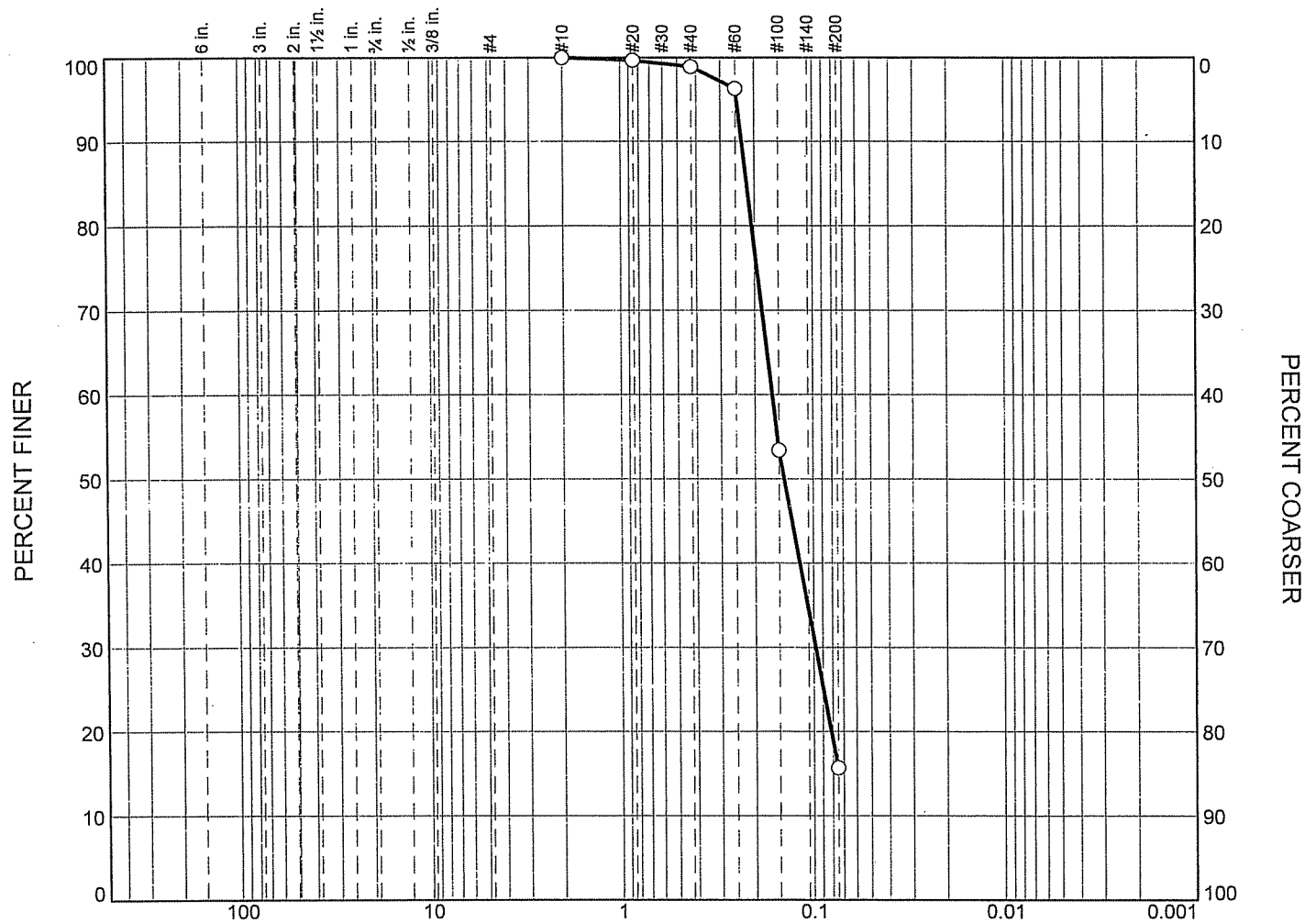


BORING LOG		DISTRICT	INSTALLATION		SHEET 2 OF 2 SHEETS	
1. PROJECT Galveston Channel and Pelican Island PA			7. ELEVATION OF HOLE			
2. LOCATION (Coordinates or Station) N=13698503 E=3304326			8. DATUM FOR ELEVATION			
3. DRILLING AGENCY Dempsey (Geotest Engineering, Inc.)			9. ELEVATION OF GROUNDWATER ▽ TOD: ▼ 24-HR:			
4. LABORATORY TESTING AGENCY Tolunay-Wong Engineers, Inc.			10. DRILLING DATE and TIME STARTED: COMPLETED:			
5. DEPTH OF WATER ▽ TOD: ▼ 24-HR:			11. CLASSIFICATION REFERENCE			
6. DEPTH OF HOLE 50 ft			12. ENGINEER			

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY (%)	SPT (N)	PENETROMETER (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (% <200)
					14			0.25	70.1	47.0	63	21	42	69.4
			FAT CLAY(CH) , very soft, gray, w/ sand seams & fragments		15			0.25	70.2	49.9				
			SANDY LEAN CLAY(CL) , very soft, gray, w/ shell fragment		16			0.25		30.9	41	21	20	51.8
40			FAT CLAY(CH) , firm, gray, w/ sand seams		17			0.50	75.8	42.5				
					18			0.50	79.3	36.0				
45					19			0.50	69.5	50.7	50	20	30	96.2
					20			0.50	70.5	47.9				
			SILTY CLAYEY SAND(SC-SM) , gray, w/ sand layer		21			0.50	88.2	24.1				
50														
55														
60														
65														

Particle Size Analysis - ASTM D 422



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.1	83.2	15.7	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-176		19-20.5	Gray SILTY SAND with Shells	SM

**Tolunay-Wong
Engineers, Inc.
Houston, Texas**

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Project No.: 08.18.918

GRAIN SIZE DISTRIBUTION TEST DATA

7/16/2008

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Project Number: 08.18.918

Location: 07-176

Depth: 19-20.5

Material Description: Gray SILTY SAND with Shells

USCS: SM

Material specification: (no specification envelope)

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
309.70	179.79	179.79	3"					
			0.75"					
			#4					
			#10	179.79	100.0			
			#20	180.22	99.7			
			#40	181.21	98.9			
			#60	184.63	96.3			
			#100	240.33	53.4			
			#200	289.32	15.7			

Fractional Components

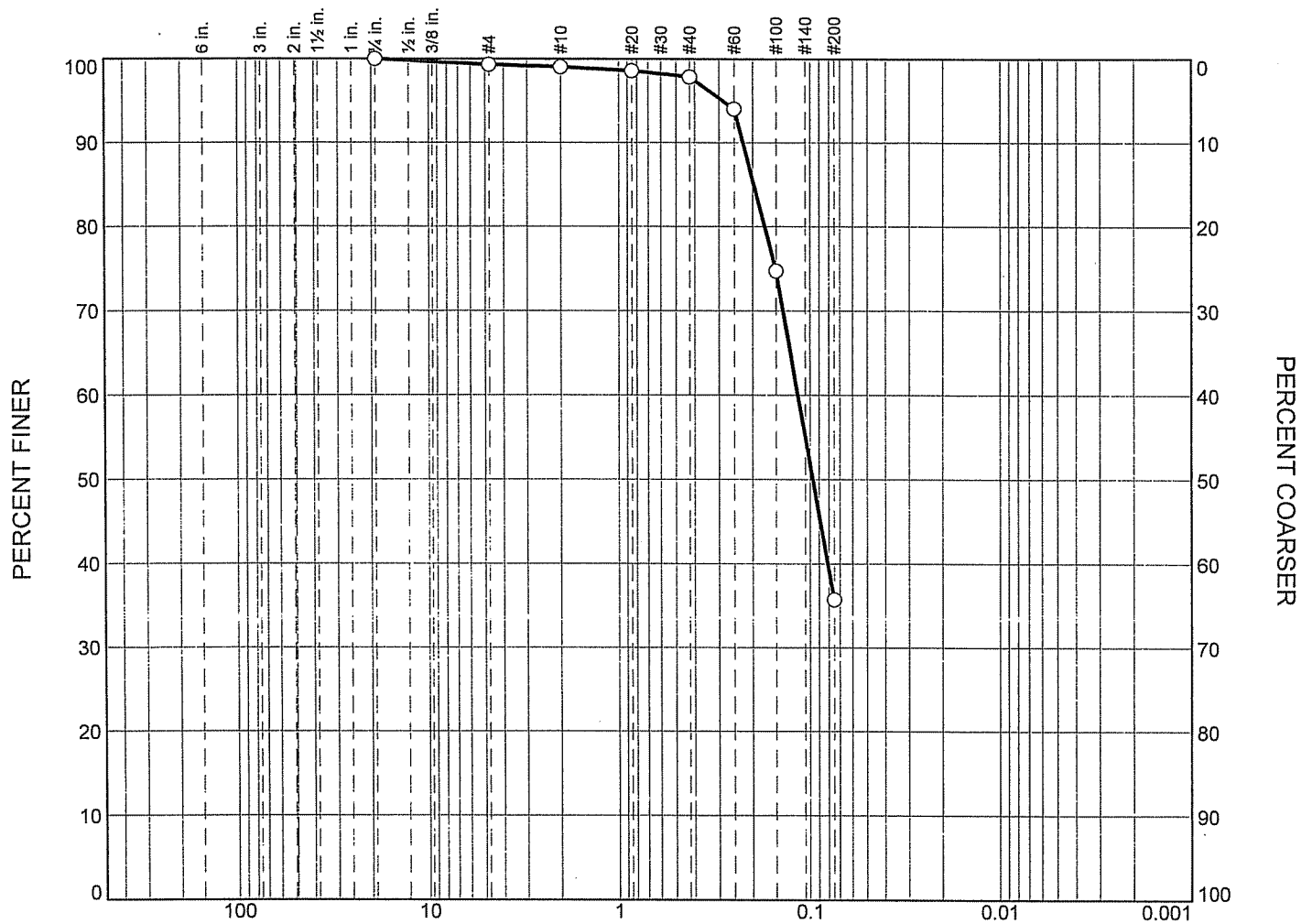
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.1	83.2	84.3			15.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0812	0.0976	0.1409	0.1623	0.2059	0.2186	0.2320	0.2462

Fineness Modulus

0.50

Particle Size Analysis - ASTM D 422



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.7	0.3	1.1	62.2	35.7	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-176		29-30.5	Gray SILTY SAND	SM

**Tolunay-Wong
Engineers, Inc.
Houston, Texas**

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Project No.: 08.18.918

GRAIN SIZE DISTRIBUTION TEST DATA

7/16/2008

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Project Number: 08.18.918

Location: 07-176

Depth: 29-30.5

Material Description: Gray SILTY SAND

USCS: SM

Material specification: (no specification envelope)

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer	Lower Spec. Limit, %	Upper Spec. Limit, %	Deviation From Spec., %
304.01	220.96	220.96	3"					
			0.75"	220.96	100.0			
			#4	221.52	99.3			
			#10	221.75	99.0			
			#20	222.13	98.6			
			#40	222.73	97.9			
			#60	225.91	94.0			
			#100	241.94	74.7			
			#200	274.36	35.7			

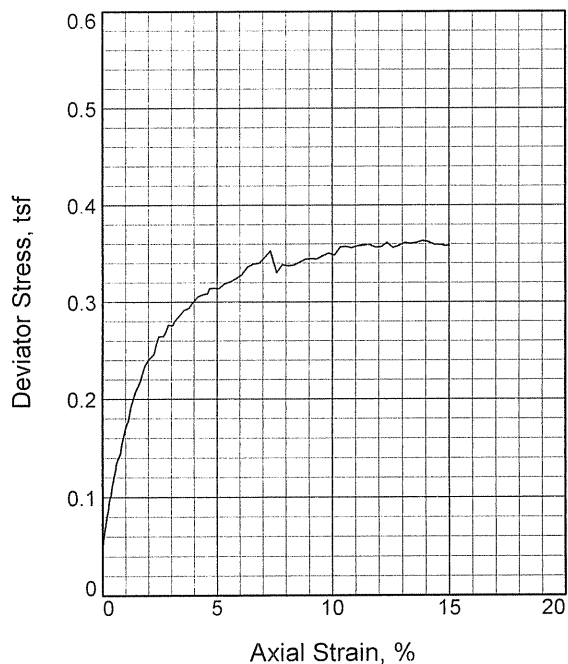
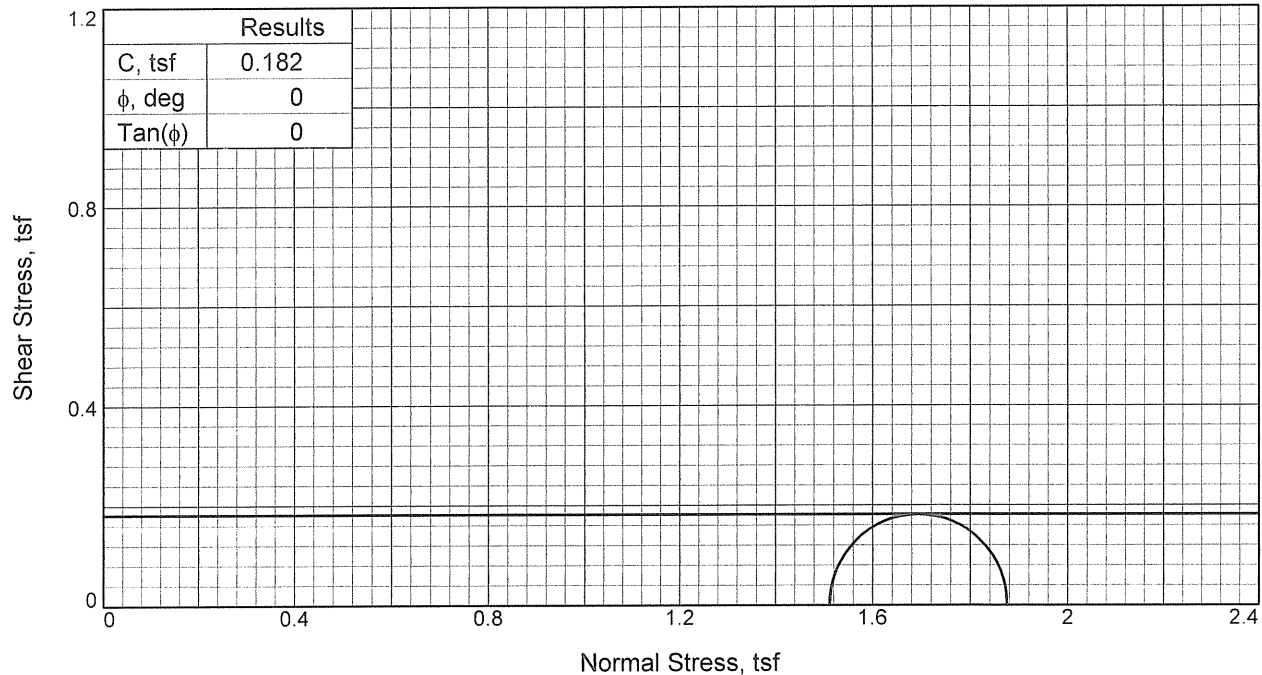
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.7	0.7	0.3	1.1	62.2	63.6			35.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0967	0.1155	0.1724	0.1968	0.2247	0.2856

Fineness
Modulus

0.35



Sample No.		1
Initial	Water Content, %	47.0
	Dry Density, pcf	70.2
	Saturation, %	90.4
	Void Ratio	1.4028
	Diameter, in.	2.85
	Height, in.	6.00
At Test	Water Content, %	50.8
	Dry Density, pcf	70.2
	Saturation, %	97.7
	Void Ratio	1.4028
	Diameter, in.	2.85
	Height, in.	6.00
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.51
Fail. Stress, tsf		0.36
Ult. Stress, tsf		
σ_1 Failure, tsf		1.88
σ_3 Failure, tsf		1.51

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Gray SANDY FAT CLAY

LL= 63 **PL=** 21 **PI=** 42

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D 2850

Torvane; tsf: 0.325

Failure type: Bulge

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Source of Sample: 07-176

Depth: 34-36

Sample Number: 13

Proj. No.: 08.18.918

Date Sampled: 7/18/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

TRIAXIAL COMPRESSION TEST
Unconsolidated Undrained

10/17/2008
9:45 AM

Date: 7/18/08
Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918
Location: 07-176
Depth: 34-36 **Sample Number:** 13
Description: Gray SANDY FAT CLAY
Remarks:

Test method: ASTM D 2850
Torvane; tsf: 0.325
Failure type: Bulge

Type of Sample: Undisturbed

Assumed Specific Gravity=2.70 **LL**=63 **PL**=21 **PI**=42

Test Method: ASTM D 2850

Parameters for Specimen No. 1

Specimen Parameter	Initial	Final
Moisture content: Moist soil+tare, gms.	132.480	119.410
Moisture content: Dry soil+tare, gms.	100.060	89.990
Moisture content: Tare, gms.	31.050	32.020
Moisture, %	47.0	50.8
Moist specimen weight, gms.	1036.0	
Diameter, in.	2.85	
Area, in. ²	6.38	
Height, in.	6.00	
Wet Density, pcf	103.1	
Dry density, pcf	70.2	
Void ratio	1.4028	
Saturation, %	90.4	

Test Readings for Specimen No. 1

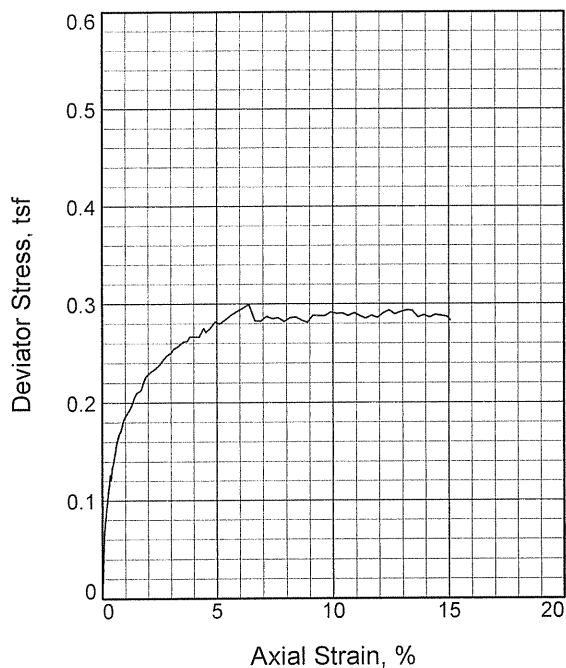
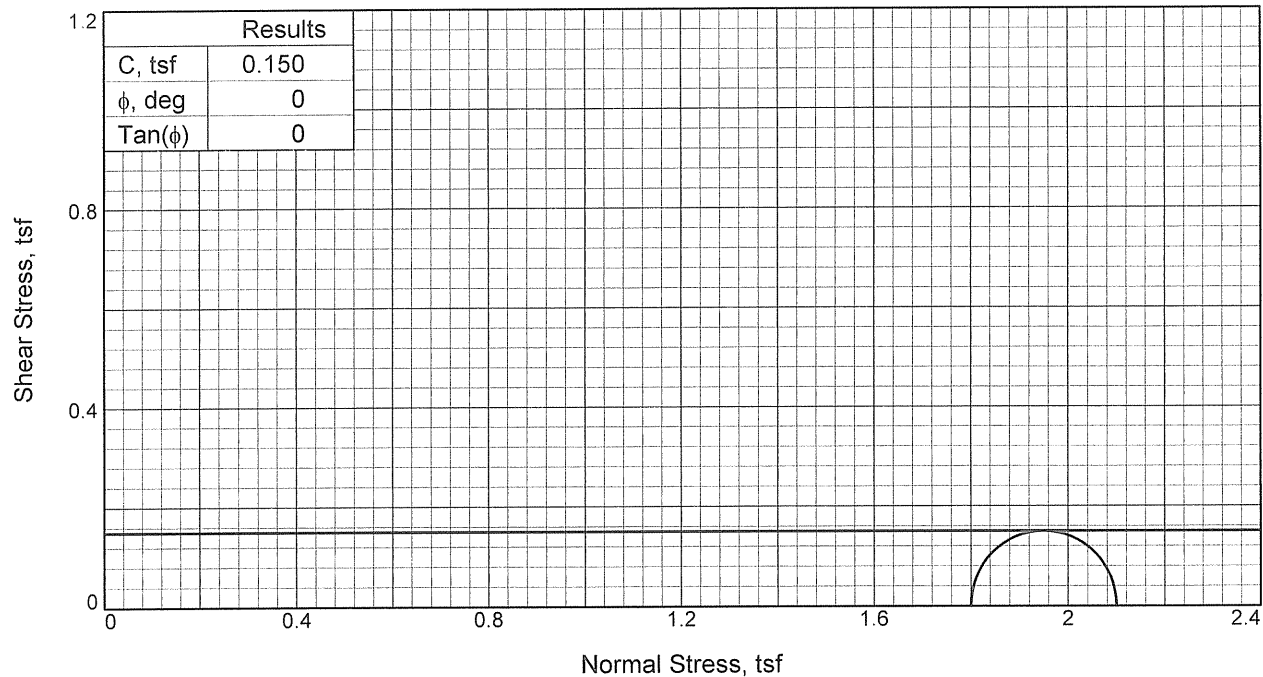
Membrane modulus = .130 kN/cm²
Membrane thickness = .031 cm
Cell pressure = 21.00 psi (1.512 tsf)
Back pressure = 0.00 psi (0.000 tsf)
Strain rate, %/min. = 1.00
Fail. Stress = 0.363 tsf at reading no. 79

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
0	0.0610	0.000	0.0	0.0	0.000	1.512	1.512	1.00	1.512	0.000
1	0.0614	4.565	4.6	0.0	0.052	1.512	1.564	1.03	1.538	0.026
2	0.0631	5.180	5.2	0.0	0.058	1.512	1.570	1.04	1.541	0.029
3	0.0657	5.642	5.6	0.1	0.064	1.512	1.576	1.04	1.544	0.032
4	0.0690	6.423	6.4	0.1	0.072	1.512	1.584	1.05	1.548	0.036
5	0.0723	7.159	7.2	0.2	0.081	1.512	1.593	1.05	1.552	0.040
6	0.0755	7.664	7.7	0.2	0.086	1.512	1.598	1.06	1.555	0.043
7	0.0781	8.510	8.5	0.3	0.096	1.512	1.608	1.06	1.560	0.048
8	0.0827	9.086	9.1	0.4	0.102	1.512	1.614	1.07	1.563	0.051
9	0.0847	9.599	9.6	0.4	0.108	1.512	1.620	1.07	1.566	0.054
10	0.0872	10.067	10.1	0.4	0.113	1.512	1.625	1.07	1.569	0.057
11	0.0906	10.687	10.7	0.5	0.120	1.512	1.632	1.08	1.572	0.060
12	0.0952	11.450	11.5	0.6	0.128	1.512	1.640	1.08	1.576	0.064
13	0.0964	11.870	11.9	0.6	0.133	1.512	1.645	1.09	1.579	0.067
14	0.1011	12.349	12.3	0.7	0.138	1.512	1.650	1.09	1.581	0.069
15	0.1077	12.897	12.9	0.8	0.144	1.512	1.656	1.10	1.584	0.072
16	0.1102	13.639	13.6	0.8	0.153	1.512	1.665	1.10	1.588	0.076
17	0.1136	14.087	14.1	0.9	0.158	1.512	1.670	1.10	1.591	0.079
18	0.1195	15.013	15.0	1.0	0.168	1.512	1.680	1.11	1.596	0.084
19	0.1228	15.434	15.4	1.0	0.172	1.512	1.684	1.11	1.598	0.086
20	0.1285	15.906	15.9	1.1	0.178	1.512	1.690	1.12	1.601	0.089
21	0.1351	17.187	17.2	1.2	0.192	1.512	1.704	1.13	1.608	0.096
22	0.1473	18.604	18.6	1.4	0.207	1.512	1.719	1.14	1.615	0.103
23	0.1595	19.571	19.6	1.6	0.217	1.512	1.729	1.14	1.621	0.109
24	0.1652	20.324	20.3	1.7	0.225	1.512	1.737	1.15	1.625	0.113
25	0.1716	21.127	21.1	1.8	0.234	1.512	1.746	1.15	1.629	0.117
26	0.1832	21.820	21.8	2.0	0.241	1.512	1.753	1.16	1.633	0.121
27	0.1954	22.277	22.3	2.2	0.246	1.512	1.758	1.16	1.635	0.123
28	0.2019	23.307	23.3	2.3	0.257	1.512	1.769	1.17	1.640	0.128
29	0.2077	24.009	24.0	2.4	0.264	1.512	1.776	1.17	1.644	0.132
30	0.2200	24.088	24.1	2.6	0.265	1.512	1.777	1.18	1.644	0.132
31	0.2258	24.506	24.5	2.7	0.269	1.512	1.781	1.18	1.646	0.134
32	0.2322	25.190	25.2	2.9	0.276	1.512	1.788	1.18	1.650	0.138
33	0.2443	25.198	25.2	3.1	0.276	1.512	1.788	1.18	1.650	0.138
34	0.2501	25.659	25.7	3.2	0.280	1.512	1.792	1.19	1.652	0.140
35	0.2623	26.229	26.2	3.4	0.286	1.512	1.798	1.19	1.655	0.143
36	0.2744	26.783	26.8	3.6	0.292	1.512	1.804	1.19	1.658	0.146
37	0.2866	27.020	27.0	3.8	0.293	1.512	1.805	1.19	1.659	0.147
38	0.2988	27.729	27.7	4.0	0.301	1.512	1.813	1.20	1.662	0.150
39	0.3111	28.273	28.3	4.2	0.306	1.512	1.818	1.20	1.665	0.153
40	0.3233	28.494	28.5	4.4	0.308	1.512	1.820	1.20	1.666	0.154
41	0.3355	28.642	28.6	4.6	0.308	1.512	1.820	1.20	1.666	0.154
42	0.3412	29.161	29.2	4.7	0.314	1.512	1.826	1.21	1.669	0.157
43	0.3534	29.277	29.3	4.9	0.314	1.512	1.826	1.21	1.669	0.157
44	0.3656	29.304	29.3	5.1	0.314	1.512	1.826	1.21	1.669	0.157
45	0.3804	29.822	29.8	5.3	0.319	1.512	1.831	1.21	1.671	0.159
46	0.3959	30.117	30.1	5.6	0.321	1.512	1.833	1.21	1.672	0.160

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
47	0.4106	30.498	30.5	5.8	0.324	1.512	1.836	1.21	1.674	0.162
48	0.4260	30.968	31.0	6.1	0.328	1.512	1.840	1.22	1.676	0.164
49	0.4408	31.787	31.8	6.3	0.336	1.512	1.848	1.22	1.680	0.168
50	0.4561	32.182	32.2	6.6	0.339	1.512	1.851	1.22	1.682	0.170
51	0.4709	32.363	32.4	6.8	0.340	1.512	1.852	1.23	1.682	0.170
52	0.4863	32.998	33.0	7.1	0.346	1.512	1.858	1.23	1.685	0.173
53	0.5010	33.713	33.7	7.3	0.353	1.512	1.865	1.23	1.688	0.176
54	0.5164	33.363	33.4	7.6	0.330	1.512	1.842	1.22	1.677	0.165
55	0.5312	34.310	34.3	7.8	0.339	1.512	1.851	1.22	1.681	0.169
56	0.5466	34.345	34.3	8.1	0.337	1.512	1.849	1.22	1.681	0.169
57	0.5613	34.572	34.6	8.3	0.338	1.512	1.850	1.22	1.681	0.169
58	0.5761	35.012	35.0	8.6	0.341	1.512	1.853	1.23	1.683	0.171
59	0.5916	35.443	35.4	8.8	0.344	1.512	1.856	1.23	1.684	0.172
60	0.6063	35.652	35.7	9.1	0.345	1.512	1.857	1.23	1.684	0.172
61	0.6217	35.772	35.8	9.3	0.344	1.512	1.856	1.23	1.684	0.172
62	0.6364	36.271	36.3	9.6	0.348	1.512	1.860	1.23	1.686	0.174
63	0.6518	36.669	36.7	9.8	0.350	1.512	1.862	1.23	1.687	0.175
64	0.6665	36.654	36.7	10.1	0.348	1.512	1.860	1.23	1.686	0.174
65	0.6819	37.609	37.6	10.3	0.356	1.512	1.868	1.24	1.690	0.178
66	0.6967	37.842	37.8	10.6	0.357	1.512	1.869	1.24	1.691	0.179
67	0.7121	37.891	37.9	10.9	0.356	1.512	1.868	1.24	1.690	0.178
68	0.7268	38.232	38.2	11.1	0.358	1.512	1.870	1.24	1.691	0.179
69	0.7416	38.478	38.5	11.3	0.359	1.512	1.871	1.24	1.691	0.179
70	0.7571	38.701	38.7	11.6	0.359	1.512	1.871	1.24	1.692	0.180
71	0.7719	38.600	38.6	11.8	0.356	1.512	1.868	1.24	1.690	0.178
72	0.7873	38.808	38.8	12.1	0.357	1.512	1.869	1.24	1.690	0.178
73	0.8021	39.416	39.4	12.4	0.361	1.512	1.873	1.24	1.693	0.181
74	0.8175	39.043	39.0	12.6	0.356	1.512	1.868	1.24	1.690	0.178
75	0.8322	39.456	39.5	12.9	0.358	1.512	1.870	1.24	1.691	0.179
76	0.8476	39.938	39.9	13.1	0.361	1.512	1.873	1.24	1.693	0.181
77	0.8624	40.001	40.0	13.4	0.360	1.512	1.872	1.24	1.692	0.180
78	0.8778	40.282	40.3	13.6	0.361	1.512	1.873	1.24	1.693	0.181
79	0.8925	40.653	40.7	13.9	0.363	1.512	1.875	1.24	1.694	0.182
80	0.9079	40.738	40.7	14.1	0.362	1.512	1.874	1.24	1.693	0.181
81	0.9227	40.628	40.6	14.4	0.359	1.512	1.871	1.24	1.692	0.180
82	0.9381	40.812	40.8	14.6	0.359	1.512	1.871	1.24	1.692	0.180
83	0.9528	40.848	40.8	14.9	0.358	1.512	1.870	1.24	1.691	0.179
84	0.9618	41.013	41.0	15.0	0.358	1.512	1.870	1.24	1.691	0.179



Sample No.		1
Initial	Water Content, %	50.7
	Dry Density, pcf	69.5
	Saturation, %	96.0
	Void Ratio	1.4259
	Diameter, in.	2.85
	Height, in.	5.98
At Test	Water Content, %	42.0
	Dry Density, pcf	69.5
	Saturation, %	79.5
	Void Ratio	1.4259
	Diameter, in.	2.85
	Height, in.	5.98
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.80
Fail. Stress, tsf		0.30
Ult. Stress, tsf		
σ_1 Failure, tsf		2.10
σ_3 Failure, tsf		1.80

Type of Test:

Unconsolidated Undrained

Sample Type: Undisturbed

Description: Gray FAT CLAY; sand seams

LL= 50 **PL=** 20 **PI=** 30

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D 2850

Torvane; tsf: 0.325

Failure type: Bulge

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Source of Sample: 07-176

Depth: 44-46

Sample Number: 18

Proj. No.: 08.18.918

Date Sampled: 7/18/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

TRIAXIAL COMPRESSION TEST
Unconsolidated Undrained

10/17/2008
9:45 AM

Date: 7/18/08
Client: United States Army Corps of Engineers
Project: Galveston Channel and Pelican Island PA
Contract No. DACW64-03-D-0008, Task Order No. 0077
Project No.: 08.18.918
Location: 07-176
Depth: 44-46 **Sample Number:** 18
Description: Gray FAT CLAY; sand seams
Remarks:
Test method: ASTM D 2850
Torvane; tsf: 0.325
Failure type: Bulge
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL**=50 **PL**=20 **PI**=30
Test Method: ASTM D 2850

Parameters for Specimen No. 1

Specimen Parameter	Initial	Final
Moisture content: Moist soil+tare, gms.	126.000	111.320
Moisture content: Dry soil+tare, gms.	94.120	87.810
Moisture content: Tare, gms.	31.260	31.780
Moisture, %	50.7	42.0
Moist specimen weight, gms.	1048.3	
Diameter, in.	2.85	
Area, in. ²	6.38	
Height, in.	5.98	
Wet Density, pcf	104.7	
Dry density, pcf	69.5	
Void ratio	1.4259	
Saturation, %	96.0	

Test Readings for Specimen No. 1

Membrane modulus = .130 kN/cm²
Membrane thickness = .031 cm
Cell pressure = 25.00 psi (1.800 tsf)
Back pressure = 0.00 psi (0.000 tsf)
Strain rate, %/min. = 1.00
Fail. Stress = 0.299 tsf at reading no. 51

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
0	0.0540	0.000	0.0	0.0	0.000	1.800	1.800	1.00	1.800	0.000
1	0.0580	4.729	4.7	0.1	0.053	1.800	1.853	1.03	1.827	0.027
2	0.0597	5.971	6.0	0.1	0.067	1.800	1.867	1.04	1.834	0.034
3	0.0609	6.655	6.7	0.1	0.075	1.800	1.875	1.04	1.838	0.038
4	0.0642	7.787	7.8	0.2	0.088	1.800	1.888	1.05	1.844	0.044
5	0.0655	8.204	8.2	0.2	0.092	1.800	1.892	1.05	1.846	0.046
6	0.0674	8.823	8.8	0.2	0.099	1.800	1.899	1.06	1.850	0.050
7	0.0687	9.367	9.4	0.2	0.105	1.800	1.905	1.06	1.853	0.053
8	0.0720	10.266	10.3	0.3	0.116	1.800	1.916	1.06	1.858	0.058
9	0.0745	11.219	11.2	0.3	0.126	1.800	1.926	1.07	1.863	0.063
10	0.0766	10.761	10.8	0.4	0.121	1.800	1.921	1.07	1.860	0.060
11	0.0791	11.807	11.8	0.4	0.133	1.800	1.933	1.07	1.866	0.066
12	0.0837	12.355	12.4	0.5	0.139	1.800	1.939	1.08	1.869	0.069
13	0.0857	12.946	12.9	0.5	0.145	1.800	1.945	1.08	1.873	0.073
14	0.0883	13.329	13.3	0.6	0.150	1.800	1.950	1.08	1.875	0.075
15	0.0903	13.880	13.9	0.6	0.156	1.800	1.956	1.09	1.878	0.078
16	0.0949	14.535	14.5	0.7	0.163	1.800	1.963	1.09	1.881	0.081
17	0.0974	14.929	14.9	0.7	0.167	1.800	1.967	1.09	1.884	0.084
18	0.1020	15.290	15.3	0.8	0.171	1.800	1.971	1.10	1.886	0.086
19	0.1066	15.834	15.8	0.9	0.177	1.800	1.977	1.10	1.889	0.089
20	0.1099	16.290	16.3	0.9	0.182	1.800	1.982	1.10	1.891	0.091
21	0.1145	16.662	16.7	1.0	0.186	1.800	1.986	1.10	1.893	0.093
22	0.1248	17.242	17.2	1.2	0.192	1.800	1.992	1.11	1.896	0.096
23	0.1314	17.703	17.7	1.3	0.197	1.800	1.997	1.11	1.899	0.099
24	0.1371	18.382	18.4	1.4	0.205	1.800	2.005	1.11	1.902	0.102
25	0.1435	18.842	18.8	1.5	0.209	1.800	2.009	1.12	1.905	0.105
26	0.1556	19.146	19.1	1.7	0.212	1.800	2.012	1.12	1.906	0.106
27	0.1614	19.817	19.8	1.8	0.220	1.800	2.020	1.12	1.910	0.110
28	0.1678	20.423	20.4	1.9	0.226	1.800	2.026	1.13	1.913	0.113
29	0.1793	20.878	20.9	2.1	0.231	1.800	2.031	1.13	1.915	0.115
30	0.1916	21.242	21.2	2.3	0.234	1.800	2.034	1.13	1.917	0.117
31	0.2037	21.664	21.7	2.5	0.238	1.800	2.038	1.13	1.919	0.119
32	0.2101	22.028	22.0	2.6	0.242	1.800	2.042	1.13	1.921	0.121
33	0.2222	22.571	22.6	2.8	0.248	1.800	2.048	1.14	1.924	0.124
34	0.2344	22.875	22.9	3.0	0.250	1.800	2.050	1.14	1.925	0.125
35	0.2401	23.234	23.2	3.1	0.254	1.800	2.054	1.14	1.927	0.127
36	0.2523	23.557	23.6	3.3	0.257	1.800	2.057	1.14	1.929	0.129
37	0.2644	23.994	24.0	3.5	0.261	1.800	2.061	1.15	1.931	0.131
38	0.2765	24.143	24.1	3.7	0.262	1.800	2.062	1.15	1.931	0.131
39	0.2823	24.550	24.5	3.8	0.266	1.800	2.066	1.15	1.933	0.133
40	0.2945	24.611	24.6	4.0	0.267	1.800	2.067	1.15	1.933	0.133
41	0.3066	24.671	24.7	4.2	0.267	1.800	2.067	1.15	1.933	0.133
42	0.3188	25.512	25.5	4.4	0.275	1.800	2.075	1.15	1.938	0.138
43	0.3246	25.174	25.2	4.5	0.271	1.800	2.071	1.15	1.936	0.136
44	0.3368	25.646	25.6	4.7	0.276	1.800	2.076	1.15	1.938	0.138
45	0.3489	26.279	26.3	4.9	0.282	1.800	2.082	1.16	1.941	0.141
46	0.3610	26.116	26.1	5.1	0.280	1.800	2.080	1.16	1.940	0.140

Test Readings for Specimen No. 1

No.	Def. Dial in.	Load Dial	Load lbs.	Strain %	Deviator Stress tsf	Minor Princ. Stress tsf	Major Princ. Stress tsf	1:3 Ratio	P tsf	Q tsf
47	0.3764	26.626	26.6	5.4	0.284	1.800	2.084	1.16	1.942	0.142
48	0.3911	27.126	27.1	5.6	0.289	1.800	2.089	1.16	1.944	0.144
49	0.4064	27.538	27.5	5.9	0.292	1.800	2.092	1.16	1.946	0.146
50	0.4211	27.929	27.9	6.1	0.296	1.800	2.096	1.16	1.948	0.148
51	0.4358	28.340	28.3	6.4	0.299	1.800	2.099	1.17	1.950	0.150
52	0.4513	28.322	28.3	6.6	0.283	1.800	2.083	1.16	1.941	0.141
53	0.4660	28.388	28.4	6.9	0.282	1.800	2.082	1.16	1.941	0.141
54	0.4813	28.985	29.0	7.1	0.287	1.800	2.087	1.16	1.944	0.144
55	0.4960	28.897	28.9	7.4	0.285	1.800	2.085	1.16	1.942	0.142
56	0.5108	29.138	29.1	7.6	0.286	1.800	2.086	1.16	1.943	0.143
57	0.5262	28.910	28.9	7.9	0.282	1.800	2.082	1.16	1.941	0.141
58	0.5409	29.425	29.4	8.1	0.286	1.800	2.086	1.16	1.943	0.143
59	0.5562	29.625	29.6	8.4	0.287	1.800	2.087	1.16	1.943	0.143
60	0.5709	29.432	29.4	8.6	0.283	1.800	2.083	1.16	1.942	0.142
61	0.5862	29.367	29.4	8.9	0.281	1.800	2.081	1.16	1.941	0.141
62	0.6009	30.196	30.2	9.1	0.288	1.800	2.088	1.16	1.944	0.144
63	0.6162	30.298	30.3	9.4	0.288	1.800	2.088	1.16	1.944	0.144
64	0.6309	30.438	30.4	9.7	0.288	1.800	2.088	1.16	1.944	0.144
65	0.6462	30.928	30.9	9.9	0.291	1.800	2.091	1.16	1.946	0.146
66	0.6609	30.934	30.9	10.2	0.290	1.800	2.090	1.16	1.945	0.145
67	0.6762	31.135	31.1	10.4	0.291	1.800	2.091	1.16	1.945	0.145
68	0.6910	31.004	31.0	10.7	0.288	1.800	2.088	1.16	1.944	0.144
69	0.7064	31.452	31.5	10.9	0.291	1.800	2.091	1.16	1.945	0.145
70	0.7210	31.320	31.3	11.2	0.288	1.800	2.088	1.16	1.944	0.144
71	0.7364	31.206	31.2	11.4	0.285	1.800	2.085	1.16	1.943	0.143
72	0.7511	31.617	31.6	11.7	0.288	1.800	2.088	1.16	1.944	0.144
73	0.7664	31.566	31.6	11.9	0.286	1.800	2.086	1.16	1.943	0.143
74	0.7811	32.148	32.1	12.2	0.290	1.800	2.090	1.16	1.945	0.145
75	0.7965	32.609	32.6	12.4	0.293	1.800	2.093	1.16	1.947	0.147
76	0.8112	32.351	32.4	12.7	0.289	1.800	2.089	1.16	1.945	0.145
77	0.8265	32.754	32.8	12.9	0.292	1.800	2.092	1.16	1.946	0.146
78	0.8412	33.075	33.1	13.2	0.294	1.800	2.094	1.16	1.947	0.147
79	0.8559	33.184	33.2	13.4	0.293	1.800	2.093	1.16	1.947	0.147
80	0.8713	32.661	32.7	13.7	0.286	1.800	2.086	1.16	1.943	0.143
81	0.8860	33.026	33.0	13.9	0.289	1.800	2.089	1.16	1.944	0.144
82	0.9014	32.943	32.9	14.2	0.286	1.800	2.086	1.16	1.943	0.143
83	0.9161	33.377	33.4	14.4	0.289	1.800	2.089	1.16	1.944	0.144
84	0.9314	33.434	33.4	14.7	0.288	1.800	2.088	1.16	1.944	0.144
85	0.9461	33.504	33.5	14.9	0.287	1.800	2.087	1.16	1.944	0.144
86	0.9550	33.210	33.2	15.1	0.283	1.800	2.083	1.16	1.942	0.142

SUMMARY OF LABORATORY TESTS

Project No. 08.18.918

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Boring No.	Sample No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Lab Vane (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	4	3-4	Gray and brown FAT CLAY	CH	52.7										
	5	4-5	Gray and brown FAT CLAY	CH											
	6	5-6	Gray and brown FAT CLAY	CH	59.7		100	30	70	94.8					
07-171															
	1	0-1	Gray and brown FAT CLAY; organics	CH											
	2	1-2	Gray and brown FAT CLAY with SAND	CH	65.6		100	29	71	70.9					
	3	2-3	Gray and brown FAT CLAY	CH											
	4	3-4	Gray and brown FAT CLAY	CH	53.0		72	25	47	94.2					
	5	4-5	Gray and brown FAT CLAY; silt seams	CH											
	6	5-6	Gray and brown FAT CLAY; silt seams	CH	48.4										
07-174															
	1	0-1	Gray FAT CLAY	CH											
	2	1-2	Gray FAT CLAY; organics	CH	76.9		103	30	73	96.3					
	3	2-3	Gray and brown FAT CLAY	CH											
	4	3-4	Gray and brown FAT CLAY	CH	60.3										
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	51.6		102	31	71	96.1					
07-175															
	1	0-1	Tan POORLY GRADED SAND with SILT; shells fragments	SP-SM											
	2	1-2	Tan and gray POORLY GRADED SAND with SILT; shell fragments	SP-SM						9.0					
	3	2-3	Tan and gray POORLY GRADED SAND with SILT; shell fragments	SP-SM											
	4	3-4	Gray POORLY GRADED SAND with SILT; shell fragments	SP-SM						9.6					
	5	4-5	Gray POORLY GRADED SAND with SILT; shell fragments	SP-SM											
	6	5-6	Gray POORLY GRADED SAND; shell fragments	SP						3.8					
07-176															
	1	0-2	Gray FAT CLAY; sand seams	CH											
	2	2-4	Gray FAT CLAY	CH	50.3		69	22	47	96.3					
	3	4-6	Gray FAT CLAY	CH	55.4	65.4									
	4	6-8	Gray FAT CLAY	CH	69.5		115	28	87	99.7					
	4	8-10	Tan and gray FAT CLAY; calcareous nodules	CH	42.8	85.3									
	5	10-12	Tan and gray FAT CLAY	CH	42.4	69.8									
	6	12-14	Gray FAT CLAY; sand seams	CH	80.8	49.8	120	32	88	87.8		0.18	5.7		Slickensided
	7	14-15.5	Tan SILTY SAND	SM						31.8					
	8	19-20.5	Gray SILTY SAND; shell fragments	SM						15.7					
	9	24-25.5	Gray SILTY SAND; shell fragments	SM						18.3					
	10	29-30.5	Gray SILTY SAND	SM						35.7					

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SUMMARY OF LABORATORY TESTS

Project No. 08.18.918

Client: United States Army Corps of Engineers

Project: Galveston Channel and Pelican Island PA

Contract No. DACW64-03-D-0008, Task Order No. 0077

Boring No.	Sample No.	Depth (ft)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Lab Vane (tsf)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	11	30.5-32	Gray FAT CLAY	CH	59.3	43.1									
	12	32-34	Gray FAT CLAY; sand seams	CH	45.6	74.4									
	13	34-36	Gray SANDY FAT CLAY	CH	47.0	70.1	63	21	42	69.4		0.36	13.9	21.0	Bulge
	14	36-38	Gray FAT CLAY; sand seams	CH	49.9	70.2									
	15	38-40	Gray SANDY LEAN CLAY	CL	30.9		41	21	20	51.8					
	16	40-42	Gray FAT CLAY; sand seams	CH	42.5	75.8									
	17	42-44	Gray FAT CLAY; sand seams and pockets	CH	36.0	79.3									
	18	44-46	Gray FAT CLAY; sand seams	CH	50.7	69.5	50	20	30	96.2		0.30	6.4	25.0	Bulge
	19	46-48	Gray FAT CLAY; sand seams	CH	47.9	70.5									
	20	48-50	Gray SILTY CLAYEY SAND	SC-SM	24.1	88.2									
07-177															
	1	0-1	Brown and gray FAT CLAY	CH											
	2	1-2	Gray FAT CLAY	CH	84.8		106	33	73	99.5					
	3	2-3	Brown and gray FAT CLAY	CH											
	4	3-4	Brown and gray FAT CLAY	CH	77.9		116	32	84	99.1					
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	56.6										
07-178															
	1	0-2	Gray and brown FAT CLAY	CH	30.6	83.3	92	25	67	97.4		1.44	3.0		Slickensided
	2	2-4	Gray and brown FAT CLAY	CH	42.9	74.5									
	3	4-6	Gray and brown FAT CLAY	CH	44.4	71.7	92	25	67	98.2		0.39	2.7		Slickensided
	4	6-8	Gray and brown FAT CLAY	CH	54.5	63.3									
	5	8-10	Gray FAT CLAY	CH	52.6	66.3									
	6	10-12	Gray FAT CLAY; calcareous nodules	CH	31.1	85.2									
	7	12-14	Reddish-brown and gray FAT CLAY with SAND; shell fragments	CH	33.1	85.0	62	22	40	80.8		0.57	4.7		60 degree
	8	14-16	Reddish-brown and gray FAT CLAY	CH	30.7	87.6									
	9	16-18	Reddish-brown and gray FAT CLAY; shell fragments	CH	28.9	91.5									
	10	18-20	Reddish-brown and gray FAT CLAY	CH	30.5		83	25	58	96.4					
07-180															
	1	0-1	Gray FAT CLAY; organics	CH											
	2	1-2	Gray FAT CLAY	CH	69.3		102	32	70	98.8					
	3	2-3	Gray FAT CLAY	CH											
	4	3-4	Gray FAT CLAY	CH	127.6										
	5	4-5	Gray FAT CLAY	CH											
	6	5-6	Gray FAT CLAY	CH	62.6		95	30	65	99.2					
07-181															

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