U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-296 DATE: BEGIN 7-9-93 PAGE 1 / 1
JOB NO. 146630 COMPLETE 7-9-93 Thin Walled Tube
PROJECT Brazos Island Harbor Project ■ 3" □ 6"
LOCATION Brownsville ship channel near Brownsville, Tx
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Aidco K 4X4
GROUNDWATER: DEPTH 0 ft., ELEV. ____ ft., at end of Drilling
WEATHER Sunny & Hot
DRILLER Scott Gregurek LOGGER Iraj Mostamand

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	0.25	Yellowish Brown	Clay	Soft		
		2	0.00	Yellowish Brown	Clay	Very Soft		
5		3	0.50	Brown	Clay	M. Stiff		
		4	1.75	Brown & Gray	Clay	Stiff		
		5	2.00	Brown & Gray	Clay	Very Stiff		-w/Fest
10		6	2.25	"	"	" "		" " "
		7	2.00	Brown & Gray	Clay	Very Stiff		-w/Fest
15		8	1.75	Brown & Gray	Clay	Stiff		-w/Fest
		9	1.50	Brown & Gray	Clay	Stiff		-w/Fest
		10	1.75	Gray	Clay	Stiff		-w/Sasms
20								
25								
30								
35								

GEOTEST ENGINEERING INC

Project : Brazos Island Harbor Project, Brownsville Shipchannel near Brownsville, Texas
Contract No. DACW64-92-D-0005 Delivery order No. 0018

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 93-296

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 #4	#10	#40	#100	#200	Torvane Shear Strength (tsf)	q u (tsf)
1	0 - 2	0.50		Yellowish brown,Clay,Medium stiff	CH	51.0											
2	2 - 4	0.75		Yellowish brown,Clay,Medium stiff	CH	49.8											
3	4 - 6	0.75		Yellowish brown,Clay,Medium stiff,w/mica& blocky structure	CH	36.3	82.3	112.2	60		100.0	100.0	100.0	99.0	98.6		0.94
4	6 - 8	1.00		Brown&gray,Clay,Stiff,w/ferrous stains	CH	38.3											
5	8 -10	1.25		Brown&gray,Clay,Stiff,w/ferrous stains	CH	37.1											
6	10 -12	1.00		Brown&gray,Clay,Stiff,w/ferrous stains	CH	38.9											
7	12 - 14	1.50		Brown&gray,Clay,Stiff,w/ferrous stains	CH	34.7											
8	14 - 16	2.50		Brown&gray,Clay,Very stiff,w/ferrous stains	CH	35.9	84.4	114.7	64	26	100.0	100.0	100.0	99.6	99.1		2.17
9	16 - 18	2.00		Brown,Clay,Very stiff,w/ferrous stains	CH	36.0											
10	18 - 20	0.75		Gray,Clay,Medium stiff,Silty	CL	23.7											

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

Geotest Engineering, Inc.

JOB NO. 14G634 DATE 8/2/93

PROJECT Brazos Island Harbor Project
Brownsville Shipchannel

AREA near Brownsville, Texas

BORING NO. 93-296 SAMPLE NO. 3 DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION
Yellowish brown,Clay,Medium stiff, w/mica & blocky structure

Tare No.	P-213	Height	5.595 in.
Tare plus Wet Specimen	540.66 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	408.03 gm	Initial Area	6.290 sq in.
Water Weight	132.63 gm	Volume	35.194 cu in.
Tare Weight	42.28 gm	Volume of Solids	cu in.
Wet Specimen	1036.10 gm	Void Ratio	
Dry Specimen	760.37 gm	Saturation	%
Water Content	36.26 %	Dry Density	82.3 lb/cu ft
Specific Gravity of Solids			

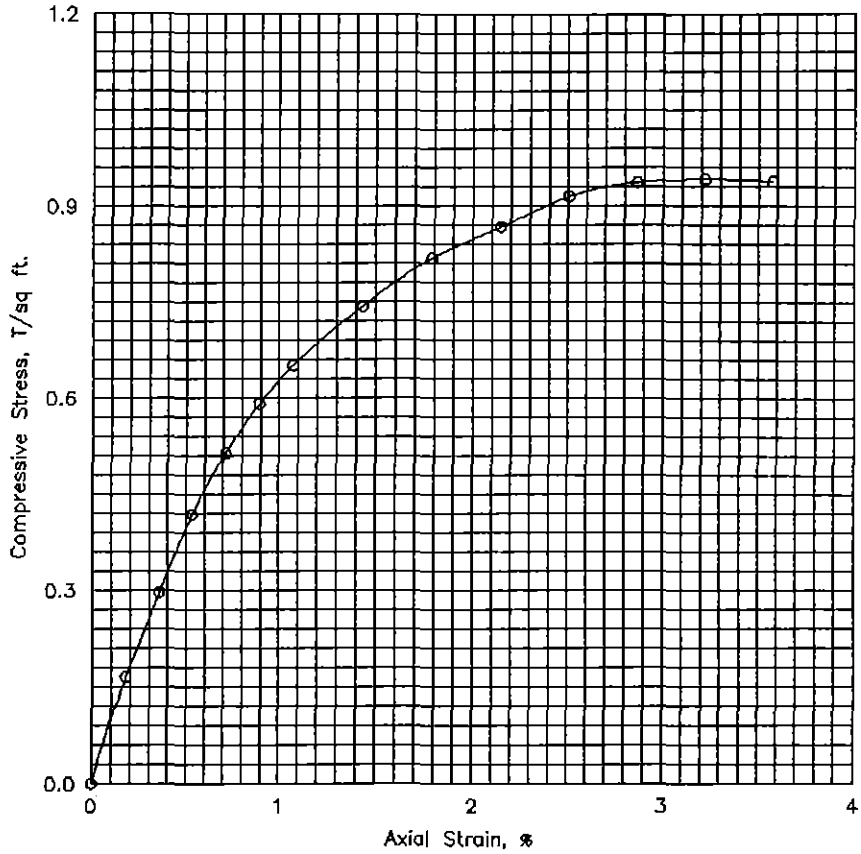
LL = 60 PL = PI =

Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	19.0	14.6	.002	6.30	.166
.4	20.	.020	34.0	26.0	.004	6.31	.297
.6	30.	.030	48.0	36.8	.005	6.32	.419
.8	40.	.040	59.0	45.2	.007	6.34	.514
.9	50.	.050	68.0	52.1	.009	6.35	.591
1.1	60.	.060	75.0	57.4	.011	6.36	.651
1.4	80.	.080	86.0	65.9	.014	6.38	.743
1.8	100.	.100	95.0	72.8	.018	6.40	.818
2.1	120.	.120	101.0	77.4	.021	6.43	.867
2.4	140.	.140	107.0	82.0	.025	6.45	.915
2.7	160.	.160	110.0	84.3	.029	6.48	.937
3.0	180.	.180	111.0	85.0	.032	6.50	.942
3.3	200.	.200	111.0	85.0	.036	6.52	.938

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	36.3 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	82.3			
Time to failure, min		t_f	3.00			
Unconfined compressive strength, T/sq ft		q_u	.94			
Undrained shear strength, T/sq ft		S_u	.47			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Yellowish brown,Clay,Medium stiff, w/mica & blocky structure

LL 60	PL	PI	G_s

Remarks

Project Brazos Island Harbor Project
Brownsville Shipchannel
Area near Brownsville, Texas
Boring No. 93-296 | Sample No. 3
Depth El 4-6 ft | Date 8/2/93

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

JOB NO. 14G634 DATE 8/2/93

PROJECT Brazos Island Harbor Project
Brownsville Shipchannel

AREA near Brownsville, Texas

BORING NO. 93-296 SAMPLE NO. 8 DEPTH 14-16 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown & gray,Clay,Very stiff,w/ferrous stains

Tare No.	GE-9	Height	5.595 in.
Tare plus Wet Specimen	588.46 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	444.29 gm	Initial Area	6.290 sq in.
Water Weight	144.17 gm	Volume	35.194 cu in.
Tare Weight	42.42 gm	Volume of Solids	cu in.
Wet Specimen	1058.86 gm	Void Ratio	
Dry Specimen	779.29 gm	Saturation	%
Water Content	35.87 %	Dry Density	84.4 lb/cu ft

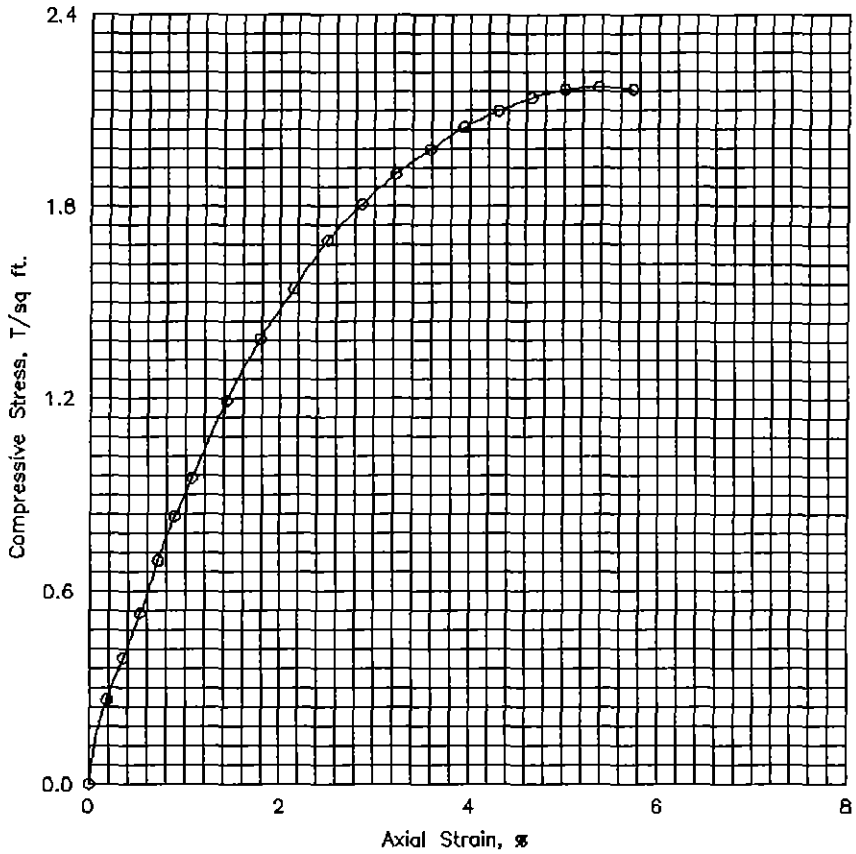
Specific Gravity of Solids
LL = 64 PL = 26 PI = 38

Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	30.0	23.0	.002	6.30	.263
.4	20.	.020	45.0	34.5	.004	6.31	.393
.6	30.	.030	61.0	46.7	.005	6.32	.532
.7	40.	.040	80.0	61.3	.007	6.34	.696
.9	50.	.050	96.0	73.5	.009	6.35	.834
1.0	60.	.060	110.0	84.3	.011	6.36	.954
1.4	80.	.080	138.0	105.7	.014	6.38	1.193
1.7	100.	.100	161.0	123.3	.018	6.40	1.386
2.0	120.	.120	180.0	137.9	.021	6.43	1.544
2.4	140.	.140	198.0	151.7	.025	6.45	1.693
2.7	160.	.160	212.0	162.4	.029	6.48	1.806
3.0	180.	.180	224.0	171.6	.032	6.50	1.901
3.4	200.	.200	234.0	179.2	.036	6.52	1.978
3.7	220.	.220	243.0	186.1	.039	6.55	2.047
4.0	240.	.240	250.0	191.5	.043	6.57	2.098
4.4	260.	.260	256.0	196.1	.046	6.60	2.140
4.7	280.	.280	260.0	199.2	.050	6.62	2.166
5.0	300.	.300	262.0	200.7	.054	6.65	2.174
5.3	320.	.320	262.0	200.7	.057	6.67	2.166

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	35.9 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	84.4			
Time to failure, min		t_f	5.00			
Unconfined compressive strength, T/sq ft		q_u	2.17			
Undrained shear strength, T/sq ft		S_u	1.09			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Brown & gray,Clay,Very stiff,w/ferrous stains

LL	64	PL	26	PI	38	G_s	

Remarks

Project	Brazos Island Harbor Project
	Brownsville Shipchannel
Area	near Brownsville, Texas
Boring No. 93-296	Sample No. 8
Depth El 14-16 ft	Date 8/2/93

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

July - 7 93

B.I.H. DISPOSAL AREA NO. 7

	CORE BORING	COORDINATES X	Y	N.G. ELEV.
1	93-287	2383453.79	111575.35	16.58
2	93-288	2383436.80	111066.77	11.95
3	93-289	2383374.07	110464.25	12.20
4	93-290	2382897.16	110196.68	12.09
5	93-291	2382591.22	109981.03	12.07
6	93-292	2382291.49	109638.88	12.96
7	93-293	2381679.22	108909.68	12.04
8 *	93-294			
9	93-295	2379514.51	108372.33	10.17
10	93-296	2378761.80	107960.82	10.07
11	93-297	2378293.91	107778.32	9.86
12	93-298	2377829.21	107589.17	9.80
13	93-299	2377365.46	107404.67	9.91
14	93-300	2376904.99	107220.19	9.8
15	93-301	2376438.60	107038.62	9.75
16	93-302	2375977.69	106850.65	9.66
17 *	93-303			
18	93-304	2375768.65	107744.19	9.92
19	93-305	2376232.67	107932.15	10.1
20	93-306	2376693.94	108120.23	10.28
21	93-307	2377157.54	108305.60	10.32
22	93-308	2377622.55	108490.28	10.51
23	93-309	2378086.61	108679.32	10.18
24	93-310	2378551.34	108868.16	9.99