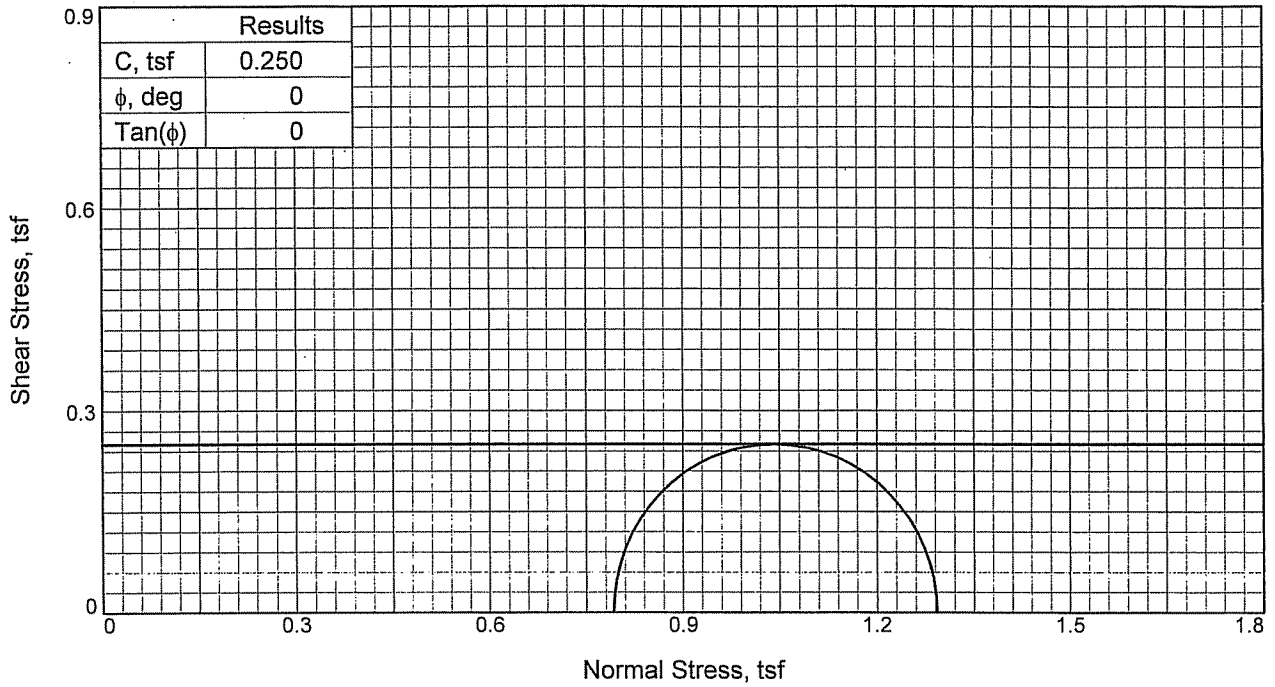
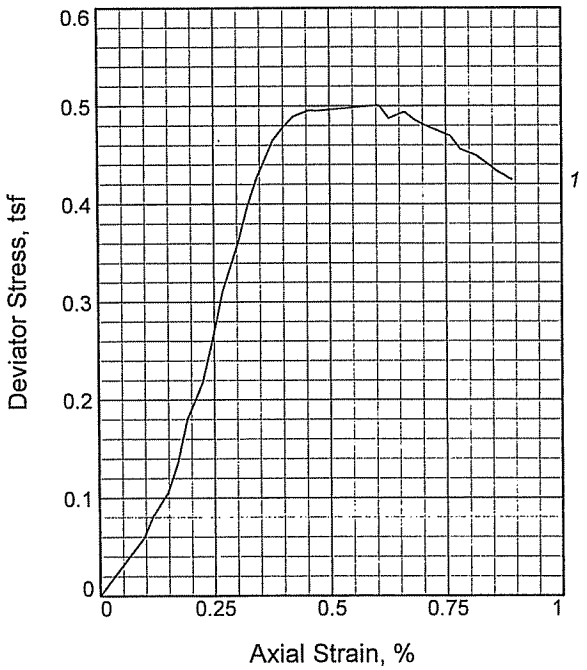
	8	14-16	Reddish-brown and gray SANDY LEAN CLAY	CL	21.6	103.6								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	24.4	102.2								
	10	18-20	Reddish-brown and gray FAT CLAY	CH	24.0	99.1								
08-85			**El. 13.00, E=3182722 N=13648072**											
	2	2-4	Gray SANDY LEAN CLAY	CL	10.0	103.1								
	3	4-6	Gray SANDY LEAN CLAY	CL	11.8	100.2								
	4	6-8	Tan and gray FAT CLAY	CH	26.3	96.0								
	5	8-10	Gray and tan FAT CLAY; calcareous nodules	CH	40.2	85.5								
	6	10-12	Gray and tan FAT CLAY; calcareous nodules	CH	24.5	97.3								
	7	12-14	Gray and tan SANDY LEAN CLAY	CL	22.3	100.6								
	8	14-16	Tan and gray SANDY LEAN CLAY; ferrous nodules	CL	18.7	109.5								
	9	16-18	Tan and gray SANDY LEAN CLAY	CL	17.1	112.7								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	26.9	98.3								
	11	20-22	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.8	96.4								
	12	22-24	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	25.6	97.1								
	13	24-26	Reddish-brown and gray FAT CLAY	CH	26.1	99.6	59	20	39	99.0				
	14	26-28	Reddish-brown and gray SILTY CLAY	CL-ML	25.1	98.6								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	22.3	103.6								
	16	30-32	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.5	90.9								
	17	32-34	Reddish-brown and gray FAT CLAY	CH	31.7	89.7								
	18	34-36	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.5	94.7								
	19	36-38	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.5	93.2								
	20	38-40	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	22.0	100.7								
08-86			**El. 14.25, E=3181829 N=13646700**											
	2	2-4	Tan and gray FAT CLAY	CH	23.1	100.7								
	3	4-6	Gray and tan FAT CLAY	CH	25.8	96.1								
	4	6-8	Reddish-brown and tan FAT CLAY	CH	32.2	88.1								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	33.2	88.7								
	6	10-12	Gray FAT CLAY	CH	29.2	91.5								
	7	12-14	Gray FAT CLAY	CH	24.7	98.1								
	8	14-16	Tan and gray FAT CLAY; ferrous and calcareous nodules	CH	28.4	90.4								
	9	16-18	Tan and gray FAT CLAY; calcareous nodules	CH	24.3	102.2								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	24.4	101.7								
	11	20-22	Reddish-brown and gray FAT CLAY	CH	26.8	96.5								
	12	22-24	Reddish-brown and gray FAT CLAY	CH	25.5	97.3								
	13	24-26	Reddish-brown and gray FAT CLAY	CH	26.3	97.9								
	14	26-28	Reddish-brown and gray FAT CLAY	CH	28.0	94.2								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	33.7	83.2	72	22	50	96.9	0.63	3.1		60 degree
	16	30-32	Reddish-brown and gray FAT CLAY	CH	32.2	86.2								
	17	32-34	Reddish-brown and gray FAT CLAY	CH	32.3	89.1								
	18	34-36	Tan and light gray FAT CLAY	CH	30.2	90.6	77	23	54	99.5	1.04	7.7		60 degree
08-87			**El. 21.50, E=3182848 N=13646032**											
	2	2-4	Tan and gray FAT CLAY; calcareous nodules	CH	18.0	102.0								
	3	4-6	Tan and gray FAT CLAY	CH	23.3	99.3								
	4	6-8	Reddish-brown and gray FAT CLAY; shells	CH	28.1	90.7								
	5	8-10	Gray and reddish-brown FAT CLAY	CH	24.1	94.8								
	6	10-12	Gray and tan FAT CLAY	CH	29.7	90.0								
	7	12-14	Dark gray FAT CLAY	CH	23.3	97.0								
	8	14-16	Dark gray FAT CLAY	CH	28.4	92.8								
	9	16-18	Gray FAT CLAY; ferrous nodules	CH	29.2	92.6								
	10	18-20	Tan and gray FAT CLAY; ferrous nodules	CH	27.7	95.1								
	11	20-22	Tan and gray FAT CLAY; calcareous nodules	CH	27.7	96.0								
	12	22-24	Reddish-brown and gray FAT CLAY	CH	27.9	94.8	72	22	50	98.6	1.68	4.4	20	Slickensided
	13	24-26	Reddish-brown and gray FAT CLAY	CH	27.7	95.9								
	14	26-28	Reddish-brown and gray FAT CLAY	CH	26.5	97.4								
	15	28-30	Reddish-brown and gray FAT CLAY	CH	29.5	92.2								
	16	30-32	Reddish-brown and gray FAT CLAY	CH	26.8	95.3								
	17	32-34	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	28.6	93.3								
	18	34-36	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.2	94.1								
	19	36-38	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.9	92.6								
	20	38-40	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.9	92.6								
08-88			**El. 10.00, E=3182997 N=13645999**											

	2	2-4	Gray FAT CLAY	CH	27.1	94.5								
	3	4-6	Tan and gray FAT CLAY	OH	31.5	89.5								
	4	6-8	Tan and gray FAT CLAY; calcareous nodules	CH	27.7	95.9								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	40.2	83.0								
	6	10-12	Reddish-brown and gray FAT CLAY	CH	30.5	91.4	75	23	52	99.4	0.50	0.6	11	Slickensided
	7	12-14	Reddish-brown and gray FAT CLAY	CH	30.3	89.2								
	8	14-16	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.3	91.5								
	9	16-18	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	30.7	93.0								
	10	18-20	Tan and gray FAT CLAY; ferrous nodules	CH	19.5	107.1								
08-89			**El. 9.75, E=3183894 N=13645807**											
	2	2-4	Gray and tan FAT CLAY	CH	30.9	88.3								
	3	4-6	Tan and gray FAT CLAY; ferrous nodules	CH	27.0	95.0								
	4	6-8	Tan and reddish-brown FAT CLAY; calcareous nodules	CH	23.4	102.0								
	5	8-10	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	25.4	98.4								
	6	10-12	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	27.5	97.1								
	7	12-14	Reddish-brown and gray FAT CLAY	CH	28.4	93.7	67	21	46	99.8	1.72	14.5	12	Slickensided
	8	14-16	Reddish-brown and gray FAT CLAY	CH	28.8	93.9								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	28.5	97.2								
	10	18-20	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	29.3	94.6								
08-90			**El. 9.75, E=3184808 N=13645601**											
	2	2-4	Gray and tan FAT CLAY; calcareous nodules	CH	24.1	100.0								
	3	4-6	Tan and reddish-brown FAT CLAY; calcareous nodules	CH	21.2	108.7								
	4	6-8	Reddish-brown and gray FAT CLAY	CH	21.2	107.1								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	25.4	98.9								
	6	10-12	Reddish-brown and gray FAT CLAY	CH	26.5	96.2								
	7	12-14	Reddish-brown and gray FAT CLAY	CH	28.1	96.1	70	22	48	99.4	2.00	4.4	12	45 degree
	8	14-16	Reddish-brown and gray FAT CLAY; calcareous nodules	CH	26.8	97.0								
	9	16-18	Reddish-brown and gray FAT CLAY	CH	24.8	98.2	69	22	47	97.5	1.75	2.3		Slickensided
08-91			**El. 8.75, E=3185612 N=13645555**											
	2	2-4	Gray FAT CLAY	CH	19.9	107.5	55	20	35	93.4	3.49	6	5	60 degree
	3	4-6	Tan and gray FAT CLAY	CH	27.0		61	20	41	95.0				
	4	6-8	Tan and gray FAT CLAY	CH	26.9	98.0	60	20	40	97.1	1.55	9.7		60 degree
	5	8-10	Reddish-brown and gray FAT CLAY	CH	25.8	100.1	65	21	44	99.6	1.02	6.7	9	60 degree
	6	10-12	Reddish-brown and gray FAT CLAY	CH	27.4	97.0	68	21	47	99.3	1.51	2.2		Slickensided
	7	12-14	Reddish-brown and gray FAT CLAY	CH	28.8	95.0	67	21	46	98.7	1.44	1.9	12	Slickensided
	8	14-16	Reddish-brown and gray FAT CLAY	CH	25.9	97.4	66	21	45	99.5	1.47	1.9		Slickensided
	9	16-18	Reddish-brown and gray FAT CLAY	CH	28.7	96.8	72	22	50	98.6	1.42	5.1	15	Slickensided
	10	18-20	Reddish-brown and gray FAT CLAY	CH	23.7	101.2	67	21	46	97.5	2.43	14.6		45 degree
	11	20-22	Reddish-brown FAT CLAY	CH	22.1	105.6	60	21	39	89.7	2.41	14.5	18	45 degree
	12	22-24	Reddish-brown and gray FAT CLAY with SAND	CH	22.4					82.0				
	13	24-26	Reddish-brown FAT CLAY	CH	26.0	97.9	69	21	48	98.3	1.97	8	21	45 degree
	14	26-28	Reddish-brown and gray FAT CLAY	CH	25.2	97.2	65	21	44	97.5	1.09	1.2		Slickensided
	15	28-30	Reddish-brown FAT CLAY	CH	23.0	102.4	70	22	48	99.7	2.32	6.2	24	60 degree
	16	30-32	Gray and tan CLAYEY SAND	SC	19.0	106.8	37	17	20	46.4	1.16	5.2		Vertical shear
	17	32-34	Brown FAT CLAY	CH	24.8	100.3	66	21	45	90.5	2.30	8.5	28	60 degree
	18	34-36	Gray and tan LEAN CLAY with SAND; calcareous deposits	CL	18.5	112.9	43	17	26	84.1	1.52	5.7		Vertical shear
	19	36-38	Brown CLAYEY SAND	SC	18.2	111.7	23	15	8	46.7	1.43	11	31	Bulge
	20	38-40	Tan POORLY GRADED SAND	SP	18.5					4.9				
08-92			**El. 8.25, E=3186327 N=13646253**											
	2	2-4	Tan and gray SANDY LEAN CLAY	CL	18.2	108.7								
	3	4-6	Reddish-brown and gray FAT CLAY	CH	25.2	101.3								
	4	6-8	Tan and gray FAT CLAY	CH	21.2	109.3								
	5	8-10	Reddish-brown and gray FAT CLAY	CH	25.5	97.6								
	6	10-12	Reddish-brown FAT CLAY	CH	28.7	95.4	68	21	47	98.3	1.64	14.2	11	Slickensided
	8	14-16	Tan and gray LEAN CLAY with SAND	CL	20.9	107.0	33	16	17	80.8	0.85	14.7	14	Bulge
	9	16-18	Reddish-brown and gray FAT CLAY	CH	21.8	102.7								
	10	18-20	Reddish-brown and tan CLAYEY SAND; calcareous nodules	SC	19.1	110.5								
08-93			**El. 10.25, E=3185920 N=13646861**											
	1	0-2	Gray SANDY LEAN CLAY	CL	11.2	107.3								
	2	2-4	Tan and gray SANDY LEAN CLAY	CL	17.3	112.0								
	3	4-6	Tan and gray LEAN CLAY with SAND	CL	21.2	104.0								
	4	6-8	Reddish-brown and gray FAT CLAY	CH	28.9	91.4					1.33	8.2		45 degree





Sample No.		1
Initial	Water Content, %	30.5
	Dry Density, pcf	91.4
	Saturation, %	97.5
	Void Ratio	0.8440
	Diameter, in.	2.84
	Height, in.	5.99
At Test	Water Content, %	31.2
	Dry Density, pcf	91.4
	Saturation, %	99.7
	Void Ratio	0.8440
	Diameter, in.	2.84
	Height, in.	5.99
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.79
Fail. Stress, tsf		0.50
Ult. Stress, tsf		
σ_1 Failure, tsf		1.29
σ_3 Failure, tsf		0.79

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown and gray FAT CLAY

LL= 75 **PL=** 23 **PI=** 52

Assumed Specific Gravity= 2.70

Remarks:
Test method: ASTM D 2850
Pocket pen; tsf: 1.75
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: 08-88 **Depth:** 10-12

Sample Number: 6

Proj. No.: 08.18.921 **Date Sampled:** 8/14/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

TRIAXIAL COMPRESSION TEST

Unconsolidated Undrained

8/19/2008
1:20 PM

Date: 8/14/08
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: 08-88
Depth: 10-12 **Sample Number:** 6
Description: Reddish-brown and gray FAT CLAY
Remarks:
Test method: ASTM D 2850
Pocket pen; tsf: 1.75
Failure type: Slickensided
Type of Sample: Undisturbed
Assumed Specific Gravity=2.70 **LL=**75 **PL=**23 **PI=**52
Test Method: ASTM D 2850

Parameters for Specimen No. 1

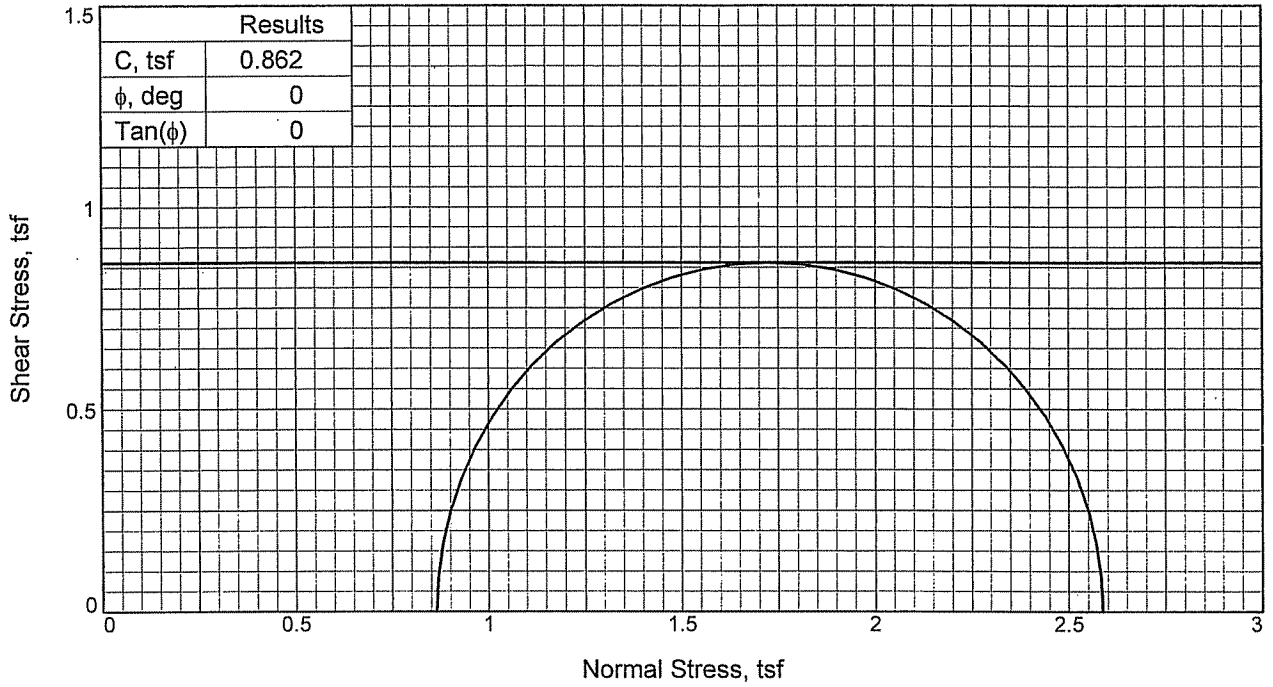
Specimen Parameter	Initial	Final
Moisture content: Moist soil+tare, gms.	150.870	109.430
Moisture content: Dry soil+tare, gms.	123.070	90.940
Moisture content: Tare, gms.	31.860	31.600
Moisture, %	30.5	31.2
Moist specimen weight, gms.	1188.5	
Diameter, in.	2.84	
Area, in.^{2}	6.33	
Height, in.	5.99	
Wet Density, pcf	119.3	
Dry density, pcf	91.4	
Void ratio	0.8440	
Saturation, %	97.5	

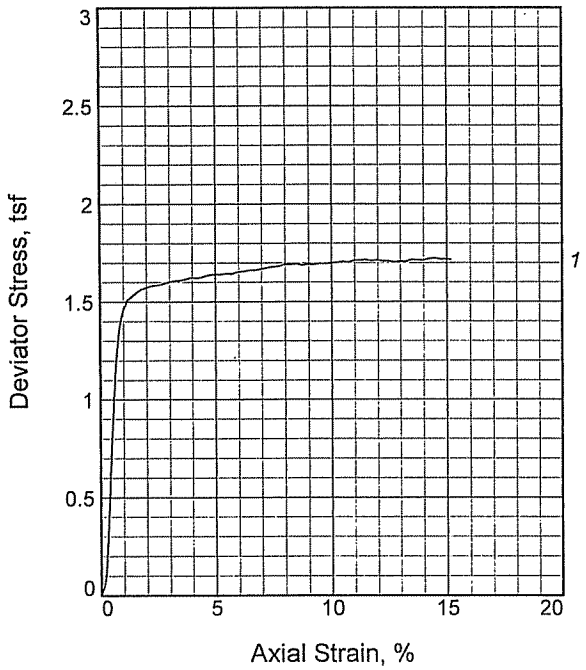
Test Readings for Specimen No. 1

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 = 0.500 tsf **at reading no.** 17

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	0.0266	0.000	0.0	0.0	0.000	0.792	0.792	1.00	0.792	0.000
1	0.0324	5.244	5.2	0.1	0.060	0.792	0.852	1.08	0.822	0.030
2	0.0334	7.082	7.1	0.1	0.080	0.792	0.872	1.10	0.832	0.040
3	0.0355	9.236	9.2	0.1	0.105	0.792	0.897	1.13	0.844	0.052
4	0.0368	11.948	11.9	0.2	0.136	0.792	0.928	1.17	0.860	0.068
5	0.0381	15.879	15.9	0.2	0.180	0.792	0.972	1.23	0.882	0.090
6	0.0401	19.200	19.2	0.2	0.218	0.792	1.010	1.27	0.901	0.109
7	0.0414	23.179	23.2	0.2	0.263	0.792	1.055	1.33	0.923	0.131
8	0.0427	27.367	27.4	0.3	0.310	0.792	1.102	1.39	0.947	0.155
9	0.0447	31.728	31.7	0.3	0.360	0.792	1.152	1.45	0.972	0.180
10	0.0460	35.089	35.1	0.3	0.398	0.792	1.190	1.50	0.991	0.199
11	0.0473	37.779	37.8	0.3	0.428	0.792	1.220	1.54	1.006	0.214
12	0.0493	41.041	41.0	0.4	0.465	0.792	1.257	1.59	1.024	0.232
13	0.0506	42.208	42.2	0.4	0.478	0.792	1.270	1.60	1.031	0.239
14	0.0519	43.200	43.2	0.4	0.489	0.792	1.281	1.62	1.036	0.244
15	0.0539	43.767	43.8	0.5	0.495	0.792	1.287	1.63	1.040	0.248
16	0.0551	43.753	43.8	0.5	0.495	0.792	1.287	1.62	1.039	0.247
17	0.0629	44.302	44.3	0.6	0.500	0.792	1.292	1.63	1.042	0.250
18	0.0642	43.121	43.1	0.6	0.487	0.792	1.279	1.61	1.036	0.244
19	0.0663	43.736	43.7	0.7	0.494	0.792	1.286	1.62	1.039	0.247
20	0.0675	43.039	43.0	0.7	0.486	0.792	1.278	1.61	1.035	0.243
21	0.0688	42.590	42.6	0.7	0.481	0.792	1.273	1.61	1.032	0.240
22	0.0721	41.626	41.6	0.8	0.470	0.792	1.262	1.59	1.027	0.235
23	0.0734	40.431	40.4	0.8	0.456	0.792	1.248	1.58	1.020	0.228
24	0.0755	39.870	39.9	0.8	0.449	0.792	1.241	1.57	1.017	0.225
25	0.0767	39.234	39.2	0.8	0.442	0.792	1.234	1.56	1.013	0.221
26	0.0780	38.538	38.5	0.9	0.434	0.792	1.226	1.55	1.009	0.217
27	0.0801	37.691	37.7	0.9	0.425	0.792	1.217	1.54	1.004	0.212





Sample No.		1
Initial	Water Content, %	28.4
	Dry Density, pcf	93.7
	Saturation, %	96.1
	Void Ratio	0.7988
	Diameter, in.	2.85
	Height, in.	6.00
At Test	Water Content, %	30.1
	Dry Density, pcf	93.7
	Saturation, %	101.7
	Void Ratio	0.7988
	Diameter, in.	2.85
	Height, in.	6.00
Strain rate, %/min.		1.00
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.86
Fail. Stress, tsf		1.72
Ult. Stress, tsf		
σ_1 Failure, tsf		2.59
σ_3 Failure, tsf		0.86

Type of Test:
Unconsolidated Undrained

Sample Type: Undisturbed

Description: Reddish-brown and gray FAT CLAY

LL= 67 **PL=** 21 **PI=** 46

Assumed Specific Gravity= 2.70

Remarks:

Test method: ASTM D 2850

Pocket pen; tsf: 2.75

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: 08-89 **Depth:** 12-14

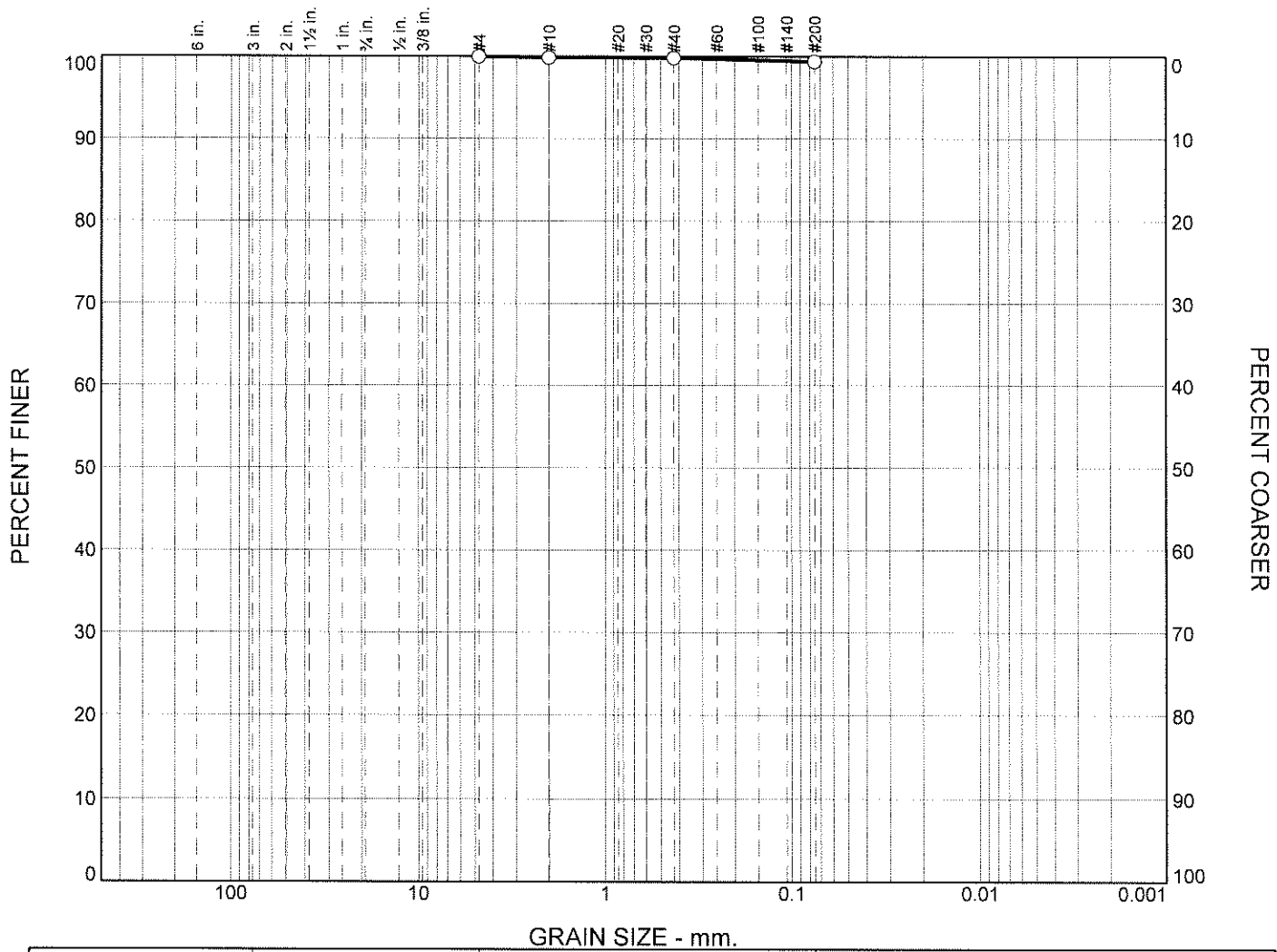
Sample Number: 7

Proj. No.: 08.18.921 **Date Sampled:** 8/14/08

TRIAXIAL SHEAR TEST REPORT

Tolunay-Wong Engineers, Inc.

Particle Size Analysis - ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.1	0.4	99.4	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	08-88	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