

U.S. ARMY CORPS OF ENGINEERS

BORING NO. <u>91-73</u>		DATE: BEGIN <u>3-25-91</u>		PAGE <u>1 / 1</u>	
JOB NO. <u>146448</u>		COMPLETE <u>3-25-91</u> Thin Walled Tube			
PROJECT <u>BRAY'S Bayou</u>		☒ 3" ☐ 6"			
LOCATION <u>BRAY'S Bayou South Bank</u>					
ELEVATION OF HOLE _____					
MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Fairing-36</u>					
GROUNDWATER: DEPTH <u>78</u> ft., ELEV. _____ ft., at end of Drilling					
WEATHER <u>Cloudy, Warm</u>					
DRILLER <u>D. Mitchell</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	2.5	GRAY	CLAY	very stiff		w/ roots
	2	2.0	"	"	stiff		
5	3	4.5	GRAY	"	hard		
	4	4.5	"	clay	"		aka's nod
	5	3.0	TAN	clay	very stiff	Sand	
10	6	3.5	"	"	"	"	
	7	2.0	GRAY + TAN	clay	very stiff	Sand	
15	8	3.5	"	"	"	"	
	9	4.5	"	"	hard	"	
	10	4.5	GRAY	Clay	hard		
20	11	4.5	GRAY TAN	clay	hard	Sand	
	12	4.5	"	"	"	"	
25	13	2.5	GRAY	Clay	very stiff	"	
							Bottom of 91-73 (26')
30							
35							

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. 91-73

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	3.75		Dark gray, clay, very stiff, w/ roots & gravel	CH	23.7											
2	2-4	1.75		Dark gray, clay, stiff	CH	30.8	88.8	116.2	79	28	100.0	99.9	99.5		93.3		1.05
3	4-6	4.5+		Gray & yellowish brown, clay, hard, w/ ferrous nodules	CH	25.7											
4	6-8	3.50		Gray & yellowish brown, clay, very stiff, w/ calcareous & ferrous nodules, slickensided	CH	29.5											
5	8-10	2.50		Gray & yellowish brown, clay, very stiff, sandy	CL	22.1	99.4	121.4	45	20	99.5	99.0	98.2		85.4		2.30
6	10-12	2.50		Yellowish brown & gray, clay, very stiff, sandy	CL	20.3											
7	12-14	3.25		Gray & yellowish brown, clay, very stiff, sandy	CL	15.0											
8	14-16	3.25		Gray & yellowish brown, clay, very stiff, sandy	CL	15.9			38								
9	16-18	4.5+		Gray & yellowish brown, clay, hard, sandy, w/ sand pockets	CL	15.2											
10	18-20	4.00		Gray & brown, clay, very stiff, sandy, w/ ferrous nodules	CL	18.0											
11	20-22	4.5+		Gray & brown, clay, hard, sandy, w/ calcareous nodules	CL	17.1	113.8	133.3	42	19	99.9	99.8	99.6		77.8		2.78
12	22-24	4.00		Gray & brown, clay, very stiff, sandy, w/ calcareous nodules	CL	18.5											
13	24-26	1.25		Gray, clay, stiff, sandy	CL	21.5											

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. 91-73

SAMPLE NO. 2

DEPTH 2-4 ft

SPECIMEN NO. 1

CLASSIFICATION

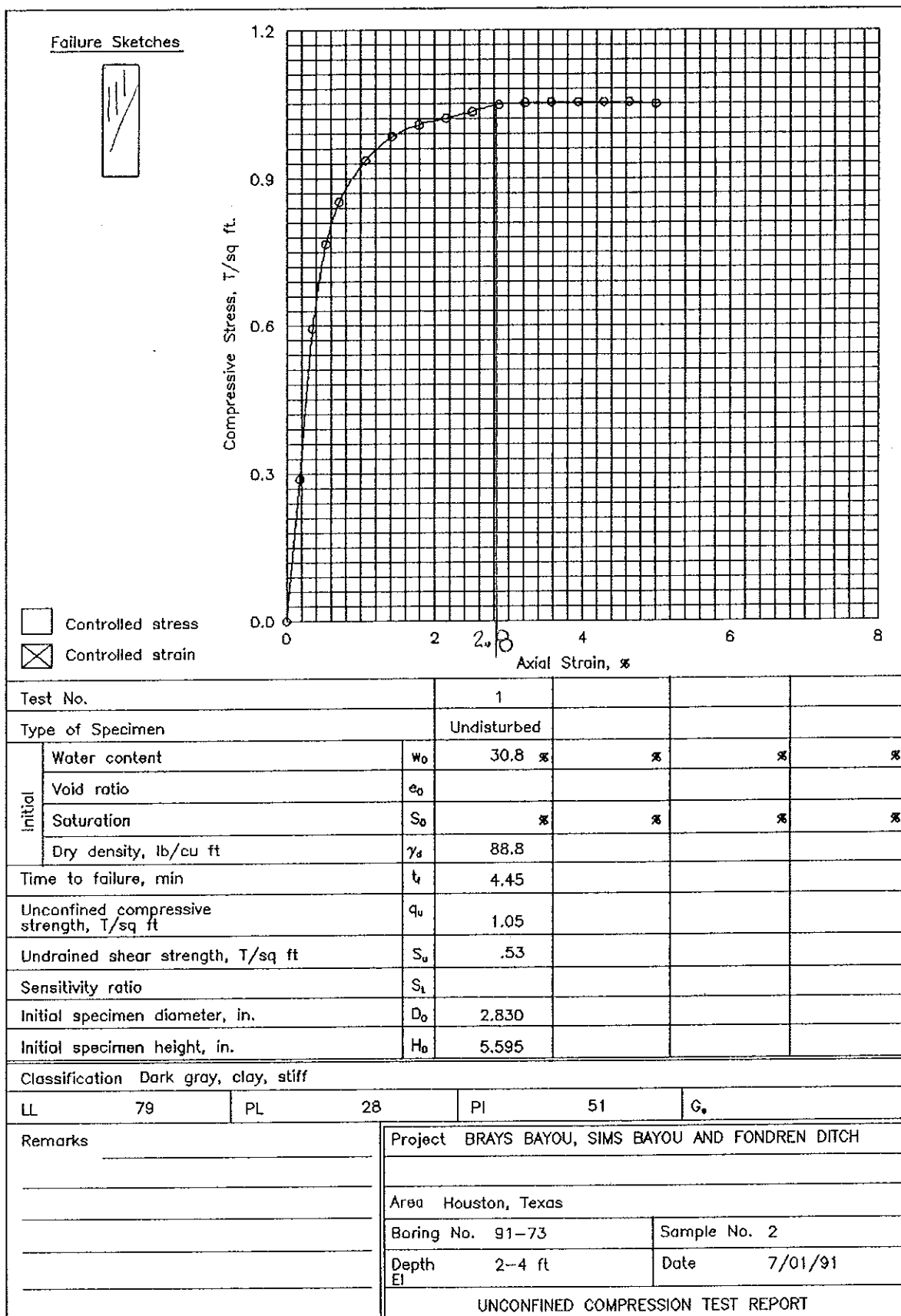
Dark gray, clay, stiff

Tare No.	P-30	Height	5.595 in.
Tare plus Wet Specimen	335.58 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	266.59 gm	Initial Area	6.290 sq in.
Water Weight	68.99 gm	Volume	35.194 cu in.
Tare Weight	42.69 gm	Volume of Solids	cu in.
Wet Specimen	1073.28 gm	Void Ratio	
Dry Specimen	820.47 gm	Saturation	%
Water Content	30.81 %	Dry Density	88.8 lb/cu ft
Specific Gravity of Solids			
LL = 79	PL = 28	PI = 51	

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	33.0	25.3	.002	6.30	.289
.5	20.	.020	68.0	52.1	.004	6.31	.594
.7	30.	.030	88.0	67.4	.005	6.32	.767
.8	40.	.040	98.0	75.1	.007	6.34	.853
1.2	60.	.060	108.0	82.7	.011	6.36	.937
1.5	80.	.080	114.0	87.3	.014	6.38	.985
1.9	100.	.100	117.0	89.6	.018	6.40	1.008
2.2	120.	.120	119.0	91.2	.021	6.43	1.021
2.5	140.	.140	121.0	92.7	.025	6.45	1.034
2.8	160.	.160	123.0	94.2	.029	6.48	1.048
3.1	180.	.180	124.0	95.0	.032	6.50	1.052
3.5	200.	.200	124.5	95.4	.036	6.52	1.053
3.8	220.	.220	125.0	95.8	.039	6.55	1.053
4.1	240.	.240	125.5	96.1	.043	6.57	1.053
4.4	260.	.260	126.0	96.5	.046	6.60	1.053
4.8	280.	.280	126.0	96.5	.050	6.62	1.049



JOB NO. 14G487

DATE 7/01/91

PROJECT BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH

BORING NO. 91-73

SAMPLE NO. 5

DEPTH 8-10 ft

SPECIMEN NO. 1

CLASSIFICATION

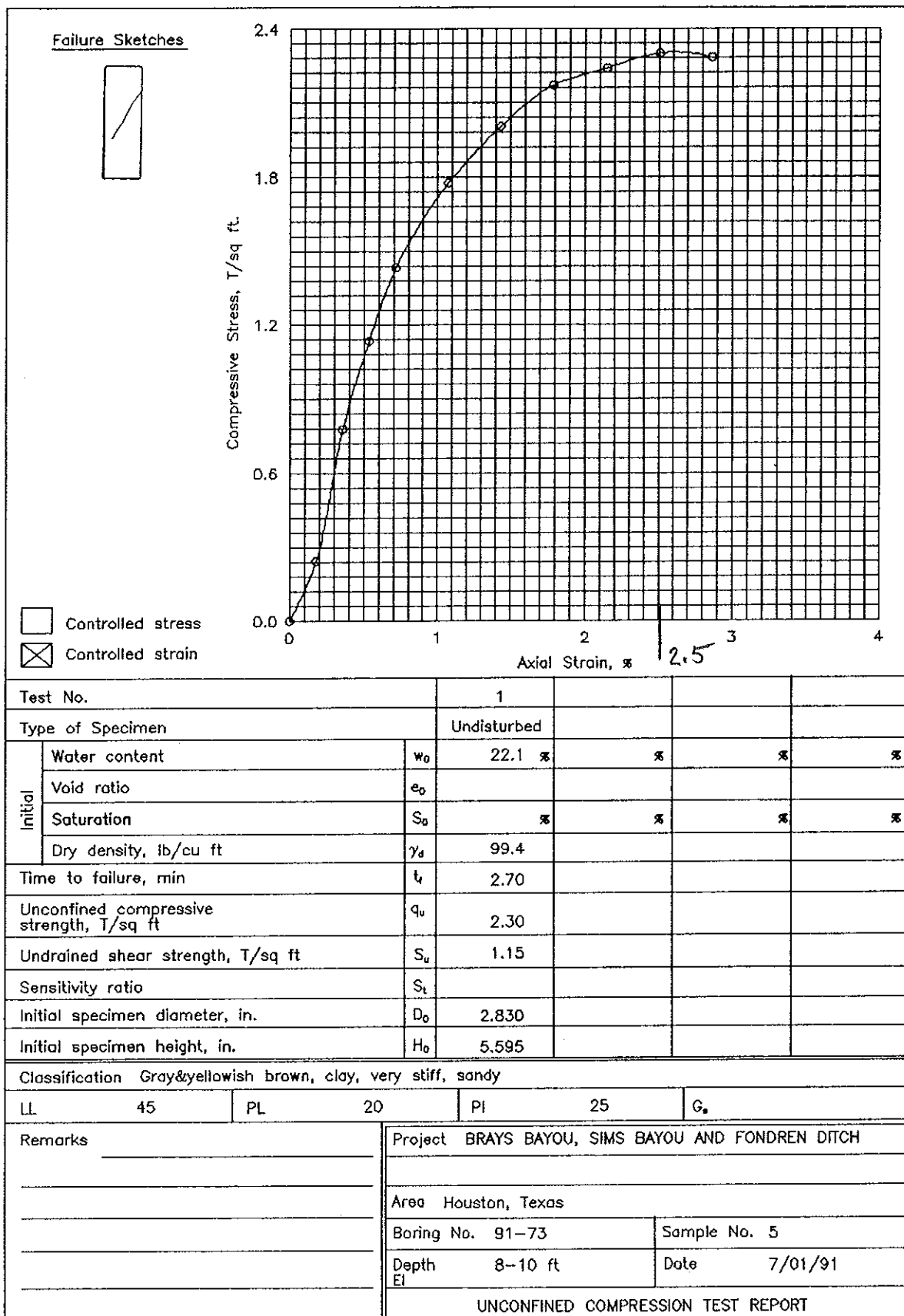
Gray&yellowish brown, clay, very stiff, sandy

Tare No.	P-29	Height	5.595 in.
Tare plus Wet Specimen	693.86 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	575.84 gm	Initial Area	6.290 sq in.
Water Weight	118.02 gm	Volume	35.194 cu in.
Tare Weight	42.85 gm	Volume of Solids	cu in.
Wet Specimen	1121.42 gm	Void Ratio	
Dry Specimen	918.12 gm	Saturation	%
Water Content	22.14 %	Dry Density	99.4 lb/cu ft
Specific Gravity of Solids			
LL = 45	PL = 20	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	28.0	21.4	.002	6.30	.245
.5	20.	.020	89.0	68.2	.004	6.31	.778
.8	30.	.030	130.0	99.6	.005	6.32	1.134
1.0	40.	.040	165.0	126.4	.007	6.34	1.436
1.3	60.	.060	205.0	157.0	.011	6.36	1.778
1.7	80.	.080	232.0	177.7	.014	6.38	2.005
2.0	100.	.100	252.0	193.0	.018	6.40	2.170
2.4	120.	.120	261.0	199.9	.021	6.43	2.239
2.7	140.	.140	269.0	206.1	.025	6.45	2.300
3.1	160.	.160	268.0	205.3	.029	6.48	2.283



JOB NO. 14G487

DATE 7/1/91

PROJECT BRAYS BAYOU, SIMS BAYOU AND FONRERN DITCH

BORING NO. 91-73

SAMPLE NO. 11

DEPTH 20-22 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray & brown, clay, hard, sandy, w/ calcareous nodules

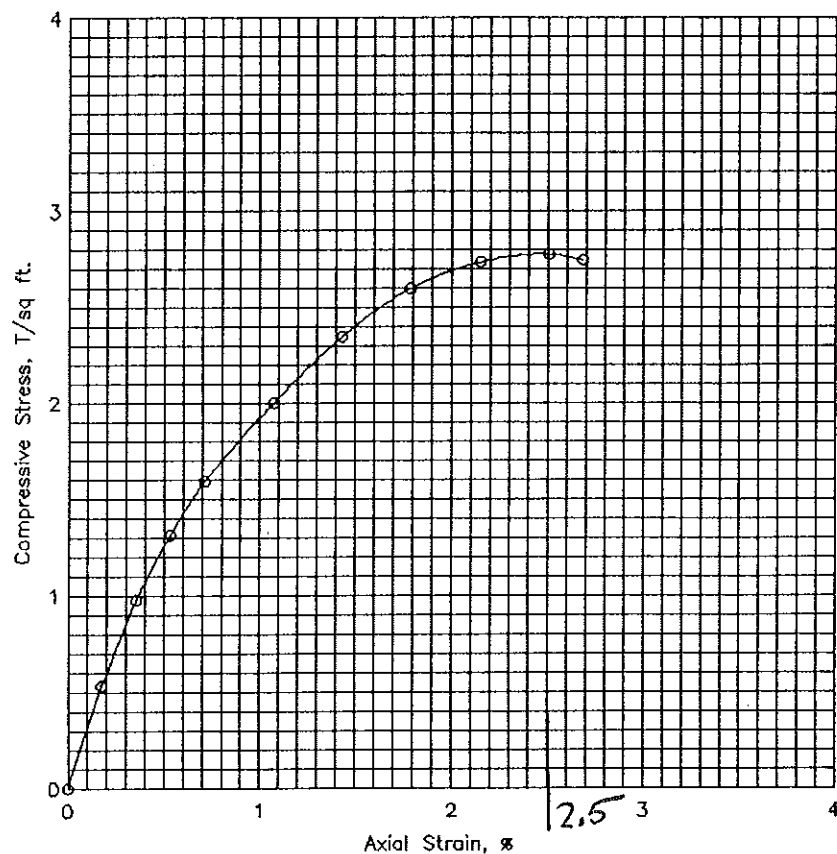
Tare No.	P-16	Height	5.595 in.
Tare plus Wet Specimen	1274.07 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	1094.23 gm	Initial Area	6.290 sq in.
Water Weight	179.84 gm	Volume	35.194 cu in.
Tare Weight	42.76 gm	Volume of Solids	cu in.
Wet Specimen	1231.31 gm	Void Ratio	
Dry Specimen	1051.47 gm	Saturation	%
Water Content	17.10 %	Dry Density	113.8 lb/cu ft
Specific Gravity of Solids			
LL = 42	PL = 19	PI = 23	

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	61.0	46.7	.002	6.30	.534
.5	20.	.020	112.0	85.8	.004	6.31	.979
.8	30.	.030	151.0	115.7	.005	6.32	1.317
1.0	40.	.040	183.0	140.2	.007	6.34	1.593
1.4	60.	.060	231.0	176.9	.011	6.36	2.004
1.7	80.	.080	272.0	208.4	.014	6.38	2.351
2.1	100.	.100	302.0	231.3	.018	6.40	2.601
2.5	120.	.120	319.0	244.4	.021	6.43	2.737
2.8	140.	.140	325.0	248.9	.025	6.45	2.778
2.9	150.	.150	322.0	246.7	.027	6.46	2.748

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	17.1 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	113.8		
Time to failure, min		t_f	2.77		
Unconfined compressive strength, T/sq ft		q_u	2.78		
Undrained shear strength, T/sq ft		S_u	1.39		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Gray & brown, clay, hard, sandy, w/ calcareous nodules					
LL	42	PL	19	PI	23
		G_s			
Remarks		Project BRAYS BAYOU, SIMS BAYOU AND FONDREN DITCH			
		Area Houston, Texas			
		Boring No. 91-73		Sample No. 11	
		Depth 20-22 ft		Date 7/1/91	
		UNCONFINED COMPRESSION TEST REPORT			