U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-300 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 Ardco 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	0.25	Gray	clay	soft		
		4	0.75	Gray	clay	M. stiff		
		5	1.00	Brown & Gray	clay	stiff		-w/Fe st
10		6	1.00	Brown & Gray	clay	stiff		-w/Fe st
		7	1.25	Brown & Gray	clay	stiff		-w/mica
15		8	1.50	Brown & Gray	Clay	stiff		-w/mica
		9	1.00	Brown & Gray	Clay	stiff		-w/mica
		10	1.25	Brown & Gray	clay	stiff		-w/mica
20								
25								
30								
35								

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. 93-300

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	0.25		Yellowish brown,Clay,Soft	CH	46.2										0.14	
2	2-4	0.50		Yellowish brown,Clay,Medium stiff	CH	49.5										0.30	
3	4-6	0.75		Gray,Clay,Medium stiff	CH	35.2										0.35	
4	6-8	1.00		Gray,Clay,Stiff,w/mica and ferrous nodules	CH	32.5	88.5	117.3	53		100.0	100.0	99.1	98.0	97.6		1.13
5	8-10	1.50		Brown & gray,Clay,Stiff,w/ferrous nodules	CH	32.0											
6	10-12	1.50		Yellowish brown,Clay,Stiff,w/ferrous nodules	CH	30.5											
7	12-14	1.75		Brown,Clay,Stiff,w/ferrous stains	CH	35.1	85.3	115.2	60	25	100.0	100.0	99.7	99.1	99.0		1.92
8	14-16	1.50		Brown & gray,Clay,Stiff,w/ferrous stains and blocky structure	CH	33.4											
9	16-18	1.50		Brown & gray,Clay,Stiff,w/ferrous stains and blocky structure	CH	36.3											
10	18-20	1.25		Brown & gray,Clay,Stiff,w/ferrous stains and blocky structure	CH	27.6											

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. 93-300 SAMPLE NO. 4 DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray,Clay,Stiff,w/mica & ferrous nodules

Tare No.	KL-28	Height	5.595 in.
Tare plus Wet Specimen	512.08 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	396.92 gm	Initial Area	6.290 sq in.
Water Weight	115.16 gm	Volume	35.194 cu in.
Tare Weight	42.62 gm	Volume of Solids	cu in.
Wet Specimen	1083.65 gm	Void Ratio	
Dry Specimen	817.83 gm	Saturation	%
Water Content	32.50 %	Dry Density	88.5 lb/cu ft

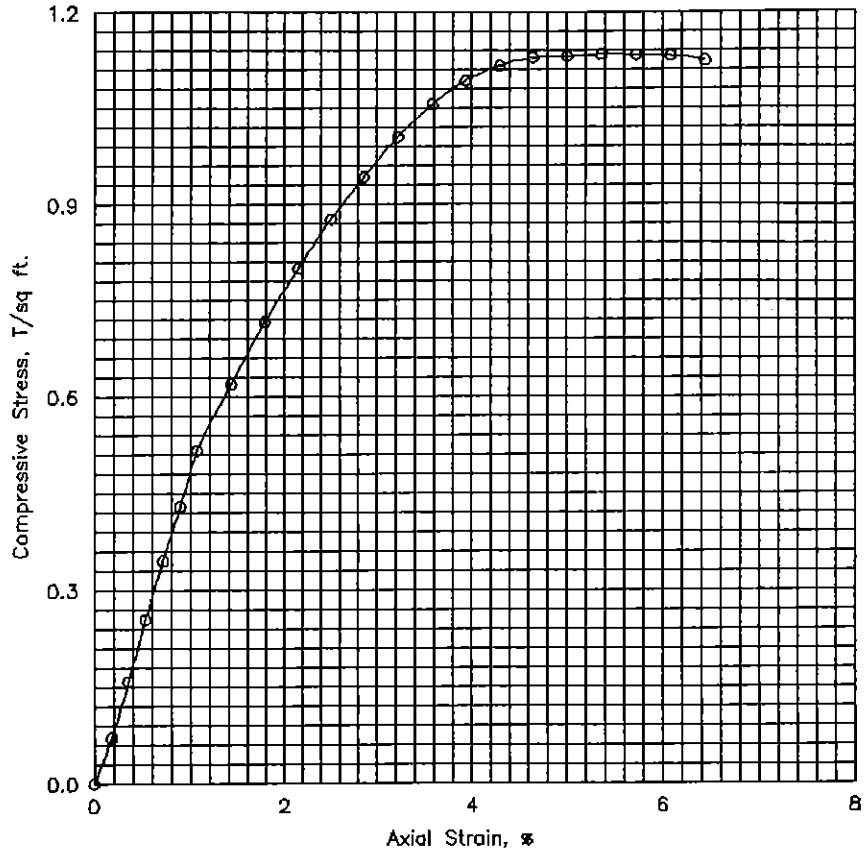
Specific Gravity of Solids
LL = 53 PL = PI =

Proving Ring No. 17015
Proving Ring Constant, K = .311 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	20.0	6.2	.002	6.30	.071
.4	20.	.020	45.0	14.0	.004	6.31	.159
.5	30.	.030	72.0	22.4	.005	6.32	.255
.7	40.	.040	98.0	30.4	.007	6.34	.346
.9	50.	.050	122.0	37.9	.009	6.35	.430
1.1	60.	.060	147.0	45.7	.011	6.36	.517
1.4	80.	.080	177.0	55.0	.014	6.38	.620
1.7	100.	.100	205.0	63.7	.018	6.40	.716
2.1	120.	.120	230.0	71.4	.021	6.43	.800
2.4	140.	.140	253.0	78.6	.025	6.45	.877
2.7	160.	.160	273.0	84.8	.029	6.48	.943
3.0	180.	.180	292.0	90.7	.032	6.50	1.005
3.4	200.	.200	308.0	95.7	.036	6.52	1.056
3.7	220.	.220	320.0	99.4	.039	6.55	1.093
4.0	240.	.240	328.0	101.9	.043	6.57	1.116
4.3	260.	.260	333.0	103.4	.046	6.60	1.129
4.7	280.	.280	335.0	104.1	.050	6.62	1.131
5.0	300.	.300	337.0	104.7	.054	6.65	1.134
5.3	320.	.320	338.0	105.0	.057	6.67	1.133
5.6	340.	.340	339.0	105.3	.061	6.70	1.132
5.9	360.	.360	338.0	105.0	.064	6.72	1.124

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	32.5 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	88.5			
Time to failure, min		t_f	4.98			
Unconfined compressive strength, T/sq ft		q_u	1.13			
Undrained shear strength, T/sq ft		S_u	.57			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Gray,Clay,Stiff,w/mica & ferrous nodules

LL 53	PL	PI	G_s

Remarks

Project Brazos Island Harbor Project	
Brownsville Shipchannel	
Area near Brownsville, Texas	
Boring No. 93-300	Sample No. 4
Depth El 6-8 ft	Date 8/2/93
UNCONFINED COMPRESSION TEST REPORT	

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

PLATE

JOB NO. 14G634 DATE 8/2/93

PROJECT Brazos Island Harbor Project
Brownsville Shipchannel

AREA near Brownsville, Texas

BORING NO. 93-300 SAMPLE NO. 7 DEPTH 12-14 ft

SPECIMEN NO. 1

CLASSIFICATION
Brown,Clay,Stiff,w/ferrous stains

Tare No.	P-11	Height	5.595 in.
Tare plus Wet Specimen	491.98 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	375.30 gm	Initial Area	6.290 sq in.
Water Weight	116.68 gm	Volume	35.194 cu in.
Tare Weight	42.62 gm	Volume of Solids	cu in.
Wet Specimen	1064.56 gm	Void Ratio	
Dry Specimen	788.14 gm	Saturation	%
Water Content	35.07 %	Dry Density	85.3 lb/cu ft
Specific Gravity of Solids			

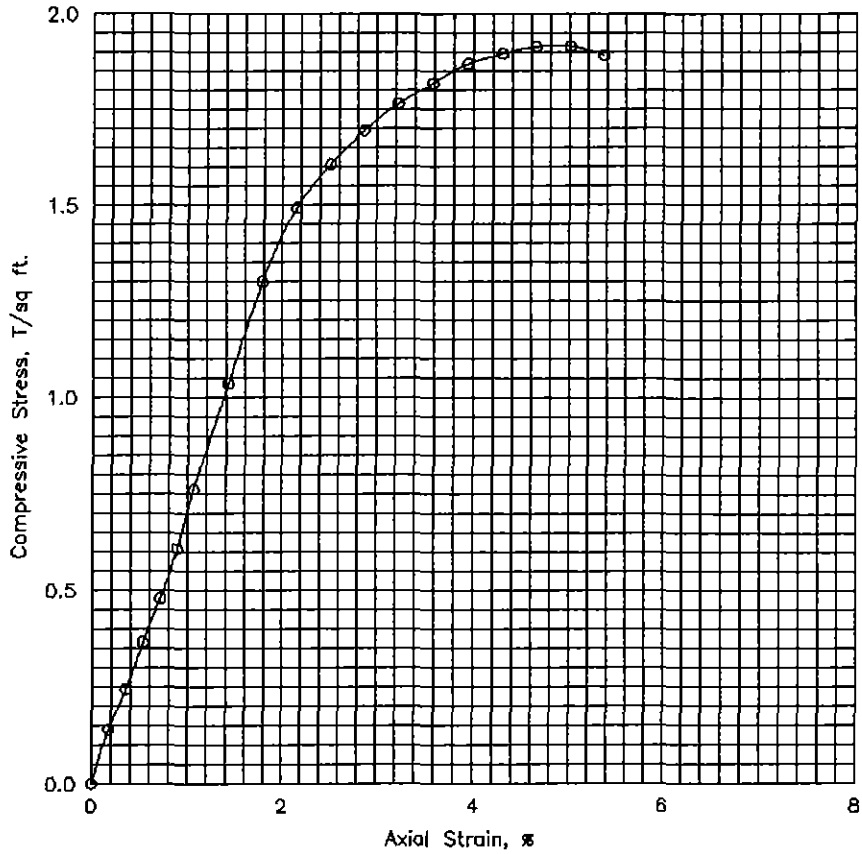
LL = 60 PL = 25 PI = 35

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	16.0	12.3	.002	6.30	.140
.3	20.	.020	28.0	21.4	.004	6.31	.245
.5	30.	.030	42.0	32.2	.005	6.32	.366
.7	40.	.040	55.0	42.1	.007	6.34	.479
.8	50.	.050	70.0	53.6	.009	6.35	.608
1.0	60.	.060	88.0	67.4	.011	6.36	.763
1.4	80.	.080	120.0	91.9	.014	6.38	1.037
1.7	100.	.100	151.0	115.7	.018	6.40	1.300
2.0	120.	.120	174.0	133.3	.021	6.43	1.493
2.3	140.	.140	188.0	144.0	.025	6.45	1.607
2.7	160.	.160	199.0	152.4	.029	6.48	1.695
3.0	180.	.180	208.0	159.3	.032	6.50	1.765
3.3	200.	.200	215.0	164.7	.036	6.52	1.818
3.7	220.	.220	222.0	170.1	.039	6.55	1.870
4.0	240.	.240	226.0	173.1	.043	6.57	1.897
4.3	260.	.260	229.0	175.4	.046	6.60	1.915
4.4	280.	.280	230.0	176.2	.050	6.62	1.916
4.8	300.	.300	228.0	174.6	.054	6.65	1.892

Job No. 14G634

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	35.1 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	85.3			
Time to failure, min		t_f	4.43			
Unconfined compressive strength, T/sq ft		q_u	1.92			
Undrained shear strength, T/sq ft		S_u	.96			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Brown,Clay,Stiff,w/ferrous stains

LL	60	PL	25	PI	35	G_s	

Remarks

Project	Brazos Island Harbor Project
	Brownsville Shipchannel
Area	near Brownsville, Texas
Boring No. 93-300	Sample No. 7
Depth El 12-14 ft	Date 8/2/93
UNCONFINED COMPRESSION TEST REPORT	

ENG FORM 1 JUN 65 3659

PLATE XI-2

Geotest Engineering, Inc.

PLATE

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