U.S. ARMY CORPS OF ENGINEERS

BORING NO. 91-12 DATE: BEGIN 3-12-91 PAGE 1 / 2
JOB NO. 146146 COMPLETE 3/18/91 Thin Walled Tube
PROJECT Victoria Channel ☑ 3" ☐ 6"
LOCATION Victoria Channel
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing-36
GROUNDWATER: DEPTH 4'6" ft., ELEV. ____ ft., at end of Drilling
WEATHER Clear, Warm
DRILLER W. DeFoor LOGGER J. Berg

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	3.75	Tan	clay	very stiff		w/ Roots
		2	4.5+	Tan	clay	Hard		
5		3	4.5+	Tan	clay	Hard		
		4	4.5+	Brown	clay	Hard		
		5	4.5+	Brown	clay	"		
10		6	4.0	"	clay	Very stiff		
		7	4.5+	Brown	"	Hard		
15		8	2.0	Brown	clay	Very stiff		
		9	1.75	Gray	clay	Stiff		
		10	1.0	Gray	clay	~~Medium~~ Stiff		
20		11	N.A.	Gray	clay	~~Soft~~		w/ sand seams
	X	12	2/3/3	Gray	Sand	Loose		Sand at 22'
25	X	13	2/3/1	Gray	Sand	Very Loose		clay at 26'
		14	1.0	Gray	clay	~~Medium~~ stiff		
		15	.5	Gray	clay	Soft		
30		16	2.0	Gray	clay	V stiff		
		17	4.5+	Gray	clay	Hard	Sandy	Sand at 34'
35	X	18	2/3/5	Gray	Sand	Loose		

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 91-17 DATE: BEGIN 3-18-91 PAGE 2 / 2
JOB NO. 26446 COMPLETE 3-19-91 Thin Walled Tube
PROJECT Victoria Channel ☑ 3" ☐ 6"
LOCATION Victoria Channel
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing-36
GROUNDWATER: DEPTH 4'6" ft., ELEV. ____ ft., at end of Drilling
WEATHER Clear Warm
DRILLER W. DeFoor LOGGER I. Berg

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35								
40	X	19	3/3/5	GRAY	Sand	Loose	Pea Gravel	Bottom of 91-17 (40')
45								
50								
55								
60								
65								
70								

GEOTEST ENGINEERING, INC.

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 91-17 El. 15.1' 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	2.50		Dark olive gray, Clay, Very stiff, w/roots	CH	22.6											
2	2-4	3.00		Dark olive gray, Clay, Very stiff, w/calcareous nodule	CH	23.7	96.6	119.6	55	19	100.0	99.9	99.7		93.1		1.54
3	4-6	4.50		Dark gray, Clay, Hard. w/silt parting & pockets	CH	18.8											
4	6-8	4.5+		Dark gray, Clay, Hard, w/silt parting & pockets	CH	19.1											
5	8-10	4.5+	8	Dark gray, Clay, Hard. w/ferrous stains & shell fragements & silt pockets	CH	21.0	101.8	123.2									
6	10-12	4.25		Dark olive gray, Clay. Hard. w/shell fragement & ferrous stains	CH	25.6											
7	12-14	3.50		Dark olive gray, Clay. Very stiff,w/shell fragemer & ferrous stains	CH	21.8											
8	14-16	2.50		Dark olive gray, Clay, Very stiff, w/shell fragme-nts Blocky structurel and slickensided	CH	30.3											
9	16-18	2.00		Dark gray & yellowish brown, Clay, Very stiff,w/ Blocky structures	CH	38.2	81.4	112.5	89	34	100.0	99.8	99.5		98.7		0.9
10	18-20	0.50		Dark gray, Clay, Medium ~~stiff~~, w/ferrous nodules	CH	47.6											
11	20-22	0.50		Gray, Clay, Medium ~~stiff~~, Sandy, w/sand pockets	CL	35.7					99.9	99.6	99.1		68.1		
12	22.5-24		5	Gray, Sand, Loose, Silty, w/shell fragements	S M												
13	24.5-26		3	Gray, Sand, Very loose, Silty, w/shell fragement	S M						99.8	99.6	99.3		20.6		
14	26-28	1.00		Gray, Clay, Stiff, w/sand pockets	CH												
15	28-30	0.50		Dark gray,Clay,Medium ~~stiff~~	CH	64.4	60.7	99.9	86	32	100.0	99.9	99.6		99.0	0.30 .60	
16	30-32	1.50		Dark gray,Clay,Stiff,Sandy	CL	34.0											
17	32-34	3.50		Gray,Sand,Medium dense,Clayey,w/Gravel	SC	17.0					99.5	97.2	47.0		12.7		

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

Project : Channel enlargement channel to Victoria, Victoria, Texas

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 91-17

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		
18	34.5-36		8	Gray,Sand,Loose,Silty,w/Gravel	S M												
19	38.5-40		8	Gray,Sand,Loose,Silty,w/Gravel	S M						99.5	97.2	47.0		13.0		

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 4/17/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-17 SAMPLE NO. 2 DEPTH 2-4 ft

SPECIMEN NO. 1

CLASSIFICATION
Dark olive gray,clay,very stiff,w/calcareous nodules

Tare No.	P-17	Height	5.595 in.
Tare plus Wet Specimen	583.50 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	479.86 gm	Initial Area	6.290 sq in.
Water Weight	103.64 gm	Volume	35.194 cu in.
Tare Weight	42.93 gm	Volume of Solids	cu in.
Wet Specimen	1104.50 gm	Void Ratio	
Dry Specimen	892.74 gm	Saturation	%
Water Content	23.72 %	Dry Density	96.6 lb/cu ft

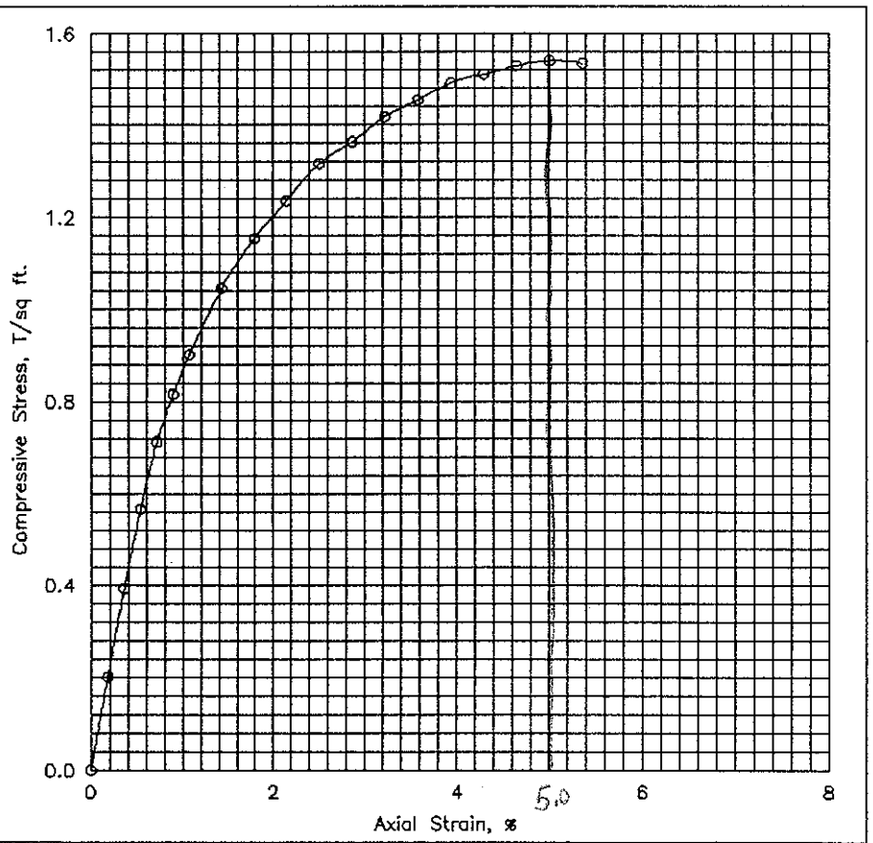
Specific Gravity of Solids
LL = 55 PL = 19 PI = 36

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	23.0	17.6	.002	6.30	.201
.5	20.	.020	45.0	34.5	.004	6.31	.393
.7	30.	.030	65.0	49.8	.005	6.32	.567
.9	40.	.040	82.0	62.8	.007	6.34	.714
1.0	50.	.050	94.0	72.0	.009	6.35	.817
1.3	60.	.060	104.0	79.7	.011	6.36	.902
1.6	80.	.080	121.0	92.7	.014	6.38	1.046
1.9	100.	.100	134.0	102.6	.018	6.40	1.154
2.2	120.	.120	144.0	110.3	.021	6.43	1.236
2.6	140.	.140	154.0	118.0	.025	6.45	1.316
3.0	160.	.160	160.0	122.6	.029	6.48	1.363
3.3	180.	.180	167.0	127.9	.032	6.50	1.417
3.6	200.	.200	172.0	131.8	.036	6.52	1.454
4.0	220.	.220	177.0	135.6	.039	6.55	1.491
4.3	240.	.240	180.0	137.9	.043	6.57	1.511
4.6	260.	.260	183.0	140.2	.046	6.60	1.530
4.9	280.	.280	185.0	141.7	.050	6.62	1.541
5.2	300.	.300	185.0	141.7	.054	6.65	1.535

Job No. 14G459

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	23.7 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	96.6			
Time to failure, min		t_f	4.93			
Unconfined compressive strength, T/sq ft		q_u	1.54			
Undrained shear strength, T/sq ft		S_u	.77			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Dark olive gray,clay,very stiff,w/calcareous nodules

LL	PL	PI	G_s
55	19	36	

Remarks

Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA

Area Victoria, Texas

Boring No. 91-17 | Sample No. 2

Depth El 2-4 ft | Date 4/17/91

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

JOB NO. 14G459 DATE 4/17/91

PROJECT CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA, TEXAS

BORING NO. 91-17 SAMPLE NO. 9 DEPTH 16-18 ft

SPECIMEN NO. 1

CLASSIFICATION
Dark gray and yellowish brown, clay, very stiff, with blocky structure

Tare No.	P-18	Height	5.595 in.
Tare plus Wet Specimen	1081.93 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	794.54 gm	Initial Area	6.290 sq in.
Water Weight	287.39 gm	Volume	35.194 cu in.
Tare Weight	42.56 gm	Volume of Solids	cu in.
Wet Specimen	1039.37 gm	Void Ratio	
Dry Specimen	751.98 gm	Saturation	%
Water Content	38.22 %	Dry Density	81.4 lb/cu ft

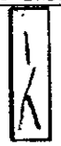
Specific Gravity of Solids
LL = 89 PL = 34 PI = 55

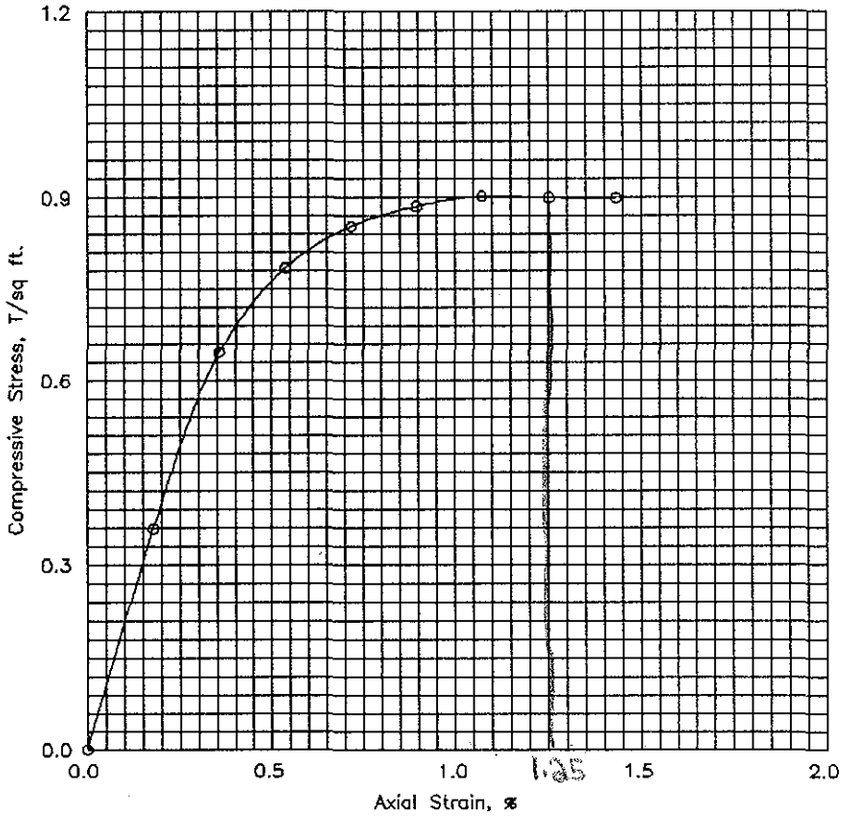
Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

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	41.0	31.4	.002	6.30	.359
.4	20.	.020	74.0	56.7	.004	6.31	.647
.7	30.	.030	90.0	68.9	.005	6.32	.785
.9	40.	.040	98.0	75.1	.007	6.34	.853
1.1	50.	.050	102.0	78.1	.009	6.35	.886
1.2	60.	.060	104.0	79.7	.011	6.36	.902
1.4	70.	.070	104.0	79.7	.013	6.37	.900
1.5	80.	.080	104.0	79.7	.014	6.38	.899

Job No. 14G459

Failure Sketches





☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_0	38.2 %	%	%	%
	Void ratio	e_0				
	Saturation	S_0	%	%	%	%
	Dry density, lb/cu ft	γ_d	81.4			
Time to failure, min		t_f	1.22			
Unconfined compressive strength, T/sq ft		q_u	.90			
Undrained shear strength, T/sq ft		S_u	.45			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_0	2.830			
Initial specimen height, in.		H_0	5.595			

Classification Dark gray and yellowish brown,clay,very stiff,w/blocky structure

LL	89	PL	34	PI	55	G_s	

Remarks

Project CHANNEL ENLARGEMENT, CHANNEL TO VICTORIA

Area Victoria, Texas

Boring No. 91-17 | Sample No. 9

Depth El 16-18 ft | Date 4/17/91

UNCONFINED COMPRESSION TEST REPORT

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PLATE XI-2