

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE NO.		PEN./TORVANE		SPT.-BLOW COUNT		BORING NO. <u>9A-7</u> DATE: BEGIN <u>3/14/94</u> PAGE <u>1/2</u> JOB NO. <u>146727-B</u> COMPLETE <u>3/14/94</u> Thin Walled Tube PROJECT <u>Wallisville Lake, Trinity River & Tributaries</u> 3" ☒ 6" ☐ LOCATION <u>near Wallisville, TX</u> ELEVATION OF HOLE _____ MANUFACTURER'S DESIGNATION OF DRILL RIG <u>FML-636</u> GROUNDWATER: DEPTH <u>0**</u> ft., ELEV. _____ ft., at end of Drilling WEATHER <u>Overcast, Warm</u> DRILLER <u>Randy GARDEN</u> LOGGER <u>Peter Kozmowski</u>				
								COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	1.0					Dark Gray	clay	stiff		
		2	1.5					Dark Gray	clay	stiff		
		3	2.0					Dark Gray	clay	v. stiff		
5		4	1.75					Dark Gray	clay	v. stiff		w/ ferr nodules
		5	2.0					Yellowish Brown	clay	v. stiff		w/ calc nodules, ferr nodules
		6	2.25					Yellowish Brown	clay	v. stiff		w/ calc nodules
10		7	2.5					Yellowish Brown	clay	v. stiff		
		8	2.75					Yellowish Brown	clay	v. stiff		w/ calc nodules (large) * encounter water at 16'
15		9	3.0					Yellowish Brown	clay	v. stiff		w/ calc nodules
		10	3.0					Yellowish Brown	clay	v. stiff		w/ calc nodules
20		11	3.5					Yellowish Brown	clay	v. stiff		w/ sandy 20'-21' silt parting at 22'
		12	3.0					Yellowish Brown	clay	v. stiff		w/ ferrous nodules, SLS
		13	3.0					Yellowish Brown	clay	v. stiff		w/ calc nodules, SLS
25		14	2.5					Yellowish Brown	clay	v. stiff		w/ calc nodules
		15	2.5					Yellowish Brown	clay	v. stiff		
30		16	3.0					Yellowish Brown	clay	v. stiff		
		17	3.5					Yellowish Brown	clay	v. stiff		
35		18	1.5					Reddish Brown	clay	stiff	sand	sandy 34'-35.5' w/ clay w/ SLS, ferr nodules 35.5'-36'

DEPTH, FEET	SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	BORING NO. <u>94-7</u> DATE: BEGIN <u>3/14/14</u> PAGE <u>2 / 2</u>				
				JOB NO. <u>146727-6</u> COMPLETE <u>3/14/14</u> Thin Walled Tube				
				PROJECT <u>Wallisville Lake, Trinity River & Tributaries</u> ☒ 3" ☐ 6"				
				LOCATION <u>Near Wallisville, TX</u>				
				ELEVATION OF HOLE _____				
				MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Fairbanks 36</u>				
				GROUNDWATER: DEPTH <u>0</u> ft., ELEV. _____ ft., at end of Drilling				
				WEATHER <u>Overcast, Warm</u>				
				DRILLER <u>Randy Green</u> LOGGER <u>Peter Kosmoski</u>				
				COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35	19	4.5		Reddish Brown	clay	Hard		w/ calc nodules, SLS
40	20	4.5		Reddish Brown	clay	Hard		w/ calc nodules, SLS
45								** water level at end of Drilling
50								
55								
60								
65								
70								

GEOTEST ENGINEERING, INC.

JOB NO. 14G727-12

DATE 4/6/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-7

SAMPLE NO. 3

DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Stiff

Tare No.	GE-9	Height	5.595 in.
Tare plus Wet Specimen	410.99 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	332.59 gm	Initial Area	6.290 sq in.
Water Weight	78.40 gm	Volume	35.194 cu in.
Tare Weight	42.46 gm	Volume of Solids	cu in.
Wet Specimen	1098.86 gm	Void Ratio	
Dry Specimen	865.09 gm	Saturation	%
Water Content	27.02 %	Dry Density	93.6 lb/cu ft
Specific Gravity of Solids			
LL = 70	PL =	PI =	

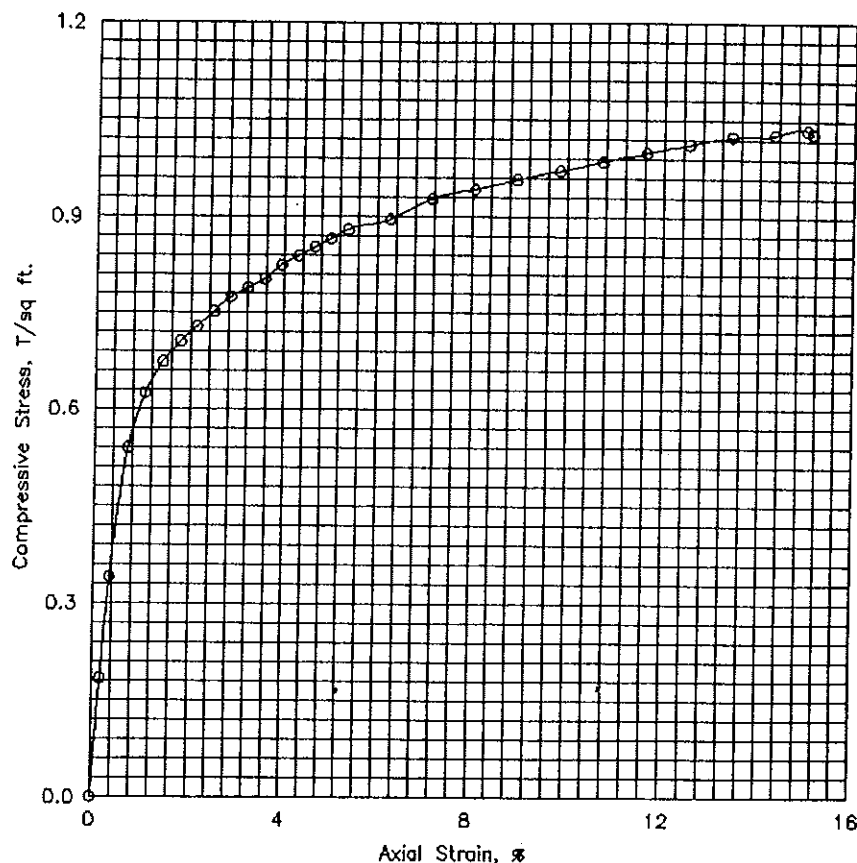
Proving Ring No. 10170

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
.1	10.	.010	21.0	16.1	.002	6.30	.184
.3	20.	.020	39.0	29.9	.004	6.31	.341
.6	40.	.040	62.0	47.5	.007	6.34	.540
1.0	60.	.060	72.0	55.2	.011	6.36	.625
1.3	80.	.080	78.0	59.7	.014	6.38	.674
1.6	100.	.100	82.0	62.8	.018	6.40	.706
2.0	120.	.120	85.0	65.1	.021	6.43	.729
2.3	140.	.140	88.0	67.4	.025	6.45	.752
2.6	160.	.160	91.0	69.7	.029	6.48	.775
2.9	180.	.180	93.0	71.2	.032	6.50	.789
3.3	200.	.200	95.0	72.8	.036	6.52	.803
3.6	220.	.220	98.0	75.1	.039	6.55	.825
3.8	240.	.240	100.0	76.6	.043	6.57	.839
4.2	260.	.260	102.0	78.1	.046	6.60	.853
4.5	280.	.280	104.0	79.7	.050	6.62	.866
4.8	300.	.300	106.0	81.2	.054	6.65	.880
5.6	350.	.350	109.0	83.5	.063	6.71	.896
6.5	400.	.400	114.0	87.3	.071	6.77	.928
7.3	450.	.450	117.0	89.6	.080	6.84	.943
8.1	500.	.500	120.0	91.9	.089	6.91	.958
8.9	550.	.550	123.0	94.2	.098	6.98	.972
9.8	600.	.600	126.0	96.5	.107	7.05	.986
10.5	650.	.650	129.0	98.8	.116	7.12	1.000
11.4	700.	.700	132.0	101.1	.125	7.19	1.013
12.2	750.	.750	135.0	103.4	.134	7.26	1.025

12.9	800.	.800	137.0	104.9	.143	7.34	1.029
13.7	839.	.839	139.0	106.5	.150	7.40	1.036
13.9	845.	.845	138.5	106.1	.151	7.41	1.031

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen ^a		Undisturbed			
Initial	Water content	w_0	27.0 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	93.6		
Time to failure, min		t_f	13.72		
Unconfined compressive strength, T/sq ft		q_u	1.04		
Undrained shear strength, T/sq ft		S_u	.52		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, Stiff					
LL	70	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No. 94-7	Sample No. 3		
		Depth 4-6 ft	Date 4/6/94		
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G727-12

DATE 4/6/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-7

SAMPLE NO. 6

DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Very stiff, w/calcareous nodules & ferrous stains

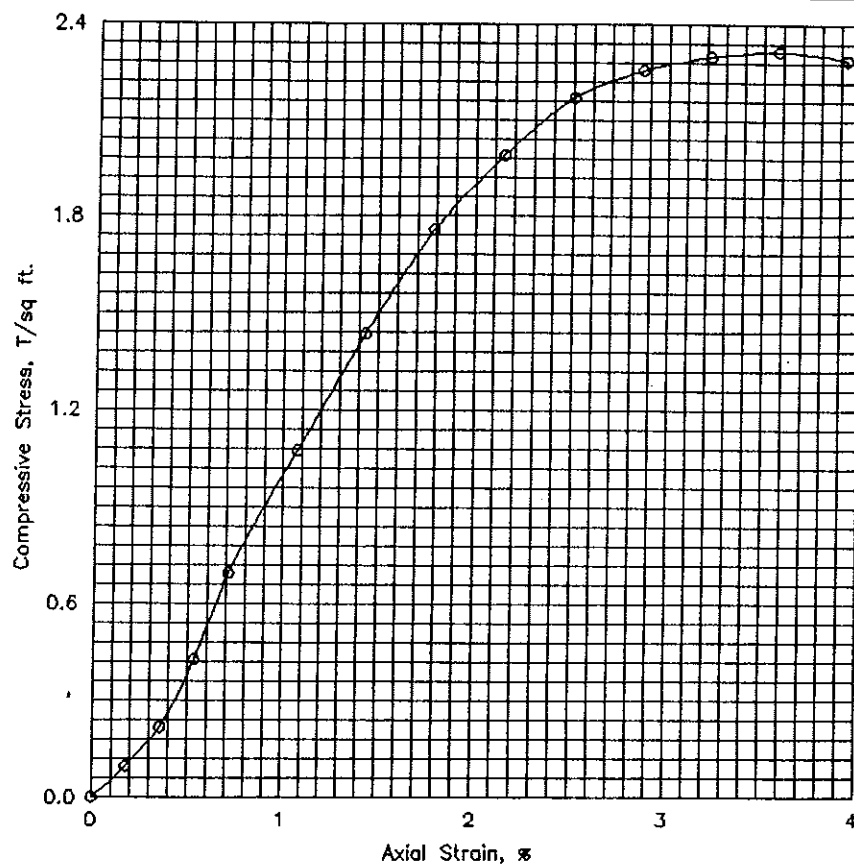
Tare No.	K1-17	Height	5.595 in.
Tare plus Wet Specimen	423.20 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	341.22 gm	Initial Area	6.290 sq in.
Water Weight	81.98 gm	Volume	35.194 cu in.
Tare Weight	42.59 gm	Volume of Solids	cu in.
Wet Specimen	1159.76 gm	Void Ratio	
Dry Specimen	909.96 gm	Saturation	%
Water Content	27.45 %	Dry Density	98.5 lb/cu ft
Specific Gravity of Solids			
LL = 77	PL =	PI =	

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	11.0	8.4	.002	6.30	.096
.4	20.	.020	25.0	19.1	.004	6.31	.218
.5	30.	.030	49.0	37.5	.005	6.32	.427
.7	40.	.040	80.0	61.3	.007	6.34	.696
1.0	60.	.060	124.0	95.0	.011	6.36	1.076
1.3	80.	.080	166.0	127.2	.014	6.38	1.435
1.6	100.	.100	204.0	156.3	.018	6.40	1.757
1.9	120.	.120	232.0	177.7	.021	6.43	1.991
2.3	140.	.140	254.0	194.6	.025	6.45	2.171
2.6	160.	.160	265.0	203.0	.029	6.48	2.257
2.9	180.	.180	271.0	207.6	.032	6.50	2.300
3.2	200.	.200	274.0	209.9	.036	6.52	2.317
3.5	220.	.220	272.0	208.4	.039	6.55	2.291

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	27.5 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_s	98.5		
Time to failure, min		t_f	3.23		
Unconfined compressive strength, T/sq ft		q_u	2.32		
Undrained shear strength, T/sq ft		S_u	1.16		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, Very stiff, w/calcareous nodules & ferrous stains					
LL	77	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No.	94-7	Sample No.	6
		Depth	10-12 ft	Date	4/6/94
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G727-12

DATE 4/6/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-7

SAMPLE NO. 9

DEPTH 16-18 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Very stiff

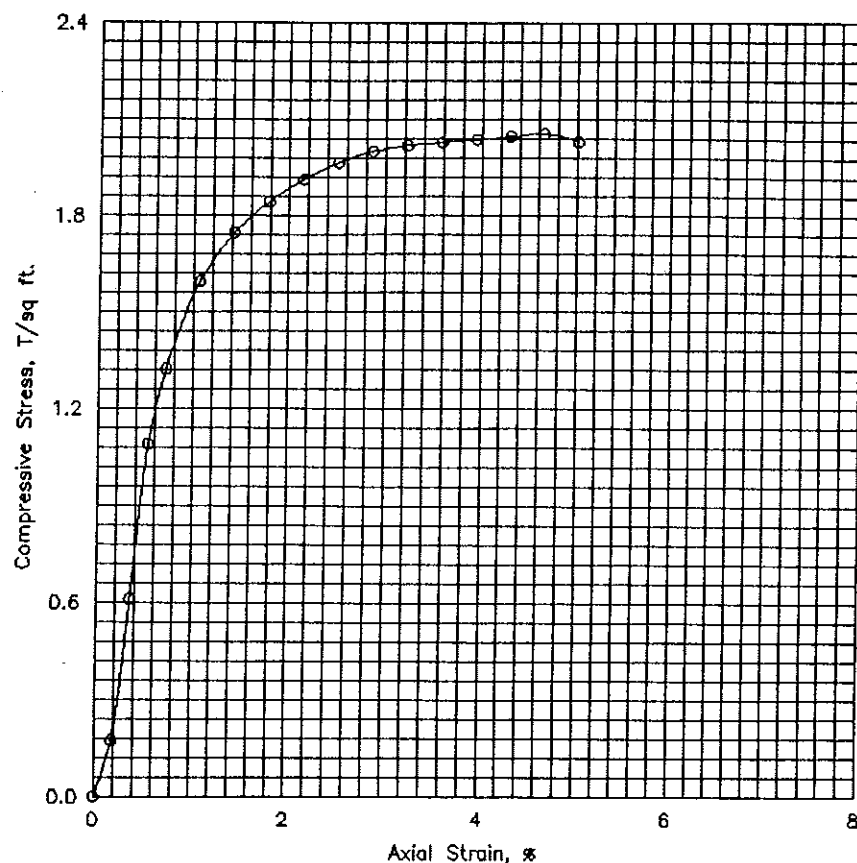
Tare No.	K1-32	Height	5.595 in.
Tare plus Wet Specimen	413.95 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	335.26 gm	Initial Area	6.290 sq in.
Water Weight	78.69 gm	Volume	35.194 cu in.
Tare Weight	42.59 gm	Volume of Solids	cu in.
Wet Specimen	1142.76 gm	Void Ratio	
Dry Specimen	900.61 gm	Saturation	%
Water Content	26.89 %	Dry Density	97.5 lb/cu ft
Specific Gravity of Solids			
LL = 76	PL =	PI =	

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	20.0	15.3	.002	6.30	.175
.4	20.	.020	70.0	53.6	.004	6.31	.612
.6	30.	.030	125.0	95.8	.005	6.32	1.090
.9	40.	.040	152.0	116.4	.007	6.34	1.323
1.2	60.	.060	184.0	140.9	.011	6.36	1.596
1.5	80.	.080	202.0	154.7	.014	6.38	1.746
2.0	100.	.100	214.0	163.9	.018	6.40	1.843
2.3	120.	.120	223.0	170.8	.021	6.43	1.913
2.6	140.	.140	230.0	176.2	.025	6.45	1.966
2.9	160.	.160	235.0	180.0	.029	6.48	2.002
3.2	180.	.180	238.0	182.3	.032	6.50	2.020
3.5	200.	.200	240.0	183.8	.036	6.52	2.029
3.8	220.	.220	242.0	185.4	.039	6.55	2.038
4.2	240.	.240	244.0	186.9	.043	6.57	2.048
4.5	260.	.260	246.0	188.4	.046	6.60	2.057
4.8	280.	.280	244.0	186.9	.050	6.62	2.032

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen ^m		Undisturbed			
Initial	Water content	w_0	26.9 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	97.5		
Time to failure, min		t_f	4.48		
Unconfined compressive strength, T/sq ft		q_u	2.06		
Undrained shear strength, T/sq ft		S_u	1.03		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, Very stiff					
LL	76	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No. 94-7	Sample No. 9		
		Depth 16-18 ft	Date 4/6/94		
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G727-12

DATE 4/6/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-7

SAMPLE NO. 12

DEPTH 22-24 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, Very stiff, w/calcareous nodules & blocky structure

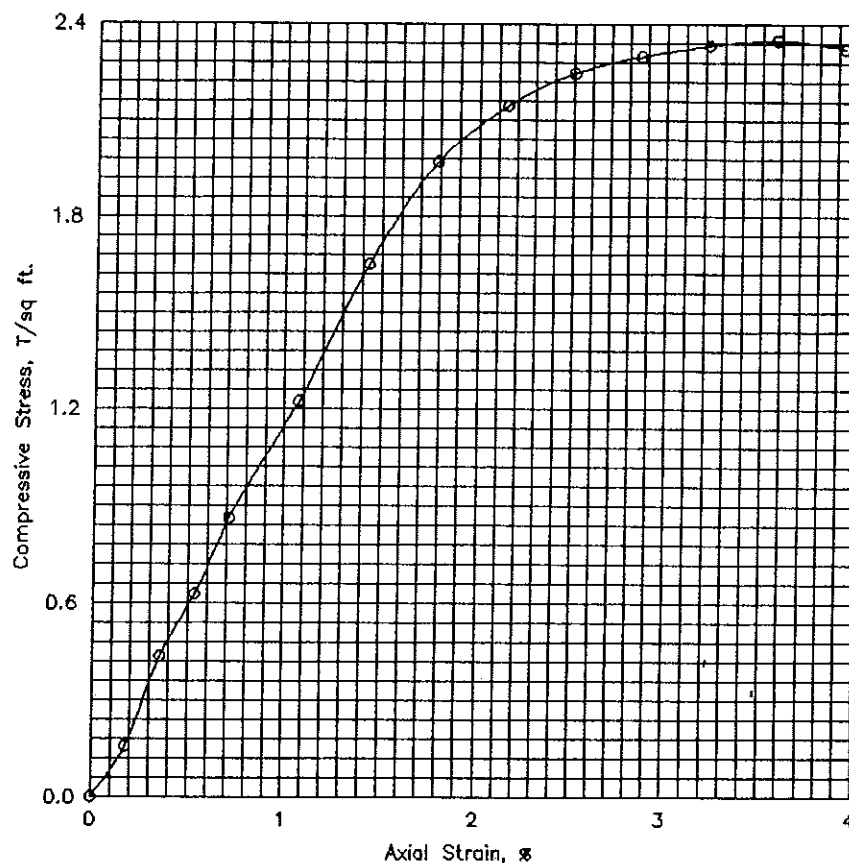
Tare No.	W-13	Height	5.595 in.
Tare plus Wet Specimen	450.25 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	367.46 gm	Initial Area	6.290 sq in.
Water Weight	82.79 gm	Volume	35.194 cu in.
Tare Weight	42.48 gm	Volume of Solids	cu in.
Wet Specimen	1163.73 gm	Void Ratio	
Dry Specimen	927.46 gm	Saturation	%
Water Content	25.48 %	Dry Density	100.4 lb/cu ft
Specific Gravity of Solids			
LL = 63	PL =	PI =	

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	18.0	13.8	.002	6.30	.158
.4	20.	.020	50.0	38.3	.004	6.31	.437
.6	30.	.030	72.0	55.2	.005	6.32	.628
.8	40.	.040	99.0	75.8	.007	6.34	.862
1.1	60.	.060	141.0	108.0	.011	6.36	1.223
1.5	80.	.080	191.0	146.3	.014	6.38	1.651
1.8	100.	.100	229.0	175.4	.018	6.40	1.972
2.1	120.	.120	250.0	191.5	.021	6.43	2.145
2.4	140.	.140	263.0	201.5	.025	6.45	2.248
2.7	160.	.160	270.0	206.8	.029	6.48	2.300
3.0	180.	.180	275.0	210.6	.032	6.50	2.334
3.3	200.	.200	278.0	212.9	.036	6.52	2.350
3.7	220.	.220	276.0	211.4	.039	6.55	2.325

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen ^{ad}		Undisturbed			
Initial	Water content	w_0	25.5 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	100.4		
Time to failure, min		t_f	3.35		
Unconfined compressive strength, T/sq ft		q_u	2.35		
Undrained shear strength, T/sq ft		S_u	1.18		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, Very stiff, w/calcareous nodules & blocky structure					
LL	63	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No. 94-7	Sample No. 12		
		Depth 22-24 ft	Date 4/6/94		
		UNCONFINED COMPRESSION TEST REPORT			

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-93-D-0005 Delivery Order No. 0012

Boring No. 94-7

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	Mc (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L-L (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0 - 2	1.00		Gray,Clay,Stiff,w/grass roots	C H	35.5											
2	2 - 4	1.00		Gray,Clay,Stiff	C H	30.4											
3	4 - 6	1.25		Yellowish gray,Clay,Stiff	C H	27.0	93.6	118.9	70		100.0	100.0	99.6	98.9	98.5		1.04
4	6 - 8	1.25		Yellowish gray,Clay,Stiff	C H	27.8											
5	8 - 10	2.00		Yellowish gray,Clay,Very stiff,w/calcareous and ferrous nodules	C H	24.9											
6	10 - 12	2.25		Yellowish gray,Clay,Very stiff,w/calcareous nodules and ferrous stain	C H	27.5	98.5	125.5	77		100.0	99.9	99.3	98.9	98.3		2.32
7	12 - 14	2.50		Yellowish gray,Clay,Very stiff	C H	30.6											
8	14 - 16	2.75		Yellowish gray,Clay,Very stiff,w/calcareous nodules	C H	28.9											
9	16 - 18	3.00		Yellowish gray,Clay,Very stiff	C H	26.9	97.5	123.7	76		100.0	100.0	99.3	98.7	98.5		2.06
10	18 - 20	3.00		Yellowish gray,Clay,Very stiff	C H	24.5											
11	20 - 22	3.25		Yellowish gray,Clay,Very stiff,w/calcareous nodules	C H	28.0											
12	22 - 24	3.50		Yellowish gray,Clay,Very stiff,w/calcareous nodules and blocky structure	C H	25.5	100.4	126.0	63		100.0	99.9	99.4	99.0	98.4		2.35
13	24 - 26	3.50		Yellowish gray,Clay,Very stiff	C H	28.5											
14	26 - 28	4.00		Yellowish gray,Clay,Very stiff,w/calcareous nodules and sand parting	C H	20.6											
15	28 - 30	4.25		Yellowish gray,Clay,Hard,w/calcareous nodules and sand parting	C H	21.5											
16	30 - 32	4.5 +		Yellowish gray,Clay,Hard	C H	21.6											
17	32 - 34	4.5 +		Yellowish gray,Clay,Hard	C H	22.7											
18	34 - 36	3.50		Reddish brown,Clay,Very stiff,Silty,w/ferrous nodules	C L	21.8											
19	36 - 38	4.5 +		Reddish brown,Clay,Hard,w/silt parting, slickensided	C H	25.8											
20	38 - 40	4.5 +		Reddish brown,Clay,Hard,w/silt parting, slickensided	C H	23.5											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe