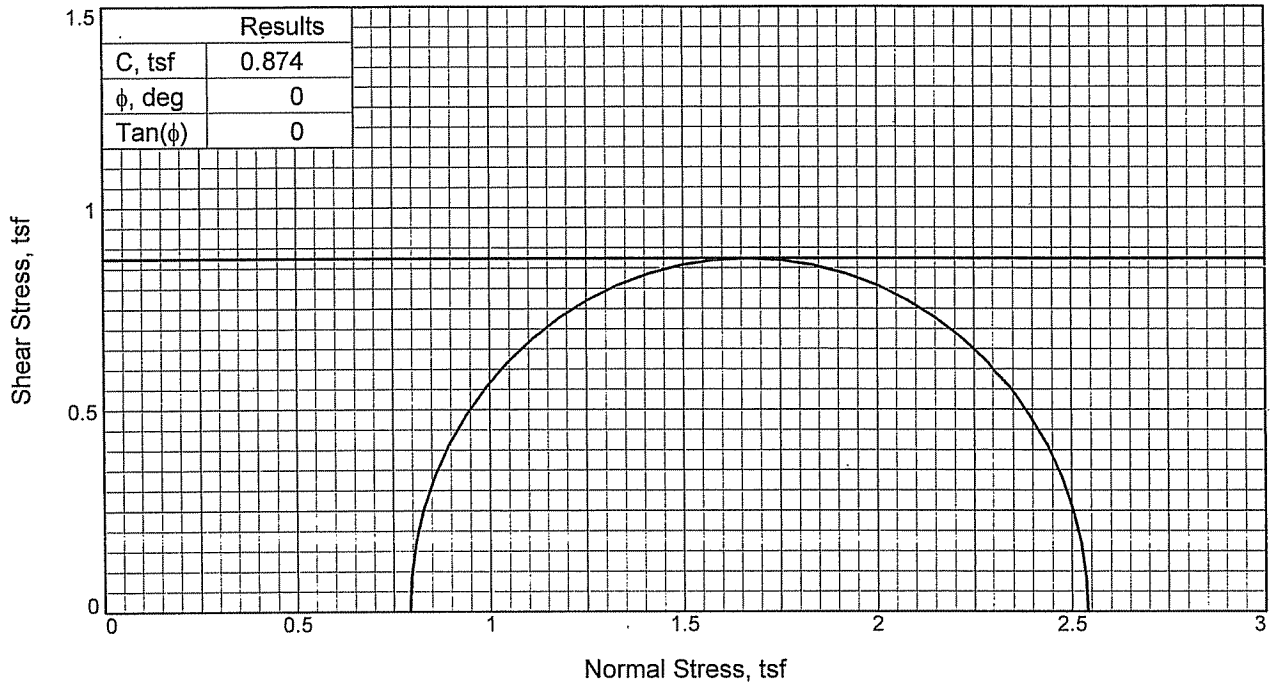
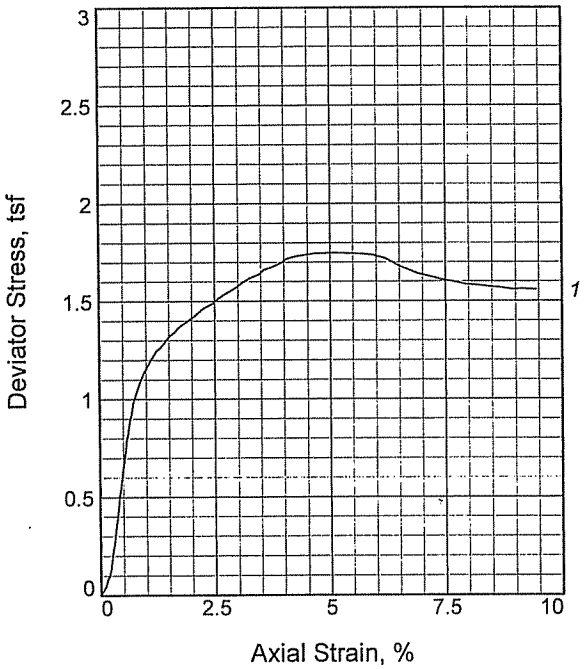
	5	8-10	Reddish-brown LEAN CLAY	CL	31.9	95.8	45	18	27	99.8	1.01	12	9	Bulge
	6	10-12	Reddish-brown SANDY SILTY CLAY	CL-ML	25.4	97.5								
	7	12-14	Reddish-brown and gray FAT CLAY	CH	27.8	97.9								
	8	14-16	Reddish-brown and gray FAT CLAY	CH	21.0	105.9								
	9	16-18	Reddish-brown and gray LEAN CLAY with SAND	CL	15.8	113.2								
	10	18-20	Reddish-brown and gray LEAN CLAY with SAND	CL	26.5	97.4								
08-94			**El. 9.25, E=3185568 N=13646170**											
	1	0-2	Gray and tan SANDY LEAN CLAY	CL	11.3	106.3								
	2	2-4	Gray and tan FAT CLAY	CH	24.9	100.1								
	3	4-6	Tan and gray FAT CLAY	CH	24.5	99.7	60	21	39	90.7	1.20	11.4	6	60 degree
	4	6-8	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.6	96.0								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	28.9	95.4								
	6	10-12	Reddish-brown and gray FAT CLAY	CH	22.0	107.1	50	20	30	97.8	1.13	11.2	11	60 degree
	7	12-14	Reddish-brown and gray SANDY SILTY CLAY	CL-ML	23.8	99.5					0.84	3.4		Vertical shear
	8	14-16	Reddish-brown gray FAT CLAY; calcareous nodules	CH	27.5	97.5								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	25.4	98.4	67	21	46	98.0	2.28	6.7	15	Slickensided
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.0	98.0								
08-95			**El. 11.00, E=3184767 N=13646549**											
	1	0-2	Gray and tan SANDY LEAN CLAY	CL	9.9	108.8								
	2	2-4	Tan and gray SANDY LEAN CLAY	CL	20.9	105.1								
	3	4-6	Tan and gray FAT CLAY; ferrous nodules	CH	23.5	103.0	61	21	40		2.01	11.2	6	Bulge
	4	6-8	Reddish-brown and gray FAT CLAY; calcareous	CH	24.2	101.6					1.72	11.2		60 degree
	5	8-10	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	28.1	95.9								
	6	10-12	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.5	94.7								
	7	12-14	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.1	95.6								
	8	14-16	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.6	97.3								
	9	16-18	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	26.2	99.2								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	24.1	100.5								
08-96			**El. 11.50, E=3184441 N=13647279**											
	1	0-2	Gray SANDY LEAN CLAY	CL	17.8	106.6								
	2	2-4	Gray and tan FAT CLAY	CH	20.1	103.5								
	3	4-6	Reddish-brown and gray FAT CLAY	CH	32.9	89.8	64	21	43	93.1	0.85	6.2	6	60 degree
	4	6-8	Reddish-brown and gray FAT CLAY	CH	27.6	94.3								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	30.6	90.8								
	6	10-12	Reddish-brown and gray FAT CLAY	CH	25.7	95.8	66	21	45	98.8	1.54	2.6		Slickensided
	7	12-14	Reddish-brown and gray FAT CLAY	CH	24.9	102.6								
	8	14-16	Reddish-brown LEAN CLAY with SAND	CL	24.1	97.7								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	26.0	97.9								
	10	18-20	Reddish-brown and gray FAT CLAY	CH	26.3	98.0								
08-97			**El. 11.25, E=3185190 N=13647332**											
	1	0-2	Gray SANDY LEAN CLAY	CL	15.8	109.4								
	2	2-4	Gray FAT CLAY with SAND	CH	21.1	105.3								
	3	4-6	Tan and gray FAT CLAY; ferrous and calcareous nodules	CH	21.2	108.2								
	4	6-8	Reddish-brown and gray FAT CLAY; ferrous nodules	CH	30.4	89.6								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	40.9	86.4	66	21	45	98.0	0.44	9.5	9	60 degree
	6	10-12	Reddish-brown and gray SILTY CLAY with SAND	CL-ML	35.6									
	7	12-14	Reddish-brown and gray SILTY CLAY with SAND	CL-ML	27.0	95.8					0.58	5.8		Vertical shear
	8	14-16	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	25.4	99.0								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	25.1	98.8								
	10	18-20	Reddish-brown and gray FAT CLAY	CH	28.9	98.7								
08-98			**El. 11.00, E=3184452 N=13647824**											
	1	0-2	Gray SANDY LEAN CLAY	CL	13.2	105.9								
	2	2-4	Tan and gray FAT CLAY	CH	19.8	98.9								
	3	4-6	Tan and gray FAT CLAY	CH	17.1	109.6								
	4	6-8	Reddish-brown and gray FAT CLAY	CH	29.1	93.3	67	21	46	98.3	1.22	6.1		Slickensided
	5	8-10	Reddish-brown and gray FAT CLAY	CH	32.4	88.6								
	6	10-12	Reddish-brown and gray FAT CLAY	CH	24.5	99.6	62	20	42	95.2	1.75	5.1	11	Slickensided
	7	12-14	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	37.8	87.0								
	8	14-16	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	26.0	98.0								
	9	16-18	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	24.4	102.5								
	10	18-20	Reddish-brown and gray FAT CLAY	CH	27.6	96.5								
08-99														





Sample No.		1
Initial	Water Content, %	24.5
	Dry Density, pcf	99.6
	Saturation, %	95.5
	Void Ratio	0.6917
	Diameter, in.	2.85
	Height, in.	6.00
At Test	Water Content, %	25.6
	Dry Density, pcf	99.6
	Saturation, %	99.9
	Void Ratio	0.6917
	Diameter, in.	2.85
	Height, in.	6.00
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.79
Fail. Stress, tsf		1.75
Ult. Stress, tsf		
σ_1 Failure, tsf		2.54
σ_3 Failure, tsf		0.79

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown and gray FAT CLAY

LL= 62 **PL=** 20 **PI=** 42

Assumed Specific Gravity= 2.70

Remarks:
Test method: ASTM D 2850
Pocket pen; tsf: 3.25
Failure type: Slickensided

Client: United States Army Corps of Engineers

Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079

Source of Sample: 08-98 **Depth:** 10-12

Sample Number: 6

Proj. No.: 08.18.921 **Date Sampled:** 8/16/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

TRIAXIAL COMPRESSION TEST

Unconsolidated Undrained

8/19/2008
2:10 PM

Date: 8/16/08
Client: United States Army Corps of Engineers
Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079
Project No.: 08.18.921
Location: 08-98
Depth: 10-12 **Sample Number:** 6
Description: Reddish-brown and gray FAT CLAY
Remarks:
Test method: ASTM D 2850
Pocket pen; tsf: 3.25
Failure type: Slickensided
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=**62 **PL=**20 **PI=**42
Test Method: ASTM D 2850

Parameters for Specimen No. 1

Specimen Parameter	Initial	Final
Moisture content: Moist soil+tare, gms.	151.170	112.340
Moisture content: Dry soil+tare, gms.	127.700	95.940
Moisture content: Tare, gms.	31.800	31.840
Moisture, %	24.5	25.6
Moist specimen weight, gms.	1246.1	
Diameter, in.	2.85	
Area, in.^{2}	6.38	
Height, in.	6.00	
Wet Density, pcf	124.0	
Dry density, pcf	99.6	
Void ratio	0.6917	
Saturation, %	95.5	

Test Readings for Specimen No. 1

Membrane modulus = .130 kN/cm^2
Membrane thickness = .031 cm
Cell pressure = 11.00 psi (0.792 tsf)
Back pressure = 0.00 psi (0.000 tsf)
Strain rate, %/min. = 1.00
Fail. Stress = 1.749 tsf **at reading no.** 58

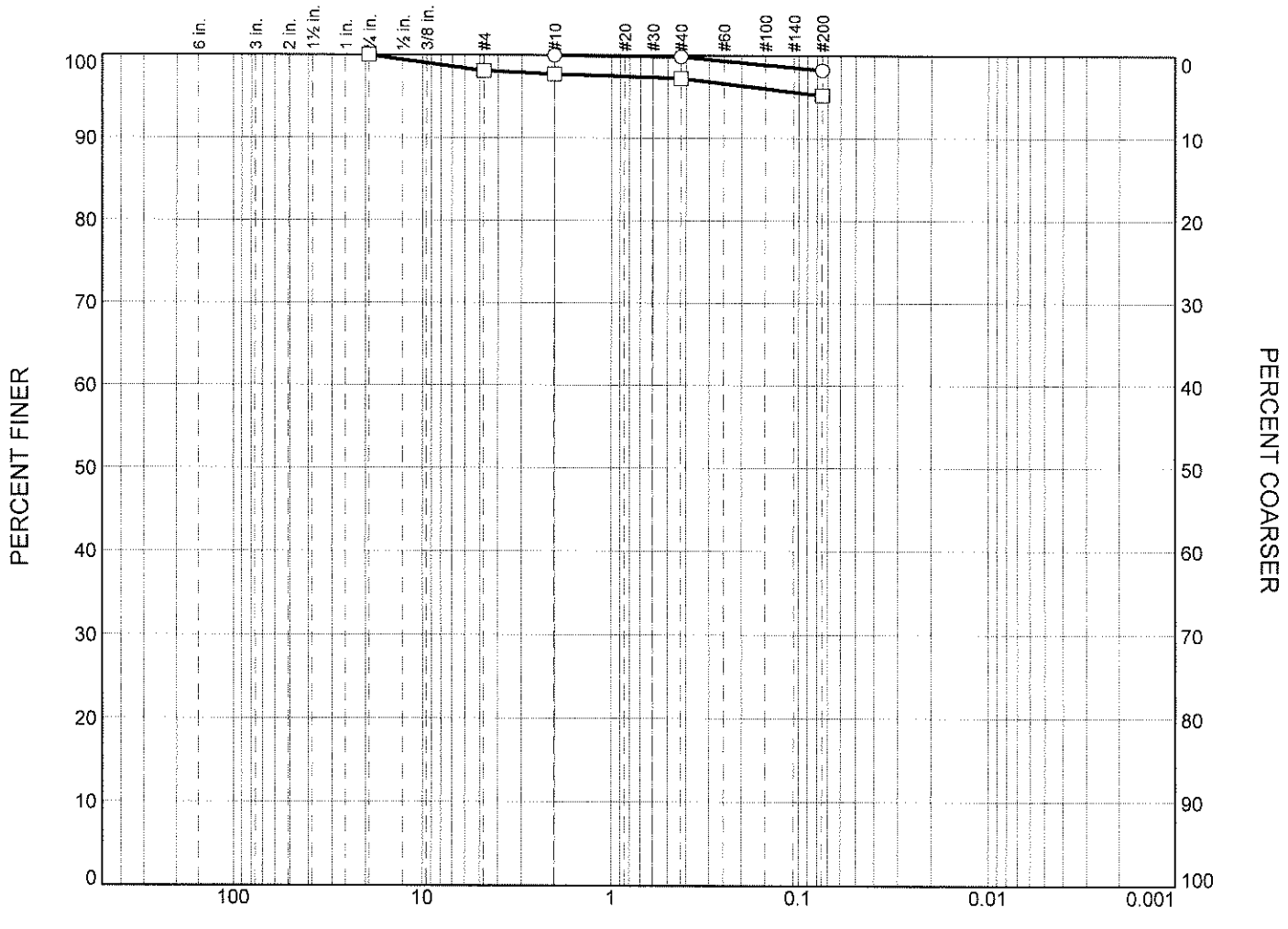
Test Readings for Specimen No. 1

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	0.0391	0.000	0.0	0.0	0.000	0.792	0.792	1.00	0.792	0.000
1	0.0462	4.301	4.3	0.1	0.048	0.792	0.840	1.06	0.816	0.024
2	0.0479	6.892	6.9	0.1	0.078	0.792	0.870	1.10	0.831	0.039
3	0.0505	8.669	8.7	0.2	0.098	0.792	0.890	1.12	0.841	0.049
4	0.0525	11.819	11.8	0.2	0.133	0.792	0.925	1.17	0.859	0.067
5	0.0538	15.693	15.7	0.2	0.177	0.792	0.969	1.22	0.880	0.088
6	0.0551	19.058	19.1	0.3	0.215	0.792	1.007	1.27	0.899	0.107
7	0.0571	23.301	23.3	0.3	0.262	0.792	1.054	1.33	0.923	0.131
8	0.0584	27.104	27.1	0.3	0.305	0.792	1.097	1.39	0.944	0.152
9	0.0597	30.949	30.9	0.3	0.348	0.792	1.140	1.44	0.966	0.174
10	0.0617	35.403	35.4	0.4	0.398	0.792	1.190	1.50	0.991	0.199
11	0.0630	39.869	39.9	0.4	0.448	0.792	1.240	1.57	1.016	0.224
12	0.0643	44.639	44.6	0.4	0.502	0.792	1.294	1.63	1.043	0.251
13	0.0663	48.723	48.7	0.5	0.547	0.792	1.339	1.69	1.066	0.274
14	0.0676	52.946	52.9	0.5	0.595	0.792	1.387	1.75	1.089	0.297
15	0.0689	56.800	56.8	0.5	0.638	0.792	1.430	1.81	1.111	0.319
16	0.0709	61.103	61.1	0.5	0.686	0.792	1.478	1.87	1.135	0.343
17	0.0722	65.274	65.3	0.6	0.733	0.792	1.525	1.93	1.158	0.366
18	0.0735	69.661	69.7	0.6	0.782	0.792	1.574	1.99	1.183	0.391
19	0.0755	73.079	73.1	0.6	0.820	0.792	1.612	2.04	1.202	0.410
20	0.0768	76.193	76.2	0.6	0.855	0.792	1.647	2.08	1.219	0.427
21	0.0781	79.212	79.2	0.6	0.888	0.792	1.680	2.12	1.236	0.444
22	0.0801	82.130	82.1	0.7	0.921	0.792	1.713	2.16	1.252	0.460
23	0.0814	85.025	85.0	0.7	0.953	0.792	1.745	2.20	1.268	0.476
24	0.0827	87.689	87.7	0.7	0.982	0.792	1.774	2.24	1.283	0.491
25	0.0847	89.749	89.7	0.8	1.005	0.792	1.797	2.27	1.295	0.503
26	0.0860	91.431	91.4	0.8	1.024	0.792	1.816	2.29	1.304	0.512
27	0.0893	94.668	94.7	0.8	1.060	0.792	1.852	2.34	1.322	0.530
28	0.0906	96.414	96.4	0.9	1.079	0.792	1.871	2.36	1.331	0.539
29	0.0939	99.462	99.5	0.9	1.112	0.792	1.904	2.40	1.348	0.556
30	0.0965	101.489	101.5	1.0	1.134	0.792	1.926	2.43	1.359	0.567
31	0.0998	103.634	103.6	1.0	1.158	0.792	1.950	2.46	1.371	0.579
32	0.1031	105.934	105.9	1.1	1.183	0.792	1.975	2.49	1.383	0.591
33	0.1057	107.606	107.6	1.1	1.201	0.792	1.993	2.52	1.392	0.600
34	0.1135	111.868	111.9	1.2	1.247	0.792	2.039	2.57	1.415	0.623
35	0.1193	113.620	113.6	1.3	1.265	0.792	2.057	2.60	1.425	0.633
36	0.1258	116.795	116.8	1.4	1.299	0.792	2.091	2.64	1.442	0.650
37	0.1316	119.147	119.1	1.5	1.324	0.792	2.116	2.67	1.454	0.662
38	0.1373	120.854	120.9	1.6	1.342	0.792	2.134	2.69	1.463	0.671
39	0.1439	123.395	123.4	1.7	1.368	0.792	2.160	2.73	1.476	0.684
40	0.1555	126.672	126.7	1.9	1.402	0.792	2.194	2.77	1.493	0.701
41	0.1620	128.422	128.4	2.0	1.420	0.792	2.212	2.79	1.502	0.710
42	0.1742	132.360	132.4	2.3	1.460	0.792	2.252	2.84	1.522	0.730
43	0.1864	135.085	135.1	2.5	1.487	0.792	2.279	2.88	1.536	0.744
44	0.1921	137.098	137.1	2.6	1.508	0.792	2.300	2.90	1.546	0.754
45	0.2043	140.336	140.3	2.8	1.540	0.792	2.332	2.94	1.562	0.770
46	0.2165	143.253	143.3	3.0	1.569	0.792	2.361	2.98	1.576	0.784

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	0.2223	145.135	145.1	3.1	1.588	0.792	2.380	3.01	1.586	0.794
48	0.2346	148.032	148.0	3.3	1.616	0.792	2.408	3.04	1.600	0.808
49	0.2468	150.274	150.3	3.5	1.637	0.792	2.429	3.07	1.611	0.819
50	0.2532	152.480	152.5	3.6	1.660	0.792	2.452	3.10	1.622	0.830
51	0.2654	154.408	154.4	3.8	1.677	0.792	2.469	3.12	1.630	0.838
52	0.2776	156.818	156.8	4.0	1.700	0.792	2.492	3.15	1.642	0.850
53	0.2833	158.644	158.6	4.1	1.718	0.792	2.510	3.17	1.651	0.859
54	0.2957	160.227	160.2	4.3	1.731	0.792	2.523	3.19	1.658	0.866
55	0.3079	161.346	161.3	4.5	1.739	0.792	2.531	3.20	1.662	0.870
56	0.3195	162.227	162.2	4.7	1.745	0.792	2.537	3.20	1.665	0.873
57	0.3318	162.640	162.6	4.9	1.746	0.792	2.538	3.20	1.665	0.873
58	0.3441	163.223	163.2	5.1	1.749	0.792	2.541	3.21	1.666	0.874
59	0.3647	163.587	163.6	5.4	1.746	0.792	2.538	3.20	1.665	0.873
60	0.3802	163.860	163.9	5.7	1.744	0.792	2.536	3.20	1.664	0.872
61	0.3949	163.683	163.7	5.9	1.738	0.792	2.530	3.19	1.661	0.869
62	0.4104	162.452	162.5	6.2	1.720	0.792	2.512	3.17	1.652	0.860
63	0.4251	159.770	159.8	6.4	1.687	0.792	2.479	3.13	1.636	0.844
64	0.4367	158.152	158.2	6.6	1.667	0.792	2.459	3.10	1.625	0.833
65	0.4555	156.024	156.0	6.9	1.639	0.792	2.431	3.07	1.611	0.819
66	0.4703	155.129	155.1	7.2	1.625	0.792	2.417	3.05	1.605	0.813
67	0.4856	154.002	154.0	7.4	1.609	0.792	2.401	3.03	1.596	0.804
68	0.5004	153.475	153.5	7.7	1.599	0.792	2.391	3.02	1.591	0.799
69	0.5152	152.585	152.6	7.9	1.585	0.792	2.377	3.00	1.585	0.793
70	0.5307	152.571	152.6	8.2	1.581	0.792	2.373	3.00	1.582	0.790
71	0.5455	152.295	152.3	8.4	1.574	0.792	2.366	2.99	1.579	0.787
72	0.5609	152.147	152.1	8.7	1.568	0.792	2.360	2.98	1.576	0.784
73	0.5756	151.795	151.8	8.9	1.560	0.792	2.352	2.97	1.572	0.780
74	0.5904	152.292	152.3	9.2	1.561	0.792	2.353	2.97	1.572	0.780
75	0.6059	152.365	152.4	9.4	1.557	0.792	2.349	2.97	1.571	0.779

Particle Size Analysis - ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	1.6	98.3	
□	0.0	0.0	1.9	0.4	0.4	2.1	95.2	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	08-98	4	6-8	Reddish-brown and gray FAT CLAY	CH
□	08-98	6	10-12	Reddish-brown and gray FAT CLAY	CH

Tolunay-Wong Engineers, Inc.
Houston, Texas

Client: United States Army Corps of Engineers
Project: Chocolate Bayou Placement Area
Contract DACW64-03-D-0008; Task Order 0079
Project No.: 08.18.921