

U.S. ARMY CORPS OF ENGINEERS

BORING NO. <u>91-22</u> DATE: BEGIN <u>8/8/91</u> PAGE <u>1/1</u>							
JOB NO. <u>146446</u> COMPLETE ☒ Thin Walled Tube							
PROJECT <u>VICTORIA CHANNEL</u> ☒ 3" ☐ 6"							
LOCATION <u>VICTORIA CHANNEL</u>							
ELEVATION OF HOLE _____							
MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Failing 36</u>							
GROUNDWATER: DEPTH <u>6'2"</u> ft., ELEV. _____ ft., at end of Drilling							
WEATHER <u>Clear, Windy, Warm</u>							
DRILLER <u>W. De Foor</u> LOGGER <u>J. Berg</u>							
DEPTH, FEET	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSIS- TENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0	1	3.0	Gray	clay	very stiff		w/roots
	2	3.0	Gray	clay	"		
5	3	1.0	Gray	clay	medium stiff		
	4	3.0	Gray	clay	very stiff		
	5	2.25	Gray	clay	very stiff		
10	6	1.5	Gray tan	clay	stiff		
	7	2.0	Gray tan	clay	very stiff		
15	8	2.5	Gray tan	clay	very stiff		
	9	1.0	Gray tan	clay	medium stiff		
20	10	1.5	Gray	clay	"		
	11	1.5	Gray	clay	"		
	12	1.5	Gray tan	clay	"		
25	13	1.0	Gray	Sand	stiff	clayey	SAND AT 25.5"
	14	5 7/8	Gray	Sand	Medium dense		
30	15	5 7/9	Gray	Sand	"		
35							

[illegible]

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 91-22

El. 10.4' 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)	LL (%)	P L (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0-2	2.25		Dark gray, Clay, Very stiff	CH	36.8											
2	2-4	1.50		Dark gray, Clay, Stiff	CH	33.2	84.7	112.9	90	32	100.0	100.0	99.6		98.4		1.26
3	4-6	1.50		Dark gray, Clay, Stiff	CH	39.0											
4	6-8	2.00		Dark gray, Clay, Very stiff	CH	29.0											
5	8-10	1.50		Dark gray, Clay, Stiff	CH	31.1											
6	10-12	2.25		Dark gray, Clay, Very stiff	CH	36.6											
7	12-14	1.50		Dark gray, Clay, Stiff	CH	36.2	83.9	114.3	70	25	100.0	100.0	99.7		98.6		
8	14-16	1.50		Dark gray, Clay, Stiff	CH	30.8											
9	16-18	1.25		Dark gray, Clay, Stiff, Slickenside	CH	43.7											
10	18-20	1.50		Dark gray, Clay, Stiff, Blocky structure	CH	38.6											
11	20-22	1.00		Dark gray, Clay, Stiff, w/calcareous nodules	CH	35.3	87.3	118.1	57	23	100.0	99.8	95.1		77.6		.74
12	22-24	1.50		Dark gray, Clay, Stiff, Sandy	CL	20.1											
13	24-26	0.75		Light gray, Clay, Medium stiff, Sandy	CL	19.1					99.3	98.9	89.6		54.2		
14	26.5-28		15	Light gray, Sand, Medium dense, Silty	S M												
15	31.5-33		16	Light gray, Sand, Medium dense, Silty	S M						99.0	98.3	79.4		22.9		
16	36.5-38		13	Light gray, Sand, Medium dense, Silty	S M												
17	38-40	2.50		Olive gray, Clay, Very stiff, w/calcareous nodule	CH	26.6											

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

JOB NO. 14G459

DATE 4/18/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BOILING NO. 91-22

SAMPLE NO. 2

DEPTH 2-4 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, clay, stiff

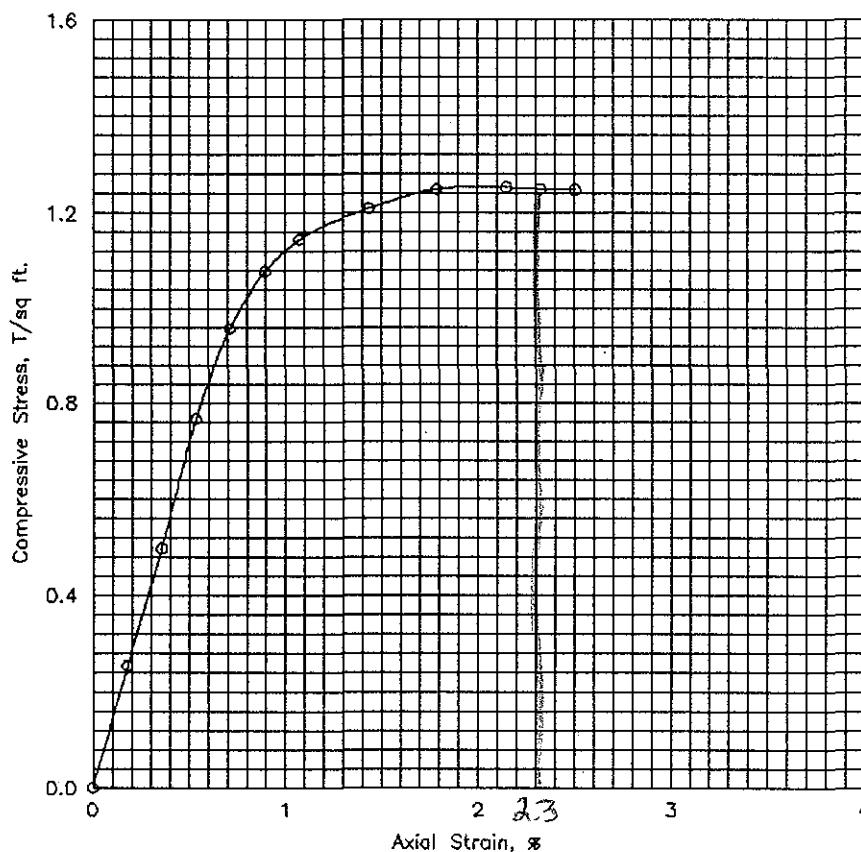
Tare No.	P-28	Height	5.595 in.
Tare plus Wet Specimen	1085.63 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	825.57 gm	Initial Area	6.290 sq in.
Water Weight	260.06 gm	Volume	35.194 cu in.
Tare Weight	42.85 gm	Volume of Solids	cu in.
Wet Specimen	1042.78 gm	Void Ratio	
Dry Specimen	782.72 gm	Saturation	%
Water Content	33.23 %	Dry Density	84.7 lb/cu ft
Specific Gravity of Solids			
LL = 90	PL = 32	PI = 58	

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
.3	10.	.010	29.0	22.2	.002	6.30	.254
.6	20.	.020	57.0	43.7	.004	6.31	.498
.8	30.	.030	88.0	67.4	.005	6.32	.767
1.0	40.	.040	110.0	84.3	.007	6.34	.958
1.2	50.	.050	124.0	95.0	.009	6.35	1.078
1.4	60.	.060	132.0	101.1	.011	6.36	1.145
1.7	80.	.080	140.0	107.2	.014	6.38	1.210
2.1	100.	.100	145.0	111.1	.018	6.40	1.249
2.4	120.	.120	146.0	111.8	.021	6.43	1.253
2.5	130.	.130	146.0	111.8	.023	6.44	1.250
2.7	140.	.140	146.0	111.8	.025	6.45	1.248

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	33.2 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	84.7		
Time to failure, min		t_f	2.38		
Unconfined compressive strength, $T/sq\ ft$		q_u	1.25		
Undrained shear strength, $T/sq\ ft$		S_u	.63		
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	90	PL	32	PI	58
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA			
		Area Victoria, Texas			
		Boring No. 91-22		Sample No. 2	
		Depth 2-4 ft		Date 4/18/91	
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G459

DATE 4/18/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BOREHOLE NO. 91-22

SAMPLE NO. 11

DEPTH 20-22 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, clay, stiff, with calcareous nodules

Tare No.	GE-6	Height	5.595 in.
Tare plus Wet Specimen	378.45 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	290.90 gm	Initial Area	6.290 sq in.
Water Weight	87.55 gm	Volume	35.194 cu in.
Tare Weight	42.60 gm	Volume of Solids	cu in.
Wet Specimen	1090.84 gm	Void Ratio	
Dry Specimen	806.48 gm	Saturation	%
Water Content	35.26 %	Dry Density	87.3 lb/cu ft
Specific Gravity of Solids			
LL = 57	PL = 23	PI = 34	

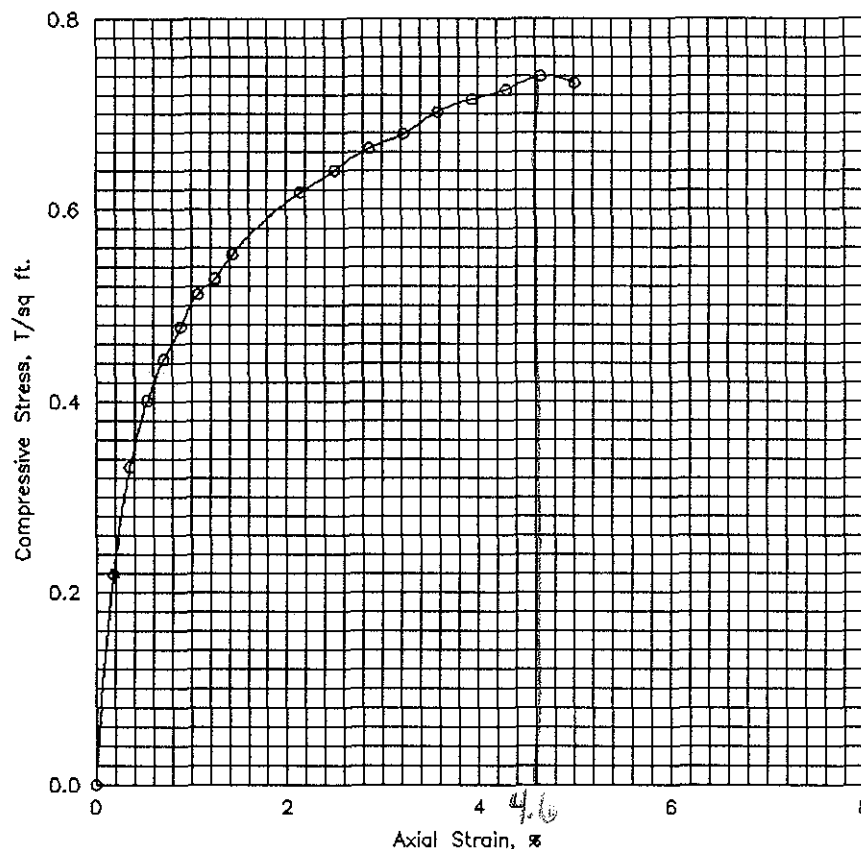
Proving Ring No. 10170

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

Elapsed Time in.	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	25.0	19.1	.002	6.30	.219
.4	20.	.020	38.0	29.1	.004	6.31	.332
.7	30.	.030	46.0	35.2	.005	6.32	.401
.9	40.	.040	51.0	39.1	.007	6.34	.444
1.0	50.	.050	55.0	42.1	.009	6.35	.478
1.2	60.	.060	59.0	45.2	.011	6.36	.512
1.4	70.	.070	61.0	46.7	.013	6.37	.528
1.5	80.	.080	64.0	49.0	.014	6.38	.553
2.2	120.	.120	72.0	55.2	.021	6.43	.618
2.6	140.	.140	75.0	57.4	.025	6.45	.641
2.9	160.	.160	78.0	59.7	.029	6.48	.664
3.3	180.	.180	80.0	61.3	.032	6.50	.679
3.6	200.	.200	83.0	63.6	.036	6.52	.702
3.9	220.	.220	85.0	65.1	.039	6.55	.716
4.2	240.	.240	86.5	66.3	.043	6.57	.726
4.5	260.	.260	88.5	67.8	.046	6.60	.740
4.8	280.	.280	88.0	67.4	.050	6.62	.733

Job No. 14G459

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	35.3 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	87.3		
Time to failure, min		t_f	4.50		
Unconfined compressive strength, T/sq ft		q_u	.74		
Undrained shear strength, T/sq ft		S_u	.37		
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, with calcareous nodules					
LL	57	PL	23	PI	34
				G_s	
Remarks		Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA			
		Area Victoria, Texas			
		Boring No. 91-22		Sample No. 11	
		Depth 20-22 ft		Date 4/18/91	
		UNCONFINED COMPRESSION TEST REPORT			