

REVIEWED BY LAADATE 3/13/95REVIEWED BY JTCDATE 2/14/95

SUMMARY OF QUESTIONABLE
ERRONEOUS OR MISSING DATA
FOR

CONTRACT NO. DACW64-94-C-0040

PROJECT: SOILS TESTING, HOUSTON-GALVESTON NAVIGATION CHANNEL

BORING NO.	SAMPLE NO.	COMMENTS ON DRILLING RESULTS
93-82	5, 7	Torvane results given, samples sent to SWD → TORVANE WERE DONE IN THE FIELD
93-83	7, 11, 13 23	Torvane results given, samples sent to SWD Unconfined results recorded on lab summary sheet as .97 on test report sheet as .98
93-85	27	MC ordered, not performed
93-88	6	PP results not given, Unconfined results lab summary sheet as .12 on test report as .11
93-89	2	Blow counts indicate loose instead of very loose ✓
93-93	4	PP (.25) indicates soft instead of medium ✓
93-96	4	Unconfined results recorded on lab summary as .15 on test ✓ report .36
	18	Blow counts given, not recorded on field logs

Corrected on my copy 10

JOB NO. 14G783-4

DATE 8/25/94

PROJECT Houston-Galveston Navigation
Channel

AREA Houston, Texas

BORING NO. 93-93

SAMPLE NO. 3

DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION

Reddish brown, Clay, Medium stiff, w/ shell fragments

Tare No.	P-24	Height	5.595 in.
Tare plus Wet Specimen	395.93 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	340.13 gm	Initial Area	6.290 sq in.
Water Weight	55.80 gm	Volume	35.194 cu in.
Tare Weight	42.46 gm	Volume of Solids	cu in.
Wet Specimen	1168.95 gm	Void Ratio	
Dry Specimen	984.42 gm	Saturation	%
Water Content	18.75 %	Dry Density	106.6 lb/cu ft
Specific Gravity of Solids			
LL = 55	PL = 25	PI = 30	

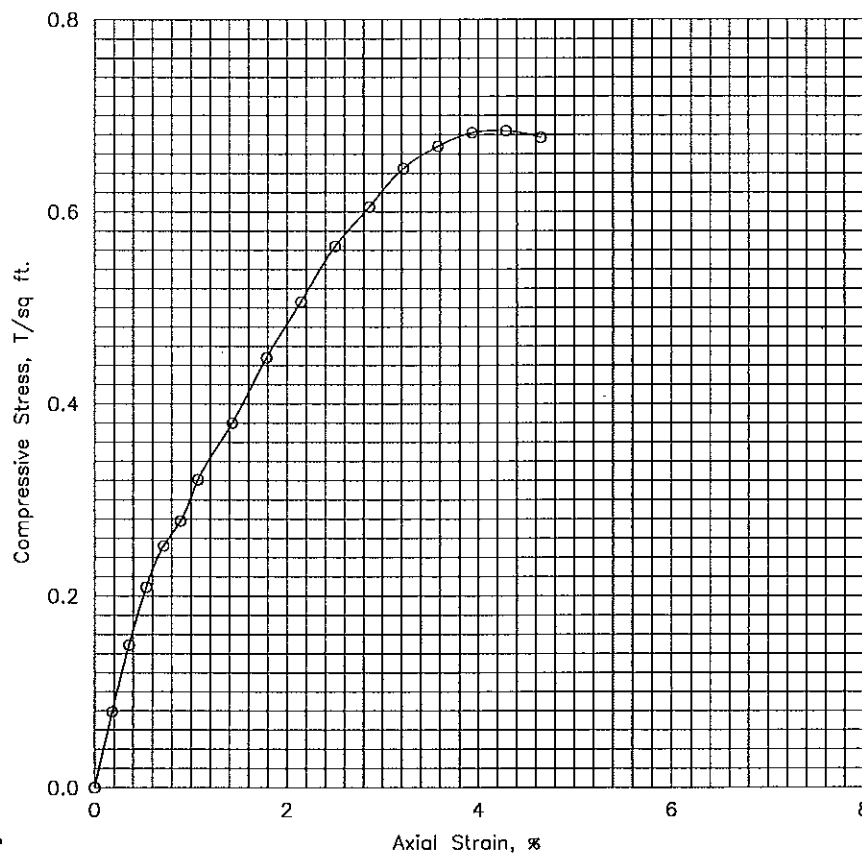
Proving Ring No. 10170

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	9.0	6.9	.002	6.30	.079
.4	20.	.020	17.0	13.0	.004	6.31	.149
.6	30.	.030	24.0	18.4	.005	6.32	.209
.7	40.	.040	29.0	22.2	.007	6.34	.252
.9	50.	.050	32.0	24.5	.009	6.35	.278
1.0	60.	.060	37.0	28.3	.011	6.36	.321
1.4	80.	.080	44.0	33.7	.014	6.38	.380
1.7	100.	.100	52.0	39.8	.018	6.40	.448
2.0	120.	.120	59.0	45.2	.021	6.43	.506
2.3	140.	.140	66.0	50.6	.025	6.45	.564
2.7	160.	.160	71.0	54.4	.029	6.48	.605
3.1	180.	.180	76.0	58.2	.032	6.50	.645
3.4	200.	.200	79.0	60.5	.036	6.52	.668
3.8	220.	.220	81.0	62.0	.039	6.55	.682
4.1	240.	.240	81.5	62.4	.043	6.57	.684
4.4	260.	.260	81.0	62.0	.046	6.60	.677

Job No. 14G783-4

Failure Sketches



- ☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	18.7 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	106.6		
Time to failure, min		t_f	4.08		
Unconfined compressive strength, $T/sq\ ft$		q_u	.68		
Undrained shear strength, $T/sq\ ft$		S_u	.34		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Reddish brown, Clay, Medium stiff, w/ shell fragments					
LL	55	PL	25	PI	30
		G_s			
Remarks		Project Houston-Galveston Navigation			
		Channel			
		Area Houston, Texas			
		Boring No. 93-93		Sample No. 3	
		Depth 4-6 ft		Date 8/25/94	
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G783-4

DATE 8/26/94

PROJECT Houston-Galveston Navigation
Channel

AREA Houston, Texas

BORING NO. 93-93

SAMPLE NO. 7

DEPTH 12-14 ft

SPECIMEN NO. 1

CLASSIFICATION

Reddish brown, Clay, Medium stiff, w/ shell fragments

Tare No.	TT	Height	5.595 in.
Tare plus Wet Specimen	338.92 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	252.09 gm	Initial Area	6.290 sq in.
Water Weight	86.83 gm	Volume	35.194 cu in.
Tare Weight	42.42 gm	Volume of Solids	cu in.
Wet Specimen	1042.35 gm	Void Ratio	
Dry Specimen	737.10 gm	Saturation	%
Water Content	41.41 %	Dry Density	79.8 lb/cu ft
Specific Gravity of Solids			
LL = 69	PL = 29	PI = 40	

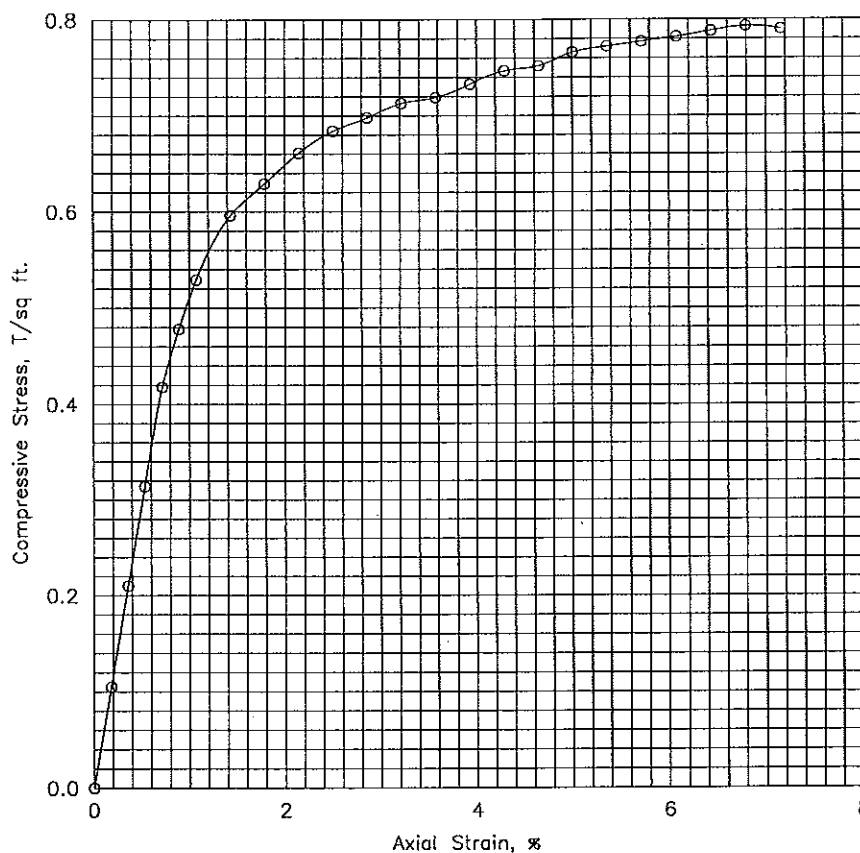
Proving Ring No. 10170

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	12.0	9.2	.002	6.30	.105
.5	20.	.020	24.0	18.4	.004	6.31	.210
.6	30.	.030	36.0	27.6	.005	6.32	.314
.8	40.	.040	48.0	36.8	.007	6.34	.418
1.0	50.	.050	55.0	42.1	.009	6.35	.478
1.1	60.	.060	61.0	46.7	.011	6.36	.529
1.5	80.	.080	69.0	52.9	.014	6.38	.596
1.8	100.	.100	73.0	55.9	.018	6.40	.629
2.1	120.	.120	77.0	59.0	.021	6.43	.661
2.5	140.	.140	80.0	61.3	.025	6.45	.684
2.8	160.	.160	82.0	62.8	.029	6.48	.698
3.1	180.	.180	84.0	64.3	.032	6.50	.713
3.5	200.	.200	85.0	65.1	.036	6.52	.719
3.8	220.	.220	87.0	66.6	.039	6.55	.733
4.1	240.	.240	89.0	68.2	.043	6.57	.747
4.4	260.	.260	90.0	68.9	.046	6.60	.752
4.7	280.	.280	92.0	70.5	.050	6.62	.766
5.1	300.	.300	93.0	71.2	.054	6.65	.772
5.4	320.	.320	94.0	72.0	.057	6.67	.777
5.7	340.	.340	95.0	72.8	.061	6.70	.782
6.1	360.	.360	96.0	73.5	.064	6.72	.788
6.3	380.	.380	97.0	74.3	.068	6.75	.793
6.7	400.	.400	97.0	74.3	.071	6.77	.790

Job No. 14G783-4

Failure Sketches



- ☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	41.4 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	79.8		
Time to failure, min		t_f	6.33		
Unconfined compressive strength, T/sq ft		q_u	.79		
Undrained shear strength, T/sq ft		S_u	.40		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Reddish brown, Clay, Medium stiff, w/ shell fragments					
LL	69	PL	29	PI	40
		G_s			
Remarks		Project Houston-Galveston Navigation			
		Channel			
		Area Houston, Texas			
		Boring No. 93-93		Sample No. 7	
		Depth 12-14 ft		Date 8/26/94	
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G783-4

DATE 8/26/94

PROJECT Houston-Galveston Navigation
Channel

AREA Houston, Texas

BORING NO. 93-93

SAMPLE NO. 13

DEPTH 30-32 ft

SPECIMEN NO. 1

CLASSIFICATION

Gray, Clay, Soft, Sandy

Tare No.	P15	Height	5.595 in.
Tare plus Wet Specimen	494.60 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	406.86 gm	Initial Area	6.290 sq in.
Water Weight	87.74 gm	Volume	35.194 cu in.
Tare Weight	42.70 gm	Volume of Solids	cu in.
Wet Specimen	1178.30 gm	Void Ratio	
Dry Specimen	949.52 gm	Saturation	%
Water Content	24.09 %	Dry Density	102.8 lb/cu ft
Specific Gravity of Solids			
LL = 29	PL = 13	PI = 16	

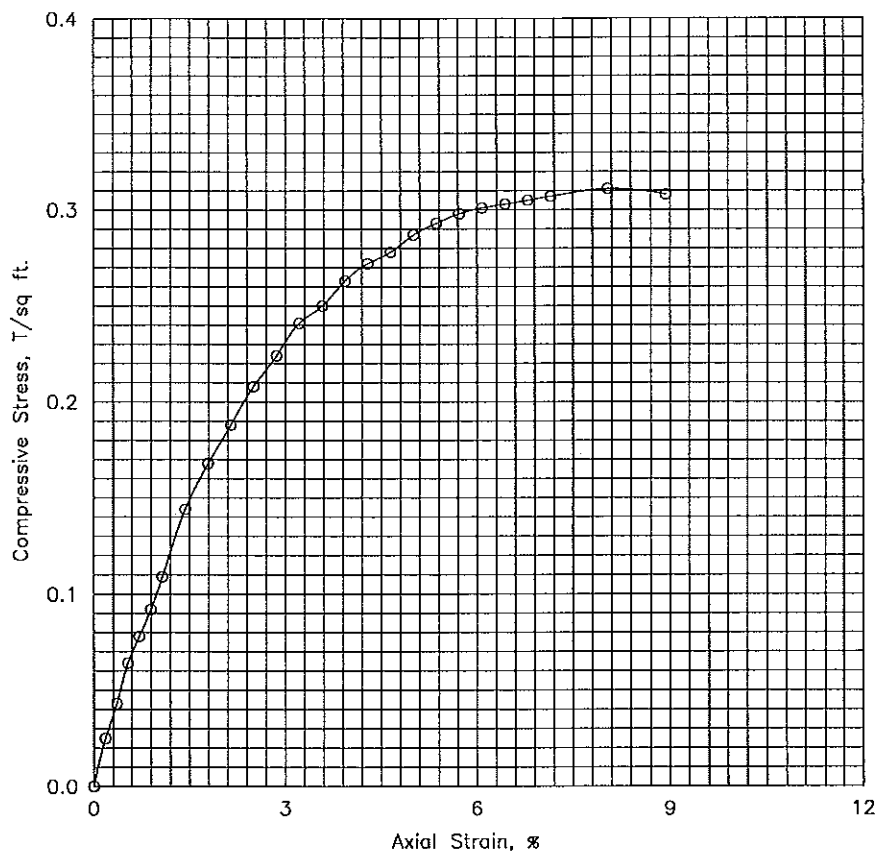
Proving Ring No. 17015

Proving Ring Constant, K = .311 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	7.0	2.2	.002	6.30	.025
.5	20.	.020	12.0	3.7	.004	6.31	.043
.7	30.	.030	18.0	5.6	.005	6.32	.064
.9	40.	.040	22.0	6.8	.007	6.34	.078
1.0	50.	.050	26.0	8.1	.009	6.35	.092
1.2	60.	.060	31.0	9.6	.011	6.36	.109
1.5	80.	.080	41.0	12.7	.014	6.38	.144
1.8	100.	.100	48.0	14.9	.018	6.40	.168
2.1	120.	.120	54.0	16.8	.021	6.43	.188
2.5	140.	.140	60.0	18.6	.025	6.45	.208
2.8	160.	.160	65.0	20.2	.029	6.48	.224
3.1	180.	.180	70.0	21.7	.032	6.50	.241
3.5	200.	.200	73.0	22.7	.036	6.52	.250
3.8	220.	.220	77.0	23.9	.039	6.55	.263
4.1	240.	.240	80.0	24.8	.043	6.57	.272
4.4	260.	.260	82.0	25.5	.046	6.60	.278
4.7	280.	.280	85.0	26.4	.050	6.62	.287
5.1	300.	.300	87.0	27.0	.054	6.65	.293
5.4	320.	.320	89.0	27.6	.057	6.67	.298
5.7	340.	.340	90.0	28.0	.061	6.70	.301
6.0	360.	.360	91.0	28.3	.064	6.72	.303
6.3	380.	.380	92.0	28.6	.068	6.75	.305
6.7	400.	.400	93.0	28.9	.071	6.77	.307
7.5	450.	.450	95.0	29.5	.080	6.84	.311
8.4	500.	.500	95.0	29.5	.089	6.91	.308

Job No. 14G783-4

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	24.1 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	102.8		
Time to failure, min		t_f	7.50		
Unconfined compressive strength, T/sq ft		q_u	.31		
Undrained shear strength, T/sq ft		S_u	.16		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Gray, Clay, Soft, Sandy					
LL	29	PL	13	PI	16
		G_s			
Remarks		Project Houston-Galveston Navigation			
		Channel			
		Area Houston, Texas			
		Boring No. 93-93		Sample No. 13	
		Depth 30-32 ft		Date 8/26/94	
		UNCONFINED COMPRESSION TEST REPORT			

U.S. ARMY CORPS OF ENGINEERS

BORING NO. 93-93 DATE: BEGIN 8-2-94 PAGE 1 / 2
 JOB NO. 946783-1 COMPLETE 8-2-94 Thin Walled Tube
 PROJECT HOUSTON-GALVESTON Navigation Channel ☒ 4" ☐ 6"
 LOCATION DISPOSAL AREA NO. 15
 ELEVATION OF HOLE _____
 MANUFACTURER'S DESIGNATION OF DRILL RIG Arco K4X4, C-1000 Marsh Buggy
 GROUNDWATER: DEPTH 0 ft., ELEV. _____ ft., at end of Drilling
 WEATHER Sunny and Hot 98°
 DRILLER San H Gregor LOGGER Willie Barnes

DEPTH, FEET	SAMPLE NO.	PEN./TORVANE	SPT.-BLOW COUNT	COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0	1	2.5		Reddish Brown	Clay	V. stiff	Sandy	w/ roots 0-2'
	2	1.5		Reddish Brown	Clay	stiff	Sandy	
5	3	0.75		Reddish Brown	Clay	M. stiff	Sandy	w/ shell fragments 4'-8'
	4	0.5		Gray	Clay	M. stiff	Sand	
10	5	0.50		Reddish Brown	Clay	M. stiff	Silty	w/ shell fragments 8-20'
	6	0.50		Reddish Brown	Clay	M. stiff	Silty	
15	7	0.50		Reddish Brown	Clay	M. stiff	Silty	
	8	0.50		Reddish Brown	Clay	M. stiff	Silty	
	9	0.75		Reddish Brown	Clay	M. stiff	Silty	
20	10	0.50		Reddish Brown	Clay	M. stiff	Silty	Sand @ 20'
	11	3 1/8		Gray	Sand	M. Dense	Silty	- w/ shell fragments
25	12	2 1/4		Gray	Sand	Loose	Silty	- w/ shell fragments
30	13	0.00		Gray	Clay	V. soft	Sandy	Clay @ 30'
0.3	14	0.00		Gray	Clay	V. soft	Sandy	
0.1	15	0.02		Gray	Clay	V. soft	Sandy	Sand at 34'
35	15	W.O.H.		Gray	Sand	Very loose	Silty	

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	BORING NO. <u>93-93</u> DATE: BEGIN <u>8-2-94</u> PAGE <u>2 / 2</u> JOB NO. <u>946783.1</u> COMPLETE <u>8-2-94</u> Thin Walled Tube PROJECT <u>Houston-Galveston Navigation Channel</u> ☒ 3" ☐ 6" LOCATION <u>Disposal Area No 15</u> ELEVATION OF HOLE _____ MANUFACTURER'S DESIGNATION OF DRILL RIG <u>Ardeo K4X4, C-1000 Marsh Buggy</u> GROUNDWATER: DEPTH <u>0</u> ft., ELEV. _____ ft., at end of Drilling WEATHER <u>Sunny and H-t 92°</u> DRILLER <u>David Gnegyuk</u> LOGGER <u>Willie Borne</u>				
				COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35								
40	X 16 3 1/2		Gray	Sand	Very loose			
			Gray	Sand	V. loose	Silty		
45							Torvane Multiplier 0.2	
							W.O.H: weight of hammer	
50								
55								
60								
65								
70								

Project: Port of Galveston Navigation Channel

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-94-C-0040Boring No. 93-93

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	2.50		Brown, Clay, Very stiff, Sandy, w/roots	C L	14.7											
2	2 - 4	1.25		Reddish brown, Clay, Stiff, w/roots	CH	16.1											
3	4 - 6	0.50		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	18.8	106.6	126.5	55	25	98..8*	98.1*	97.8*	95.9	94.3		0.68
4	6 - 8	0.25		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	38.9											
5	8 - 10	0.25		Reddish brown, Clay, Soft, w/shell fragments	CH	39.0											
6	10 - 12	0.25		Reddish brown, Clay, Soft, w/shell fragments	CH	38.8											
7	12 - 14	0.50		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	41.1	79.8	112.8	69	29	100.0	100.0	100.0	99.9	99.1		0.79
8	14 - 16	0.50		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	65.9											
9	16 - 18	0.75		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	36.8											
10	18 - 20	0.50		Reddish brown, Clay, Medium stiff, w/shell fragments	CH	67.6											
11	20-21.5		14	Gray, Sand, Medium dense, Silty, w/shell fragments	S M												
12	25-26.5		9	Gray, Sand, Loose, Silty, w/shell fragments	S M						95.6*	94.6*	92.2*	72.4	27.0		
13	30-32	0.25		Gray, Clay, Soft, Sandy	CL	24.1	102.8	127.6	29	13	100.0	100.0	99.8	90.8	70.3		0.31
14	32-34	0.25		Gray, Clay, Soft, Sandy	C L	21.8											
15	34-35.5		W.O.H	Gray, Sand, Very loose, Silty	S M												
16	38.5-40		3	Gray, Sand, Very loose, Silty	S M												

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

*: Material retained are shell fragments