

U.S. ARMY CORPS OF ENGINEERS

13KM

DEPTH, FEET	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	BORING NO. <u>91-51</u> DATE: BEGIN <u>03-10-91</u> PAGE <u>1 1 1</u>			JOB NO. <u>14G 446</u> COMPLETE <u>03/0-9</u> Thin Walled Tube ☒ 3" ☐ 6"		PROJECT <u>CHANNEL TO VICTORIA</u>	LOCATION <u>VICTORIA CHANNEL</u>
			ELEVATION OF HOLE _____			MANUFACTURER'S DESIGNATION OF DRILL RIG <u>F-36</u>		GROUNDWATER: DEPTH <u>2 FT</u> ft., ELEV. _____ ft., at end of Drilling	
			WEATHER _____		DRILLER <u>Robert Tankard</u> LOGGER <u>John A. Hendry</u>				
			COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS		
0	1	0.75	GRAY	CLAY	MEDIUM STIFF		-w/ROOTS 0-2'		
	2	0.75	11	11	11				
-5	3	1.25	LIGHT GRAY	CLAY	STIFF	SANDY	-w/SAND LAYERS 4-8'		
	4	0.75	"	"	MEDIUM STIFF	"			
-10	X 5	1/1	LIGHT GRAY	SAND	Very LOOSE		SILTY FINE -w/CLAY LAYERS		
	X 6	1/1	11	11	11		-w/SHELL FRAGMENT 13 1/2-18'		
-15									
-20	X 7	1/1	GRAY	CLAY	SOFT		-w/SAND SEAMS 18' 22'		
	8	0.25							
	9	0	GRAY	CLAY	VERY SOFT	VERY SANDY			
-25	10	0	11	11	11		-w/SHELL FRAGMENTS BELOW 24'		
	11	0.25	11	11	SOFT MEDIUM STIFF				
-30	12	0.75	11	11					
							BOTTOM OF 91-51		
-35									

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

EL. 3.6' NGVD

Boring No.

91-51

Contract No. DACW64-91-D-0001 Delivery Order No.0009

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)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-2	0.75		Dark gray,Clay,Medium stiff,w/roots	CH	39.0											
2	2-4	1.00		Dark gray,Clay,Stiff	CH	37.2											
3	4-6	0.50		Yelloish gray,Clay,Medium stiff,Silty	CL	29.3											
4	6-8	0.50		Yelloish gray,Clay,Medium,Stiff,Silty	CL	27.0	97.7	124.1	33	19	100.0	100.0	99.8		97.4		.46
5	8.5-10		2	Gray,Sand,Very loose,Clayey	SC												
6	13.5-15		2	Gray,Sand,Very loose,Clayey,w/shell fragments	SC						99.1	98.2	93.2		34.5		
7	18.5-20		2	Gray,Sand,Very loose,Clayey,w/shell fragments	SC												
8	20-22	0.25		Dark gray,Clay,Soft,Sandy,w/shell fragments	CL	37.3	82.8	114.0	40	18	99.6	99.2	93.9		73.0	0.15 .30	.28
9	22-24	0.00		Dark gray,Clay,Very soft,Sandy,w/shell fragmen- ts and sand pockets	CL	37.2					99.4	98.7	91.6		62.4	0.15 .30	
10	24-26	0.00		Dark gray,Clay,Very soft,Sandy,w/shell fragmen- ts and sand pockets	CL	49.5										0.15 .30	
11	26-28	0.25		Dark gray,Clay,Soft,Sandy,w/shell fragments and sand pockets	CL	41.4	77.9	110.2	39	18	100.0	99.7	93.6		68.1	0.15 .30	.12
12	28.3	0.50		Dark gray,Clay,Medium stiff,Sandy,w/shell frag- ments	CL	34.7											

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

JOB NO. 14G459

DATE 4/30/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BOHNG NO. 91-51

SAMPLE NO. 4

DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Medium stiff, Silty

Tare No.	GE-10	Height	5.595 in.
Tare plus Wet Specimen	812.20 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	648.79 gm	Initial Area	6.290 sq in.
Water Weight	163.41 gm	Volume	35.194 cu in.
Tare Weight	42.48 gm	Volume of Solids	cu in.
Wet Specimen	1146.20 gm	Void Ratio	
Dry Specimen	902.86 gm	Saturation	%
Water Content	26.95 %	Dry Density	97.7 lb/cu ft
Specific Gravity of Solids			
LL = 33	PL = 19	PI = 14	

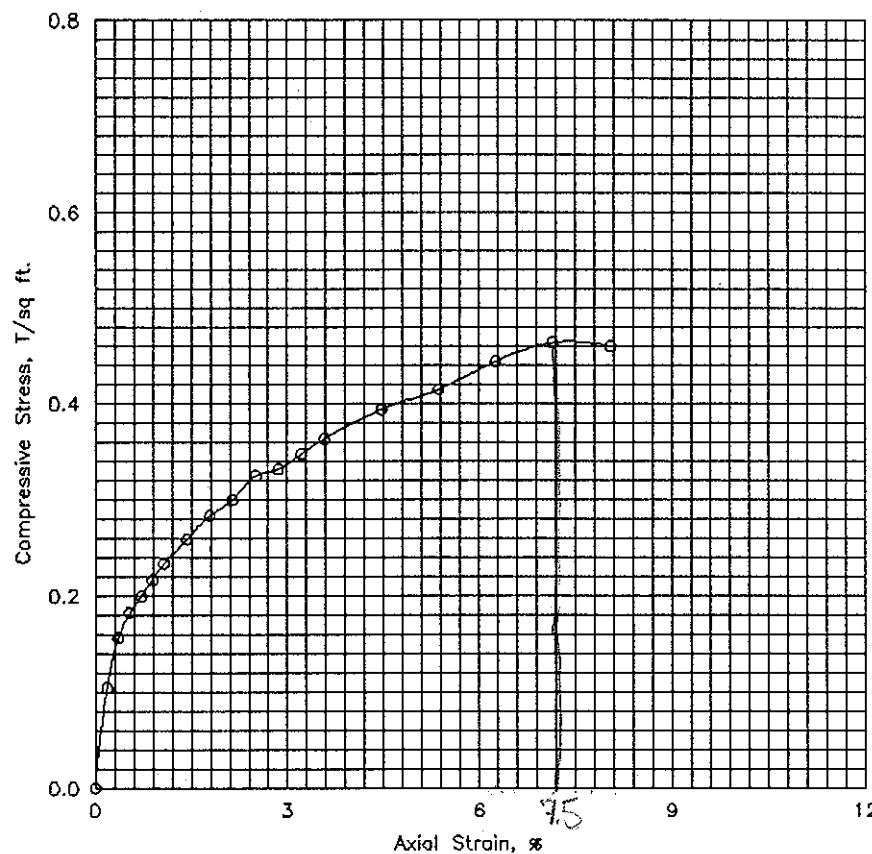
Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time n.	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	12.0	9.2	.002	6.30	.105
.5	20.	.020	18.0	13.8	.004	6.31	.157
.7	30.	.030	21.0	16.1	.005	6.32	.183
.8	40.	.040	23.0	17.6	.007	6.34	.200
1.0	50.	.050	25.0	19.1	.009	6.35	.217
1.1	60.	.060	27.0	20.7	.011	6.36	.234
1.5	80.	.080	30.0	23.0	.014	6.38	.259
1.8	100.	.100	33.0	25.3	.018	6.40	.284
2.1	120.	.120	35.0	26.8	.021	6.43	.300
2.5	140.	.140	38.0	29.1	.025	6.45	.325
2.8	160.	.160	39.0	29.9	.029	6.48	.332
3.1	180.	.180	41.0	31.4	.032	6.50	.348
3.4	200.	.200	43.0	32.9	.036	6.52	.364
4.2	250.	.250	47.0	36.0	.045	6.58	.394
5.1	300.	.300	50.0	38.3	.054	6.65	.415
5.8	350.	.350	54.0	41.4	.063	6.71	.444
6.7	400.	.400	57.0	43.7	.071	6.77	.464
7.6	450.	.450	57.0	43.7	.080	6.84	.460

Job No. 140459

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	27.0 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	97.7		
Time to failure, min		t_f	6.68		
Unconfined compressive strength, T/sq ft		q_u	.46		
Undrained shear strength, T/sq ft		S_u	.23		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		

Classification Yellowish gray, Clay, Medium stiff, Silty

LL	33	PL	19	PI	14	G_s
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA				
		Area Victoria, Texas				
		Boring No.	91-51	Sample No.	4	
		Depth	6-8 ft	Date	4/30/91	
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UNCONFINED COMPRESSION TEST REPORT						

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Geotest Engineering, Inc.

PLATE XI-2

PLATE

JOB NO. 14G459

DATE 4/30/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-51

SAMPLE NO. 8

DEPTH 20-22 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Soft, Sandy, w/ shell fragments

JOB NO. 14G459

DATE 4/30/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-51

SAMPLE NO. 8

DEPTH 20-22 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Soft, Sandy, w/ shell fragments

Tare No.	P-16	Height	5.595 in.
Tare plus Wet Specimen	1095.97 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	807.93 gm	Initial Area	6.290 sq in.
Water Weight	288.04 gm	Volume	35.194 cu in.
Tare Weight	42.86 gm	Volume of Solids	cu in.
Wet Specimen	1053.11 gm	Void Ratio	
Dry Specimen	765.07 gm	Saturation	%
Water Content	37.65 %	Dry Density	82.8 lb/cu ft
Specific Gravity of Solids			
LL = 40	PL = 18	PI = 22	

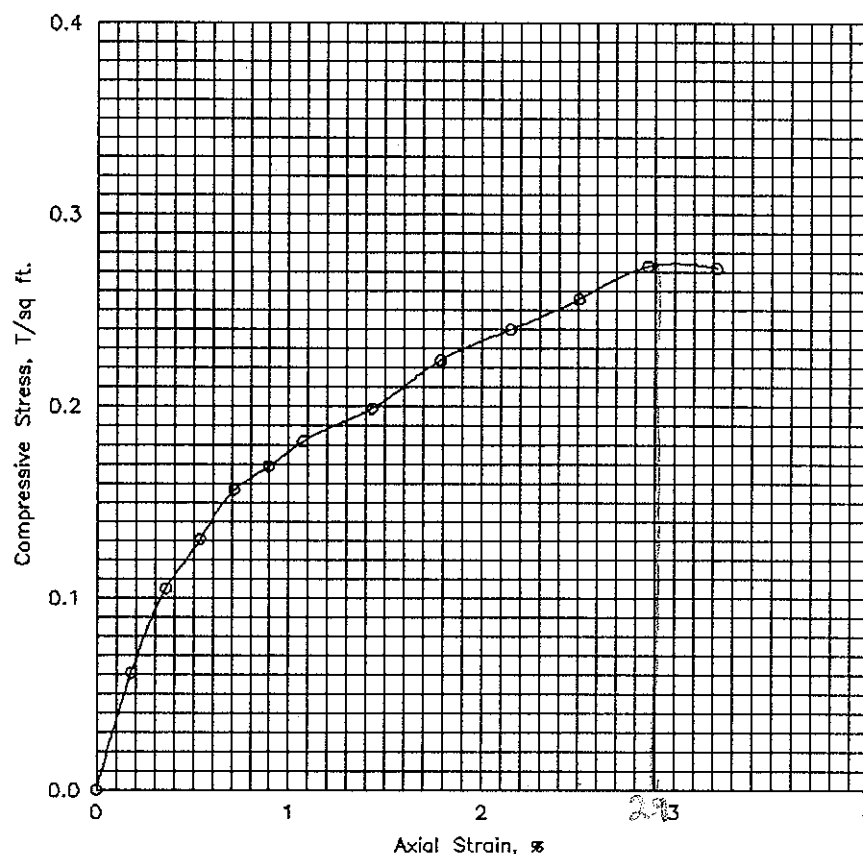
Proving Ring No. 10170

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
.3	10.	.010	7.0	5.4	.002	6.30	.061
.5	20.	.020	12.0	9.2	.004	6.31	.105
.7	30.	.030	15.0	11.5	.005	6.32	.131
.9	40.	.040	18.0	13.8	.007	6.34	.157
1.1	50.	.050	19.5	14.9	.009	6.35	.169
1.2	60.	.060	21.0	16.1	.011	6.36	.182
1.6	80.	.080	23.0	17.6	.014	6.38	.199
1.9	100.	.100	26.0	19.9	.018	6.40	.224
2.2	120.	.120	28.0	21.4	.021	6.43	.240
2.5	140.	.140	30.0	23.0	.025	6.45	.256
2.9	160.	.160	32.0	24.5	.029	6.48	.273
3.2	180.	.180	32.0	24.5	.032	6.50	.272

Job No. 14G459

Failure Sketches



- ☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	37.6 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	82.8		
Time to failure, min		t_f	2.90		
Unconfined compressive strength, T/sq ft		q_u	.27		
Undrained shear strength, T/sq ft		S_u	.14		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		

Classification Dark gray, Clay, Soft, Sandy, w/ shell fragments

LL	40	PL	18	PI	22	G_s
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Remarks	Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA		
	Area Victoria, Texas		
	Boring No. 91-51		Sample No. 8
	Depth 20-22 ft El		Date 4/30/91
	UNCONFINED COMPRESSION TEST REPORT		

JOB NO. 14G459

DATE 4/30/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BOHNG NO. 91-51

SAMPLE NO. 11

DEPTH 26-28 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Soft, Sandy, w/ shell fragments and sand pockets

Tare No.	P-17	Height	5.595 in.
Tare plus Wet Specimen	725.80 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	525.89 gm	Initial Area	6.290 sq in.
Water Weight	199.91 gm	Volume	35.194 cu in.
Tare Weight	42.87 gm	Volume of Solids	cu in.
Wet Specimen	1017.95 gm	Void Ratio	
Dry Specimen	719.97 gm	Saturation	%
Water Content	41.39 %	Dry Density	77.9 lb/cu ft
Specific Gravity of Solids			
LL = 39	PL = 18	PI = 21	

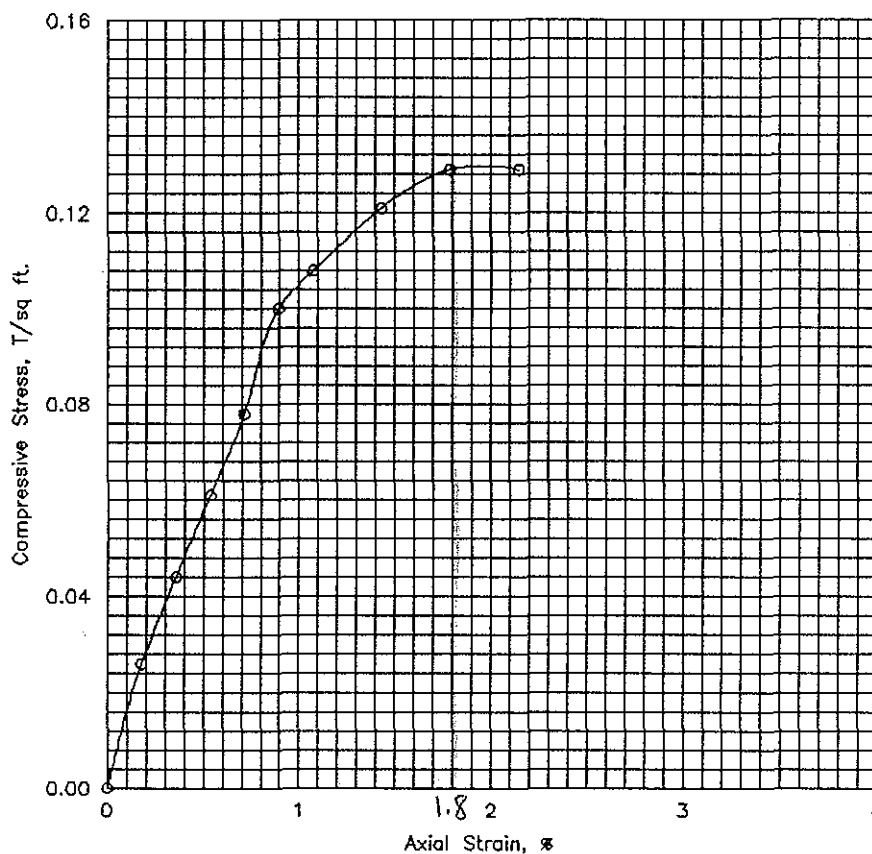
Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time n.	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
.1	10.	.010	3.0	2.3	.002	6.30	.026
.3	20.	.020	5.0	3.8	.004	6.31	.044
.5	30.	.030	7.0	5.4	.005	6.32	.061
.7	40.	.040	9.0	6.9	.007	6.34	.078
1.1	50.	.050	11.5	8.8	.009	6.35	.100
1.2	60.	.060	12.5	9.6	.011	6.36	.108
1.7	80.	.080	14.0	10.7	.014	6.38	.121
1.8	100.	.100	15.0	11.5	.018	6.40	.129
2.2	120.	.120	15.0	11.5	.021	6.43	.129

Job No. 140459

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.	1			
Type of Specimen	Undisturbed			
Initial	Water content	w_0	41.4 %	%
	Void ratio	e_0		
	Saturation	S_0	%	%
	Dry density, lb/cu ft	γ_d	77.9	
	Time to failure, min	t_f	1.83	
	Unconfined compressive strength, T/sq ft	q_u	.13	
	Undrained shear strength, T/sq ft	S_u	.06	
	Sensitivity ratio	S_t		
	Initial specimen diameter, in.	D_0	2.830	
	Initial specimen height, in.	H_0	5.595	

Classification Dark gray, Clay, Soft, Sandy, w/ shell fragments and sand pockets

LL 39 PL 18 PI 21 G_s

Remarks

Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA

Area Victoria, Texas

Boring No. 91-51

Sample No. 11

Depth 26-28 ft

Date 4/30/91

UNCONFINED COMPRESSION TEST REPORT