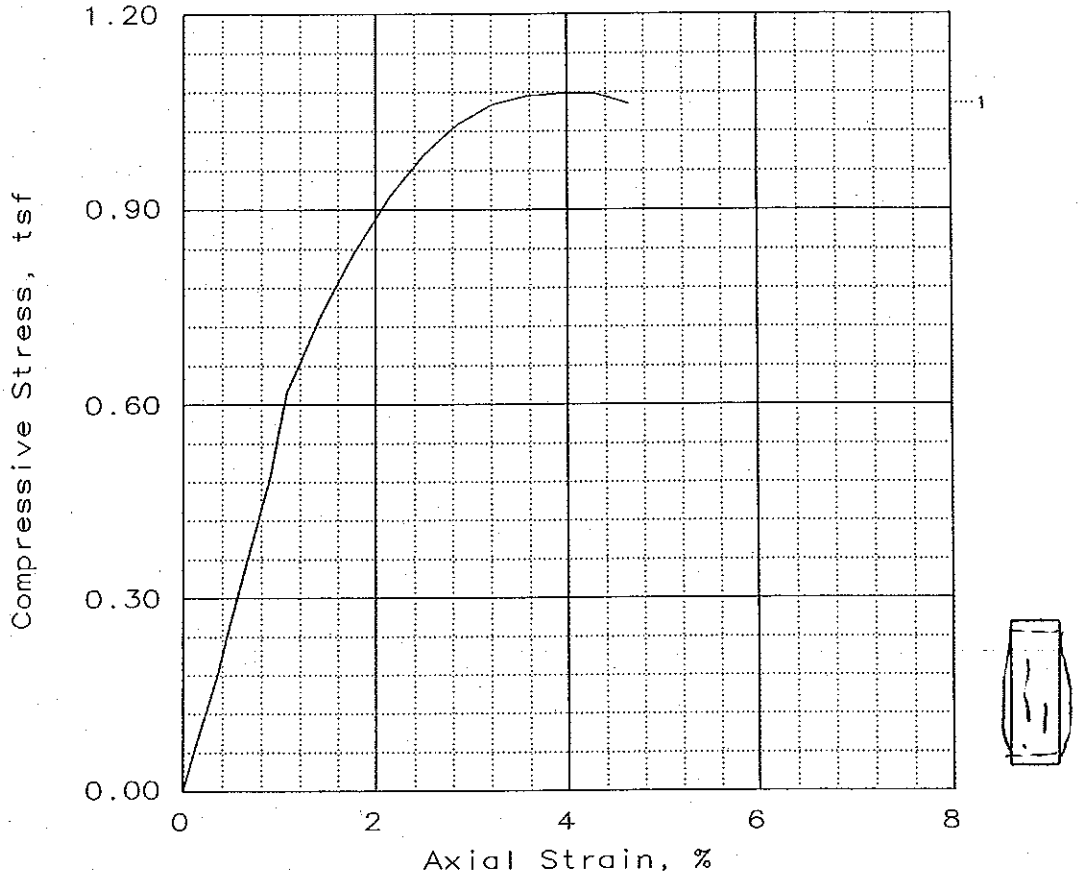
Location: Boring No. 03-91
Sample No. 8 Depth: 14-16 ft.

UNCONFINED COMPRESSION TEST

GEOTEST ENGINEERING, INC.

Fig. No.: ——

UNCONFINED COMPRESSION TEST



SAMPLE NO.:	1			
Unconfined strength, tsf	1.08			
Undrained shear strength, tsf	0.54			
Failure strain, %	4.3			
Strain rate, %/min	1.07			
Water content, %	42.4			
Wet density, pcf	107.8			
Dry density, pcf	75.7			
Saturation, %	94.8			
Void ratio	1.1852			
Specimen diameter, in	2.83			
Specimen height, in	5.60			
Height/diameter ratio	1.98			

Description: Clay,w/shell frag, Stiff,Olive gray

LL = 55	PL = 21	PI = 34	ASS. GS= 2.65	Type: Undisturbed

Project No.: 11401272106

Date: 09-30-2003

Remarks:

Client: U.S Army Corps of Engineers
Galveston District Office

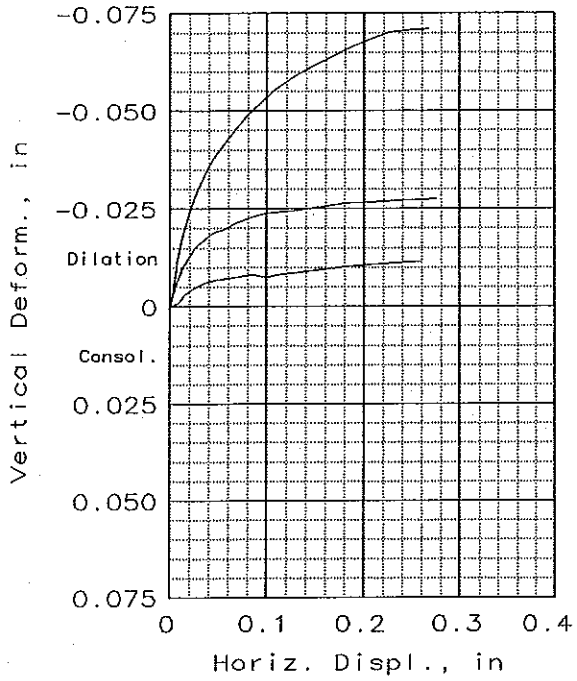
Project: Port Arthur Boat Basin

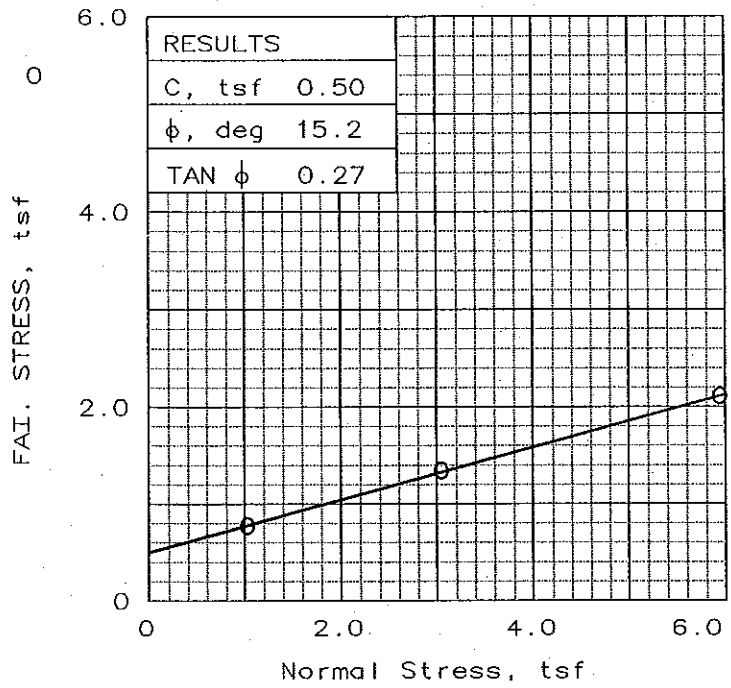
Location: Boring No. 03-91
Sample No. 17 Depth: 32-34 ft.

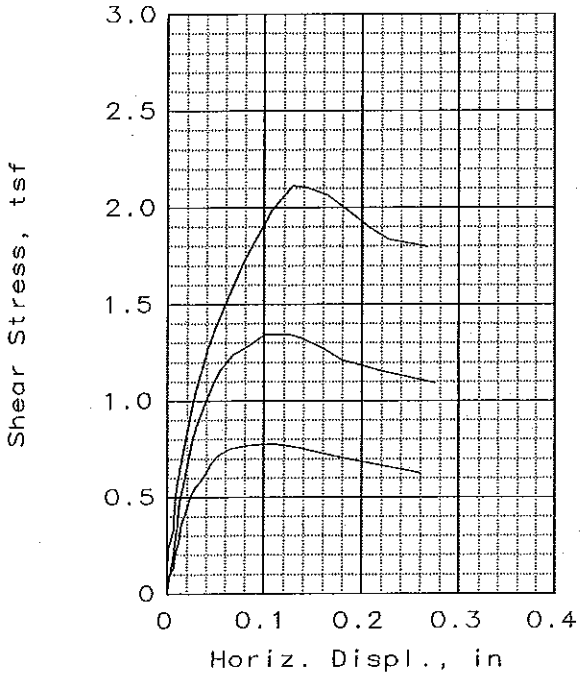
UNCONFINED COMPRESSION TEST

GEOTEST ENGINEERING, INC.

Fig. No.: ——







	SAMPLE NO.:	1	2	3
INITIAL	WATER CONTENT, %	51.9	51.2	51.1
	DRY DENSITY, pcf	70.3	70.6	71.3
	SATURATION, %	98.8	98.4	99.7
	VOID RATIO	1.444	1.431	1.409
	DIAMETER, in	2.50	2.50	2.50
	HEIGHT, in	1.00	1.00	1.00
AT TEST	WATER CONTENT, %	48.7	46.7	43.4
	DRY DENSITY, pcf	73.4	75.2	78.2
	SATURATION, %	99.9	100.0	100.0
	VOID RATIO	1.340	1.284	1.194
	DIAMETER, in	2.50	2.50	2.50
	HEIGHT, in	0.96	0.94	0.91
NORMAL STRESS, tsf		1.06	3.08	5.97
FAI. STRESS, tsf		0.78	1.34	2.11
DISPLACEMENT, in		0.10	0.13	0.13
RESIDUAL STRESS, tsf				
DISPLACEMENT, in				
Strain rate, %/min		0.0022	0.0022	0.0022

SAMPLE TYPE: Undisturbed
DESCRIPTION: Clay,w/silt seams, Stiff,Gray
LL= 94 PL= 30 PI= 64
ASSUMED SPECIFIC GRAVITY= 2.75
REMARKS:

Fig. No.: _____

CLIENT: U.S Army Corps of Engineers
Galveston District Office
PROJECT: Port Arthur Boat Basin

SAMPLE LOCATION: Boring No. 03-91
Sample No. 13 Depth: 24-26 ft.

PROJ. NO.: 11401272106 DATE: 10-06-2003

DIRECT SHEAR TEST REPORT

GEOTEST ENGINEERING, INC.

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 03-91 DATE: BEGIN 8-1-03 PAGE 1 / 2
JOB NO. 11401272100 COMPLETE 8-1-03 Thin Walled Tube
PROJECT Port Arthur Boat Basin ■ 3" □ 6"
LOCATION N=13,897,586.724, E=3,574,553.139
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing 36
GROUNDWATER: DEPTH ** ft., ELEV. ____ ft., at end of Drilling
WEATHER Cloudy & Hot
DRILLER Dempsey Gearen LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
mud line 0	J	1	0.00	DK. gray	Clay	V. soft	silt	**23'-2" of Water -w/Hydrocarbon odor
		2	0.00	DK. gray	Clay	V. soft		-w/ Hydrocarbon oder
5		3	0.00	DK. gray	Clay	V. soft		-Set 30' of 4" casing (4' of deck 3' of casing below mudline) -w/organic material
		4	0.00	DK. gray	Clay	V. soft	silt	-w/silt sms
		5	0.50	Gray	Clay	M. stiff	silt	*add 10' of casing Total casing 40' casing below mudline = 40 - 23' (of water) - 4½ ft deck) - 3' of stickup = 9.5'
10		6	0.50	Gray	clay	M. stiff	silt	
		7	0.50	Gray	clay	M. stiff	silt	
15		8	0.50	Gray	Clay	M. stiff	silt	-w/silt sms
		9	0.50	Gray	Clay	M. stiff		-w/silt sms
		10	1.00	Gray	Clay	stiff		-w/silt sms
20		11	1.00	Gray	clay	stiff		-w/silt sms
		12	1.00	Gray	Clay	stiff		-w/silt sms
25		13	1.00	Gray	Clay	stiff		-w/silt sms
		14	1.25	Gray	Clay	stiff		
		15	1.25	Gray	Clay	stiff		
30		16	1.25	olive gray	Clay	stiff		-w/shell Fragments
		17	1.25	olive gray	Clay	stiff		-w/shell Fragments
35		18	1.25	olive gray	Clay	stiff		-w/shell Fragments

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 03-91 DATE: BEGIN 8-1-03 PAGE 2 / 2
JOB NO. 1140127210 COMPLETE 8-1-03 Thin Walled Tube
PROJECT Port Arthur Boat Basin ■ 3" □ 6"
LOCATION N=13,897,586.724, E=3,574,553.139
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing 36
GROUNDWATER: DEPTH ____ ft., ELEV. ____ ft., at end of Drilling
WEATHER Cloudy
DRILLER Dempsey Cocaren LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSIS-TENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35								
		19	1.25	Olive Gray	Clay	Stiff		-w/shell Fragments
		20	1.25	Gray	Clay	Stiff		-w/silt Partings
40								
		21	1.25	Gray	Clay	Stiff		
		22	1.00	Olive Gray	Clay	Stiff		-w/shell Fragments
45		23	1.00	Gray	Clay	Stiff		
		24	1.25	Gray	Clay	Stiff	Silt	
		25	1.25	Gray	Clay	Stiff		-w/organic material
50								
		26	1.25	Gray	Clay	Stiff		-w/organic material
		27	1.25	Gray	Clay	Stiff		-w/organic material
55		28	1.25	Olive Gray	Clay	Stiff		-w/organic material
		29	1.25	Olive Gray	Clay	Stiff		-w/organic material
		30	1.25	Olive Gray	Clay	Stiff		-w/organic material
60								Depth below mudline
								Tide reading 2.1
								J: Jar Sample
65								
70								

GEOTEST ENGINEERING, INC.