

U.S. ARMY CORPS OF ENGINEERS

13KM

DEPTH, FEET	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	BORING NO. <u>9158</u> DATE: BEGIN <u>03-08-91</u> PAGE <u>111</u>				
			JOB NO. <u>146446</u> COMPLETE <u>03-09-91</u> Thin Walled Tube ☒ 3" ☐ 6"				
			PROJECT <u>CHANNEL TO WIC</u>				
			LOCATION <u>11-T-10-10 CHANNEL</u>				
			ELEVATION OF HOLE _____				
			MANUFACTURER'S DESIGNATION OF DRILL RIG <u>F-36</u>				
			GROUNDWATER: DEPTH <u>2</u> ft., ELEV. _____ ft., at end of Drilling				
			WEATHER <u>SUNNY CLEAR</u>				
			DRILLER <u>ROBERT T. HALL</u> LOGGER <u>JOHN A. GENTRI</u>				
			COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0	1	1.5	GRAY	CLAY	STIFF		w/ ROOTS 0-2
	2	1.0	"	"	"		
5	3	0.5	GRAY		MEDIUM STIFF		w/ SAND POCKETS TAN
	X 4	1/4	GRAY	SILT	SOFT	CLAY	TAN
10	X 5	1/4	"	"	"	"	
	6	0.5	GRAY	CLAY	Medium STIFF		
15	7	0.25	"	"	SOFT		
	8	0.5	"	"	Medium STIFF		
	9	0.5	"	"	"		
20	10	0.25	"	"	SOFT		w/ SHELL @ 22'
	11	0.5	"	"	Medium STIFF		
25	12	0.25	"	"	SOFT		
	13	0.5	"	"	Medium STIFF		
30	14	0.5	"	"	"		
							BOTTOM of 9158
35							

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

Boring No.

91-58

El. 3.6' NGVD

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)	L L (%)	P L (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											# 4	# 10	# 40	# 100	# 200		
1	0-2	1.50		Dark gray,Clay,Stiff	CH	47.7											
2	2-4	1.50	1	Dark gray,Clay,Stiff	CH	30.0	92.3	126.1	52	21	100.0	100.0	100.0		99.5		.78
3	4-6	0.50	2	Gray&yellowish brown,Clay,Medium Stiff	CH	29.3											
4	6.5-8		2	Gray&yellowish brown,Clay,Soft,Sandy	CL				23		100.0	100.0	99.9		78.3		
5	8.5-10		2	Gray&yellowish brown,Clay,Soft,Silty	CL												
6	12-14	0.75	4	Dark gray,Clay,Medium stiff,Silty,w/sand pockets and shell fragments	CL	42.7	79.8	113.9	48	21	100.0	99.8	99.4		90.5	0.15 .30	.32
7	14-16	0.25	↑	Dark gray,Clay,Soft,Silty,w/shell fragments	CL	37.7										0.20 .40	
8	16-18	0.25	5	Dark gray,Clay,Soft,Silty,w/shell fragments	CL	37.9										0.20 .40	
9	18-20	0.25		Dark gray,Clay,Soft,Silty,w/shell fragments	CL	39.1										0.20 .40	
10	20-22	0.25	↓	Dark gray,Clay,Soft,Silty,w/shell fragments	CL	41.0	81.3	114.6	42	19	100.0	99.7	99.7		99.6	0.15 .30	
11	22-24	0.50	6	Dark gray,Clay,Medium stiff,Silty,w/shell fragments	CL	41.0										0.35 .70	
12	24-26	0.00	7	Dark gray,Clay,Very soft,Silty,w/shell fragments	CL	47.5										0.10 .20	
13	26-28	0.50	8	Dark gray,Clay,Medium stiff,Silty,w/shell fragments	CL	44.7										0.25 .50	
14	28-30	0.50		Dark gray,Clay,Medium stiff,Silty,w/shell fragments	CL	44.2	77.1	11.2	45	19	100.0	99.8	99.7		99.2	0.20 .40	.54

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 5/1/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-58

SAMPLE NO. 2

DEPTH 2-4 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Stiff

Tare No.	P-12	Height	5.595 in.
Tare plus Wet Specimen	662.65 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	519.45 gm	Initial Area	6.290 sq in.
Water Weight	143.20 gm	Volume	35.194 cu in.
Tare Weight	42.69 gm	Volume of Solids	cu in.
Wet Specimen	1108.64 gm	Void Ratio	
Dry Specimen	852.56 gm	Saturation	%
Water Content	30.04 %	Dry Density	92.3 lb/cu ft
Specific Gravity of Solids			
LL = 52	PL = 21	PI = 31	

Proving Ring No. 10170

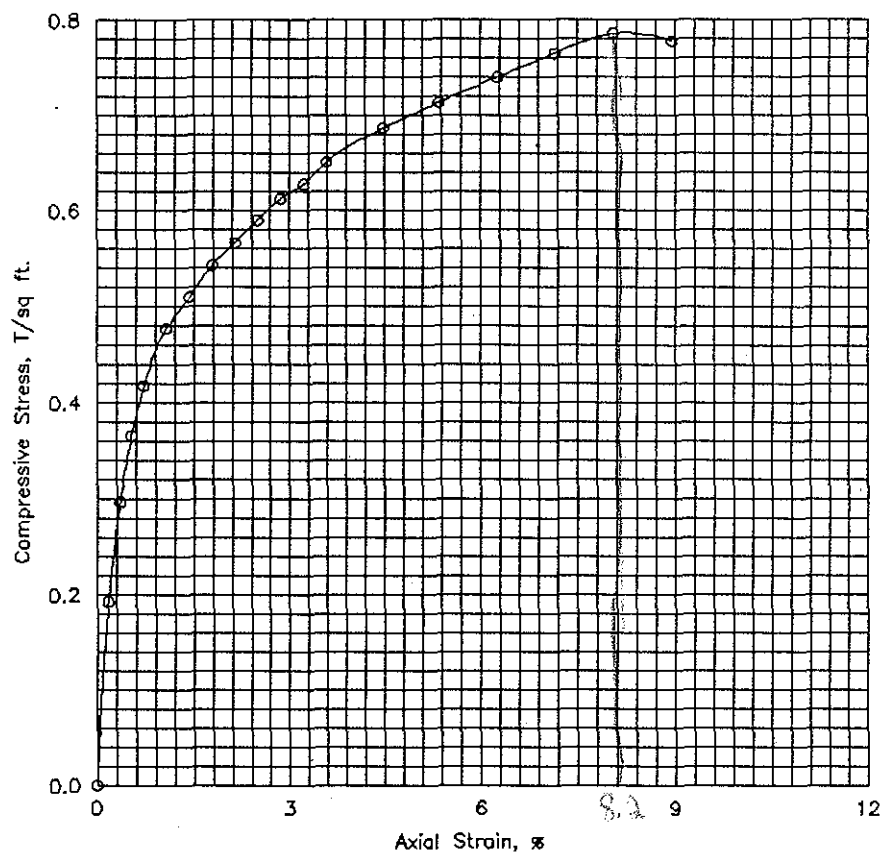
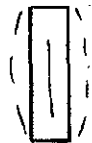
Proving Ring Constant, K = .766 lbs/div.

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	22.0	16.9	.002	6.30	.193
.6	20.	.020	34.0	26.0	.004	6.31	.297
.8	30.	.030	42.0	32.2	.005	6.32	.366
.9	40.	.040	48.0	36.8	.007	6.34	.418
1.3	60.	.060	55.0	42.1	.011	6.36	.477
1.6	80.	.080	59.0	45.2	.014	6.38	.510
1.9	100.	.100	63.0	48.3	.018	6.40	.543
2.3	120.	.120	66.0	50.6	.021	6.43	.566
2.6	140.	.140	69.0	52.9	.025	6.45	.590
2.9	160.	.160	72.0	55.2	.029	6.48	.613
3.3	180.	.180	74.0	56.7	.032	6.50	.628
3.6	200.	.200	77.0	59.0	.036	6.52	.651
4.4	250.	.250	82.0	62.8	.045	6.58	.687
5.2	300.	.300	86.0	65.9	.054	6.65	.714
6.0	350.	.350	90.0	68.9	.063	6.71	.740
6.8	400.	.400	94.0	72.0	.071	6.77	.765
7.7	450.	.450	97.5	74.7	.080	6.84	.786
8.8	500.	.500	97.5	74.7	.089	6.91	.778

Job No. 14G459

EM 1110-2-1906
Appendix XI
30 Nov 70

Failure Sketches


☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	30.0 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	92.3		
Time to failure, min		t_f	7.70		
Unconfined compressive strength, T/sq ft		q_u	.79		
Undrained shear strength, T/sq ft		S_u	.39		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Dark gray, Clay, Stiff					
LL	52	PL	21	PI	31
				G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA			
		Area Victoria, Texas			
		Boring No. 91-58		Sample No. 2	
		Depth 2-4 ft		Date 5/1/91	
		UNCONFINED COMPRESSION TEST REPORT			

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PLATE XI-2

PLATE

JOB NO. 14G459

DATE 5/1/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-58

SAMPLE NO. 6

DEPTH 12-14 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Medium stiff, Silty, w/ sand pockets & shell fragments

Tare No.	P-3	Height	5.595 in.
Tare plus Wet Specimen	675.26 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	485.98 gm	Initial Area	6.290 sq in.
Water Weight	189.28 gm	Volume	35.194 cu in.
Tare Weight	42.56 gm	Volume of Solids	cu in.
Wet Specimen	1052.24 gm	Void Ratio	
Dry Specimen	737.45 gm	Saturation	%
Water Content	42.69 %	Dry Density	79.8 lb/cu ft
Specific Gravity of Solids			
LL = 48	PL = 21	PI = 27	

Proving Ring No. 10170

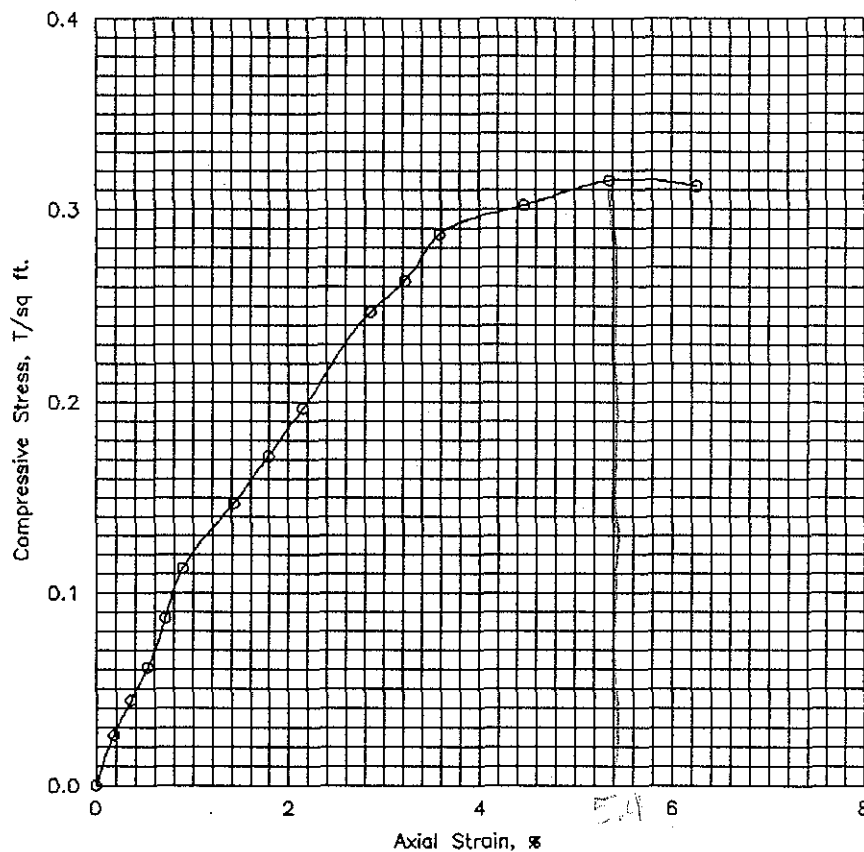
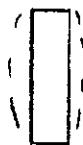
Proving Ring Constant, K = .766 lbs/div.

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	3.0	2.3	.002	6.30	.026
.4	20.	.020	5.0	3.8	.004	6.31	.044
.6	30.	.030	7.0	5.4	.005	6.32	.061
.9	40.	.040	10.0	7.7	.007	6.34	.087
1.2	50.	.050	13.0	10.0	.009	6.35	.113
1.6	80.	.080	17.0	13.0	.014	6.38	.147
1.9	100.	.100	20.0	15.3	.018	6.40	.172
2.3	120.	.120	23.0	17.6	.021	6.43	.197
2.9	160.	.160	29.0	22.2	.029	6.48	.247
3.2	180.	.180	31.0	23.7	.032	6.50	.263
3.5	200.	.200	34.0	26.0	.036	6.52	.287
4.3	250.	.250	36.0	27.6	.045	6.58	.302
5.2	300.	.300	38.0	29.1	.054	6.65	.315
6.3	350.	.350	38.0	29.1	.063	6.71	.312

Job No. 140459

EM 1110-2-1906
Appendix XI
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Failure Sketches



- ☐ Controlled stress
☒ Controlled strain

Test No.		1	
Type of Specimen		Undisturbed	
Initial	Water content	w_0	42.7 %
	Void ratio	e_0	
	Saturation	S_0	%
	Dry density, lb/cu ft	γ_d	79.8
Time to failure, min		t_f	5.17
Unconfined compressive strength, T/sq ft		q_u	.32
Undrained shear strength, T/sq ft		S_u	.16
Sensitivity ratio		S_t	
Initial specimen diameter, in.		D_0	2.830
Initial specimen height, in.		H_0	5.595
Classification Dark gray, Clay, Medium stiff, Silty, w/ sand pockets & shell fragments			
LL	48	PL	21
		PI	27
		G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA	
		Area Victoria, Texas	
		Boring No. 91-58	Sample No. 6
		Depth 12-14 ft	Date 5/1/91
		UNCONFINED COMPRESSION TEST REPORT	

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PLATE XI-2

PLATE

JOB NO. 14G459

DATE 5/1/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-58

SAMPLE NO. 14

DEPTH 28-30 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Medium stiff, Silty, w/shell fragments & sand pockets

Tare No.	P-2	Height	5.595 in.
Tare plus Wet Specimen	1069.79 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	755.22 gm	Initial Area	6.290 sq in.
Water Weight	314.57 gm	Volume	35.194 cu in.
Tare Weight	43.00 gm	Volume of Solids	cu in.
Wet Specimen	1026.79 gm	Void Ratio	
Dry Specimen	712.22 gm	Saturation	%
Water Content	44.17 %	Dry Density	77.1 lb/cu ft
Specific Gravity of Solids			
LL = 45	PL = 19	PI = 26	

Proving Ring No. 10170

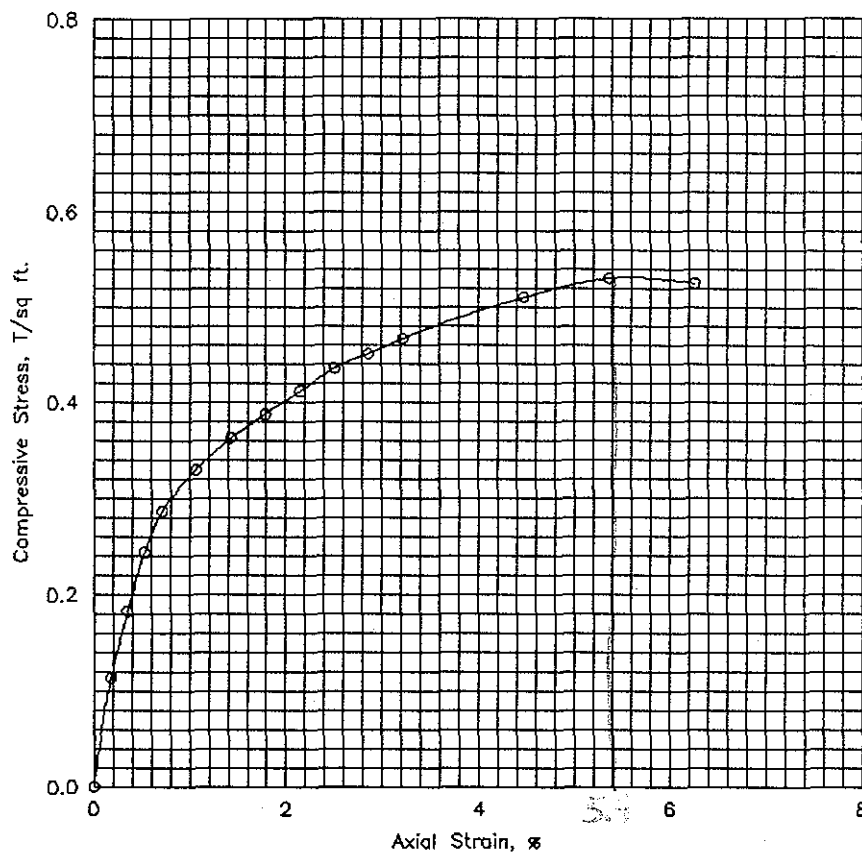
Proving Ring Constant, K = .766 lbs/div.

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
.4	10.	.010	13.0	10.0	.002	6.30	.114
.6	20.	.020	21.0	16.1	.004	6.31	.183
.8	30.	.030	28.0	21.4	.005	6.32	.244
.9	40.	.040	33.0	25.3	.007	6.34	.287
1.3	60.	.060	38.0	29.1	.011	6.36	.330
1.6	80.	.080	42.0	32.2	.014	6.38	.363
1.9	100.	.100	45.0	34.5	.018	6.40	.388
2.3	120.	.120	48.0	36.8	.021	6.43	.412
2.6	140.	.140	51.0	39.1	.025	6.45	.436
2.9	160.	.160	53.0	40.6	.029	6.48	.451
3.2	180.	.180	55.0	42.1	.032	6.50	.467
4.3	250.	.250	61.0	46.7	.045	6.58	.511
5.2	300.	.300	64.0	49.0	.054	6.65	.531
6.0	350.	.350	64.0	49.0	.063	6.71	.526

Job No. 14G459

EM 1110-2-1906
Appendix XI
30 Nov 70

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1	
Type of Specimen		Undisturbed	
Initial	Water content	w_0	44.2 %
	Void ratio	e_0	
	Saturation	S_0	%
	Dry density, lb/cu ft	γ_d	77.1
Time to failure, min		t_f	5.15
Unconfined compressive strength, T/sq ft		q_u	.53
Undrained shear strength, T/sq ft		S_u	.27
Sensitivity ratio		S_t	
Initial specimen diameter, in.		D_0	2.830
Initial specimen height, in.		H_0	5.595
Classification Dark gray, Clay, Medium stiff, Silty, w/shell fragments & sand pockets			
LL	45	PL	19
PI	26	G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA	
		Area Victoria, Texas	
		Boring No. 91-58	Sample No. 14
		Depth 28-30 ft	Date 5/1/91
		UNCONFINED COMPRESSION TEST REPORT	

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PLATE XI-2

PLATE