U.S. ARMY CORPS OF ENGINEERS

BORING NO. 91-74 DATE: BEGIN 3-25-91 PAGE 1 / 1
JOB NO. 146448 COMPLETE 3-25-91 Thin Walled Tube
PROJECT Bray's Bayou ☑ 3" ☐ 6"
LOCATION Bray's Bayou South Bank
ELEVATION OF HOLE
MANUFACTURER'S DESIGNATION OF DRILL RIG Failing-36
GROUNDWATER: DEPTH 7'4" ft., ELEV. ft., at end of Drilling
WEATHER Cloudy, Warm
DRILLER D Mitchell LOGGER J. Berg

DEPTH, FEET	SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSIS-TENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	1.5	Gray	clay	Stiff		w/roots
		2	2.0	"	"	stiff		
5		3	2.0	"	"	"		
		4	4.5	"	"	hard		w/calc. nod.
		5	3.5	Gray + Tan	"	very stiff		w/calc. Nod.
10		6	3.5	Tan	clay	"		
		7	4.5	"	"	hard		w/calc. Nod.
15		8	3.0	Tan	clay	very stiff		
		9	4.5+	Gray + Tan	clay	hard		
		10	4.5+	"	"	"		
20		11	4.5+	"	"	"		
		12	4.5+	Gray	clay	hard	Sand	w/calc. Nod.
		13	4.5+	"	"	"	"	" Nod.
25								Bottom of Boring 91-74
30								
35								

GEOTEST ENGINEERING, INC.

Project : Brays and Sims bayou and Fondren Ditch, Houston, Texas
Contract No.DACW64-91-D-0001 Delivery Order No. 0016

SUMMARY OF LABORATORY TEST RESULTS

Boring No. 91-74

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 gray, clay, very stiff, w/ roots	CH	29.8											
2	2-4	2.00		Dark gray, clay, very stiff	CH	30.8			85								
3	4-6	4.5+		Dark gray, clay, hard	CH	25.1											
4	6-8	3.00		Gray & brown, clay, very stiff, w/ calcareous & ferrous nodules	CH	28.8	93.8	120.9	82	29	99.8	98.9	98.3		94.2		3.26
5	8-10	4.5+		Gray & brown, clay, hard, w/ calcareous nodules	CH	26.5											
6	10-12	2.25		Gray & brown, clay, very stiff, slickensided	CH	32.0											
7	12-14	3.00		Brown & gray, clay, very stiff, w/ silt partings, slickensided	CH	24.6			52								
8	14-16	3.25		Gray & yellowish brown, clay, very stiff, sandy, w/ ferrous stains	CL	16.1											
9	16-18	4.5+		Gray & brown, clay, hard, sandy, w/ calcareous nodules	CL	15.7											
10	18-20	4.5+		Gray & yellowish brown, clay, hard, sandy	CL	15.1	117.6	135.4	42	17	100.0	99.9	99.7		80.1		3.91
11	20-22	4.5+		Gray & brown, clay, hard, sandy	CL	15.0											
12	22-24	3.25		Gray, clay, very stiff, sandy, w/ calcareous nodules	CL	21.0			34								
13	24-26	3.25		Gray, clay, very stiff, sandy, w/ calcareous nodules	CL	17.8											

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. 14G487 DATE 7/01/91

PROJECT BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH

BORING NO. 91-74 SAMPLE NO. 4 DEPTH 6-8 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray & brown, clay, very stiff, w/ calcareous & ferrous nodules

Tare No.	P-12	Height	5.595 in.
Tare plus Wet Specimen	650.97 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	514.81 gm	Initial Area	6.290 sq in.
Water Weight	136.16 gm	Volume	35.194 cu in.
Tare Weight	42.51 gm	Volume of Solids	cu in.
Wet Specimen	1116.74 gm	Void Ratio	
Dry Specimen	866.84 gm	Saturation	%
Water Content	28.83 %	Dry Density	93.8 lb/cu ft

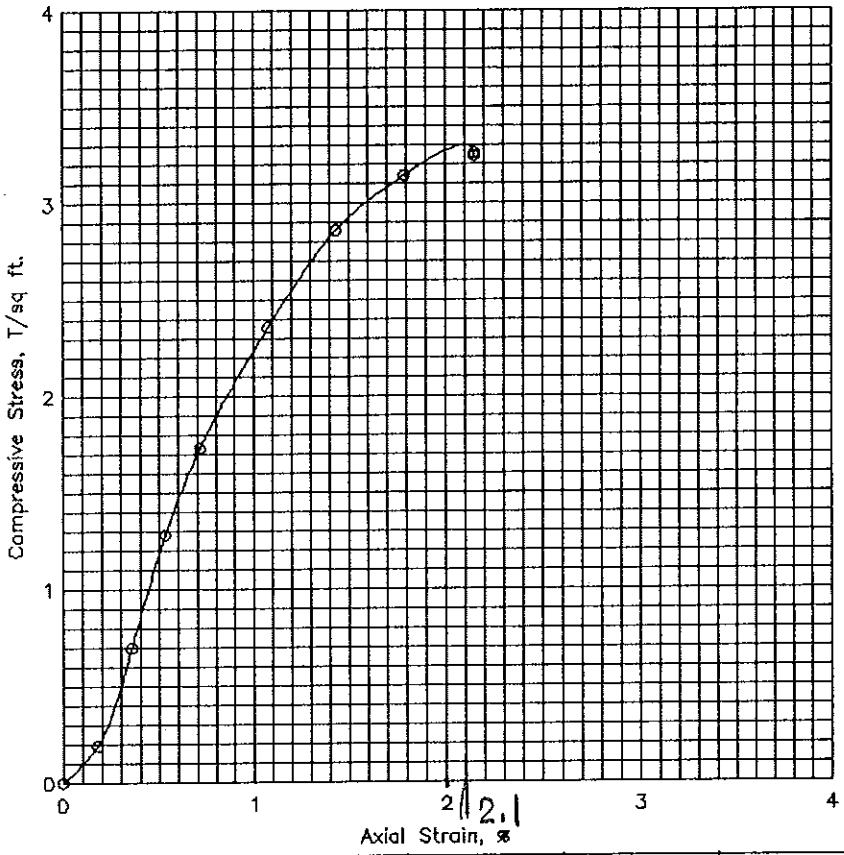
Specific Gravity of Solids
LL = 82 PL = 29 PI = 53

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
.5	20.	.020	80.0	61.3	.004	6.31	.699
.8	30.	.030	147.0	112.6	.005	6.32	1.282
1.0	40.	.040	199.0	152.4	.007	6.34	1.732
1.4	60.	.060	272.0	208.4	.011	6.36	2.359
1.9	80.	.080	331.0	253.5	.014	6.38	2.861
2.2	100.	.100	365.0	279.6	.018	6.40	3.143
2.5	120.	.120	380.0	291.1	.021	6.43	3.260
2.7	120.	.120	378.0	289.5	.021	6.43	3.243

Job No. 140487

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_o	28.8 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	93.8			
Time to failure, min		t_f	2.53			
Unconfined compressive strength, T/sq ft		q_u	3.26			
Undrained shear strength, T/sq ft		S_u	1.63			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	2.830			
Initial specimen height, in.		H_o	5.595			

Classification Gray & brown, clay, very stiff, w/ calcareous & ferrous nodules

LL	PL	PI	G_s
82	29	53	

Remarks

Project BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH

Area Houston, Texas

Boring No. 91-74 | Sample No. 4

Depth El 6-8 ft | Date 7/01/91

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

PLATE XI-2

JOB NO. 14G487 DATE 7/01/91

PROJECT BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH

BORING NO. 91-74 SAMPLE NO. 10 DEPTH 18-20 ft

SPECIMEN NO. 1

CLASSIFICATION
Gray & Yellowish brown, clay, hard, sandy

Tare No.	P-7	Height	5.595 in.
Tare plus Wet Specimen	1293.01 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	1129.06 gm	Initial Area	6.290 sq in.
Water Weight	163.95 gm	Volume	35.194 cu in.
Tare Weight	42.50 gm	Volume of Solids	cu in.
Wet Specimen	1250.51 gm	Void Ratio	
Dry Specimen	1086.56 gm	Saturation	%
Water Content	15.09 %	Dry Density	117.6 lb/cu ft

Specific Gravity of Solids
LL = 42 PL = 17 PI = 25

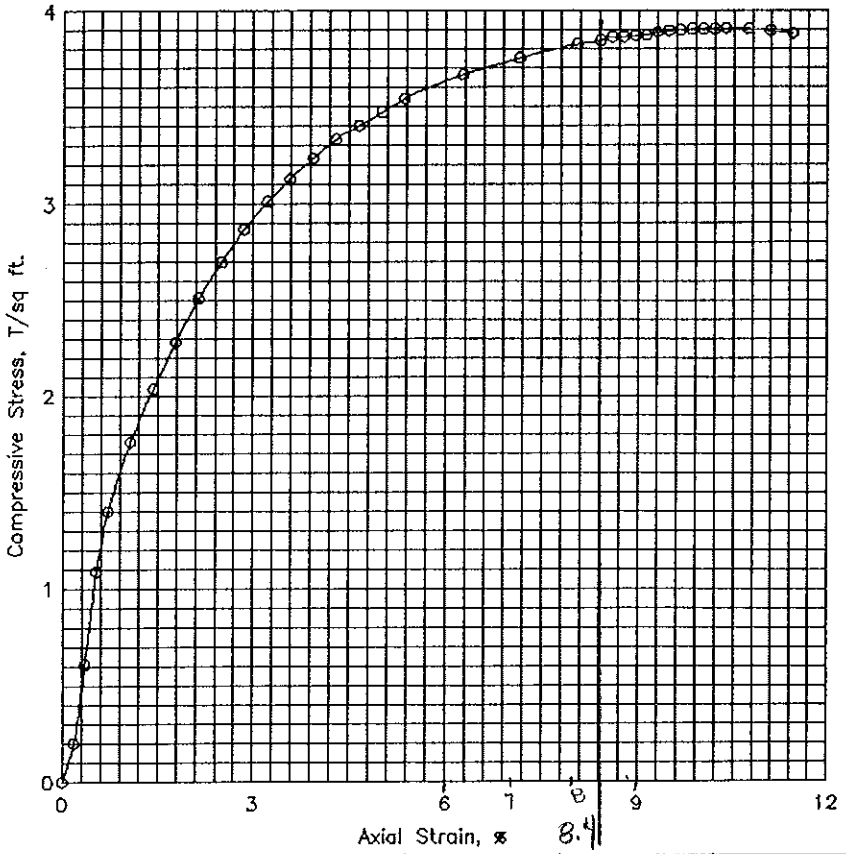
Proving Ring No. 10170
Proving Ring Constant, K = .766 lbs/div.

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	70.0	53.6	.004	6.31	.612
.8	30.	.030	125.0	95.8	.005	6.32	1.090
1.0	40.	.040	161.0	123.3	.007	6.34	1.402
1.4	60.	.060	203.0	155.5	.011	6.36	1.761
1.7	80.	.080	236.0	180.8	.014	6.38	2.040
2.1	100.	.100	265.0	203.0	.018	6.40	2.282
2.5	120.	.120	293.0	224.4	.021	6.43	2.514
2.8	140.	.140	316.0	242.1	.025	6.45	2.701
3.1	160.	.160	337.0	258.1	.029	6.48	2.870
3.5	180.	.180	355.0	271.9	.032	6.50	3.012
3.8	200.	.200	370.0	283.4	.036	6.52	3.128
4.2	220.	.220	384.0	294.1	.039	6.55	3.235
4.6	240.	.240	397.0	304.1	.043	6.57	3.332
4.9	260.	.260	407.0	311.8	.046	6.60	3.403
6.3	280.	.280	417.0	319.4	.050	6.62	3.473
5.6	300.	.300	427.0	327.1	.054	6.65	3.543
6.4	350.	.350	446.0	341.6	.063	6.71	3.666
7.2	400.	.400	461.0	353.1	.071	6.77	3.753
8.1	450.	.450	474.5	363.5	.080	6.84	3.826
8.4	470.	.470	479.0	366.9	.084	6.87	3.847
8.6	480.	.480	482.0	369.2	.086	6.88	3.864
8.7	490.	.490	483.0	370.0	.088	6.89	3.864
8.8	500.	.500	485.0	371.5	.089	6.91	3.872
9.1	510.	.510	486.0	372.3	.091	6.92	3.873
9.2	520.	.520	489.0	374.6	.093	6.93	3.889
9.4	530.	.530	491.0	376.1	.095	6.95	3.897

9.5	540.	.540	492.5	377.3	.097	6.96	3.901
9.7	550.	.550	494.0	378.4	.098	6.98	3.906
9.9	560.	.560	495.0	379.2	.100	6.99	3.906
10.0	570.	.570	496.0	379.9	.102	7.00	3.906
10.2	580.	.580	497.5	381.1	.104	7.02	3.910
10.5	600.	.600	499.0	382.2	.107	7.05	3.906
10.8	620.	.620	500.0	383.0	.111	7.07	3.898
11.1	640.	.640	500.0	383.0	.114	7.10	3.883

Job No. 140487

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.			1			
Type of Specimen			Undisturbed			
Initial	Water content	w_o	15.1 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	117.6			
Time to failure, min		t_f	10.20			
Unconfined compressive strength, T/sq ft		q_u	3.91			
Undrained shear strength, T/sq ft		S_u	1.95			
Sensitivity ratio		S_t				
Initial specimen diameter, in.		D_o	2.830			
Initial specimen height, in.		H_o	5.595			

Classification Gray & Yellowish brown, clay, hard, sandy

LL	PL	PI	G_s
42	17	25	

Remarks

Project BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH

Area Houston, Texas

Boring No. 91-74 | Sample No. 10

Depth El 18-20 ft | Date 7/01/91

UNCONFINED COMPRESSION TEST REPORT

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PLATE XI-2