

**FINAL DATA REPORT  
FIELD AND LABORATORY DATA COLLECTION PHASE  
OYSTER BAYOU MARSH RESTORATION PROJECT (CS-59)**

**CAMERON PARISH, LOUISIANA**



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August 9, 2013  
AAI File: 12-80-3741

Coastal Protection and Restoration Authority  
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Attention: Ms. Kodi Collins, P.E.  
Kodi.collins@la.gov

Re: Final Data Report - Field and Laboratory Data Collection Phase  
Oyster Bayou Marsh Restoration Project (CS-59)  
Cameron Parish, Louisiana

We have completed the field exploration and laboratory data collection phase of the Oyster Bayou Marsh Restoration Project (CS-59) project. A summary of the field exploration and laboratory testing results, along with our evaluation of the data and preliminary recommendations for selection of geotechnical design properties are provided in the attached Final Data Report. This work was authorized by acceptance of our work plan, AAI File No. 113-12-80-3741PR, dated August 7, 2012.

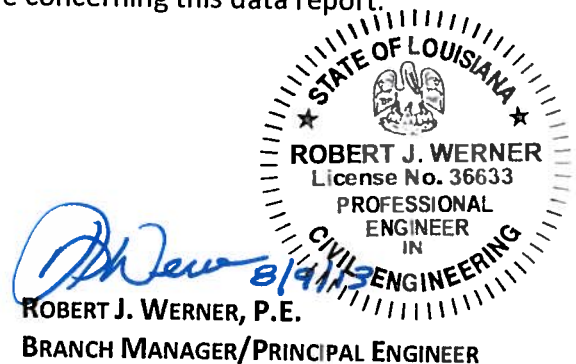
We will be pleased to discuss any questions you may have concerning this data report.

Sincerely,  
ARDAMAN & ASSOCIATES, INC.

**ROBERT E. ROUSSET, E.I.**  
ASSISTANT PROJECT ENGINEER

RER/RJW/gtp

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Oyster Bayou Marsh Restoration Project (CS-59)  
Final Data Report of Field and Laboratory Data Collection  
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**FINAL DATA REPORT  
FIELD AND LABORATORY DATA COLLECTION PHASE  
OYSTER BAYOU MARSH RESTORATION PROJECT (CS-59)**

**CAMERON PARISH, LOUISIANA**

Results and findings of the field exploration and laboratory testing phases of the Oyster Bayou Marsh Restoration project are provided herein. Boring locations, boring logs and generalized subsurface profiles, along with a description of terms and symbols used on the boring logs are provided in Appendix A. Laboratory testing data plots are included in Appendix B and laboratory testing results are presented in Appendices C through F.

## **SECTION 1. GENERAL PROJECT INFORMATION**

### **1.1 Project Description**

The Oyster Bayou Marsh Restoration project will consist of the creation of approximately 510 acres of saline marsh and nourishing 90 acres of existing saline marsh with hydraulically dredged material from the Gulf of Mexico. The project will also consist of construction of approximately 14,140 linear feet of earthen terraces throughout the proposed project area. Altered hydrology, drought stress, saltwater intrusion, and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. USGS data between 1984 and 2011 predicts a land loss rate of -0.75 percent/year in the project area. The scope of work associated with the field and laboratory data collection phase of this project consisted of performing a total of 19 soil borings (B-01 through B-19) to depths ranging from 40 to 60 feet below the existing mudline at locations established by the Coastal Protection and Restoration Authority (CPRA).

Geotechnical field and index laboratory testing data for the proposed dredge material borrow site have already been obtained for CPRA by GeoEngineers under a different contract. These samples were delivered to our laboratory by GeoEngineers on May 22, 2013. Results of index tests were reviewed and used to select representative samples for inclusion in preparation of three composite samples for settling column testing and slurry consolidation testing. The results of the settling and slurry consolidation tests are discussed in Sections 3.3.5 and 3.3.6, respectively, and are included in Appendix F.

### **1.2 Site Location and Description**

The project site is located in Cameron Parish, Louisiana, east of Mud Lake, north of Highway 27, and approximately 4 miles west of Monkey Island. The site is a wetland area with the majority of its surroundings consisting of marsh. The water depth at the boring locations during the field exploration phase ranged from 0.25 to 1.42 feet, with an average water depth of approximately 0.9 feet. The site is bordered to the south by the Gulf of Mexico. Open water and marsh areas



border the site to the north, east, and west. An unnamed gravel road running north from Highway 27 was used for mobilizing and launching our airboat-mounted drilling equipment.

### 1.3 Geology

Geologically, the site is underlain by the Saline Marsh Deposits of the Holocene Age. These deposits consist of gray to brown to black clay and silt with moderate to high organic content. Further south the Saline Marsh is mixed with Cheniers consisting of white to light gray fine sand and shell fragments.

## SECTION 2. FIELD EXPLORATION

### 2.1 Permission and Access

Prior to mobilizing to the site to establish the boring locations or conduct any portion of our fieldwork, landowners, as listed in the Scope of Services for Geotechnical Investigation and Engineering Services, Oyster Bayou Marsh Restoration, CS-59 document, were notified in the form of a letter from Ardaman and Associates, Inc. (AAI) to inform the parties involved of our geotechnical investigation operations. Through communication with the landowners and Ms. Kodi Collins with CPRA, permission was granted to access the site and conduct our geotechnical investigation at all of the boring locations.

### 2.2 Soil Borings

A total of nineteen borings were performed at locations designated by CPRA, as shown on Figure A-1, Boring Location Plan, in Appendix A. Boring locations B-01, B-02, and B-03 were performed within the proposed Terracing Area. Boring locations B-05 through B-16 were performed within the proposed Marsh Creation Area with the exception of B-09. Boring locations B-04, B-09, B-17, B-18, and B-19 were performed at designated locations outside the proposed boundaries of the Terracing and Marsh Creation Areas. The nineteen soil borings were performed between October 1 and October 10, 2012. As-drilled boring locations were determined in terms of Global Positioning System (GPS) UTM coordinates recorded at each boring location using a hand-held GPS device. Table 2.1 below presents the GPS coordinates at each boring location.

Water level readings were recorded every day during the field exploration phase from the nearest water elevation gauge location (29° 46' 46.89" N, 93° 34' 20.77" W) that was established by the surveyors prior to our geotechnical investigation. In addition, the water depth at each boring location was measured at the time of drilling. Elevations at the boring locations were calculated based on these water readings. Gauge water level, water depth readings, and calculated mudline elevations for each boring location are summarized in Table 2.1 below. This information is also included on the soil boring logs in Appendix A.

Boring locations B-01 through B-17 were performed using an airboat-mounted, rotary-type drilling rig. Borings locations B-18 and B-19 were performed on land using an ATV-mounted, rotary-type drilling rig. Borings were advanced using 4-inch diameter rotary wash methods to

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depths ranging from 40 to 60 feet below the existing mudline or ground surface. Discrete samples were obtained continuously within the upper 20 feet at all of the boring locations. Continuous sampling was performed to provide detailed information for near surface stratigraphy. Samples were obtained at five-foot intervals at depths greater than 20 feet. The boreholes were grouted upon completion in accordance with State regulations.

**Table 2.1 Soil Boring Details**

Boring ID	Depth (ft)	Mudline Elevation* (ft, NGVD)	GPS Coordinates		Water Data		Project Area
			Latitude	Longitude	Water Elevation at Gauge Location (ft, NGVD)	Water Depth at Borehole (ft)	
B-01	40	-0.49	29°47'09.00"N	93°25'00.40"W	0.68	1.17	Terracing Area
B-02	45	-0.32	29°47'16.00"N	93°24'37.10"W	0.68	1.00	Terracing Area
B-03	40	-0.60	29°47'22.00"N	93°24'16.40"W	0.65	1.25	Terracing Area
B-04	40	-0.68	29°47'11.40"N	93°24'02.00"W	0.65	1.33	Other
B-05	40	-0.51	29°46'59.60"N	93°23'56.20"W	0.66	1.17	MCA
B-06	60	-0.77	29°46'52.20"N	93°24'06.30"W	0.65	1.42	MCA
B-07	42	0.57	29°46'56.40"N	93°24'43.40"W	0.90	0.33	MCA
B-08	40	-0.08	29°46'41.70"N	93°24'55.00"W	0.50	0.58	MCA
B-09	40	+0.03	29°46'35.10"N	93°25'03.70"W	0.70	0.67	Other
B-10	60	+0.17	29°46'39.90"N	93°24'27.90"W	0.50	0.33	MCA
B-11	40	+0.45	29°46'22.60"N	93°24'35.60"W	0.70	0.25	MCA
B-12	60	-0.17	29°46'29.70"N	93°24'04.30"W	0.66	0.83	MCA
B-13	40	-0.05	29°46'09.30"N	93°23'56.50"W	0.70	0.75	MCA
B-14	40	+0.20	29°46'23.30"N	93°23'37.70"W	0.70	0.50	MCA
B-15	60	-0.38	29°46'27.40"N	93°23'40.80"W	0.70	1.08	MCA
B-16	40	-0.13	29°46'41.70"N	93°23'31.40"W	0.70	0.83	MCA
B-17	60	-0.68	29°47'12.50"N	93°23'41.60"W	0.65	1.33	Other
B-18**	60	NA	29°46'05.50"N	93°24'24.10"W	NA	NA	Other
B-19**	40	NA	29°46'04.20"N	93°24'24.10"W	NA	NA	Other

\*Mudline elevations calculated based on gauge water levels and water depths at the boring locations.

\*\* Land Borings.

MCA=Marsh Creation Area



In the cohesive and semi-cohesive soils, relatively undisturbed samples were secured using a 3-inch diameter, 30-inch long, thin-walled Shelby tube. In this sampling procedure, the borehole is advanced to the desired level, and the Shelby tube is lowered to the bottom of the boring. It is then pushed 24 inches into the soil in one continuous stroke.

Upon retrieval, the sample at the end of the tube was visually classified and then the sample was sealed in the tube with plastic caps and expandable disk-type seals. Each sample tube was labeled and placed vertically in a fabricated tube rack to minimize any disturbance to the sample during transport. All samples were transported to our Baton Rouge laboratory for extrusion and testing.

A total of 291 thin-walled tube samples and 4 bag samples were obtained during the field exploration program. Sample recovery lengths were measured in the field and upon extrusion in the laboratory. In general, sample recovery generally ranged from approximately 19 to 24 inches of recovery out of the total 24-inch sample stroke, with an average recovery of about 21.5 inches (i.e., average 90% recovery).

## **SECTION 3. LABORATORY TESTING**

### **3.1 Laboratory Testing Overview**

Periodically during and upon completion of our field exploration work, soil samples were transported to our Baton Rouge laboratory. The tube samples were stored in secure racks in an upright position and protected from vibration and the elements. The samples were removed from the sampling tubes in the laboratory using a specially fabricated hydraulic piston-type extruder.

In light of the very soft character of the samples, particularly those obtained from depths less than about 20 feet, sample extrusion was coordinated with specimen selection and testing to minimize sample disturbance by avoiding even short-term warping once outside the sampling tube. Selected samples that were not immediately tested were preserved with wax and placed in a humidity controlled storage room. In order to preserve representative portions for later consolidation and strength testing, the bottom 6-inch section of several tube samples (which typically exhibit the least sampling disturbance effects) were cut using a fine-toothed band saw and sealed in the sampling tube section. Then the remainder of the tube sample was extruded, classified and subjected to index and compressive strength testing. Hand-operated Torvane shear strength tests were also performed on the ends of the samples primarily to assess strength variability within the sample group. This procedure enabled evaluation of the corresponding classification and index strength data to guide selection of the most representative or potentially more critical samples for the more sophisticated consolidation and strength testing.

In order to avoid disturbance that might otherwise occur due to bonding of the sample to the inside of the galvanized steel sampling tube during the testing program period, a special



technique was used for extrusion of samples from the 6-inch cut sections. Specifically, a thin wire was carefully inserted along the edge of the sample and inside face of the tube and was then held taught to enable wire-cutting around the circumference of the sample prior to careful manual extrusion. This technique was developed and is standard practice in the geotechnical laboratory at the Massachusetts Institute of Technology (Germaine and Germaine, 2009).

An overview of the scope of the laboratory testing phase in terms of the type and number of tests performed to date is presented in Table 3.1 below. Results of the laboratory tests and their implication with respect to design material property selection are presented and discussed in the following sections of this report.

**Table 3.1 Laboratory Testing Summary**

Test Method	ASTM Reference	Number of Tests Performed
Unconsolidated Undrained (UU) Triaxial Compression Test	ASTM-D2850	160
Consolidation Test	ASTM-D2435	24
Atterberg Limit Determination	ASTM-D4318	164
Organic Content	ASTM-D2974	29
Moisture Content	ASTM-D2216	493
Grain Size Analysis	ASTM-(C136,D1140,D422)	68
Unit Weight Determination	ASTM-D2937	423
Specific Gravity Determination	ASTM-D854	24
Consolidated Undrained – Direct Simple Shear Strength Tests	ASTM D4767	2
Slurry Consolidation Tests	ASTM D2435 (mod.)	1
Settling Column Tests	USACE 1110-2-5027	3

### 3.2 Classification and Index Testing

Soil conditions encountered at all of the boring locations, with the exception of land Borings B-18 and B-19, generally consisted of very soft to soft clay (CH, per the Unified Soil Classification) and silty clay (CL) with organics, sand, and shells to depths ranging from about 16 to 20 feet below the mudline. Medium to very stiff clay (CH) or silty clay (CL) soils were encountered below depths of 16 to 20 feet, with occasional inter-bedded thin sandy clay (CL), silt (ML), and clayey sand (SC) layers. Soil conditions encountered at the two land boring locations, Nos. B-18 and B-19, were notably different. In particular, loose to medium dense sand (SP-SC) with clay and clayey sand (SC) was encountered to depth of 30 and 10 feet below the existing ground surface at boring locations B-18 and B-19, respectively. Below these depths, conditions were similar to those encountered at the other boring locations.

#### 3.2.1 Visual Classification

Visual classification included description of soil color, consistency and type, and identification of structural conditions (layering, seams, etc.) and variations (organics, oxide inclusions, etc.).





Visual classifications for the soil samples obtained from the site are incorporated into the soil boring logs in Appendix A.

### 3.2.2 Moisture Content and Density

More than four hundred moisture content determinations (ASTM D2216) and 423 total unit weight determinations (ASTM D2937) were performed in conjunction with the sample extrusion process and preparation of test specimens. Total unit weights of the tube samples were computed based on sample volume and weight measurements taken after exclusion of any materials that appeared to have been disturbed during the sampling or extrusion process (occasionally encountered at the top of the tube sample). Two or more moisture content determinations were made for each extruded sample, and dry densities were computed for each sample. Considering that all samples were obtained from below water (excluding samples from borings B-18 and B-19), degrees of saturation were computed to confirm that the density and moisture content values correspond to near 100 percent saturation as a quality control measure. Moisture content and dry density values for each sample are included on the soil boring logs in Appendix A.

Variations in moisture content, total unit weight (wet density) and dry density versus depth below the mudline at all of the soil boring locations are illustrated on Figures B-1, B-2 and B-3, respectively (Appendix B). As expected, *in situ* moisture contents generally decreased with depth. With the exception of a few highly organic samples encountered near the mudline, moisture contents within the upper 16 feet below the mudline typically ranged from about 60 to 100 percent, with an average value of about 80 percent. Within the depth range from 16 to 20 feet, moisture contents generally ranged from about 20 to 80 percent. Moisture contents of samples obtained from depths below 20 feet typically ranged from about 20 to 45 percent.

As can be seen in Figure B-2, total unit weight (or wet density) values generally increased with depth, as expected. Total unit weights of samples obtained from the upper 16 feet below the mudline typically ranged from about 80 to 110 pounds per cubic foot (pcf), with an average value of about 96 pcf. Samples obtained from depths greater than 16 feet were generally higher, ranging from about 95 to 130 pcf.

Dry densities of the tube samples and strength test specimens were computed based on measured total unit weights and moisture contents. The variation in dry density with depth for the marsh area samples is shown on Figure B-3. Samples obtained from the upper 16 feet below the mudline generally displayed dry densities ranging from about 40 to 65 pcf. Dry density values within the depth interval from 16 to 20 feet were higher but more variable, ranging from about 50 to 110 pcf. Samples obtained from depths greater than 20 feet tended to be more consistent and displayed a slight decreasing trend with depth. Dry density values within the depth interval from 20 to 34 feet generally ranged from about 80 to 110 pcf. Below the 34-foot depth, dry densities were slightly lower and generally ranged from about 70 to 90 pcf.



### 3.2.3 Specific Gravity

Specific gravity determinations were performed on samples corresponding to those selected for one-dimensional laboratory consolidation testing. The specific gravity of samples tested ranged from 2.62 to 2.78, with an average value of 2.72.

### 3.2.4 Organic Content

A total of 29 organic content determinations (ASTM D 2974) were performed on selected samples. The results of organic content tests are presented on the soil boring logs in Appendix A, and are plotted versus depth below the mudline on Figure B-4 (Appendix B). Organic contents generally ranged from about 2 to 10 percent, with the higher values corresponding to samples obtained within about 4 feet of the mudline.

### 3.2.5 Atterberg Limits

A total of 164 Atterberg limit determinations (ASTM D4318) were performed on selected samples to assist in soil classification and to enable correlation to pertinent clay behavior properties. The Atterberg limit data consist of measured liquid limit (LL) and plastic limit (PL) values from which the plasticity index ( $PI = LL - PL$ ) is derived. The individual test data are included on the boring logs in Appendix A. The test results are also presented in terms of a plasticity chart on Figure B-5 and variation with depth on Figures B-6 and B-7 (Appendix B). As expected, the data indicate that the marsh deposits down to depths of about 16 feet below the mudline predominantly consist of highly plastic materials classifying as CH-type soils in accordance with the Unified Soil Classification System. Samples obtained between depths of about 16 and 38 feet predominantly consist of less plastic clays classifying as CL-type soils. At depths greater than about 38 feet, liquid limit values increased to above 50%, indicative of CH-type soils.

The Liquidity Index (LI) is a parameter that characterizes the *in situ* moisture content of a sample in relation to its liquid and plastic limit values ( $LI = [MC - PL] / PI$ ). Clay soils having high liquidity indices, i.e., approaching or even greater than 1.0, have *in situ* water contents that are near to or above their liquid limit, which is characteristic of very soft and compressible “normally consolidated” conditions. As can be seen on Figure B-8, these type conditions are prevalent in the marsh deposits from the mudline down to a depth of about 14 to 16 feet, where liquidity index values range from about 0.7 to 1.4. Samples obtained at depths greater than about 16 feet generally displayed liquidity index values less than 0.5, which suggests slightly overconsolidated conditions and hence higher shear strength and lower compressibility.

### 3.2.6 Particle Size Distribution

A total of 27 particle size analysis tests with hydrometer (ASTM D422) and particle size analysis tests (¼” through #200 Sieve) and 41 fines content determinations (ASTM D 1140) were performed on selected samples. The test results, in terms of percent fines (i.e., percent by dry weight finer than the U.S. No. 200 sieve size, 0.074 mm, or silt and clay fraction) are included on



the soil boring logs in Appendix A. Percentages of gravel, sand, silt, and clay size particles based on results of the particle size analyses tests are summarized in Figure B-9 in Appendix B.

### 3.3 Consolidation Tests

A total of 24 incremental consolidation tests (ASTM D 2435) were included in the laboratory testing program to enable assessment of stress history and determination of one-dimensional stress-deformation and time-rate of consolidation characteristics of the marsh clay deposits that will dictate post-construction settlement of the terrace berms.

Considering the very soft and compressible character of the marsh clay samples in light of the index data discussed above, the laboratory consolidation tests were generally performed using a reduced load increment ratio, LIR, on the order of 0.5 (versus the customary increment ratio of 1.0 where loads are doubled in each increment). The use of a lower LIR improves resolution of the compression curve and provides more data within the low effective stress range around the *in situ* and final design stresses beneath the proposed terrace berms. The use of the lower LIR does, however, extend the test duration since the number of load increments normally required to complete a test increases by a factor of two. Each test typically included one unload-reload sequence.

During each load increment, the accumulation of vertical displacement with time is measured. In general, each load increment was sustained for a period of 24 hours. At times, the increment duration was increased to assess long-term drained creep behavior. The vertical displacement versus time data was evaluated using the conventional log-time and square-root time curve fitting techniques to determine the end of primary consolidation (i.e., the point in time at which dissipation of load-induced excess pore water pressures in the sample had dissipated and drained creep ensued for each load increment). The individual test results, in terms of vertical strain versus effective vertical stress, are presented in Appendix C. (Individual load increment time curves will be included in the final report.)

Typical laboratory consolidation test results, considered in terms of vertical strain,  $\epsilon_v$  (%; at the end of primary consolidation), versus vertical effective stress,  $\sigma'_{vc}$  (tons/ft<sup>2</sup>; log scale), may be simply characterized as being composed of recompression and virgin compression. The flatter recompression portion of the  $\epsilon_v$  versus log  $\sigma'_{vc}$  curve occurs at vertical effective stresses lower than the preconsolidation pressure,  $\sigma'_p$  to which the specimen had historically been subjected. The steeper virgin compression portion of the  $\epsilon_v$  versus log  $\sigma'_{vc}$  response occurs at vertical effective stresses greater than the maximum past pressure,  $\sigma'_p$ . In the case of the marsh deposits, particularly within about 14 feet of the mudline, the preconsolidation is "apparent", and results largely from post-deposition drained creep.

#### 3.3.1 Compression Characteristics

The compression ratio, CR, is defined as the slope of the virgin compression portion of the  $\epsilon_v$  versus log  $\sigma'_{vc}$  curve and can be used to predict the magnitude of consolidation settlements for normally consolidated foundation clays. Compression ratios for the very soft marsh deposit



samples tested from depths less than about 14 to 16 feet below the mudline, generally range from 0.2 to 0.4, with an average value of 0.31. Samples obtained from depths greater than about 16 feet generally displayed lower CR values, averaging about 0.24. The compression index,  $C_c$ , characterizes the slope of the void ratio,  $e$ , versus  $\log \sigma'_{vc}$  curve, and is equal to  $(1+e_0) \times CR$  where  $e_0$  is the initial specimen void ratio. Site-specific correlations between the virgin compression parameters CR and  $C_c$  and various index properties are shown in Figure B-10.

The slope of the recompression portion of the laboratory consolidation curve is used to estimate primary consolidation settlement magnitudes for stress increments resulting in final stress levels less than the preconsolidation pressure. Because the initial recompression behavior in the laboratory test can be influenced by sample disturbance (sampling stress relaxation, etc.), an unload-reload sequence is typically included to enable better assessment of *in situ* recompression behavior. The recompression ratio, RR, is defined as the slope of the recompression portion of the  $\varepsilon_v$  versus  $\log \sigma'_{vc}$  curve. Recompression ratios for samples, obtained from depths less than about 14 to 16 feet below the mudline within very soft marsh deposits, generally range from 0.025 to 0.045, with an average value of 0.034.

The coefficient of compressibility,  $m_v$ , is a parameter that characterizes the compression modulus in one-dimensional primary consolidation. The relationship between  $m_v$  and vertical effective stress ratio for samples tested to-date is shown on Figure B-11.

The continued accumulation of vertical strain with time subsequent to the end of primary consolidation is referred to as secondary consolidation (or drained creep). This component of clay compression behavior is important to estimating long-term settlements (and to the overall coastal subsidence situation). The coefficient of secondary compression,  $C_{\alpha\varepsilon}$ , quantifies the creep rate in terms of strain per log cycle of time after the end of primary consolidation. This parameter is derived from the individual load increment time curves generated during the consolidation tests. It is generally acknowledged that the ratio between the coefficient of secondary compression and primary compression ratio (i.e., increment "CR" being the tangential slope of the  $\varepsilon_v$  versus  $\log \sigma'_{vc}$  curve at a given stress level) tends to be a constant value for a given material (Mesri and Castro, 1987). This behavior is relied upon for estimating long-term creep settlement behavior in the numerical models designated for use by CPRA in the engineering phase of this project. The relationship between  $C_{\alpha\varepsilon}$  and CR for samples tested to-date is illustrated in Figure B-12 (Appendix B).

### 3.3.2 Preconsolidation Pressure

Any elements within the natural ground clay having a preconsolidation pressure equal to the *in situ* vertical effective stress (i.e.,  $\sigma'_{vc} = \sigma'_p$ ) is considered to be normally consolidated. Elements with *in situ* vertical effective stresses less than the maximum past pressure are considered to be overconsolidated (the higher past stresses are most likely associated with post-deposition drained creep and desiccation related to vegetation within the upper 14 to 16 feet at the subject site). These two stresses define the stress history of a clay element which, in turn, strongly influences its undrained shear strength and future compression behavior when loaded.



Determination of the maximum past pressure is, therefore, critical to the evaluation. This determination involves estimating the vertical effective stress at which the transition from recompression to virgin compression occurs. Since the actual  $\epsilon_v$  versus  $\log \sigma'_{vc}$  curves measured in the laboratory do not consist simply of the two linear portions as discussed above, several techniques are conventionally used to provide an estimate of the maximum past pressure. The Casagrande construction (Casagrande, 1936) and strain energy methods (Becker et al., 1987) were used in our evaluation of the laboratory data.

Estimated maximum past pressure,  $\sigma'_p$ , values are included on the individual test summary plots in Appendix C and are summarized versus depth on Figure B-13 (Appendix B). The data indicate very slight degrees of overconsolidation (i.e.,  $\sigma'_p > \sigma'_{vo}$ ). Overconsolidation ratios,  $\sigma'_p / \sigma'_{vo}$ , typically ranged from about 1.5 to 10.

### 3.3.3 Coefficient of Consolidation

The coefficient of consolidation,  $c_v$ , is a parameter that quantifies the time-rate of consolidation and is dependent on, among other things, the material type and stress history. Coefficients of consolidation were computed using square-root and logarithm of time curve fitting techniques for each load increment applied during the consolidation tests. The relationship between the laboratory measured coefficient of consolidation (taken as the arithmetic average of the two curve fitting techniques) and the applied effective stress is presented for each test on the figures in Appendix C and are summarized on Figure B-14 in Appendix B.

### 3.3.4 Coefficient of Permeability

The coefficient of consolidation is inversely proportional to the coefficient of compressibility,  $m_v$ , discussed above, and directly proportional to the coefficient of permeability,  $k_v$ . Hence, the vertical coefficient of permeability, as a function of void ratio, can be derived from results of laboratory consolidation tests. The relationship between vertical coefficient of permeability,  $k_v$ , and void ratio,  $e$ , based on results of consolidation tests are shown on Figure B-15 (Appendix B).

### 3.3.5 Settling Column Tests

Three representative composite samples were generated using discrete samples obtained from a total of 21 soil borings performed within the proposed borrow area by GeoEngineers in April 2013. Based on statistical evaluation of provided laboratory classification and index test data and review of general stratigraphy reflected on the supplied borrow area boring logs, it was decided that three composite samples would be prepared to represent materials from the three characteristic soil profiles typical of the borrow site. These three profile types, along with representative index properties, are summarized in the table below:



Composite I.D.	Borings Included	Soil Type	Depth Range (ft)	Moisture Content (%)	Liquid Limit (%)
Type 1	C-01-2 C-07-1 C-10-1 C-11-1	CH	0 – 8	108	113
		CL	8 – 10	40	38
Type 2	C-04-1 C-05-1 C-06-1 C-08-1	CH	0 – 8	108	102
		CL	8 - 15	35	35
Type 3	C-12-1 C-15-1 C-16-1 C-18-1 C-19-1	CH	0 – 8	106	104
		CL	8 – 12	38	38
		CH	12 - 20	55	55

Approximately 6-inch long portions of selected 2-foot core samples obtained from depths down to an average of 10 feet below the mudline were combined and mixed to create three composite samples. After mixing, each composite sample was split into three replicates (one for testing, one for archive storage, and one for CPRA use if requested). The remaining discrete borrow area samples were re-wrapped and preserved. The composite samples were sealed in air-tight plastic containers, and one of each type was shipped to Ardaman's Corporate Laboratory in Orlando, Florida for testing.

Laboratory settling test were performed in 20-cm diameter graduated plexi-glass settling columns. Test samples were mixed with synthesized marsh water having a salinity, in terms of total dissolved solids, of 10.5 g/l. Initial solids contents of the settling test samples ranged from about 13 to 13.5 percent, with corresponding initial total suspended solids concentrations ranging from 142 to 154 g/l. The slurry was mixed with a hand-held stirrer to provide a homogeneous sample, and remove any segregation of particles which occurred during placement of the slurry into the column. The columns were covered with clear plastic wrap to prevent evaporation of the supernatant fluid during the test period.

The settling tests consisted of visually monitoring the height of the sediment-water interface with time over a period of 28 days. The test results, in terms of interface height versus time are included in Appendix F. The initial slurry height in the cylinders at the start of the tests ranges from 150 to 154 cm. The initial settling velocities (i.e., the initial slope of the settled height versus time curve) ranged from 0.025 to 0.05 cm/minute. This more rapid "zone settling" behavior, prevailed during the first 30 to 36 hours of the test. Significant slower "compression settling" then commences and continued until the end of the 28-day test.



Final settled sediment heights ranges from 53 to 75 cm, with corresponding final solids contents ranging from 28 to 32 percent (total suspended solids concentrations of 225 to 400 g/l). Upon completion of the monitoring period, a series of 150 ml samples were extracted from the settled sediment at 5 to 10 cm depth intervals for moisture content determinations. Results of these tests, which reflect the variation in moisture content and density within the approximately 2 feet thick settled sediment sample, are plotted in Appendix F. These data were used to develop unit weight profiles characteristic of near-surface settled dredge deposits that were then used to compute void ratio versus effective vertical stress relationships for the very near-surface marsh creation deposits. These relationships, along with results of the slurry consolidation test described in the following section, will be incorporated in self-weight march consolidation settlement analyses.

### 3.3.6 *Slurry Consolidation Tests*

A one-dimensional incremental slurry consolidation test was performed on a sample prepared from the dredge borrow area Type 1 composite. The test was performed using specially designed and fabricated equipment with a counterbalance pulley system (to counteract a portion of the normal load associated with the top loading piston) that is similar to a conventional one-dimensional consolidation device except that the equipment used allows for evaluation of the consolidation behavior at stresses as low as 0.001 kg/cm<sup>2</sup>. For this test, the specimen is created and then incrementally loaded within a 10.2-cm diameter by 60-cm tall settling column to produce a specimen height at the end of settling of approximately 10 to 15 cm. After gravity settling is substantially complete, the specimen is loaded one-dimensionally under stresses of 0.001 to 0.13 kg/cm<sup>2</sup> using a load increment ratio of 1.

The change in specimen height with time under each load was monitored and evaluated to characterize the one-dimensional compressibility, consolidation and drained creep properties of the sediment. Results of the slurry consolidation test are included in Appendix F.

## 3.4 **Strength Tests**

The strength characteristics of the marsh deposits are important for geotechnical engineering analyses, particular related to stability of the terrace berms and associated excavations.

### 3.4.1 *Unconsolidated-Undrained Triaxial Compression Tests*

A total of 160 unconsolidated-undrained (UU) triaxial compression tests (ASTM D2850) were performed on specimens trimmed from selected samples. Results of these strength tests are included on the soil boring logs in Appendix A. Individual UU test stress-strain curves are included in Appendix D. Undrained shear strengths from the UU compression tests are plotted versus depth in Figure B-16 (Appendix B).

### 3.4.2 *Torvane Index Strength Tests*

Hand-operated torvane (TV) index strength tests were performed in conjunction with the sample extrusion process. These test results are considered to be index strengths in that the



absolute value of the measured undrained shear strength is generally not considered adequately reliable for use in design. The test results, however, are useful in identifying soil strength variability and trends with respect to depth, material type, etc. A series of laboratory miniature vane (LV) shear strength tests were also performed on selected samples. Measured torvane and laboratory vane strengths, along with shear strengths measured in the UU compression tests, are presented versus depth in Figure B-17 (Appendix B). As can be seen, the TV and LV index test results are generally consistent with undrained shear strengths and the UU strengths derived from the compression tests.

### 3.4.3 Consolidated-Undrained Shear Strength Tests

Two consolidated-undrained (CK<sub>o</sub>U) direct simple shear (CK<sub>o</sub>UDSS) strength tests were performed on selected samples consolidated in the laboratory under various vertical effective consolidation stresses. One test was performed at a vertical effective stress significantly greater than the in-situ preconsolidation pressure in order to determine normally consolidated undrained strength ratio,  $s_u / \sigma'_{vc}$ . The other test was performed on a specimen that was first consolidated under a vertical effective stress greater than the in-situ preconsolidation pressure and then unloaded to achieve an OCR of 3.0 to establish the relationship between strength ratio and overconsolidation ratio in accordance with the SHANSEP (Stress History and Normalized Soil Engineering Properties) design methodology (Ladd & Foott, 1974). These tests were used, along with the UU, TV, and LV strength data discussed above, to select final undrained shear strength profiles for use in design stability analyses, and to develop shear modulus values for use in undrained settlement calculations.

Undrained shear strength profiles are estimated in accordance with SHANSEP according to the following normalized undrained shear strength,  $s_u / \sigma'_v$ , equation:

$$s_u / \sigma'_v = C \cdot \text{OCR}^m$$

Where:      OCR = overconsolidation ratio =  $\sigma'_{vm} / \sigma'_v$   
                   C =  $s_u / \sigma'_v$  for OCR = 1.0 (i.e., normally consolidated)  
                   m = experimentally determined exponent coefficient

Results of the CK<sub>o</sub>UDSS tests indicated SHANSEP strength parameters C=0.29 and m=0.85. These values are higher than normally expected for inorganic highly plastic clays (where C=0.24 and m=0.70 are more typical), which may reflect somewhat elevated organic contents in the samples selected for testing. An undrained shear strength profile computed according to the SHANSEP methodology and using somewhat more conservative parameters C=0.24 and m=0.70 is plotted alongside the current UU and TV strength test data on Figure B-17. As can be seen, the computed strength profile based on normalized clay behavior is consistent with the lower bound of the measured data. Considering the observed variability in measured shear strength data above the lower bound strength envelope, a somewhat higher design shear strength profile was developed for use in stability analysis.





## SECTION 4. REFERENCES

- Becker, D. E., Crooks, J. H. A., Been, K., and Jefferies, M. B. (1987), "Work as a Criterion for Determining In Situ and Yield Stresses in Clays", Canadian Geotechnical Journal, Vol. 24, No. 4, pp 549-564.
- Casagrande, A. (1936), "The Determination of the Preconsolidation Load and its Practical Significance", Proceedings, First International Conference on Soil Mechanics and Foundation Engineering, Cambridge, Vol. 3, pp 60-64.
- Germaine, J., and Germaine, A. (2009). "Geotechnical Laboratory Measurements for Engineers." Hoboken, New Jersey: John Wiley and Sons, Inc.
- Ladd, C. C. and Foott, R. (1974), "New Design Procedure for Stability of Soft Clays," ASCE, JGGE, Vol. 100, No. G57, pp 763-786.
- Mesri, G. and Castro (1987), "Ca/Cc Concept and K0 During Secondary Compression". ASCE, JGGE, 113(3), pp 230-247.



## **APPENDIX A. BORING LOGS AND PROFILES**

This Appendix contains the following:

- Figure A-1 – Boring Location Plan
- Description of Terms & Symbols Used on Soil Boring Logs
- Soil Boring Logs
- Soil Boring Profiles

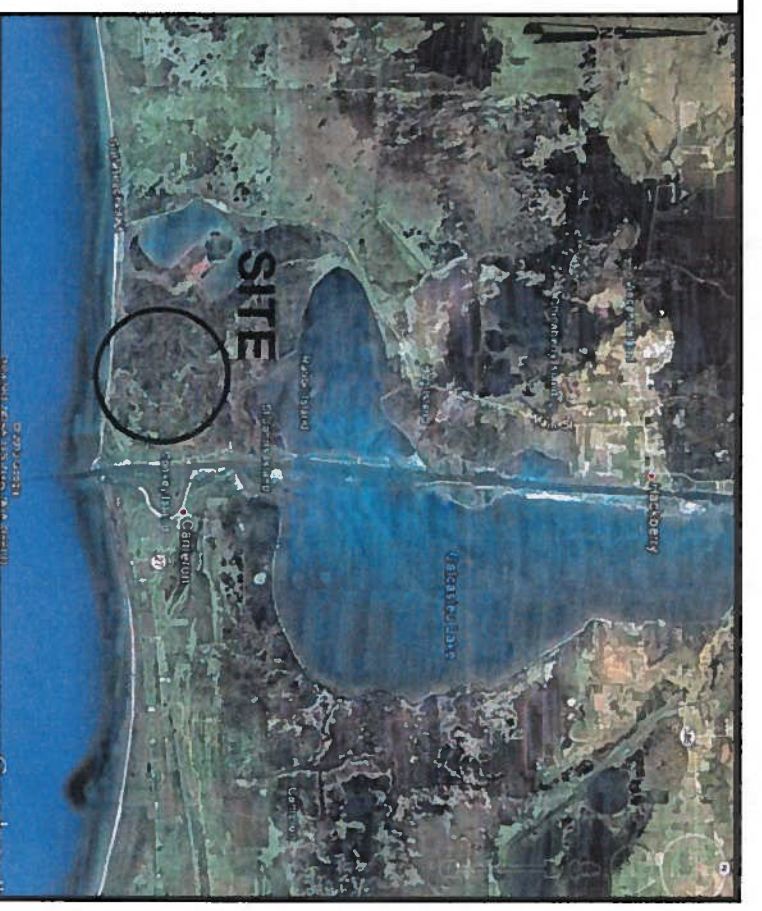




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**VICINITY MAP**  
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SITE IMAGE BY GOOGLE.

**OYSTER BAYOU MARSH RESTORATION PROJECT**  
CAMERON PARISH, LOUISIANA

for  
**COASTAL PROTECTION AND RESTORATION AUTHORITY**  
BATON ROUGE, LOUISIANA



**AAI**  
Ardaman & Associates, Inc.  
Baton Rouge, LA    Jefferson, LA

Project Engineer:	R. ROUSSET	Drawn by:	GTP	Checked by:	RER
File No.:	12-80-3741	Date:	03-04-13	Figure No.:	A-1

NOTE:  
BORING LOCATIONS ARE APPROXIMATE.

## DESCRIPTION OF TERMS AND SYMBOLS USED ON SOIL BORING LOG

FIELD DATA		LABORATORY DATA							Soil Type	DESCRIPTION	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits					Other
						LL	PL	PI			
	5										<div style="border: 1px solid black; padding: 5px;"> <b>Description</b>            Classifications are based on visual observations by field &amp; lab representatives as well as results of laboratory data (when available).         </div>
	10										
	15										<div style="border: 1px solid black; padding: 5px;"> <b>Laboratory Data</b>  <b>Compressive Strength</b>            Value based on peak compressive strength. Determined by unconfined compression test unless otherwise noted.         </div>
	20										
	25										<div style="border: 1px solid black; padding: 5px;"> <b>Dry Unit Weight</b>            As determined by method similar to ASTM D-2937.         </div>
	30										
	35										<div style="border: 1px solid black; padding: 5px;"> <b>Water Content</b>            As determined by pertinent portions of ASTM D-2216.         </div>
	40										
											<div style="border: 1px solid black; padding: 5px;"> <b>Atterberg Limits</b>            LL : Liquid Limit            PL : Plastic Limit            PI : Plasticity Index            (= Liquid Limit - Plastic Limit)         </div>
											<div style="border: 1px solid black; padding: 5px;"> <b>Other</b>            Results of other tests such as consolidation, permeability, grain size or notes associated with testing program.         </div>
											<div style="border: 1px solid black; padding: 5px;"> <b>Soil Type</b>            Graphical representation of soil type. In accordance with USCS Symbols.         </div>

Ground Water Level Data	Boring Advancement Method	Notes
	Boring Abandonment Method	

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-01



File: 12-80-3741

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Sheet 1 of 1

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Rig: Airboat

FIELD DATA			LABORATORY DATA							Location: Lat. 29° 47' 9" Long. 93° 25' 0.4"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Description
							LL	PL	PI				
			0.0 (P)	0.19 t=1.0	86		104	33	71	95	ORG <sub>1</sub>	Very soft brown and gray CLAY (CH) w/ shells and trace organics	
			0.0 (P)		95	48							
			0.0 (P)		81	48							
	5		0.0 (P)	0.06 t=2.0	71	58	59	17	42		ORG <sub>2</sub>		
			0.0 (P)		81	53							
			0.0 (P)		78	53							
			0.0 (P)	0.17 t=4.0	87	53	73	22	51				
	10		0.0 (P)		80	52							
			0.0 (P)		61	61							
			0.0 (P)		54								
			0.0 (P)	0.07 t=6.0	69	60	78	17	61		ORG <sub>3</sub>		
			0.0 (P)		67	55							
			0.0 (P)		63	60							
			0.0 (P)		57								
			0.25 (P)	0.40 t=7.0	133	36	188	48	140		ORG <sub>4</sub>	Soft gray ORGANIC CLAY (OH)	
			0.75 (P)	1.51 t=8.0	228	24							
			0.75 (P)		18	120						Stiff gray SILTY CLAY (CL) w/ trace sand	
			0.75 (P)		19	108							
			0.75 (P)	2.18 t=10.0	21	107	47	12	35	69		Very stiff gray SANDY CLAY (CL) w/ organics	
			0.75 (P)		22	104							
			0.75 (P)		27	100							
			1.75 (P)	5.75 t=14.0	24	101				22	GSH	Medium dense gray CLAYEY SAND (SC) w/ trace silt	
			1.0 (P)	1.46 t=16.0	26	92							
			1.0 (P)		32	88	59	17	42			Stiff brown and gray CLAY (CH) w/ silty sand layers	
			1.0 (P)		31	86							

ARD LOG01 01R 12-80-3741 GPJ LOG01R.GDT 8/8/13

Ground Water Level Data		Boring Advancement Method		Notes	
<p>Water Elevation at Gauge Location = 0.68' Water Depth at Borehole = 1.17'</p>	<p>4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.</p>		<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSH: Hydrometer Particle Size Analysis ORG<sub>1</sub> = 10.3% ORG<sub>2</sub> = 4.3% ORG<sub>3</sub> = 3.6% ORG<sub>4</sub> = 54.2%</p>		
	Boring Abandonment Method		<p>Confidential Information. Privileged &amp; Confidential Work Product</p>		
	<p>Borehole grouted with cement/ bentonite upon completion</p>				
Strata Boundaries May Not Be Exact					



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FIELD DATA			LABORATORY DATA							Location: Lat. 29° 47' 16" Long. 93° 24' 37.1"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type
						LL	PL	PI			Description
	0.0 (P)		119	41							Very soft gray CLAY (CH) w/ trace organics and sand
	0.0 (P)		88	68	70	21	49	89			
	0.0 (P)		58	95	53						Very loose gray CLAYEY SAND (SC) w/ shell fragments
5	0.0 (P)		84	70	58	65	19	46	46	ORG.	
	0.0 (P)		63	66							Very soft gray CLAY (CH) w/ shell fragments
	0.0 (P)		57	56	76	20	56				
	0.0 (P)		75	55	72	18	54				Very soft gray CLAY (CH) w/ shell fragments
10	0.0 (P)		73	65	72	18	54				
	0.0 (P)		59	61							Very soft gray CLAY (CH) w/ shell fragments
	0.0 (P)		61	66	75	19	56	95	GSH		
15	0.0 (P)		56	69	75	19	56	95	GSH		Very soft gray CLAY (CH) w/ shell fragments
	0.0 (P)		53	66	75	19	56	95	GSH		
	0.0 (P)		57	66							Very soft gray CLAY (CH) w/ shell fragments
	0.0 (P)		57	66							
	0.25 (P)		0.18	50	74	47	13	34			Very soft gray SILTY CLAY (CL)
20	0.25 (P)		t=8.0	47	69	47	13	34			
	1.75 (P)										Stiff to very stiff gray SILTY CLAY (CL)
25	1.75 (P)										
	2.0 (P)		2.38	19	110						Stiff to very stiff gray SILTY CLAY (CL)
30	2.0 (P)		t=12.0	19	112						
	3.0 (P)			23	108						Stiff gray CLAY (CH) w/ silt layers
35	3.0 (P)			23	108						
	NR										Stiff gray CLAY (CH) w/ silt layers
40	NR										Stiff gray CLAY (CH) w/ silt layers

Ground Water Level Data

Water Elevation at Gauge Location = 0.68'  
Water Depth at Borehole = 1'

Boring Advancement Method

4" Nom. Dia. Short Flight Auger: 0 to 6 ft.  
4" Dia. Rotary Wash: 6 to 45 ft.

Boring Abandonment Method

Borehole grouted with cement/bentonite upon completion

Notes

t: Unconsolidated, Undrained Triaxial Compression Test  
Lateral Pressure = psi  
GSH: Hydrometer Particle Size Analysis  
GSS: Particle Size Analysis  
ORG = 5.2%

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Strata Boundaries May Not Be Exact

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-02**



File: 12-80-3741

Date: 10/3/12

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Driller: D. Tyler

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Rig: Airboat

FIELD DATA			LABORATORY DATA							Location: Lat. 29° 47' 16" Long. 93° 24' 37.1"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.32 (ft., NAVD)
							LL	PL	PI				Description
			4 b/f 1-2-2										
			2.0 (P)	2.00 t=18.0	31	90	54	18	36				
	45			30	86								
													Boring completed at 45 ft.
	50												
	55												
	60												
	65												
	70												
	75												
	80												

Ground Water Level Data		Boring Advancement Method		Notes	
 Water Elevation at Gauge Location = 0.68' Water Depth at Borehole = 1'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 45 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi  Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact		
	Boring Abandonment Method				
		Borehole grouted with cement/ bentonite upon completion			

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Cameron Parish, LA

LOG OF SOIL BORING B-03

File: 12-80-3741

Date: 10/5/12

Logged by: B. Singleton

Driller: D. Tyler



Sheet 1 of 1

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Rig: Airboat

FIELD DATA			LABORATORY DATA							Location: Lat. 29° 47' 22" Long. 93° 24' 16.4"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.60 (ft., NAVD)
							LL	PL	PI				Description
			0.0 (P)	0.06 t=1.0	66 87	62 53	68	17	51	98		Very soft gray CLAY (CH)	
			0.0 (P)	0.10 t=2.0	51 43	72 76	43	16	27		ORG,		Very soft gray SILTY CLAY (CL) w/ shells
	5		0.0 (P)		43	75							
			0.0 (P)	0.18 t=3.0	63 51	65 68	45	16	29			Very soft gray CLAY (CH) w/ trace shell fragments	
			0.25 (P)		64	56							
	10		0.0 (P)		71 71 74	59 60 56	74	17	57	96	GSS	Stiff gray SILTY CLAY (CL) w/ sand pockets	
			0.25 (P)		74	54							
	15		1.75 (P)									Loose tan and gray SILT (ML)	
			2.0 (P)	1.41 t=7.0	23	104	44	14	30				
			2.0 (P)	1.51 t=8.0	23 22 24	105 104	49	14	35	75			
	20		2.0 (P)		24	97							
	25		2.0 (P)									Medium to stiff light gray CLAY (CH)	
			1.75 (P)		31	86				98			
	30		1.25 (P)	1.06 t=14.0	34 33	87 86	57	19	38			-w/ sand, 38-40 ft.	
			1.75 (P)		41	84							
	35												
	40												
Ground Water Level Data			Boring Advancement Method				Boring completed at 40 ft						
Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.25'			4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.				Notes t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis ORG, = 2.1%						
			Boring Abandonment Method				Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact						
			Borehole grouted with cement/ bentonite upon completion										

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Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-04**

File: 12-80-3741

Date: 10/6/12

Logged by: B. Singleton

Driller: D. Tyler



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Rig: Airboat

FIELD DATA			LABORATORY DATA							Location: Lat. 29° 47' 11.4" Long. 93° 24' 2"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.68 (ft., NAVD)
							LL	PL	PI				Description
			0.0 (P)		126 79	40						Very soft gray CLAY (CH) w/ trace organics and shell fragments	
			0.0 (P)	0.05 t=2.0	61	65	57	16	41		ORG <sub>1</sub>		
	5		0.0 (P)		74 63	53							
			0.0 (P)	0.09 t=3.0	82 74	53 51	78	19	59				
			0.0 (P)	0.13 t=4.0	81 60	64 58	64	16	48	97 86	ORG <sub>2</sub>		
	10		0.0 (P)		87 65	61							
			0.0 (P)	0.18 t=6.0	79 85	53 47	93	20	73		ORG <sub>3</sub>		
			0.0 (P)		87 85	46							
	15		1.0 (P)	0.12 t=7.0	26	99	32	14	18				Very soft gray SILTY CLAY (CL)
			1.5 (P)	0.17 t=8.0	23	107	26	15	11				
	20												
			2.25 (P)	1.73 t=10.0	21	108	32	18	14	59		Stiff gray SANDY CLAY (CL)	
	25		1.75 (P)		30	89							
			2.0 (P)	1.95 t=14.0	38	84	69	24	45			Stiff tan and gray CLAY (CH) w/ silt layers	
	30		1.75 (P)										
			2.0 (P)										
	35												
			1.75 (P)		39	80							
	40											Boring completed at 40 ft	
Ground Water Level Data				Boring Advancement Method				Notes					
Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.33'				4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG <sub>1</sub> = 2.1% ORG <sub>2</sub> = 2.7% ORG <sub>3</sub> = 6.3%					
				Boring Abandonment Method				Confidential Information. Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact					
				Borehole grouted with cement/ bentonite upon completion									

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13



FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 59.6" Long. 93° 23' 56.2"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: -0.51 (ft., NAVD)
						LL	PL	PI				
		0.0 (P)										Very soft gray CLAY (CH) w/ trace organics  --w/ shells at 6-10 feet
		0.0 (P)		85	51							
	5	0.0 (P)	0.07 t=2.0	92	50	87	22	65	97	ORG, GSS		
		0.0 (P)		91	49							
		0.0 (P)	0.14 t=4.0	86	52	101	25	76				
	10	0.0 (P)		84	49							
		0.0 (P)	0.20 t=6.0	88	49					ORG <sub>2</sub>		
		0.0 (P)		79	55	63	17	46				
	15	0.0 (P)		92	51							
		1.25 (P)	0.67 t=7.0	98	28	93	52	16	36			
		1.5 (P)	1.34 t=8.0	29	98	51	14	37				
	20			21	108							
				24	98							
	25	2.25 (P)		20	105				55			Stiff gray SANDY CLAY (CL)
												Medium to stiff gray CLAY (CH) w/ silt layers
	30	2.25 (P)	0.92 t=12.0	32	91	50	18	32	99			
				30	93							
	35	1.25 (P)		37	84							
	40	1.0 (P)	1.32 t=16.0	36	83	84	26	58	100			
				41	75							

Ground Water Level Data		Boring Advancement Method		Notes	
Water Elevation at Gauge Location = 0.66' Water Depth at Borehole = 1.17'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis ORG <sub>1</sub> = 6.6% ORG <sub>2</sub> = 5.5%  Confidential Information; Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact		
	4" Dia. Rotary Wash: 6 to 40 ft.				
	Boring Abandonment Method				
	Borehole grouted with cement/bentonite upon completion				

ARD LOG01 01R 12-80-3741 GPJ LOG01R.GDT 8/8/13



FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 52.2" Long. 93° 24' 6.3"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Other	Surface Elevation: -0.77 (ft., NAVD)
							LL	PL	PI	Percent Passing #200 Sieve		
			0.0 (P)		89	48						Very soft gray CLAY (CH)  --w/ shells at 4-12 feet
			0.0 (P)	0.11 t=2.0	95	50	97	25	72		ORG <sub>1</sub>	
	5		0.0 (P)	0.06 t=2.0	99	47	98	24	74			
			0.0 (P)		90	42						
			0.0 (P)	0.15 t=4.0	83	55	95	28	67			Stiff gray SANDY CLAY (CL)
	10		0.0 (P)		92	47						
			0.0 (P)	0.09 t=6.0	97	47	103	29	74		ORG <sub>2</sub>	
	15		0.75 (P)		35	18						Stiff gray CLAY (CH) w/ silt layers
			2.5 (P)	1.41 t=7.0	18	111	49	14	35	69		
			2.0 (P)		24	103						
	20		2.75 (P)		19	104						Stiff gray CLAY (CH) w/ silt layers
			1.75 (P)	1.54 t=10.0	22	105	57	14	43			
					26	103						Stiff gray SILTY CLAY (CL) w/ sand
	25		1.5 (P)	1.32 t=12.0	31	90	29	19	10			
					29	89						Stiff gray CLAY (CH) w/ silt layers
	30		0.75 (P)									
	35		2.25 (P)		39		77	23	54			
	40											

Continued Next Page

Ground Water Level Data	Boring Advancement Method	Notes
<p>Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.42'</p>	<p>4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.</p>	<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG<sub>1</sub> = 5.2% ORG<sub>2</sub> = 3.0%</p>
	<p>Boring Abandonment Method</p> <p>Borehole grouted with cement/ bentonite upon completion</p>	<p>Confidential Information, Privileged &amp; Confidential Work Product</p>
		<p>Strata Boundaries May Not Be Exact</p>

ARD LOG01 01 R. 12-80-3741.GPJ LOG01R.GDT 8/8/13



FIELD DATA			LABORATORY DATA								Soil Type	Location: Lat. 29° 46' 52.2" Long. 93° 24' 6.3"				
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: -0.77 (ft., NAVD)			
													Description			
					35	81									Stiff gray CLAY (CH) w/ silt layers	
			1.25 (P)	1.13 t=18.0	28 26	93 93	32	13	19						Stiff gray SILTY CLAY (CL) w/ sand and shells	
	45															
			0.75 (P)	1.68 t=20.0	40 38	82 84	66	22	44						Stiff gray CLAY (CH) w/ silt layers	
	50															
			1.0 (P)	1.51 t=22.0	38 41	83 76	63	20	43	100						
	55															
			0.75 (P)	1.73 t=24.0	47 43		78	21	57							
	60					76										
															Boring completed at 60 ft.	
	65															
	70															
	75															
	80															

Ground Water Level Data	Boring Advancement Method	Notes
Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.42'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.	t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi
	Boring Abandonment Method Borehole grouted with cement/ bentonite upon completion	Confidential Information: Privileged & Confidential Work Product
		Strata Boundaries May Not Be Exact

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT B08/13



FIELD DATA			LABORATORY DATA							Location: Lat. 29° 46' 56.4" Long. 93° 24' 43.4"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: 0.57 (ft., NAVD)
							LL	PL	PI				Description
			0.0 (P)	0.37 t=2.0	187 84	51	106	30	76	94	ORG <sub>1</sub>	Very soft to soft gray CLAY (CH) w/ silt  --w/ shells and sand layers at 2-12 feet	
			0.0 (P)	0.08 t=1.0	84 104	52 30	114	27	87	48	GSH		
			0.0 (P)	0.05 t=2.0	91 114	49	109	24	85	89	GSS		
	5		0.0 (P)	0.17 t=3.0	88 78	52 60	91	25	66	64	GSS		
			0.0 (P)	0.02 t=3.0	62 71	63 58	85 68	20 19	65 49				
			0.0 (P)	0.16 t=6.0	89 66	50 64				10	ORG <sub>2</sub> GSS		
	10		0.0 (P)	0.17 t=6.0	73 64	56	71	19	52	97	ORG <sub>3</sub>		
			0.0 (P)	0.18 t=5.0	64 82	53 55	62 104	16 24	46 80				
			0.0 (P)	0.26 t=8.0	81 88	51							
	15		0.25 (P)	0.26 t=14.0	87 80	53 55							
			0.75 (P)	0.21 t=28.0	77 47	68	95	21	74				
			2.0 (P)	0.24 t=7.0	45 27	81	118	28	90				
	20			0.07 t=8.0	28	90							
			1.5 (P)	1.87 t=10.0	22 21	108 103	45	12	33				Stiff gray SILTY CLAY (CL)
	25												
			1.5 (P)		23	101							
	30												
			1.25 (P)	1.19 t=14.0	24 22	100 104	44	13	31				
	35												
			0.75 (P)										
	40				25	92							

Continued Next Page

Ground Water Level Data



Water Elevation at Gauge Location = 0.90'  
Water Depth at Borehole = 0.33'

Boring Advancement Method

4" Nom. Dia. Short Flight Auger: 0 to 12 ft.  
4" Dia. Rotary Wash: 12 to 42 ft.

Boring Abandonment Method

Borehole grouted with cement/bentonite upon completion

Notes

t: Unconsolidated, Undrained Triaxial Compression Test  
Lateral Pressure = psi  
GSS: Particle Size Analysis  
GSH: Hydrometer Particle Size Analysis  
ORG<sub>1</sub> = 9.8%  
ORG<sub>2</sub> = 4.1%  
ORG<sub>3</sub> = 3.9%

Confidential Information.  
Privileged & Confidential  
Work Product

Strata Boundaries May Not Be Exact

ARD LOGS 01 01R 12-80-3741 GPJ LOGS 01R.GDT 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-07**

File: 12-80-3741

Date: 10/1/12

Logged by: B. Singleton

Driller: D. Tyler



Sheet 2 of 2

CPRA  
Baton Rouge, LA

Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

Rig: Airboat

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 56.4" Long. 93° 24' 43.4"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: 0.57 (ft., NAVD)
						LL	PL	PI				
		2.0 (P)		24	102							Stiff gray SILTY CLAY (CL)
	45											Boring completed at 42 ft.
	50											
	55											
	60											
	65											
	70											
	75											
	80											

Ground Water Level Data	Boring Advancement Method	Notes
<p>Water Elevation at Gauge Location = 0.90' Water Depth at Borehole = 0.33'</p>	<p>4" Nom. Dia. Short Flight Auger: 0 to 12 ft. 4" Dia. Rotary Wash: 12 to 42 ft.</p> <hr/> <p><u>Boring Abandonment Method</u></p> <p>Borehole grouted with cement/ bentonite upon completion</p>	<p>Confidential Information: Privileged &amp; Confidential Work Product</p> <p>Strata Boundaries May Not Be Exact</p>

ARD LOG01 01R 12-80-3741 GPJ LOG01R.GDT 8/8/13



FIELD DATA			LABORATORY DATA							Location: Lat. 29° 46' 41.7" Long. 93° 24' 55"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.08 (ft., NAVD)
							LL	PL	PI				Description
			0.0 (P)		44							Very soft gray CLAY (CH) w/ sand and shells	
			0.0 (P)		67								
	5		0.0 (P)	0.03 t=2.0	81	50							
			0.0 (P)		89	48	85	25	60	69			
			0.0 (P)		72					86			
			0.0 (P)		63								
			0.0 (P)		88								
			0.0 (P)		75	56							
	10		0.0 (P)	0.18 t=4.0	78	57	103	28	75	90	GSS		Very soft gray CLAY (CH)  --w/ silt pockets at 12-14 feet
			0.0 (P)		74								
			0.0 (P)	0.10 t=6.0	85	47							
			0.0 (P)		54	71	64	18	46				
	15		0.0 (P)		86	45						--w/ shells at 16-20 feet	
			0.0 (P)	0.10 t=7.0	87	50							
			0.0 (P)		71	57	82	22	60	76	GSS		
			0.0 (P)	0.07 t=8.0	85	48							
	20				82	54	93	25	68			Medium gray and tan SILTY CLAY (CL)	
			2.5 (P)	0.73 t=10.0	25	100	39	13	26				
			3.5 (P)	0.62 t=12.0	40	80							
			0.75 (P)		28	99	38	13	25				
	30				20	103						Loose gray CLAYEY SAND (SC)	
			0.75 (P)										
	35												
			0.75 (P)	2.82 t=16.0	18	112	29	17	12	48			
	40				26	100						Boring completed at 40 ft	
Ground Water Level Data			Boring Advancement Method				Notes						
Water Elevation at Gauge Location = 0.50' Water Depth at Borehole = 0.58'			4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis						
			Boring Abandonment Method				Confidential Information: Privileged & Confidential Work Product						
			Borehole grouted with cement/ bentonite upon completion				Strata Boundaries May Not Be Exact						

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13



FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 35.1" Long. 93° 25' 3.7"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: 0.03 (ft., NAVD)
						LL	PL	PI				
		0.0 (P)	0.22 t=1.0	61 73	62 52	97	26	71				Very soft gray CLAY (CH) w/ silt  --w/ shells at 6-12 feet
		0.0 (P)	0.16 t=2.0	87	51	104	27	77	98			
	5	0.0 (P)		85	48							
		0.0 (P)	0.17 t=3.0	87 88	53 48	75	21	54	94	GSS		
		0.0 (P)		84	52	99	27	72				
	10	0.0 (P)		85	48							
		0.0 (P)		84	55							
		0.0 (P)	0.18 t=6.0	79 84	55 49	95	25	70				
		0.0 (P)		48 79								
	15	0.0 (P)		63	59							
		0.0 (P)	0.89 t=8.0	22 24	104 106	35	12	23				
	20	0.0 (P)										Medium gray SILTY CLAY (CL) w/ sand
		3.25 (P)	2.08 t=10.0	21 22	109 100	40	14	26				
	25	2.0 (P)		29	88							
		2.0 (P)	1.58 t=14.0	35 32	86 85	39	20	19	100			Stiff to very stiff tan and gray SILTY CLAY (CL)
	30	2.0 (P)										
	35	1.5 (P)		39 40		80	24	56		ORG <sub>1</sub>		Stiff gray CLAY (CH) w/ shells
	40				73							
Ground Water Level Data			Boring Advancement Method				Boring completed at 40 ft					
Δ Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 0.67'			4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis ORG <sub>1</sub> = 3.5%					
			Boring Abandonment Method				Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact					
			Borehole grouted with cement/bentonite upon completion									

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13





FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 39.9" Long. 93° 24' 27.9"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: 0.17 (ft., NAVD)
						LL	PL	PI				
	0.0	0.0 (P)										Very soft gray CLAY (CH)  --w/ shells at 4-8 feet           --w/ silt at 16-20 feet
	0.0	0.0 (P)	0.18 t=2.0	88 88	47 53		87	21	66			
	5	0.0 (P)	0.06 t=2.0	57 56	62 63		93	23	70	96	GSS	
	0.0	0.0 (P)		64	59							
	0.0	0.0 (P)		79								
	0.0	0.0 (P)	0.18 t=4.0	64 72	52 50		94	22	72			
	10	0.0 (P)		93 87								
	0.25	0.25 (P)		91	47							
	0.0	0.0 (P)		86	45							
	15	0.25 (P)	0.24 t=6.0	75 68	55 57		76	21	55			
	0.5	0.5 (P)	0.10 t=7.0	28	100		51	15	36			
	1.0	1.0 (P)		38	81							
	20			27	98							
	0.75	0.75 (P)	0.56 t=10.0	28 29	97 90		45	14	31			Soft to medium gray SILTY CLAY (CL)
	1.25	1.25 (P)		22	101							
	3.0	3.0 (P)	2.18 t=14.0	23 24	104 99		51	16	35			Stiff tan and gray CLAY (CH) w/ sand
	33			33	95							

Ground Water Level Data	Boring Advancement Method	Notes
Water Elevation at Gauge Location = 0.50' Water Depth at Borehole = 0.33'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.	t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis
	Boring Abandonment Method	Confidential Information. Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact
	Borehole grouted with cement/ bentonite upon completion	

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-10**

File: 12-80-3741

Date: 10/2/12

Logged by: B. Singleton

Driller: D. Tyler

Rig: Airboat



Sheet 2 of 2

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Baton Rouge, LA

Baton Rouge Geotechnical Laboratory  
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FIELD DATA			LABORATORY DATA								Soil Type	Location: Lat. 29° 46' 39.9" Long. 93° 24' 27.9"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: 0.17 (ft., NAVD)
							LL	PL	PI				
			25 b/f 5-13-12		12						18		Medium dense brown and gray CLAYEY SAND (SC)
	45				23						59		Stiff brown and gray SANDY CLAY (CL)
	50		2.0 (P)		26								Stiff brown and gray CLAY (CH) w/ silt layers
	55		0.75 (P)	1.42 t=22.0	52 43	70 73	73	21	52				
	60		1.5 (P)	1.55 t=24.0	35 39	85 77	57	19	38				
	65												Boring completed at 60 ft.
	70												
	75												
	80												
Ground Water Level Data				Boring Advancement Method				Notes					
Water Elevation at Gauge Location = 0.50' Water Depth at Borehole = 0.33'				4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi  Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact					
				Boring Abandonment Method									
				Borehole grouted with cement/ bentonite upon completion									

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-11



File: 12-80-3741  
Date: 10/4/12  
Logged by: B. Singleton  
Driller: D. Tyler  
Rig: Airboat

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Baton Rouge, LA

Sheet 1 of 1  
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FIELD DATA			LABORATORY DATA							Soil Type		Location: Lat. 29° 46' 22.6" Long. 93° 24' 35.6"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Description	Surface Elevation: 0.45 (ft., NAVD)	
						LL	PL	PI					
	0.0	0.0 (P)		55	62						Very soft gray CLAY (CH) w/ silt and sand layers --w/ organics at 0-4 feet		
	0.0	0.0 (P)		61	64	93	25	68	77				
	5	0.0 (P)		77	62								
	0.0	0.0 (P)	0.12 t=3.0	70	58	92	24	68					
	0.0	0.0 (P)		83	51								
	0.0	0.0 (P)		80	53								
	10	0.0 (P)	0.15 t=5.0	77	56	95	27	68					
	0.0	0.0 (P)		83	53								
	0.0	0.0 (P)		82	52								
	15	0.25 (P)	0.12 t=6.0	61	64	74	22	52					
	1.5	1.5 (P)		37	22					Medium gray SILTY CLAY (CL) w/ sand			
	1.0	1.0 (P)	0.78 t=8.0	30	94	44	15	29					
	20			24	105					Loose gray CLAYEY SAND (SC)			
	0.5	0.5 (P)		24	91				22 GSH				
									6				
	30	5 b/f 1-4		23	98					Loose tan and gray SAND (SP-SC) w/ clay			
	0.5	0.5 (P)		20	92								
	35									Stiff gray SILTY CLAY (CL)			
	2.25	2.25 (P)	1.21 t=16.0	31	89	47	20	27					
	40			34	85								

Ground Water Level Data	Boring Advancement Method	Notes
Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 0.25'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 40 ft.	t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSH: Hydrometer Particle Size Analysis
	Boring Abandonment Method	Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact
	Borehole grouted with cement/bentonite upon completion	

ARD LOG01 01R 12-80-3741.GPJ LOG01R GDT 8/8/13



FIELD DATA			LABORATORY DATA							Soil Type	Description
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Other		
						LL	PL	PI	Percent Passing #200 Sieve		
	0.0	(P)		77	56						Very soft gray CLAY (CH)
	0.0	(P)	0.19 t=2.0	87	53	83	27	56			
	5	0.0	(P)	83	50						
	0.0	(P)	0.22 t=3.0	90	50						
	0.0	(P)	0.08 t=4.0	79	57	95	25	70			
	0.0	(P)		71	56						
	10	0.0	(P)	93	49	102	28	74		ORG <sub>1</sub>	
	0.0	(P)		90	44						
	0.0	(P)	0.16 t=6.0	90	51						
	0.0	(P)		76	57	82	22	60			
	15	1.25	(P)	0.20 t=6.0	32	91	32	15	17		Very soft tan and gray SILTY CLAY (CL)
	1.25	(P)		36	84						
	20	2.75	(P)	1.92 t=8.0	26	101					Stiff tan and gray CLAY (CH) w/ silty sand layers
	2.75	(P)		22	106	55	13	42		ORG <sub>2</sub>	
	2.75	(P)		22	104						
	25	3.0	(P)		28	90					Stiff tan and gray SILTY CLAY (CL)
	30	1.75	(P)	1.36 t=12.0	27	99	59	17	42	88	
	1.75	(P)		29	89	36	21	15	99		
	35	2.25	(P)		34	86					Stiff tan and gray CLAY (CH) w/ silt layers
	40	2.75	(P)	1.14 t=16.0	43	79	90	29	61		

Continued Next Page

Ground Water Level Data		Boring Advancement Method		Notes	
Water Elevation at Gauge Location = 0.66' Water Depth at Borehole = 0.83'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG <sub>1</sub> = 2.6% ORG <sub>2</sub> = 2.6%		
	Boring Abandonment Method		Confidential Information: Privileged & Confidential Work Product		
	Borehole grouted with cement/bentonite upon completion				
Strata Boundaries May Not Be Exact					

ARD.LOG01.01R.12-80-3741.GPJ.LOG01R.GDT.8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-12**



File: 12-80-3741  
Date: 10/8/12  
Logged by: B. Singleton  
Driller: D. Tyler  
Rig: Airboat

CPRA  
Baton Rouge, LA

Sheet 2 of 2  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052.  
USACE Validated

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 29.7" Long. 93° 24' 4.3"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits				Percent Passing #200 Sieve	Other	Surface Elevation: -0.17 (ft., NAVD)	Description
							LL	PL	PI					
					39	80								Stiff tan and gray CLAY (CH) w/ silt layers
				1.92 t=18.0	33	89	54	21	33					
	45		1.25 (P)		37	85								
				1.48 t=20.0	46	76	85	25	60	99				
	50		0.75 (P)		43	81								
				1.99 t=22.0	43	78	69	22	47					
	55		1.25 (P)		31	85								
					45	76								
	60		0.5 (P)											
	65													
	70													
	75													
	80													

Boring completed at 60 ft.

Ground Water Level Data	Boring Advancement Method	Notes
<p>Water Elevation at Gauge Location = 0.66' Water Depth at Borehole = 0.83'</p>	<p>4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.</p>	<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi</p>
	<p>Boring Abandonment Method</p> <p>Borehole grouted with cement/ bentonite upon completion</p>	<p>Confidential Information: Privileged &amp; Confidential Work Product</p>

Strata Boundaries May Not Be Exact

ARD LOG01 01R 12-80-3741 GPJ LOG01R GDT 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-13



File: 12-80-3741

Date: 10/9/12

Logged by: B. Singleton

Driller: D. Tyler

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Baton Rouge, LA

Sheet 1 of 1  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

Rig: Airboat

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 9.3" Long. 93° 23' 56.5"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: -0.05 (ft., NAVD)
	Samples					LL	PL	PI				
		0.0 (P)		74	56	90	25	65				Very soft gray CLAY (CH)  --with shells at 6-8 feet  --with shells at 18-20 feet
		0.0 (P)	0.09 t=2.0	80	55	107	24	83				
	5	0.0 (P)		79	49							
		0.0 (P)		70								
		0.0 (P)	0.06 t=3.0	88	48	104	23	81				
		0.0 (P)		95	48							
	10	0.0 (P)		90	46							
		0.0 (P)	0.08 t=5.0	57	63	105	25	80				
		0.0 (P)		80	53							
		0.0 (P)		80	51							
	15	0.0 (P)	0.07 t=6.0	88	52	105	26	79				
		0.0 (P)		92	49							
		0.0 (P)		81	51							
	20	1.25 (P)	0.09 t=8.0	83	56	52	15	37				
				42	78							
				48	76							
	25	1.0 (P)	1.70 t=10.0	22	103	46	13	33	84			Medium to stiff tan and gray SILTY CLAY (CL)  --with sand at 23-30 feet
				20	108							
	30	2.0 (P)	0.83 t=12.0	28	92	34	16	18	96	ORG		Medium to stiff tan and gray CLAY (CH) w/ silt layers
				30	91	55	22	33				
	35	2.25 (P)		30	89							
	40	2.75 (P)	2.52 t=16.0	34	87	77	28	49				Very stiff tan and gray CLAY (CH)
				33	84							

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

Ground Water Level Data		Boring Advancement Method		Notes	
 Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 0.75'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG, = 2.5%		
	4" Dia. Rotary Wash: 6 to 40 ft.				
	Boring Abandonment Method		Confidential Information: Privileged & Confidential Work Product		
Borehole grouted with cement/ bentonite upon completion					
Strata Boundaries May Not Be Exact					

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-14**

File: 12-80-3741

Date: 10/10/12

Logged by: B. Singleton

Driller: D. Tyler



Sheet 1 of 1

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Baton Rouge Geotechnical Laboratory  
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Rig: Airboat

FIELD DATA			LABORATORY DATA								Soil Type	Location: Lat. 29° 46' 23.3" Long. 93° 23' 37.7"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: 0.20 (ft., NAVD)
							LL	PL	PI				
			0.25 (P)		79	53							Very soft gray CLAY (CH)
			0.25 (P)	0.06 t=2.0	63	60	108	34	74	99	GSS		
	5		0.0 (P)	0.04 t=2.0	69	58	107	27	80		ORG <sub>1</sub>		
			0.0 (P)		91	48							
			0.0 (P)		76	52							
			0.0 (P)	0.04 t=4.0	94	57							
			0.0 (P)		75	55	94	22	72				
	10		0.0 (P)		70	59							
			0.0 (P)		77	49							
			0.0 (P)	0.06 t=6.0	80	56	98	28	70				
			0.0 (P)		88	51							
	15		0.0 (P)		85	47							
			0.0 (P)	0.20 t=7.0	86	55	82	25	57				
			0.0 (P)		80	51							
	20		0.0 (P)	0.22 t=8.0	39	85	38	18	20			Very soft gray SILTY CLAY (CL) w/ trace sand	
					40	72							
			0.25 (P)	0.39 t=10.0	69	57	95	21	74			Very soft gray CLAY (CH)	
	25				71	55							
												Very soft gray SILTY CLAY (CL) w/ trace organics	
			0.0 (P)		69	41							
	30				55	62							
												Stiff gray SILTY CLAY (CL) w/ trace sand	
			1.5 (P)	1.35 t=14.0	28	98	49	20	29	92			
	35		2.5 (P)		30	95							
												Stiff brown and gray CLAY (CH) w/ silt layers	
				1.39 t=16.0	39	84	78	24	54				
	40				31	86							

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

Ground Water Level Data		Boring Advancement Method		Notes	
<p>Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 0.50'</p>	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis ORG<sub>1</sub> = 5.4%</p>		
	4" Dia. Rotary Wash: 6 to 40 ft.				
	Boring Abandonment Method		Confidential Information: Privileged & Confidential Work Product		
Borehole grouted with cement/bentonite upon completion		Strata Boundaries May Not Be Exact			



FIELD DATA			LABORATORY DATA							Location: Lat. 29° 46' 27.4" Long. 93° 23' 40.8"			
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.38 (ft., NAVD)
							LL	PL	PI				Description
			0.0 (P)	0.17 t=1.0	79	54	105	30	75		ORG <sub>1</sub>	Very soft gray CLAY (CH) w/ organics	
			0.0 (P)		83	55							
	5		0.0 (P)	0.08 t=2.0	103	44	111	31	80		ORG <sub>2</sub>		
			0.0 (P)		86	49	72	19	53		ORG <sub>3</sub>		
			0.0 (P)	0.16 t=3.0	61	65							
			0.25 (P)	0.17 t=4.0	87	52	102	24	78				
	10		0.0 (P)		89	74							
			0.0 (P)	0.17 t=6.0	81	50	90	25	65	98			
			0.0 (P)		92	50							
			0.0 (P)	0.13 t=6.0	74	50	95	24	71				
	15		0.0 (P)		97	49							
			0.0 (P)		80	50							
			1.5 (P)	0.11 t=8.0	68	36	70				GSS	-w/ sand at 18-20 feet	
					52	79	56	17	39	75			
	20				40	80							
					36								
			3.25 (P)	1.07 t=10.0	22	104	54	15	39	77		Stiff gray CLAY (CH) w/ sand	
	25				21	105							
			1.0 (P)							99			
	30				29	88							
			2.0 (P)	1.08 t=14.0	31		59	23	36		ORG <sub>4</sub>	Stiff tan and gray CLAY (CH) w/ silt layers	
	35				29	86							
			2.25 (P)										
	40				38	80							

ARD LOG01.01R. 12-80-3741.GPJ LOG01R.GDT 8/8/13

Ground Water Level Data		Boring Advancement Method		Notes	
Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 1.08'	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSS: Particle Size Analysis ORG <sub>1</sub> = 12.4% ORG <sub>2</sub> = 8.0% ORG <sub>3</sub> = 3.3% ORG <sub>4</sub> = 1.5%		
	4" Dia. Rotary Wash: 6 to 60 ft.				
	Boring Abandonment Method				
Borehole grouted with cement/bentonite upon completion		Confidential Information: Privileged & Confidential Work Product			
Strata Boundaries May Not Be Exact					

Continued Next Page



Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-15



File: 12-80-3741  
Date: 10/9/12  
Logged by: B. Singleton  
Driller: D. Tyler  
Rig: Airboat

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Baton Rouge, LA

Sheet 2 of 2  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 27.4" Long. 93° 23' 40.8"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Other		Surface Elevation: -0.38 (ft., NAVD)	Description
						LL	PL	PI	Percent Passing #200 Sieve			
	45	1.0 (P)	1.63 t=18.0	47	79	90	26	64			Stiff tan and gray CLAY (CH) w/ silt layers	
				26	82							
	50	1.75 (P)		32	92							
	55	1.0 (P)	1.60 t=22.0	35	87	57	20	37				
				38	84							
	60	1.0 (P)		44	81						Boring completed at 60 ft.	
	65											
	70											
	75											
	80											

ARD.L0501.01R.12-80-3741.GPJ.LOG01R.GDT.8/8/13

Ground Water Level Data		Boring Advancement Method		Notes
<p>Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 1.08'</p>	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi</p> <p><b>Confidential Information</b> Privileged &amp; Confidential Work Product</p> <p>Strata Boundaries May Not Be Exact</p>	
	4" Dia. Rotary Wash: 6 to 60 ft.			
	Boring Abandonment Method			
	Borehole grouted with cement/ bentonite upon completion			

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-16



File: 12-80-3741

Date: 10/10/12

Logged by: B. Singleton

Driller: D. Tyler

CPRA  
Baton Rouge, LA

Sheet 1 of 1  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

Rig: Airboat

FIELD DATA			LABORATORY DATA							Location: Lat. 29° 46' 41.7" Long. 93° 23' 31.4"		
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve	Other	Soil Type	Surface Elevation: -0.13 (ft., NAVD)
						LL	PL	PI				Description
		0.0 (P)		105	47						ORG <sub>1</sub>	Very soft gray CLAY (CH) w/ trace organics  --w/ shells at 4-8 feet  --w/ sand pockets at 9-10 feet
		0.0 (P)	0.21 t=2.0	91	49	119	29	90				
	5	0.0 (P)	0.05 t=2.0	97	45							
		0.0 (P)		118	41	118	26	92				
		0.0 (P)		116								
		0.0 (P)		90	53							
	10	0.0 (P)	0.11 t=4.0	89	50	100	25	75	67			
		0.0 (P)		94	49							
	15	0.0 (P)	0.10 t=6.0	80	55	79	22	57				
		0.0 (P)		78	56							
		1.5 (P)	0.93 t=7.0	26	98	34	13	21			Medium gray SILTY CLAY (CL)	
	20	1.0 (P)	0.73 t=8.0	33	89	57	15	42			Medium gray CLAY (CH) w/ silt	
		2.25 (P)	1.68 t=10.0	24	99	44	17	27	88	ORG <sub>2</sub>	Stiff gray SILTY CLAY (CL) w/ sand layers	
	30	1.25 (P)									Very stiff tan and gray CLAY (CH) w/ silt layers	
		2.0 (P)	2.35 t=14.0	33	90	67	25	42	100			
	35			31	88							
		2.25 (P)		41	78							
Ground Water Level Data			Boring Advancement Method				Notes					
Water Elevation at Gauge Location = 0.70' Water Depth at Borehole = 0.83'			4" Nom. Dia. Short Flight Auger: 0 to 6 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG <sub>1</sub> = 10.1% ORG <sub>2</sub> = 1.7%					
			4" Dia. Rotary Wash: 6 to 40 ft.									
			Boring Abandonment Method									
			Borehole grouted with cement/ bentonite upon completion									
Confidential Information: Privileged & Confidential Work Product												
Strata Boundaries May Not Be Exact												

ARD.L0001.01R. 12-80-3741.GPJ.L0001R.GDT. 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-17



File: 12-80-3741  
Date: 10/5/12  
Logged by: B. Singleton  
Driller: D. Tyler  
Rig: Airboat

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Sheet 1 of 2  
Baton Rouge Geotechnical Laboratory  
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USACE Validated

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 47' 12.5" Long. 93° 23' 41.6"	
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: -0.68 (ft., NAVD)
		0.0 (P)	0.12 t=1.0	91	50	75	22	53			Very soft to soft gray CLAY (CH)	
		0.0 (P)	0.05 t=2.0	124	38	119	29	90	99			
	5	0.0 (P)		81	52							
		0.0 (P)	0.09 t=3.0	84	54	62	20	42				
		0.0 (P)		69								
	10	0.0 (P)		57	64							
		0.0 (P)	0.28 t=5.0	102	48	96	23	73				
		0.0 (P)		92	49							
	15	0.5 (P)	0.13 t=6.0	92	50	94	23	71				
		2.5 (P)	1.01 t=7.0	25	103	48	16	32				
	20	2.25 (P)				45	14	31				
		2.0 (P)							95			
	25											
		0.75 (P)		29	86	38	16	22				
	30											
		2.75 (P)		34								
	35			33	84							
		1.75 (P)	1.32 t=16.0	41	83	72	27	45	ORG,			
	40			37	80							

Continued Next Page

Ground Water Level Data		Boring Advancement Method		Notes	
<p>Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.33'</p>	4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		<p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi ORG, = 3.0%</p> <p><b>Confidential Information</b> <b>Privileged &amp; Confidential</b> <b>Work Product</b></p> <p>Strata Boundaries May Not Be Exact</p>		
	4" Dia. Rotary Wash: 6 to 60 ft.				
	Boring Abandonment Method				
		Borehole grouted with cement/ bentonite upon completion			

ARD.LOC001.01R.12-80-3741.GPJ.LOC001R.GDT.8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-17



File: 12-80-3741  
Date: 10/5/12  
Logged by: B. Singleton  
Driller: D. Tyler  
Rig: Airboat

CPRA  
Baton Rouge, LA

Sheet 2 of 2  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

FIELD DATA				LABORATORY DATA							Soil Type	Location: Lat. 29° 47' 12.5" Long. 93° 23' 41.6"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: -0.68 (ft., NAVD)
							LL	PL	PI				
	45		1.0 (P)	1.37 t=20.0	54	65						Medium to stiff tan and gray CLAY (CH) w/ silt layers	
	50		0.75 (P)		43	75							
	55		1.0 (P)	41	76								
	60		1.0 (P)	0.98 t=24.0	35	80	68	24	44				
	60											Boring completed at 60 ft.	
	65												
	70												
	75												
	80												
Ground Water Level Data				Boring Advancement Method				Notes					
Water Elevation at Gauge Location = 0.65' Water Depth at Borehole = 1.33'				4" Nom. Dia. Short Flight Auger: 0 to 6 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi  Confidential Information; Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact					
				Boring Abandonment Method									
				Borehole grouted with cement/ bentonite upon completion									

ARD LOG0101R 12-80-3741.GPJ LOG01R.GDT 8/8/13



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Sheet 1 of 2  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

FIELD DATA				LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 5.5" Long. 93° 24' 24.1"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: N/A (ft., NAVD)
							LL	PL	PI				
			0.5 (P)		10					33	GSH		Loose gray CLAYEY SAND (SC) w/ shells and gravel
					22								
					16	112							Loose tan and gray SAND (SP-SC) w/ clay and shells
			0.5 (P)		20	80				7	GSH		
	5		0.0 (P)										Loose to medium dense brown and gray CLAYEY SAND (SC) w/ silt  -w/ trace shell fragments 10 to 16 ft.
			0.0 (P)										
			0.0 (P)		10	101							
			0.0 (P)										
	10		0.0 (P)							16	GSH		
			0.5 (P)		23	97							
	15		0.5 (P)		40	83				36	GSH		
			0.5 (P)		41	83							
			0.5 (P)		25	90							
			0.5 (P)		33	90							
	20		0.5 (P)		19	109							
			4.0 (P)	2.00 t=10.0	21	109	33	17	16	20			
	25												
			0.5 (P)		28	88				23	GSH		
	30												
			1.0 (P)	1.03 t=14.0	31	89	46	17	29	80			
	35				32	84							
			2.0 (P)		29	90							
	40												

Ground Water Level Data		Boring Advancement Method		Notes	
Free water first encountered		4" Nom. Dia. Short Flight Auger: 0 to 6 ft.		t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSH: Hydrometer Particle Size Analysis	
		4" Dia. Rotary Wash: 6 to 60 ft.			
	Boring Abandonment Method				
		Borehole grouted with cement/ bentonite upon completion		Confidential Information, Privileged & Confidential Work Product	
Continued Next Page					
Strata Boundaries May Not Be Exact					

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

**LOG OF SOIL BORING B-18**



File: 12-80-3741  
Date: 10/4/12  
Logged by: M. Henderson  
Driller: D. Anthony  
Rig: Ardco K-1000

CPRA  
Baton Rouge, LA

Sheet 2 of 2  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

FIELD DATA				LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 5.5" Long. 93° 24' 24.1"	
Ground Water Level	Depth (feet)	Samples	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: N/A (ft., NAVD)
							LL	PL	PI				
	45		1.0 (P)	1.70 t=18.0	45	75	90	26	64			Stiff gray CLAY (CH)  -w/ shells	
	45		1.0 (P)		43	71							
	50		1.0 (P)	1.76 t=22.0	41	76							
	55		1.5 (P)		36	85	57	20	37				
	60		1.5 (P)		37	81						Boring completed at 60 ft.	
	65												
	70												
	75												
	80												

ARD LOG01 01R 12-80-3741.GPJ LOG01R.GDT 8/8/13

<p>Ground Water Level Data</p> <p> Free water first encountered</p>	<p>Boring Advancement Method</p> <p>4" Nom. Dia. Short Flight Auger: 0 to 6 ft. 4" Dia. Rotary Wash: 6 to 60 ft.</p>	<p>Notes</p> <p>t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi</p> <p>Confidential Information. Privileged &amp; Confidential Work Product</p> <p>Strata Boundaries May Not Be Exact</p>
	<p>Boring Abandonment Method</p> <p>Borehole grouted with cement/ bentonite upon completion</p>	

Oyster Bayou Marsh Restoration  
Cameron Parish, LA

LOG OF SOIL BORING B-19



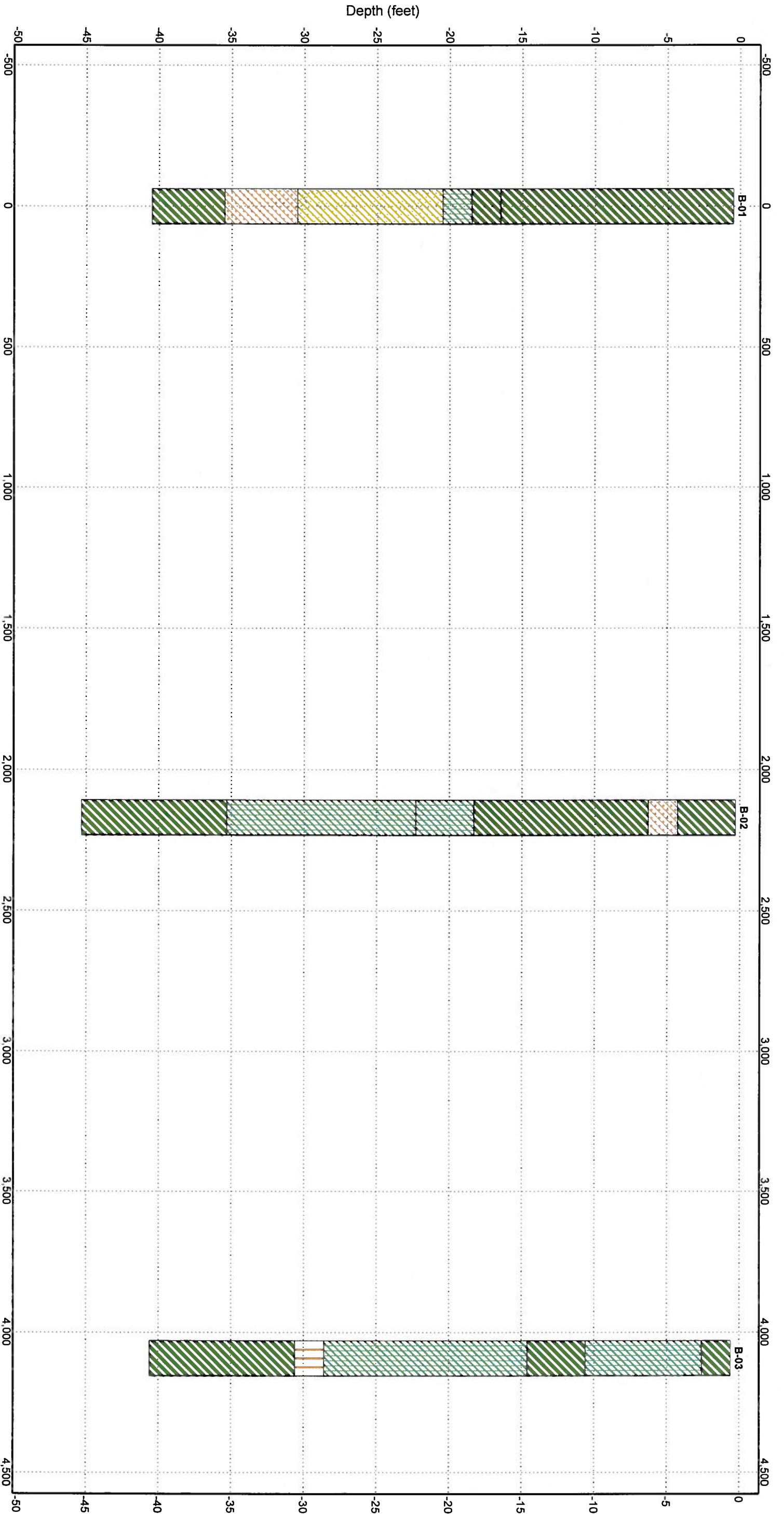
File: 12-80-3741  
Date: 10/4/12  
Logged by: M. Henderson  
Driller: D. Anthony  
Rig: Ardco K-1000

CPRA  
Baton Rouge, LA

Sheet 1 of 1  
Baton Rouge Geotechnical Laboratory  
AASHTO Accredited Laboratory, LELAP Certificate No. 02052,  
USACE Validated

FIELD DATA			LABORATORY DATA							Soil Type	Location: Lat. 29° 46' 4.2" Long. 93° 24' 24.1"		
Ground Water Level	Depth (feet)	Field Test Results	Compressive Strength (tsf)	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits			Percent Passing #200 Sieve		Other	Surface Elevation: N/A (ft., NAVD)	
						LL	PL	PI				Description	
		0.5 (P)		12	105						Loose white and tan CLAYEY SAND (SC) w/ shells		
		0.25 (P)							13	GSH			
	5	0.25 (P)	0.21 t=2.0	30	90	45	16	29	56		Very soft gray SANDY CLAY (CL) w/ silt		
		0.0 (P)		34 64									
	10	0.0 (P)	0.06 t=4.0	66	62	65	18	47	67		Very soft gray CLAY (CH) -w/ shells at 12-14 feet		
		0.25 (P)	0.10 t=5.0	60	64	68	19	49					
	15	0.25 (P)				94	26	68					
		0.0 (P)		72 84 78	54								
	20	0.0 (P)	0.12 t=8.0	77	53	98	19	79	91		Stiff to very stiff tan and gray SILTY CLAY (CL) w/ trace sand layers		
		0.0 (P)		40 24 32	91								
	25	0.0 (P)											
		1.0 (P)	2.55 t=12.0	20 20	109 104	40	16	24					
	30	1.5 (P)		28	92						Boring completed at 40 ft		
	35	0.75 (P)	1.92 t=16.0	32	89	43	19	24					
	40			30	84								
Ground Water Level Data			Boring Advancement Method				Notes						
		Free water first encountered	4" Nom. Dia. Short Flight Auger: 0 to 4 ft. 4" Dia. Rotary Wash: 4 to 40 ft.				t: Unconsolidated, Undrained Triaxial Compression Test Lateral Pressure = psi GSH: Hydrometer Particle Size Analysis						
			Boring Abandonment Method				Confidential Information: Privileged & Confidential Work Product  Strata Boundaries May Not Be Exact						
			Borehole grouted with cement/ bentonite upon completion										

ARD LOG01.01R 12-80-3741.GPJ LOG01R.GDT 8/8/13



**LITHOLOGY GRAPHICS**

-  USCS High Plasticity Clay
-  USCS Low Plasticity Clay
-  USCS Low Plasticity Clay
-  USCS Low Plasticity Clay
-  USCS Poorly-graded Sand with Clay
-  USCS Silt
-  USCS Clayey Sand

**Cross Section Diagram**

Title:

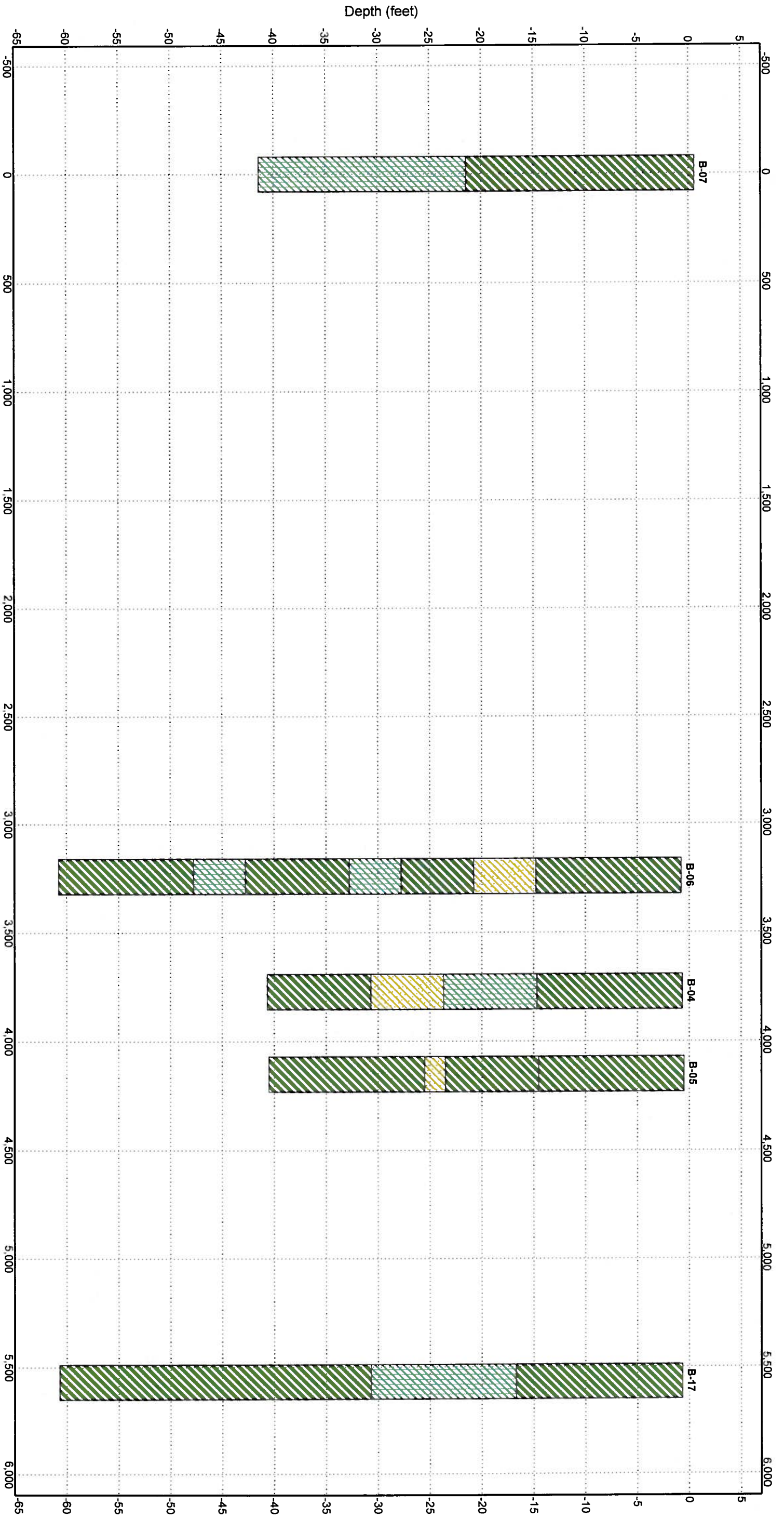
Geotechnical Investigation:  
 Oyster Bayou Marsh  
 Restoration  
 for: CPRA  
 Cameron Parish, LA  
 Baton Rouge, LA

Ardaman & Associates, Inc.  
 Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-2





**LITHOLOGY GRAPHICS**

-  USCS High Plasticity Clay
-  USCS Poorly-graded Sand With Clay
-  USCS Low Plasticity Clay
-  USCS Low Plasticity Sandy Clay
-  USCS Silt
-  USCS Clayey Sand

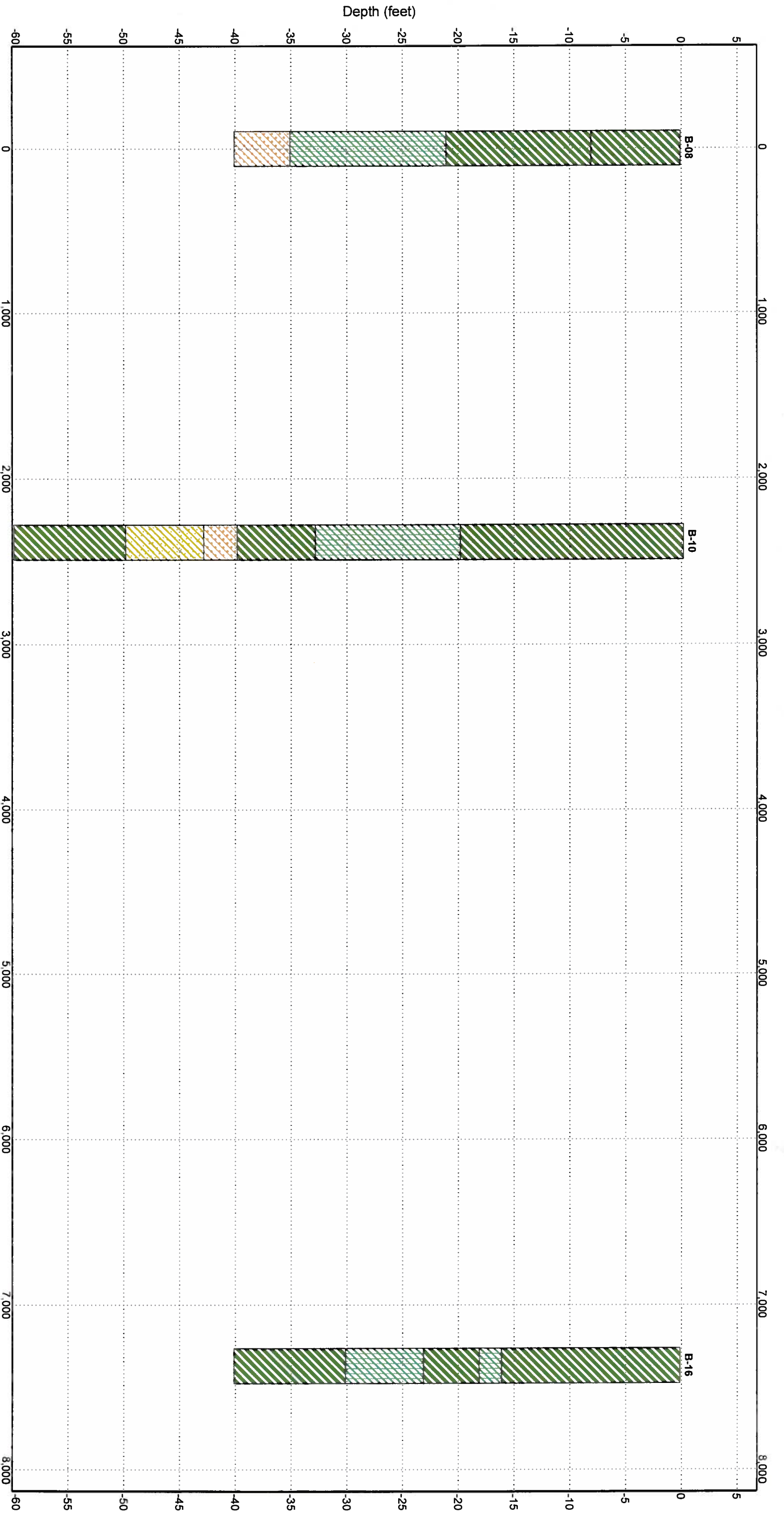
**Cross Section Diagram**

Title:  
Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-3



**LITHOLOGY GRAPHICS**

-  USCS High Plasticity Clay
-  USCS Low Plasticity Clay
-  USCS Low Plasticity Sandy Clay
-  USCS Silty Sand
-  USCS Clayey Sand
-  USCS Poorly-graded Sand with Clay

**Cross Section Diagram**

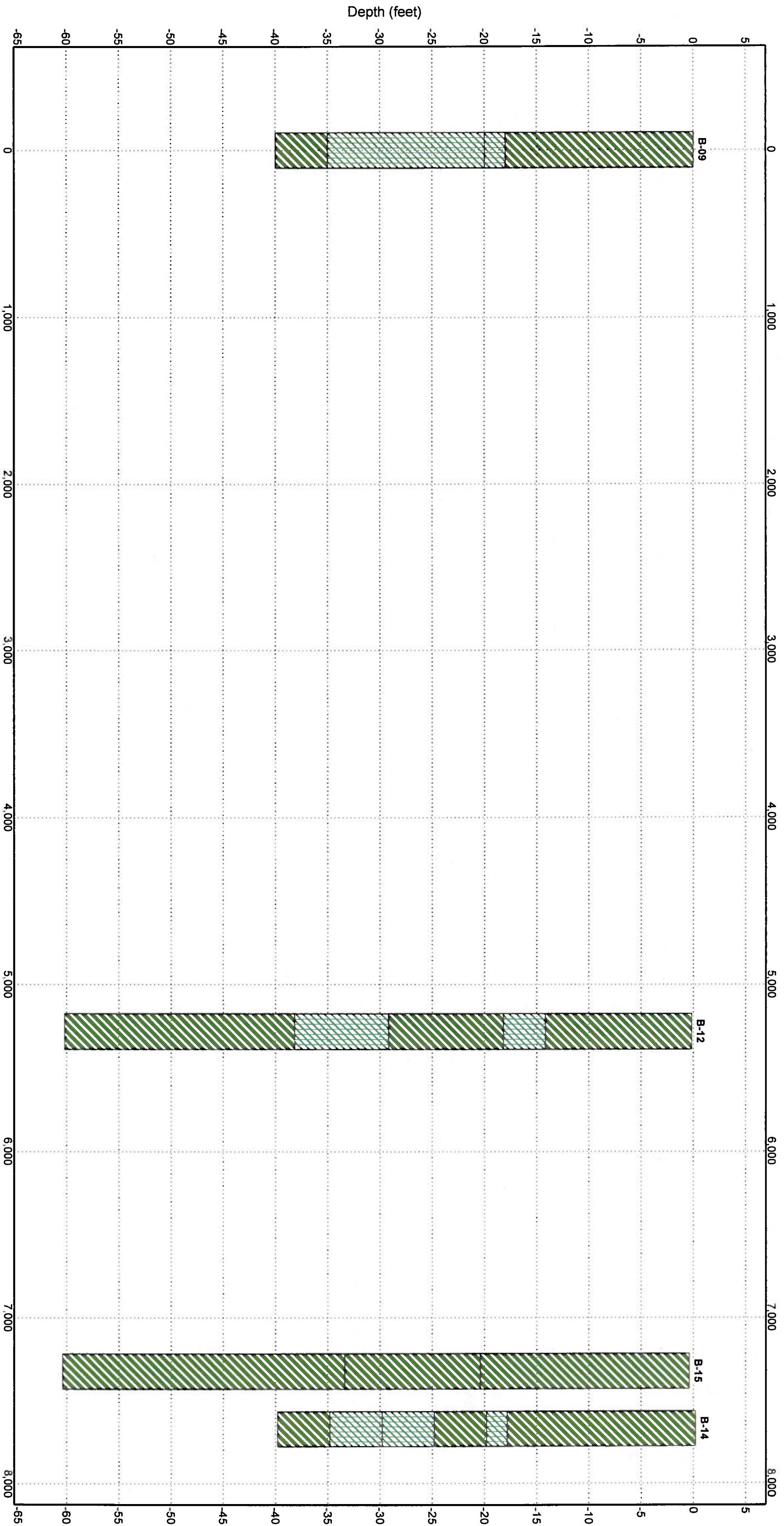
Title:

Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-4



**LITHOLOGY GRAPHICS**

	USCS High Plasticity Clay
	USCS Poorly-graded Sand with Clay
	USCS Low Plasticity Clay
	USCS Low Plasticity Sandy Clay
	USCS Silt
	USCS Clayey Sand

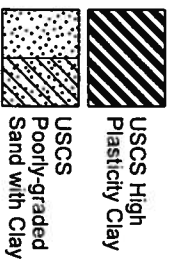
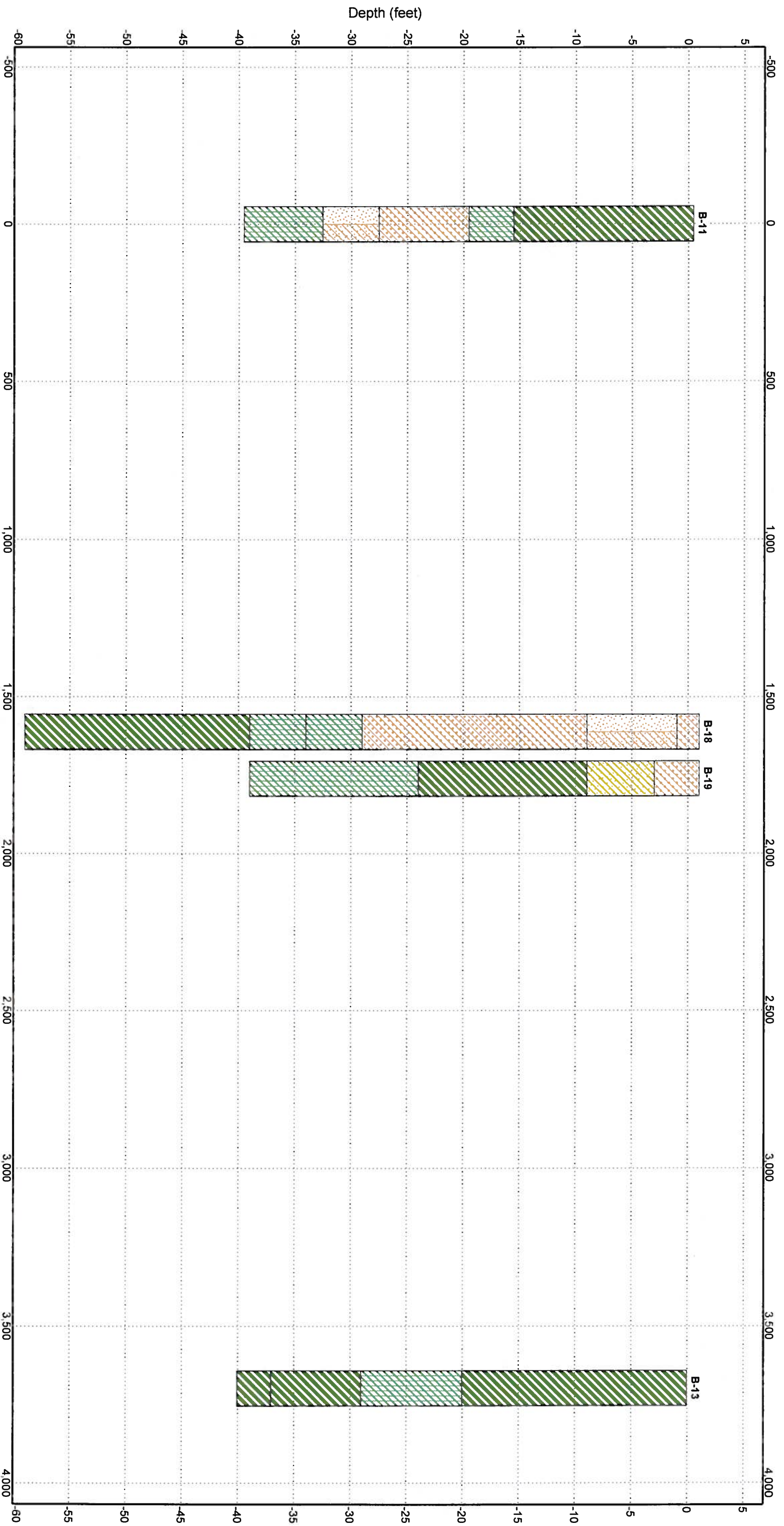
**Cross Section Diagram**

Title:  
Geotechnical Investigation:  
Oyster Bayou Marsh Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-5



**LITHOLOGY GRAPHICS**

**Cross Section Diagram**

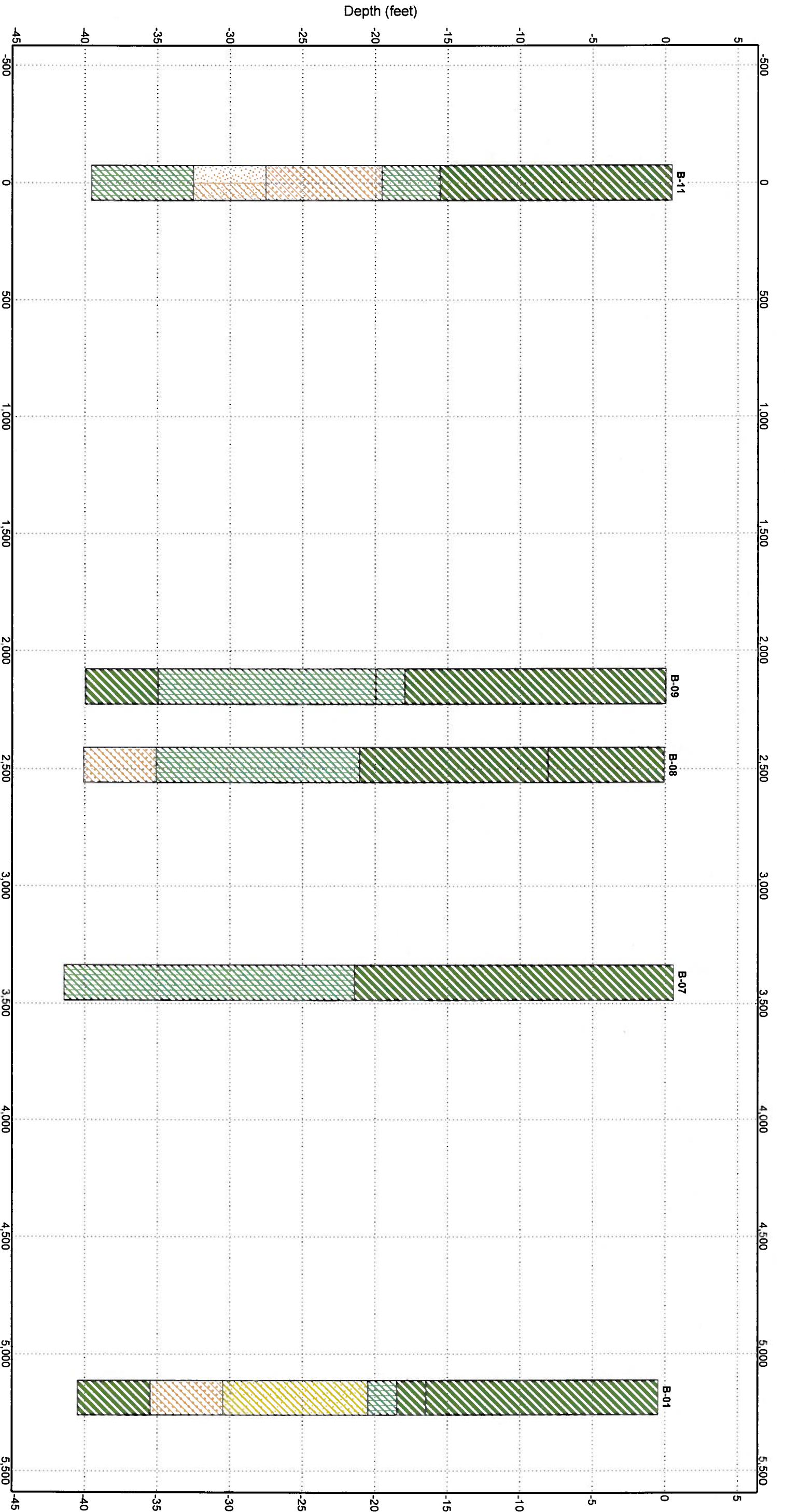
Title:

Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-6



**LITHOLOGY GRAPHICS**

-  USCS High Plasticity Clay
-  USCS Low Plasticity Clay
-  USCS Low Plasticity Sandy Clay
-  USCS Silt
-  USCS Clayey Sand
-  USCS Poorly-graded Sand with Clay

**Cross Section Diagram**

Title:

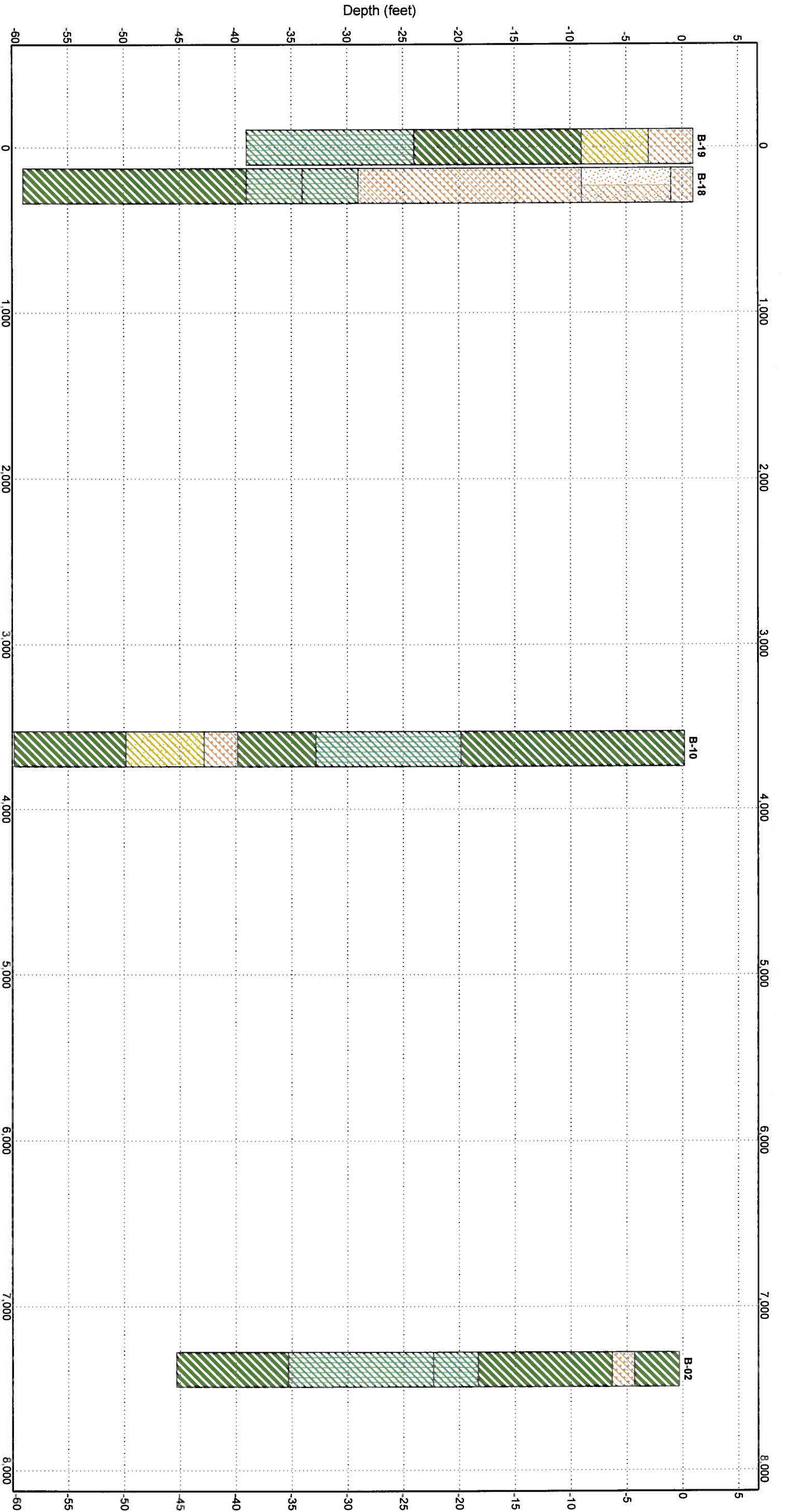
Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-7





**LITHOLOGY GRAPHICS**

- USCS High Plasticity Clay
- USCS Poorly-graded Sand with Clay
- USCS Low Plasticity Clay
- USCS Low Plasticity Sandy Clay
- USCS Silt
- USCS Clayey Sand

**Cross Section Diagram**

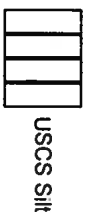
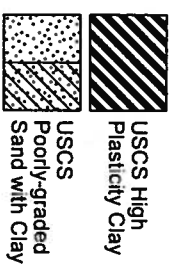
Title:

Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-8



**LITHOLOGY GRAPHICS**

**Cross Section Diagram**

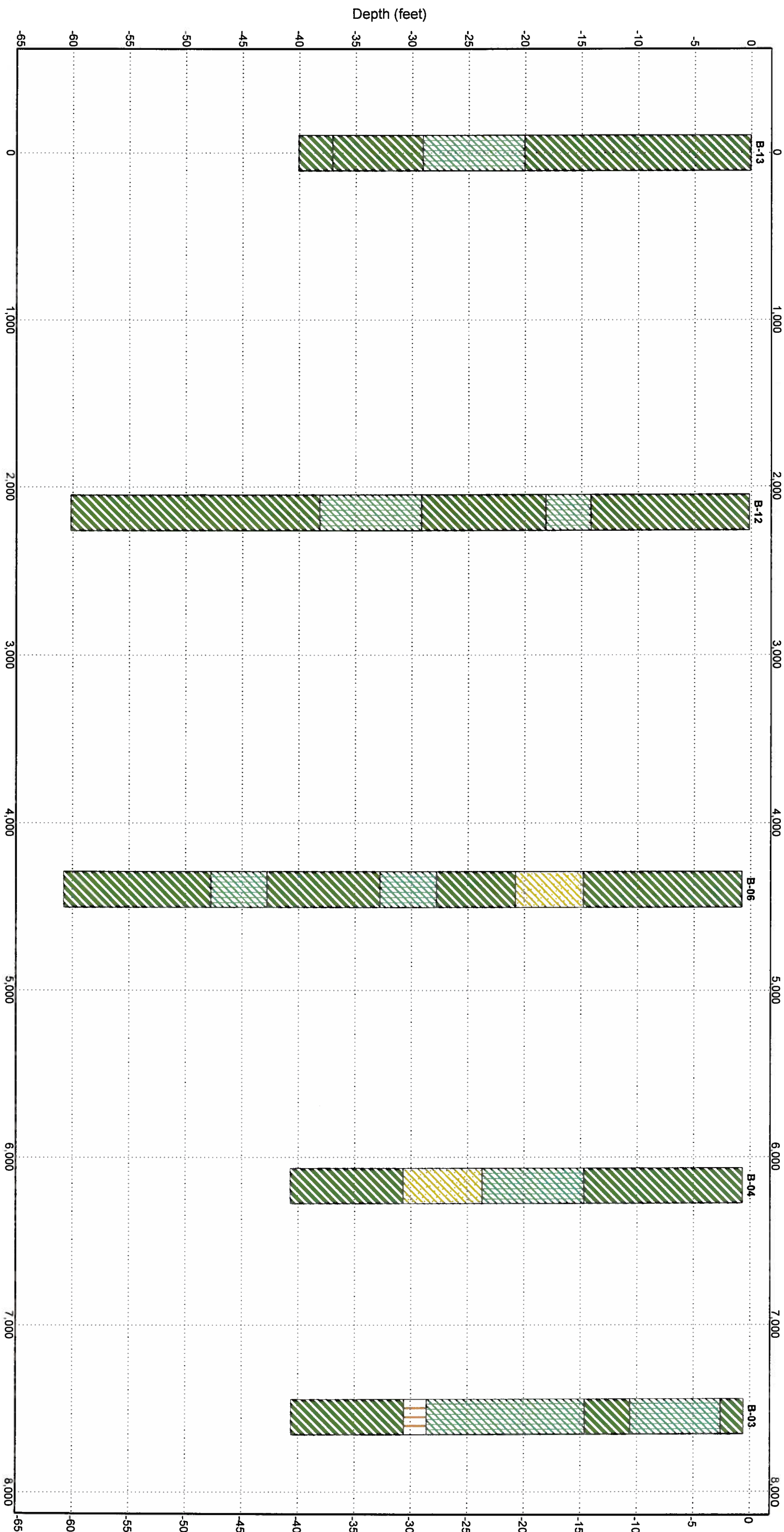
Title:

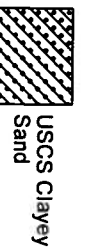
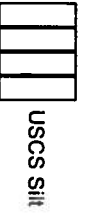
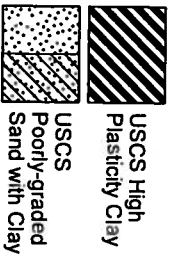
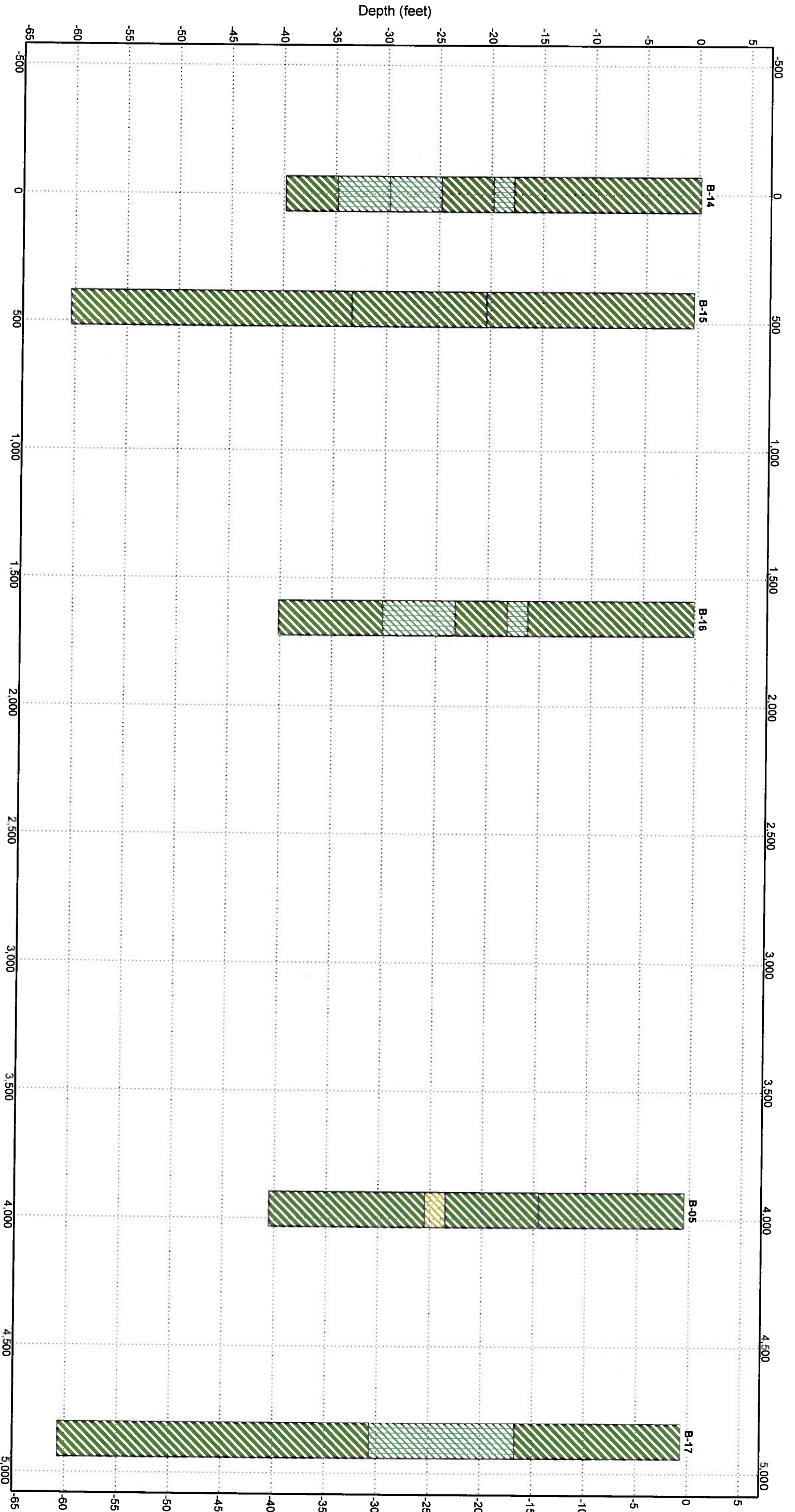
Geotechnical Investigation:  
Oyster Bayou Marsh  
Restoration  
Cameron Parish, LA  
for: CPRA  
Baton Rouge, LA

Ardaman & Associates, Inc.  
Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-9





**LITHOLOGY GRAPHICS**

**Cross Section Diagram**

Title: Geotechnical Investigation:  
 Oyster Bayou Marsh  
 Restoration  
 Cameron Parish, LA  
 for: CPRA  
 Baton Rouge, LA

Ardaman & Associates, Inc.  
 Baton Rouge, LA

File No.: 12-80-3741

Figure No.: A-10



## APPENDIX B. LABORATORY DATA PLOTS

This Appendix contains the following:

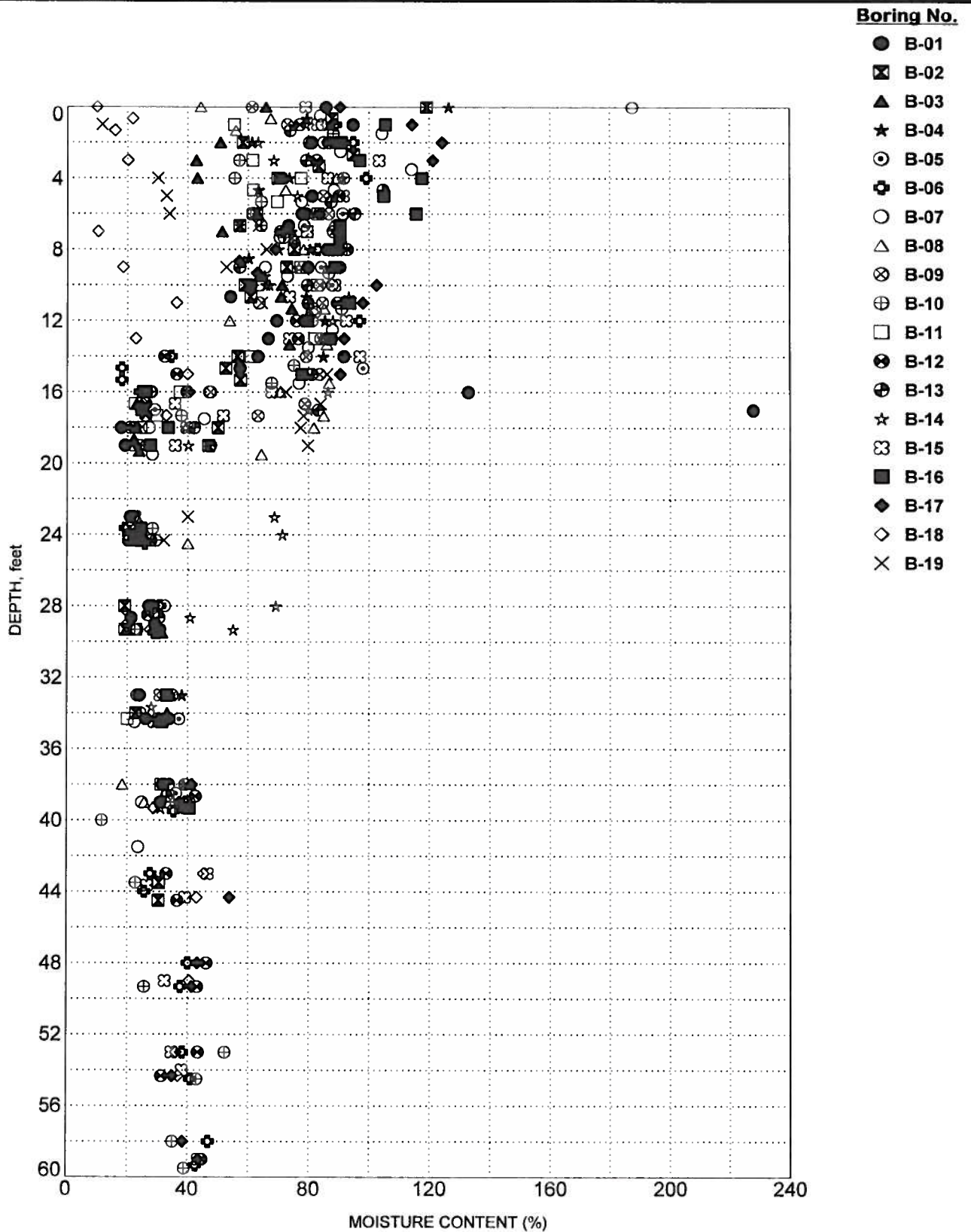
- Figure B-1 – Moisture Content vs Depth
- Figure B-2 – Wet Density vs. Depth
- Figure B-3 – Dry Density vs. Depth
- Figure B-4 – Organic Content vs. Depth
- Figure B-5 – Plasticity Chart
- Figure B-6 – Liquid Limit vs. Depth
- Figure B-7 – Plasticity Index vs. Depth
- Figure B-8 – Liquidity Index vs. Depth
- Figure B-9 – Hydrometer Particle Size Analyses Results
- Figure B-10 – Correlations between Compressibility and Index Properties
- Figure B-11 – Coefficient of Compressibility vs. Stress Ratio
- Figure B-12 –  $C_{\alpha\epsilon}$  vs. CR
- Figure B-13 – Stress History Profiles
- Figure B-14 – Coefficient of Consolidation vs. Stress Ratio
- Figure B-15 – Vertical Coefficient of Permeability vs. Void Ratio
- Figure B-16 – UUC Shear Strength vs. Depth
- Figure B-17 – Vertical Effective Stress and Undrained Shear Strength vs. Depth

12-80-3741

Oyster Bayou Marsh Restoration Project (CS-59)

Final Data Report of Field and Laboratory Data Collection

**Confidential Information: Privileged & Confidential Work Product**



### MOISTURE CONTENT vs DEPTH

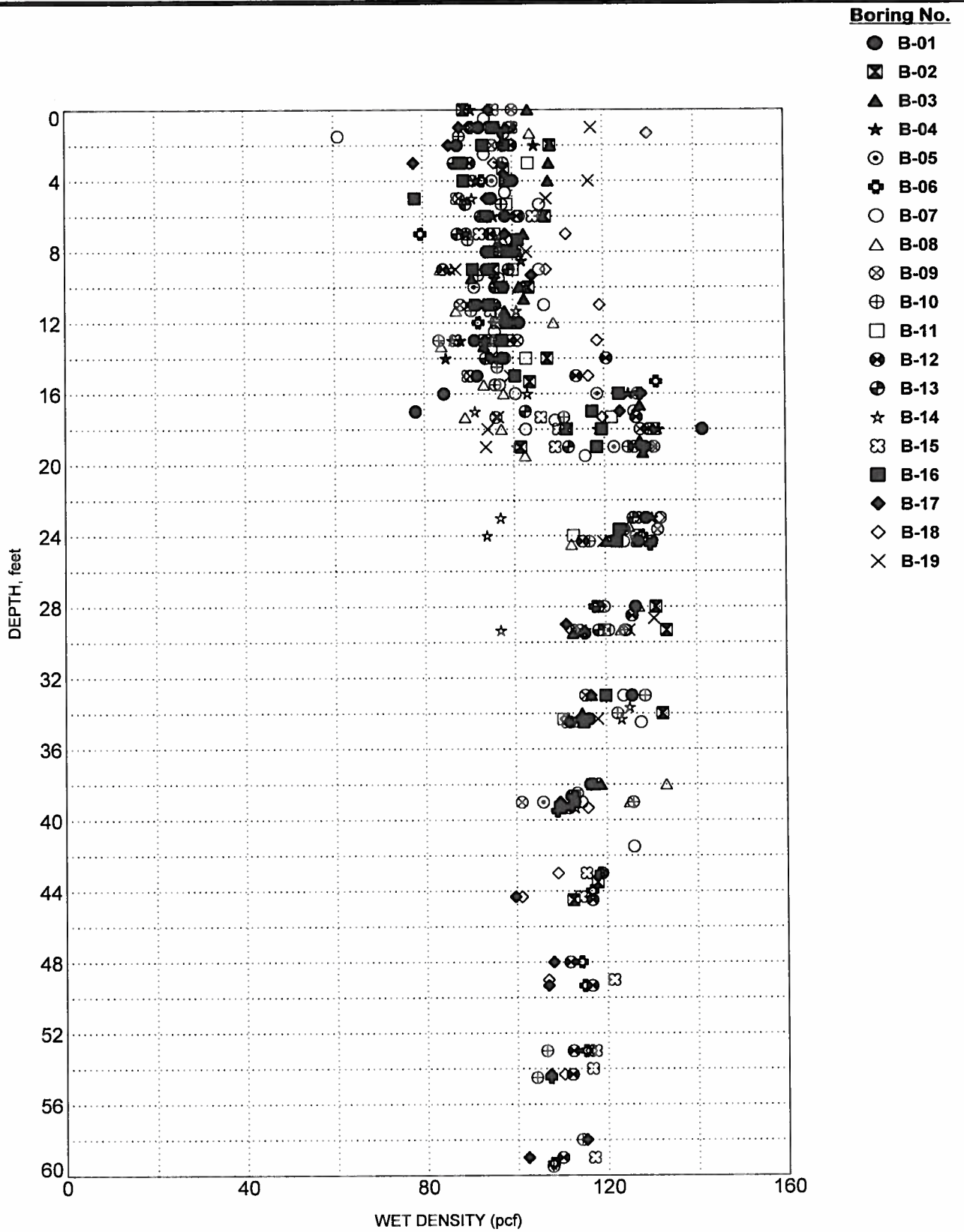
Project: Oyster Bayou Marsh Restoration

Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-1





### WET DENSITY vs DEPTH

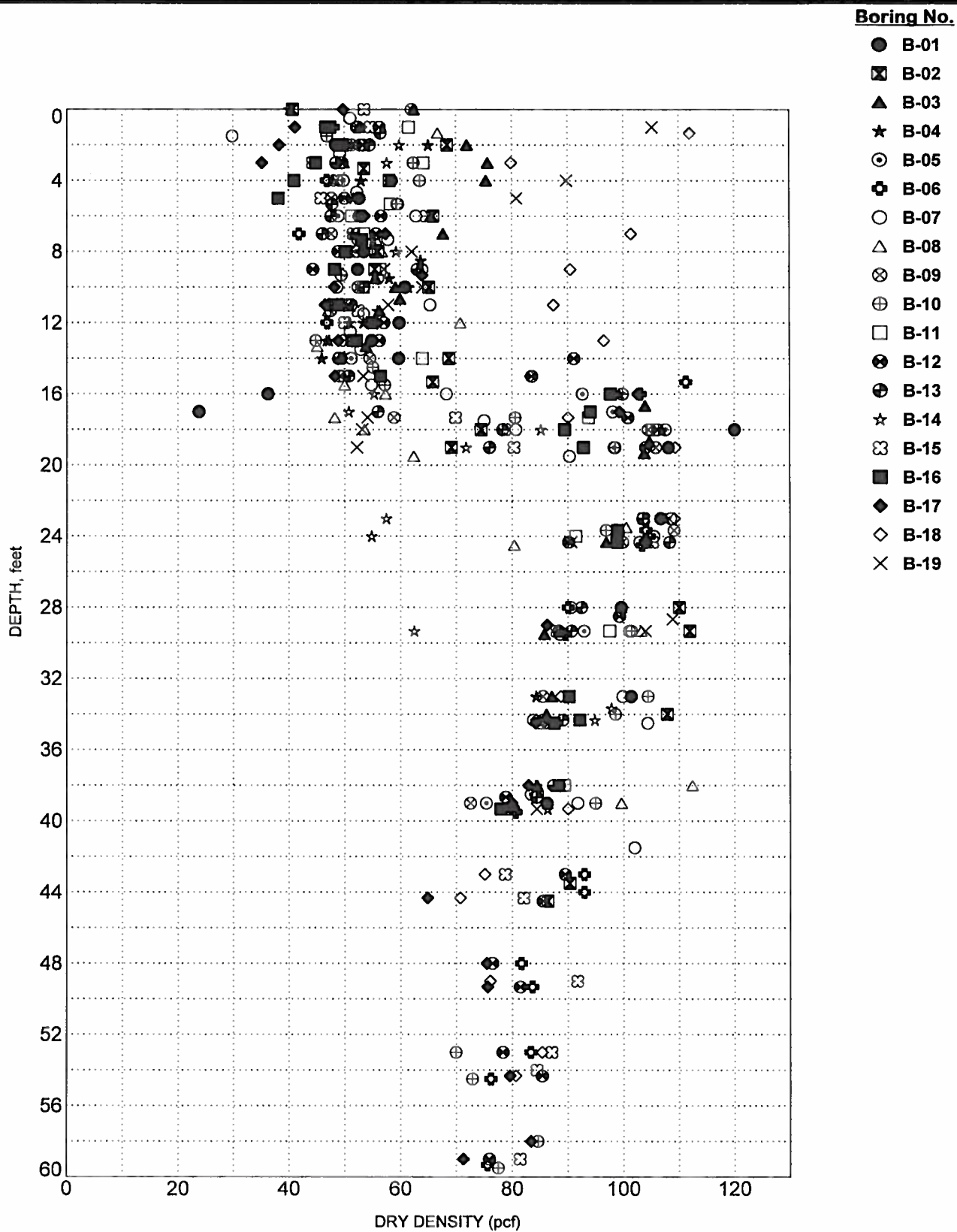
Project: Oyster Bayou Marsh Restoration

Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-2





### DRY DENSITY vs DEPTH

Project: Oyster Bayou Marsh Restoration

Client: CPRA

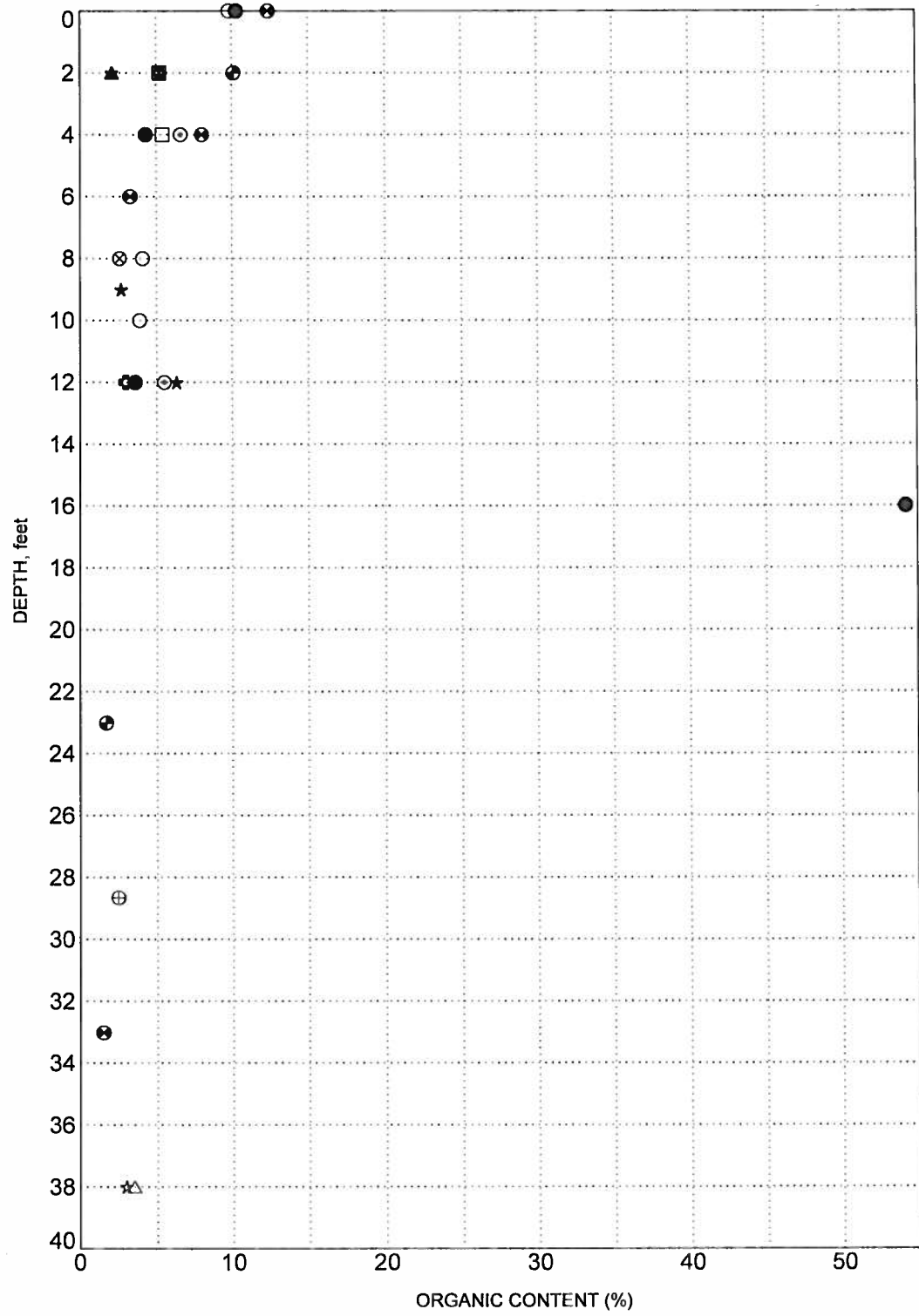
AAI Project Number: 12-80-3741

Figure No.: B-3



**Boring No.**

- B-01
- ⊠ B-02
- ▲ B-03
- ★ B-04
- ⊙ B-05
- ⊕ B-06
- B-07
- △ B-09
- ⊗ B-12
- ⊕ B-13
- B-14
- ⊗ B-15
- ⊕ B-16
- ☆ B-17



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 Work Product

ARD DEPTH VS ORGANIC CONTENT 12-80-3741 GPJ US LAB GDT 8/8/13



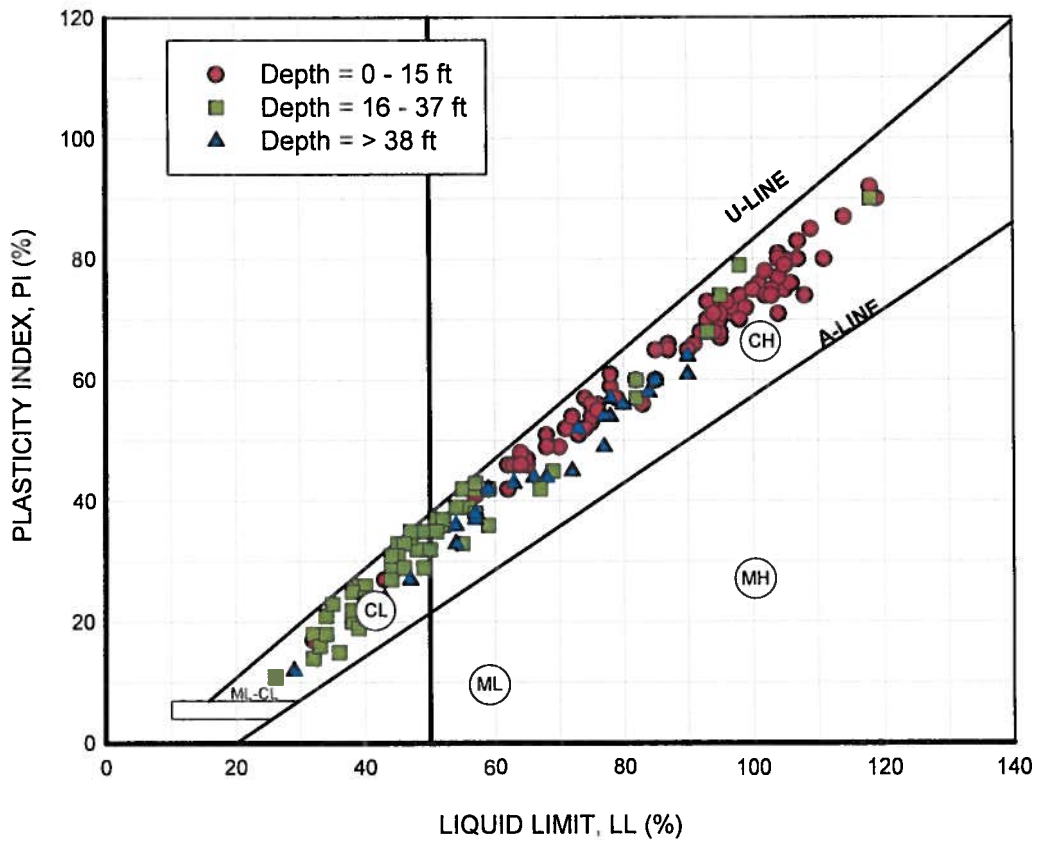
**ORGANIC CONTENT vs DEPTH**

Project: Oyster Bayou Marsh Restoration

Client: CPRA


AAI Project Number: 12-80-3741

Figure No.: B-4



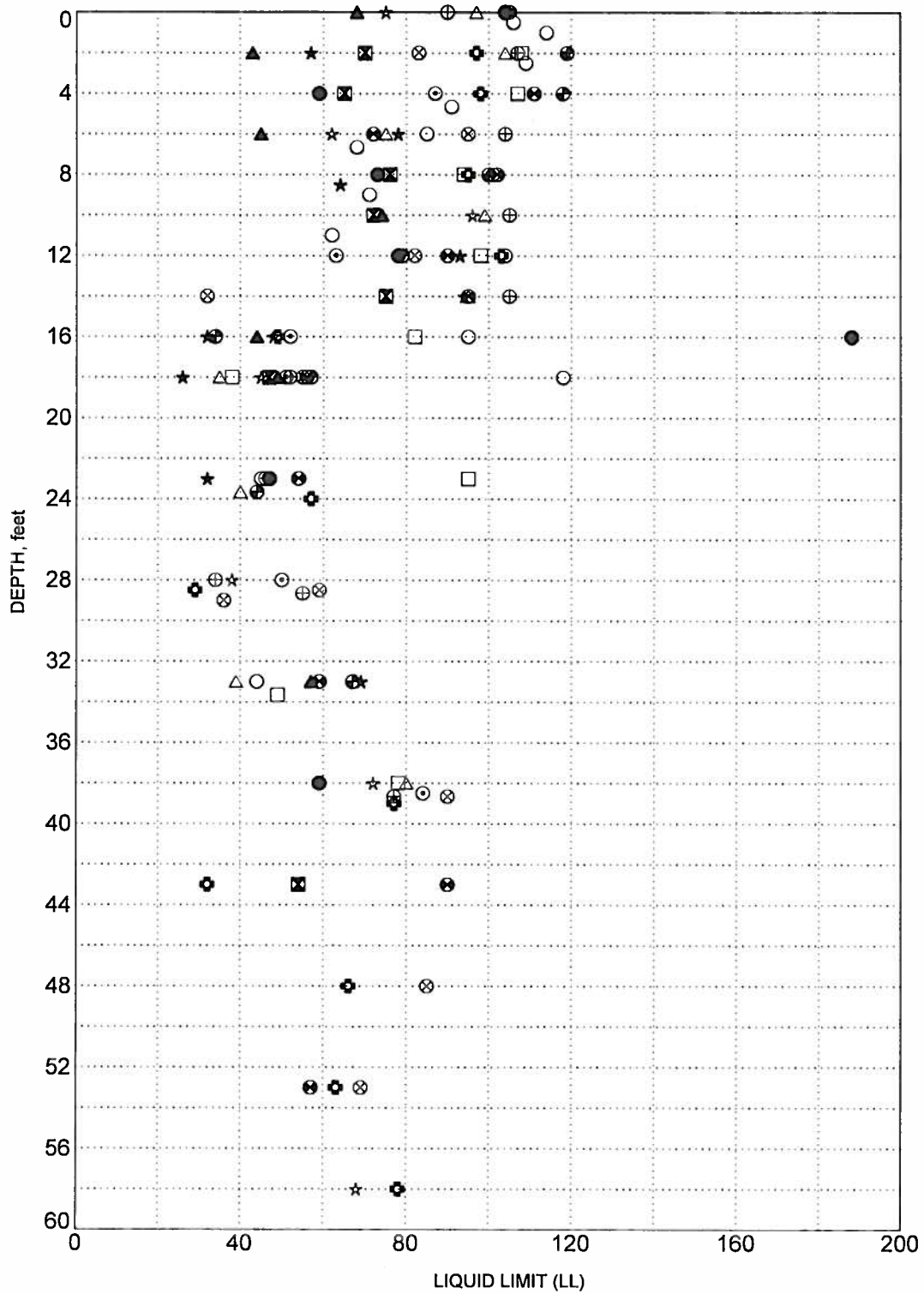
PLASTICITY CHART

Confidential Information:  
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Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU</b>  <b>CPRA</b>		
DRAWN BY	CHECKED BY	DATE
RJB	<i>MBS</i>	08/07/13
FILE NO	APPROVED BY	FIGURE
12-80-3741		B-5

**Boring No.**

- B-01
- ⊠ B-02
- ▲ B-03
- ★ B-04
- ⊙ B-05
- ⊕ B-06
- B-07
- △ B-09
- ⊗ B-12
- ⊕ B-13
- B-14
- ⊗ B-15
- ⊕ B-16
- ★ B-17



Confidential Information:  
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Work Product

ARD-DEPTH-VS-LL 12-80-3741.GPJ, US\_LAB.GDT, 8/8/13



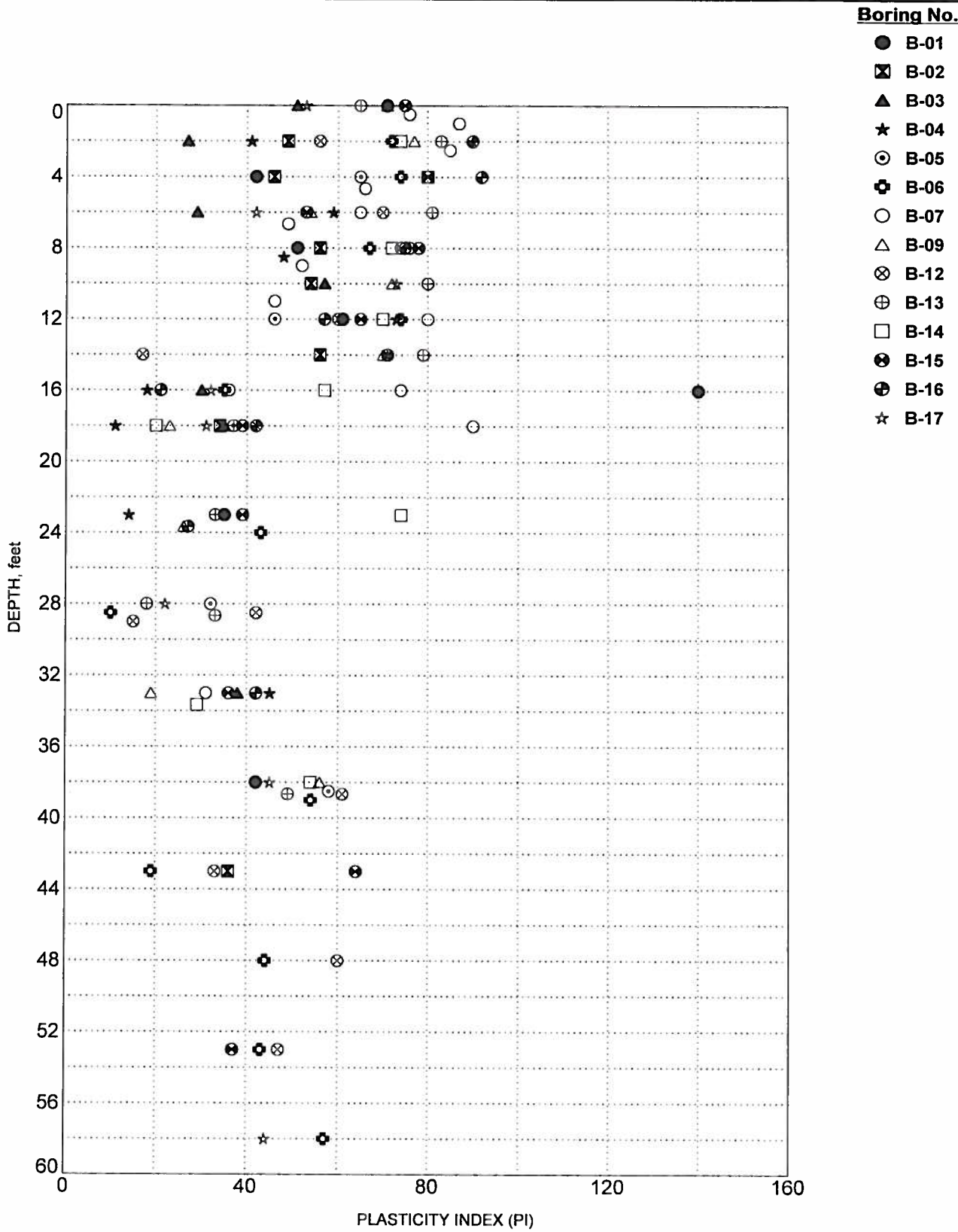
**LIQUID LIMIT vs DEPTH**

Project: Oyster Bayou Marsh Restoration

Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-6



### PLASTICITY INDEX vs DEPTH

Project: Oyster Bayou Marsh Restoration

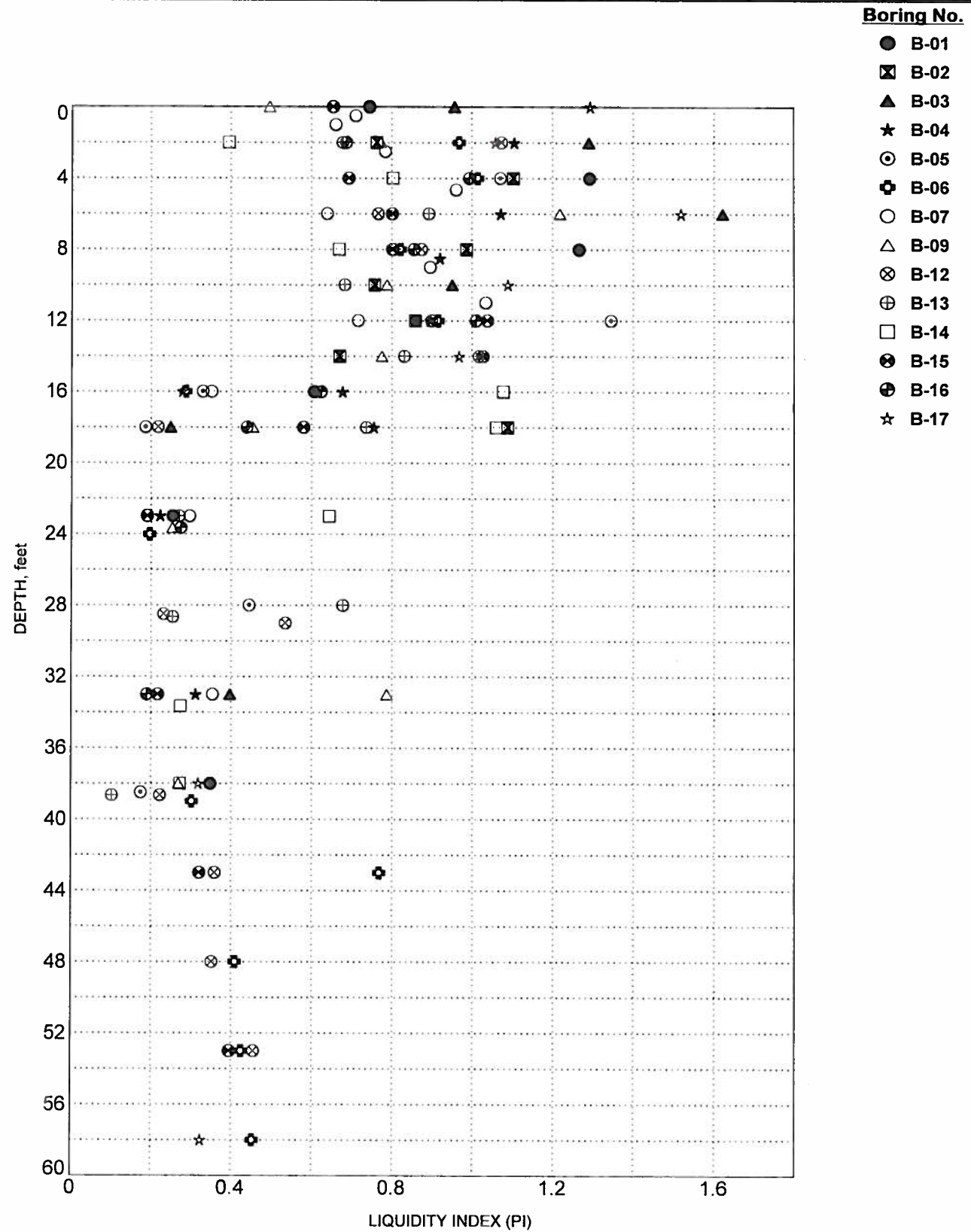
Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-7







**LIQUIDITY INDEX vs DEPTH**

Project: Oyster Bayou Marsh Restoration

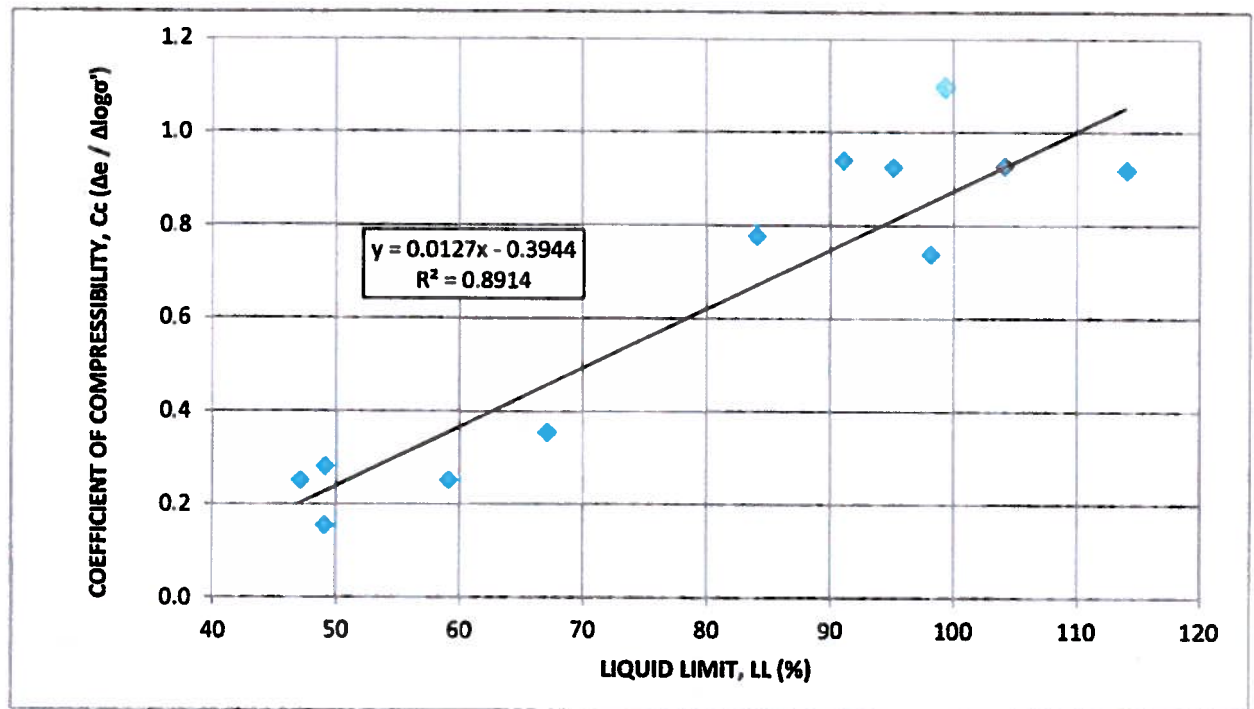
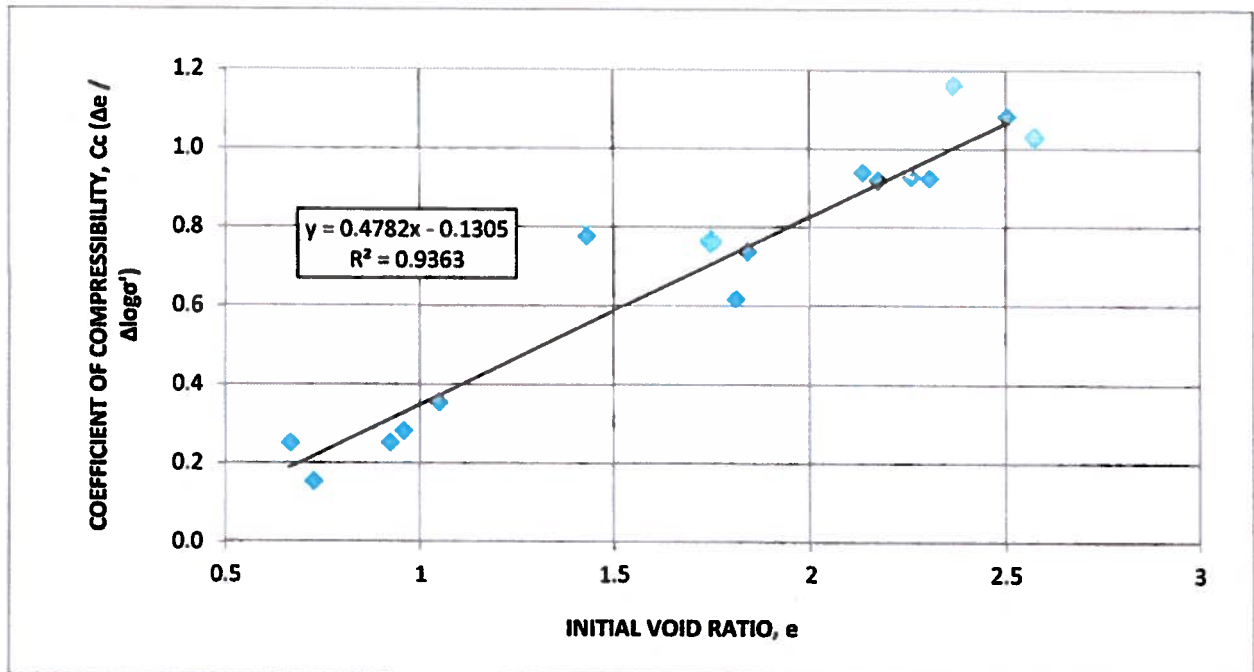
Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-8

Figure B-9  
Hydrometer/Sieve Particle Size Analyses Results

Boring ID	Sample Depth	% Gravel	% Sand	% Silt	% Clay
B-01	33-35	0	78	7	15
B-02	2-4	0	11	29	60
B-02	4-6	0	53	47	
B-02	14-16	0	5	52	43
B-03	0-2	0	2	34	64
B-03	10-12	0	4	96	
B-04	8-10	0	3	32	65
B-05	4-6	0	3	97	
B-05	23-25	0	45	14	41
B-07	2-4	0	52	12	36
B-07	4-6	21	15	64	
B-07	8-10	0	90	10	
B-08	4-6	0	31	18	51
B-08	8-10	5	5	90	
B-08	16-18	1	23	76	
B-09	6-8	0	6	94	
B-10	4-6	0	4	96	
B-11	23-25	0	78	6	16
B-12	28-30	0	1	8	91
B-12	48-50	0	1	15	84
B-14	2-4	0	1	99	
B-15	18-20	0	25	75	
B-18	0-2	10	57	19	14
B-18	2-4	7	86	3	4
B-18	10-12	2	81	8	9
B-18	14-16	5	59	16	20
B-18	28-30	0	77	13	10
B-18	33-35	0	20	48	32
B-19	2-4	7	81	4	8
B-19	4-6	0	44	25	31
B-19	8-10	0	34	46	21



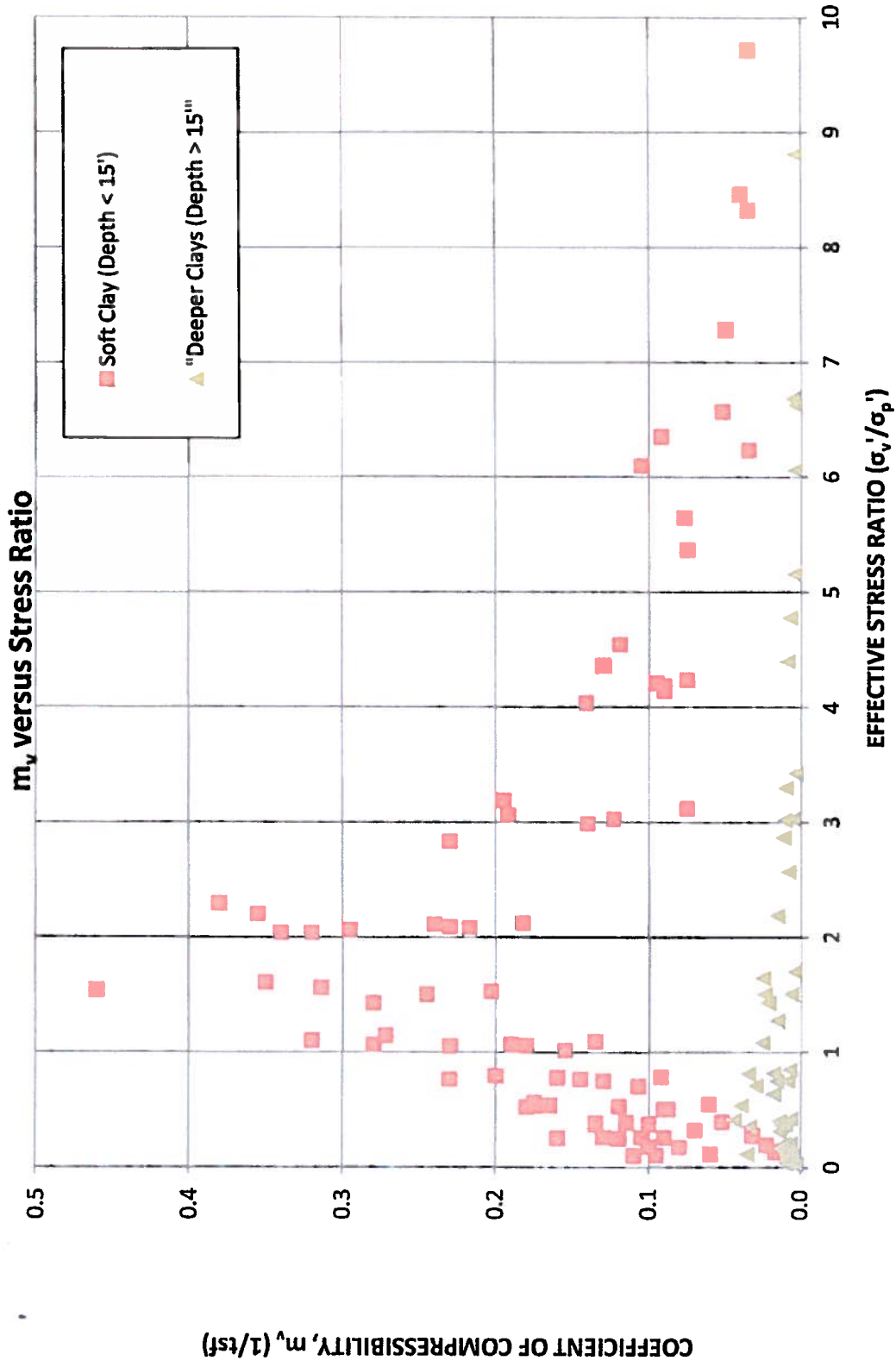
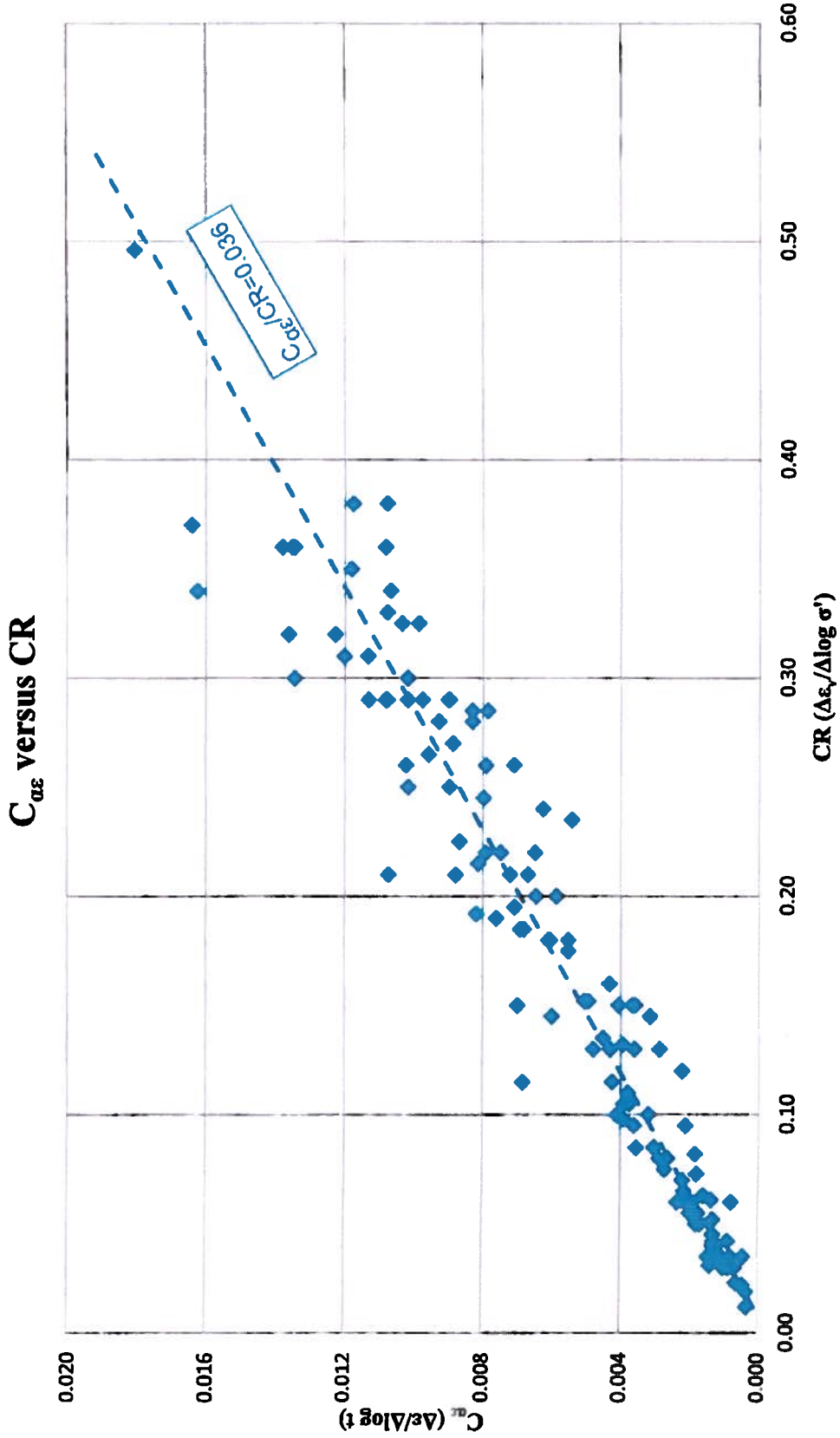


Figure B-11

Client: CPRA  
Project: Oyster Bayou  
AAI Project No. 12-80-3741



Confidential Information  
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Work Product



316 Highlandia Drive  
Baton Rouge, LA 70810  
225-752-4790 (phone)  
225-752-4878 (fax)

Figure B-12

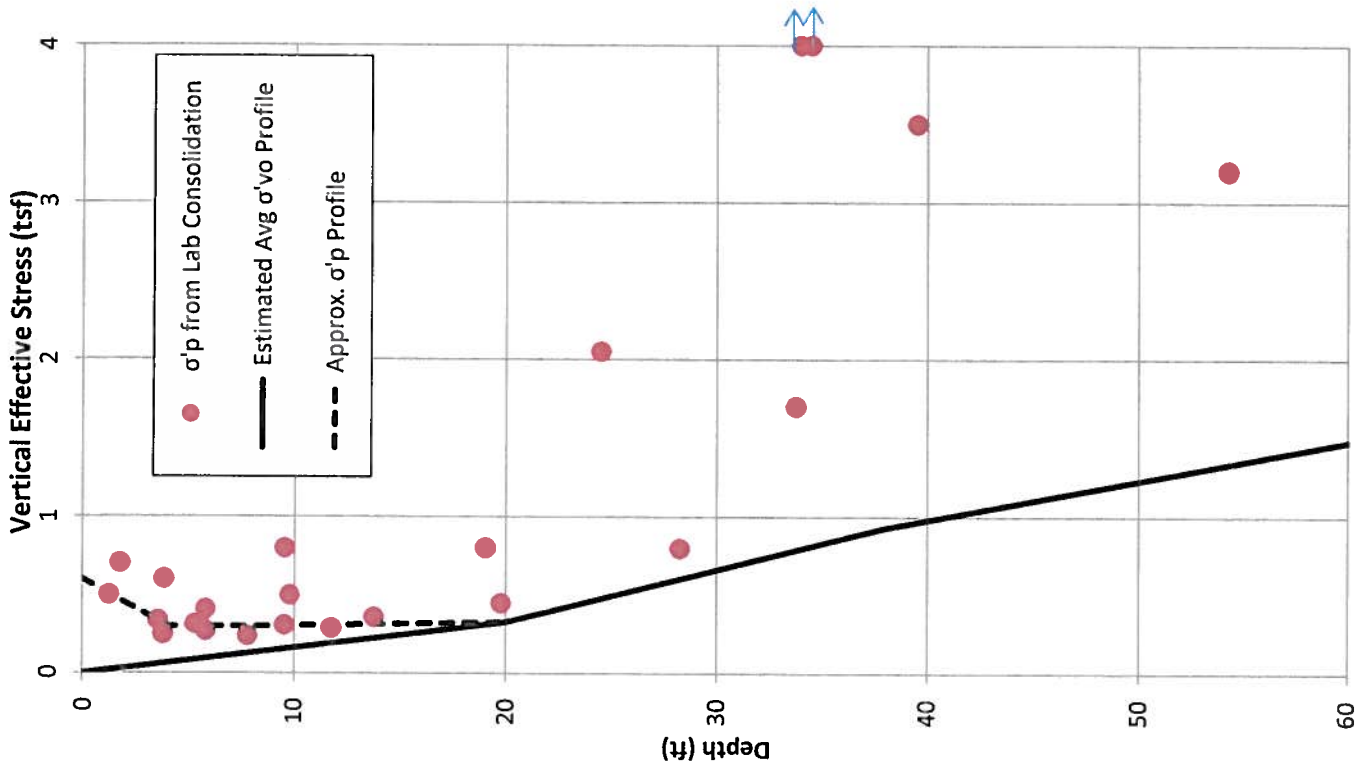
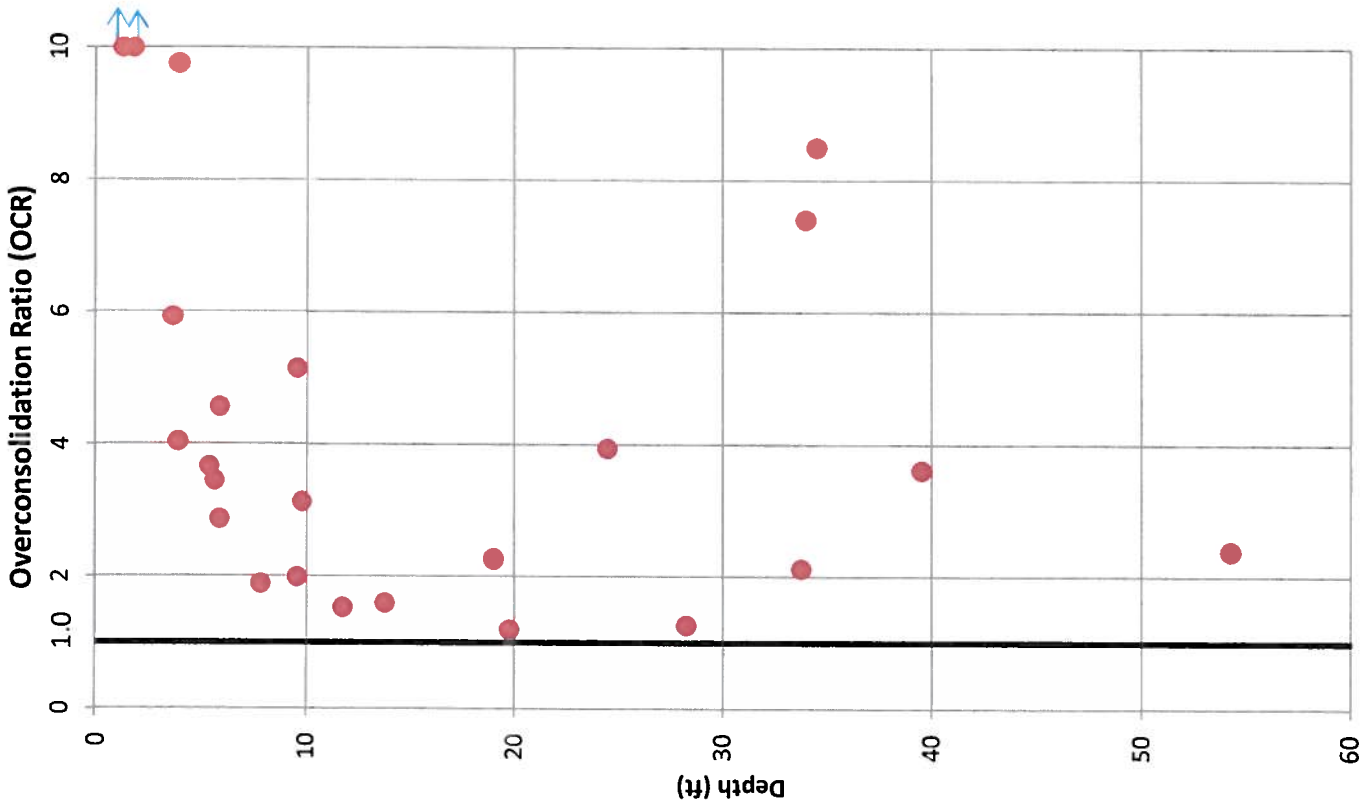


Figure : B-13

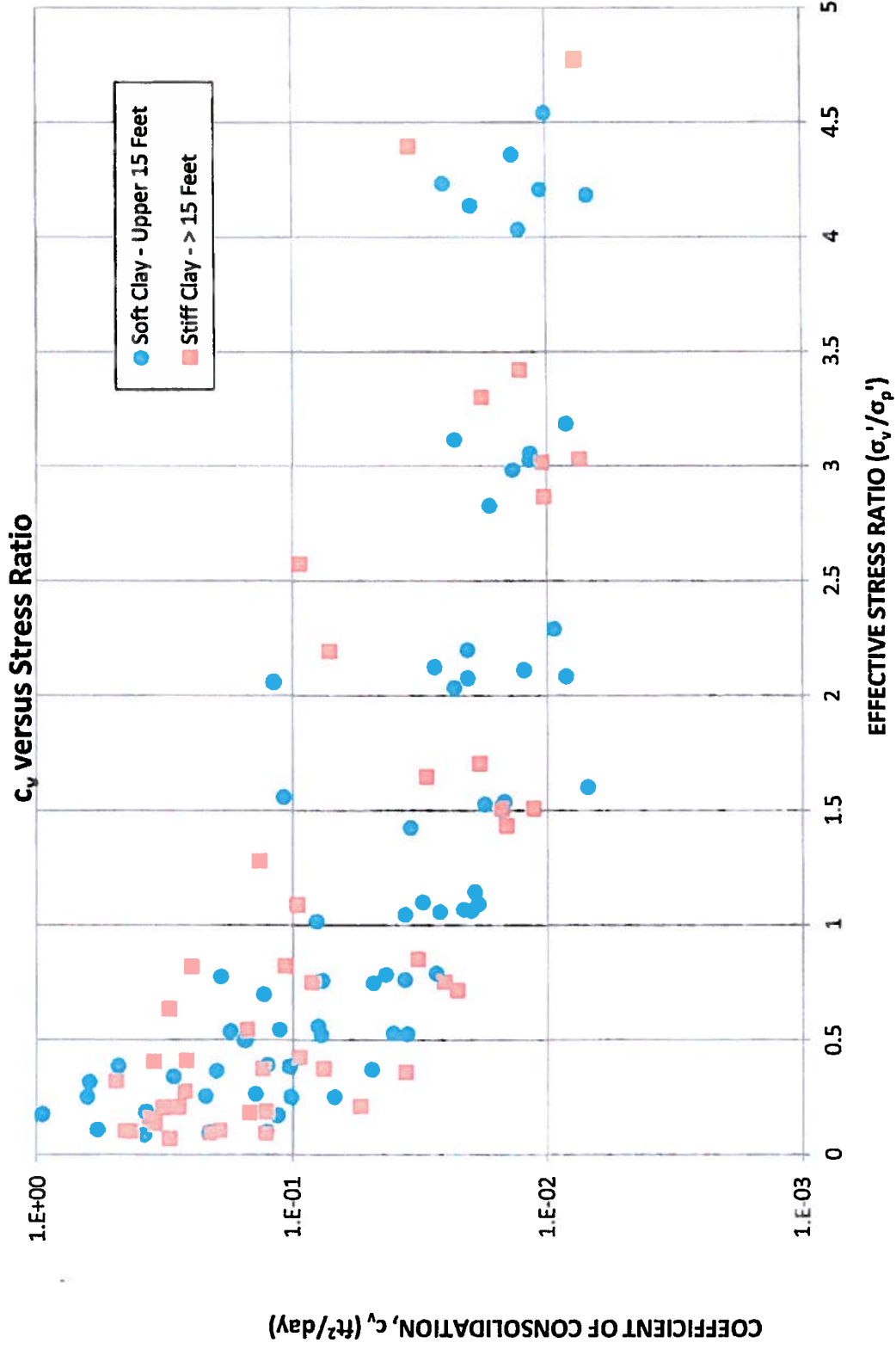


Figure B-14

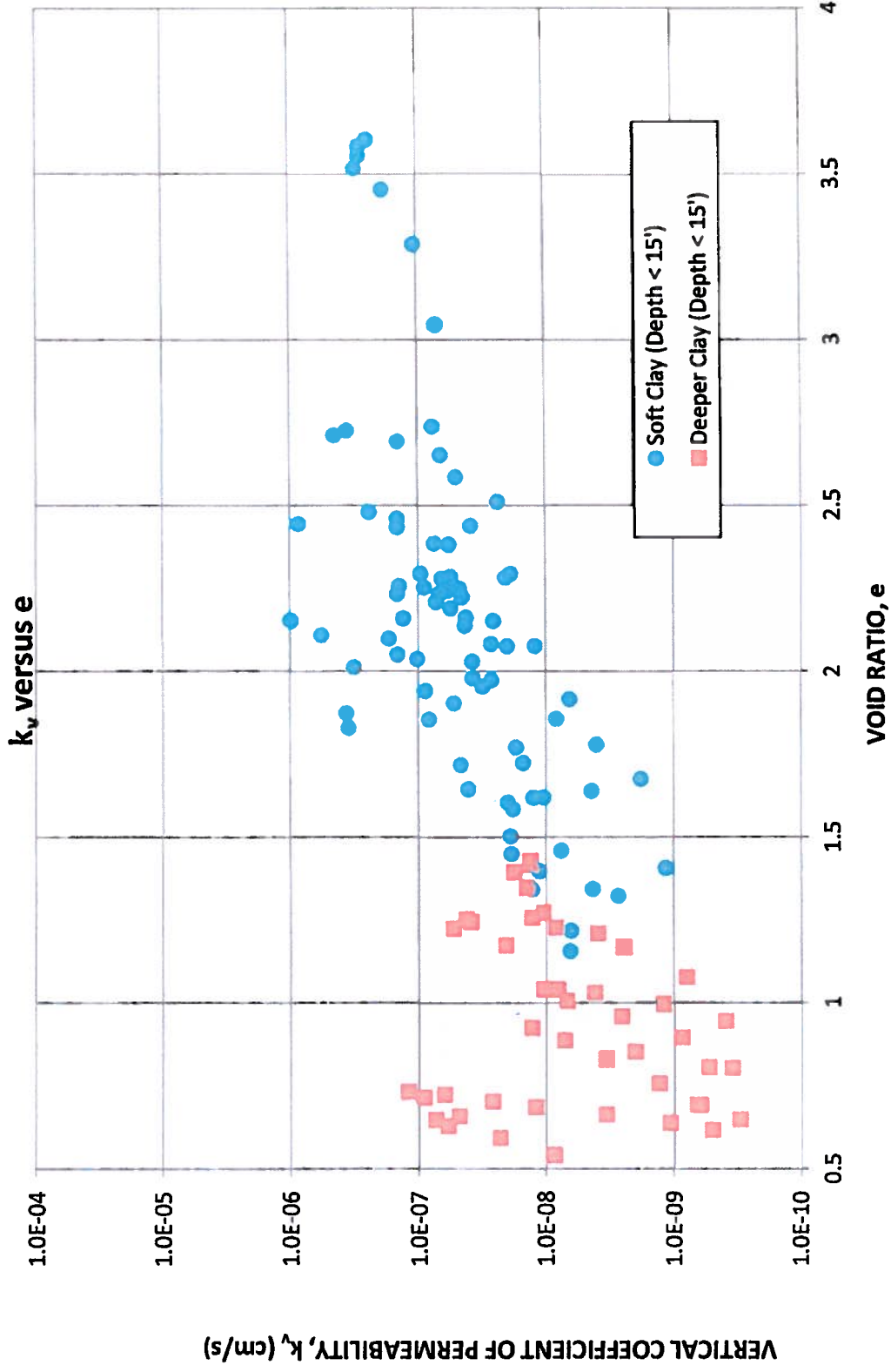
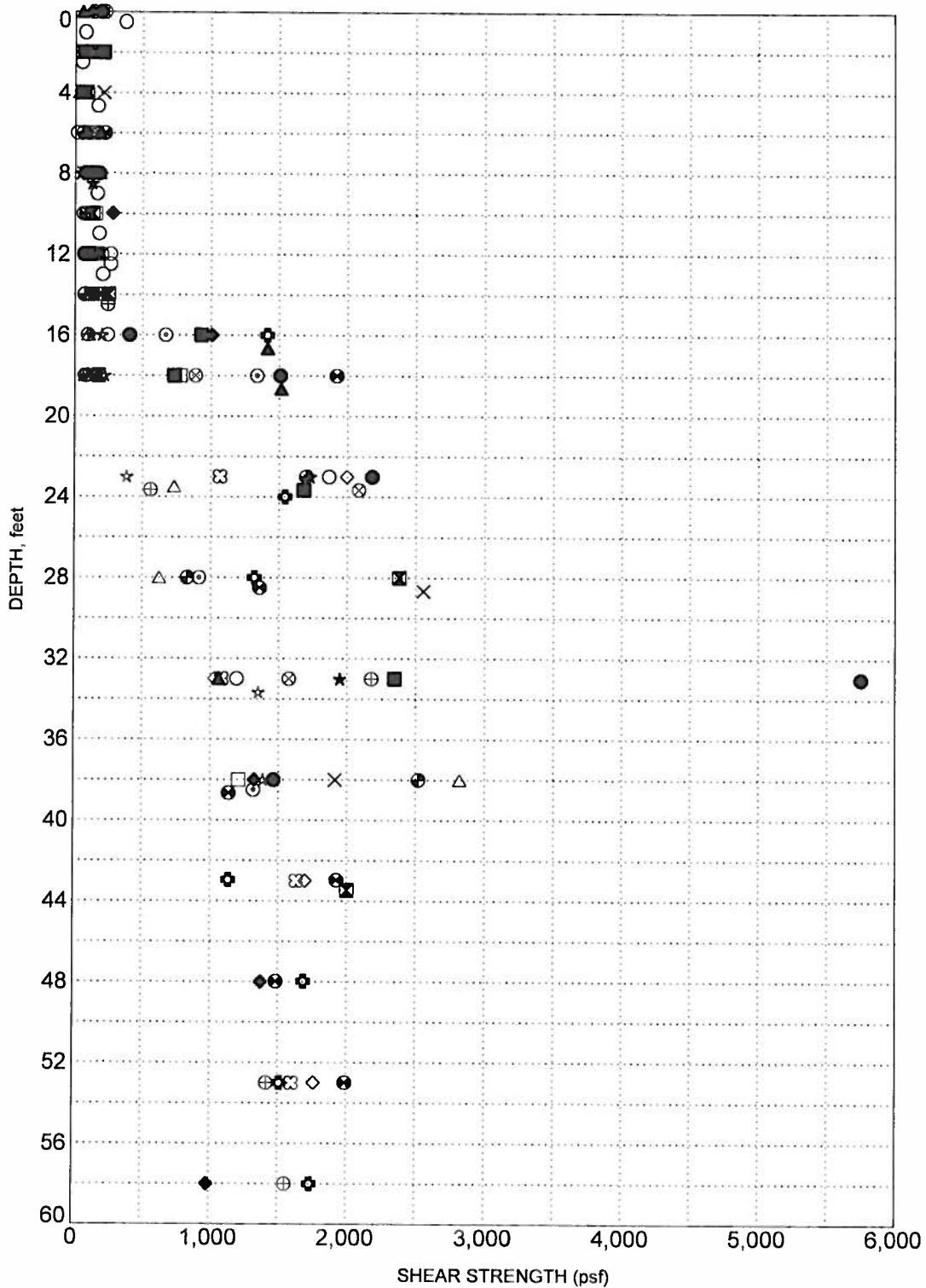


Figure B-15



**Boring No.**

- B-01
- ⊠ B-02
- ▲ B-03
- ★ B-04
- ⊙ B-05
- ⊕ B-06
- B-07
- △ B-08
- ⊗ B-09
- ⊕ B-10
- B-11
- ⊗ B-12
- ⊕ B-13
- ☆ B-14
- ⊗ B-15
- B-16
- ◆ B-17
- ◇ B-18
- × B-19



Confidential Information:  
 Privileged & Confidential  
 Work Product

**UUC SHEAR STRENGTH vs DEPTH**

Project: Oyster Bayou Marsh Restoration

Client: CPRA

AAI Project Number: 12-80-3741

Figure No.: B-16



ARD DEPTH VS SHEAR STRENGTH 12-80-3741.GPJ US LAB GDT 8/9/13

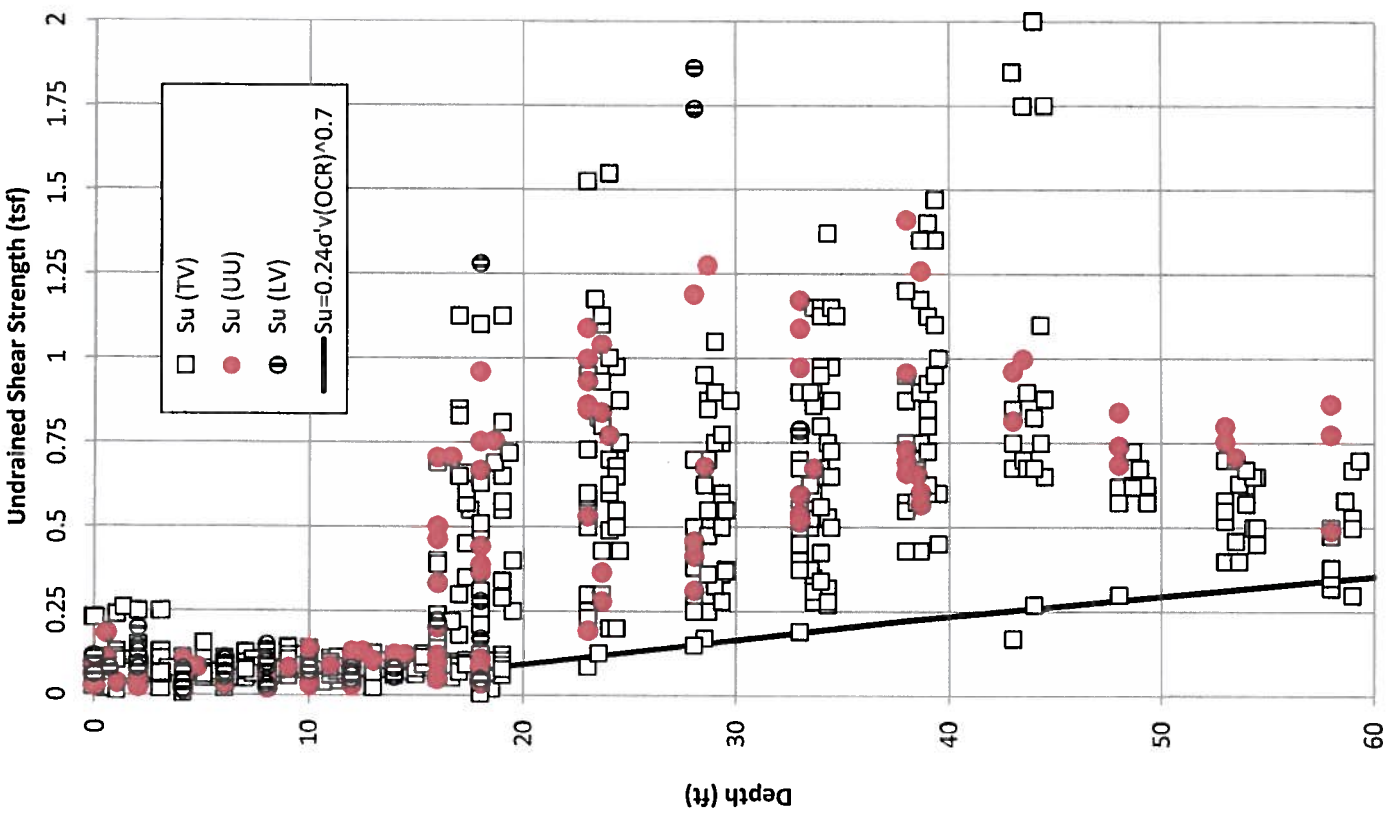
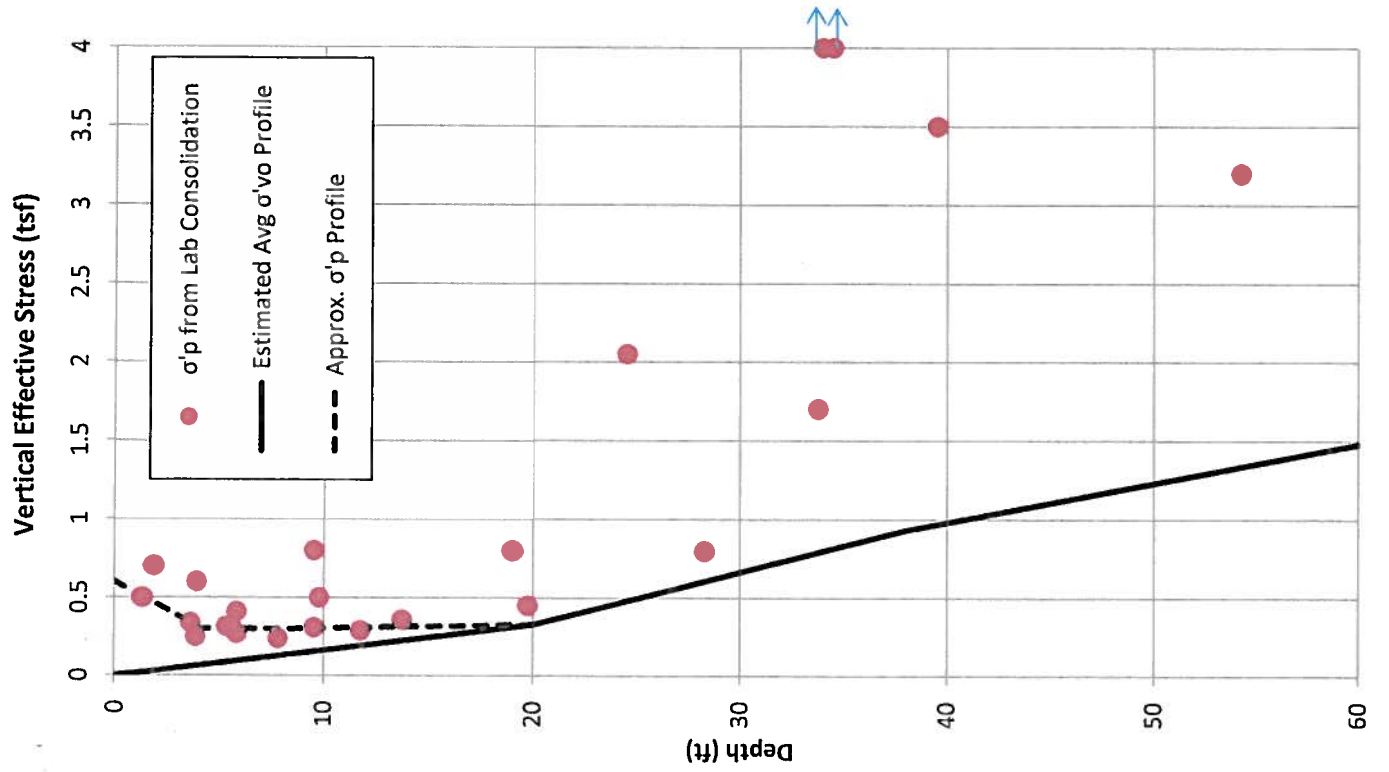


Figure : B-17

## **APPENDIX C. CONSOLIDATION TEST RESULTS**

This Appendix contains the following:

- Incremental Consolidation Test Results

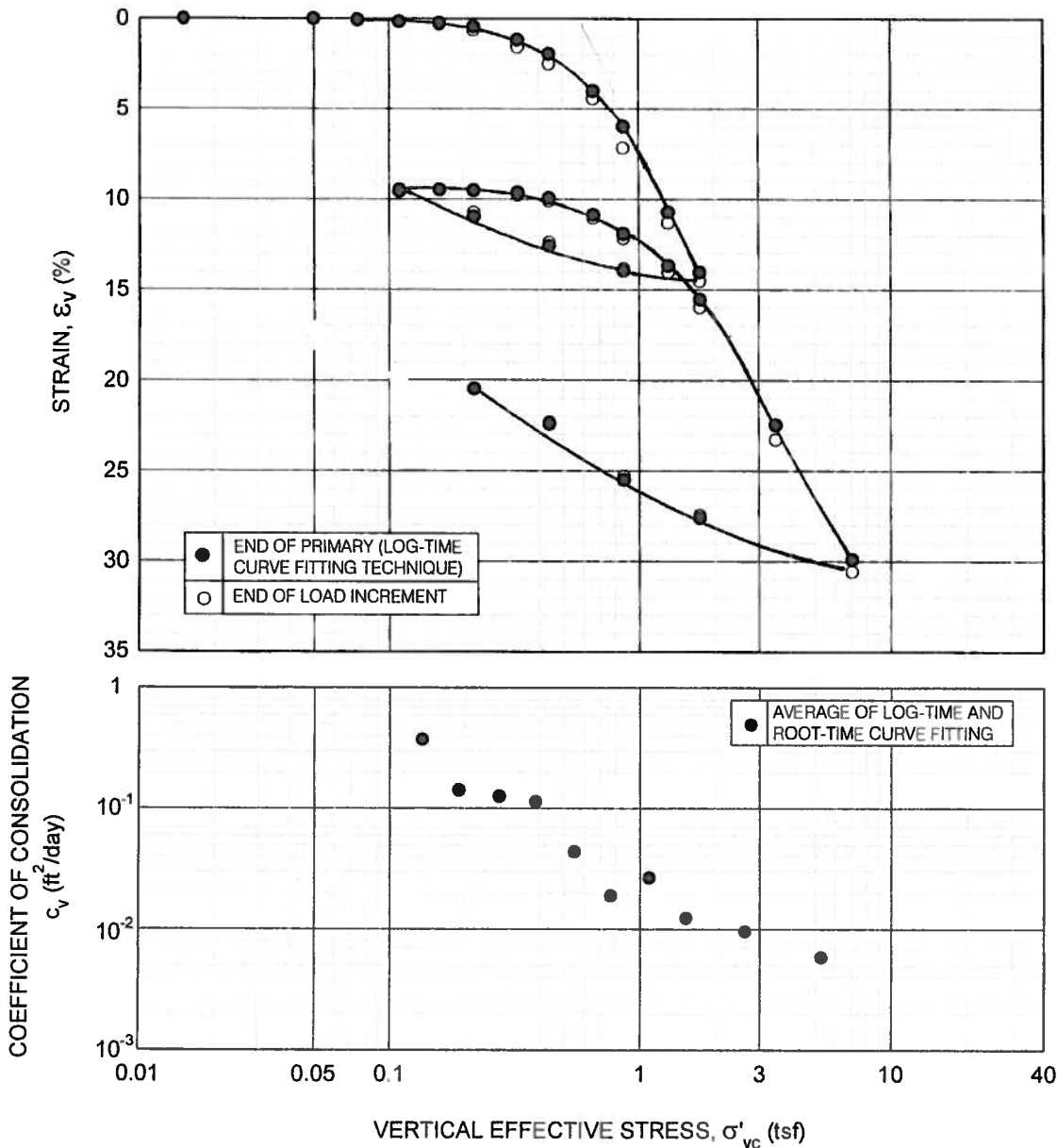
12-80-3741

Oyster Bayou Marsh Restoration Project (CS-59)

Final Data Report of Field and Laboratory Data Collection

**Confidential Information: Privileged & Confidential Work Product**





**SAMPLE DATA**

BORING NO.: B-01  
 SAMPLE NO.:  
 DEPTH (FEET): 1.75  
 DESCRIPTION: Brown and gray CLAY (CH)  
 w/shells and trace organics

**INDEX PROPERTIES**

LIQUID LIMIT (%): 104  
 PLASTIC LIMIT (%): 33  
 PLASTICITY INDEX (%): 71  
 SPECIFIC GRAVITY: 2.74  
 -200(%): 95  
 ORGANIC CONTENT (%): 10.29

**SPECIMEN CONDITIONS**


	INITIAL	FINAL
MOISTURE CONTENT (%)	78.1	62.4
DRY DENSITY (lb/ft <sup>3</sup> )	52.5	63.8
VOID RATIO:	2.26	1.69

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.027
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.70
VIRGIN COMPRESSION RATIO, CR:	0.285
RECOMPRESSION RATIO, RR:	0.045

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information,  
 Privileged & Confidential  
 Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b>  <b>CPRA</b>			
DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13	
FILE NO: 12-60-3741	APPROVED BY: <i>[Signature]</i>		FIGURE C1

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.0806	0.0806				-	0.7550	0.7550	2.2594	2.2594	0.00	0.00	---
0.050	0.0806	0.0806				0.025	0.7550	0.7548	2.2594	2.2586	0.00	0.03	---
0.075	0.0810	0.0813				0.063	0.7548	0.7545	2.2573	2.2569	0.07	0.08	---
0.110	0.0825	0.0831				0.093	0.7538	0.7536	2.2543	2.2534	0.16	0.19	---
0.160	0.0835	0.0838	60	L	2.81E-01	0.135	0.7533	0.7527	2.2520	2.2495	0.23	0.30	---
0.220	0.0852	0.0862	120	L	1.40E-01	0.190	0.7517	0.7503	2.2452	2.2392	0.44	0.62	---
0.330	0.0863	0.0923	150	L	1.11E-01	0.275	0.7463	0.7432	2.2219	2.2085	1.15	1.56	---
0.440	0.0864	0.0992	144	L	1.13E-01	0.385	0.7404	0.7362	2.1964	2.1783	1.93	2.49	0.00303
0.680	0.1046	0.1160	360	L	4.39E-02	0.550	0.7248	0.7216	2.1291	2.1152	4.00	4.42	0.000328
0.870	0.1195	0.1310	1440	L	1.06E-02	0.765	0.7101	0.7011	2.0656	2.0267	5.95	7.14	0.00649
1.310	0.1412	0.1680	750	L	1.87E-02	1.090	0.6743	0.6698	1.9110	1.8916	10.69	11.28	0.00788
1.740	0.1723	0.1930	1230	L	1.05E-02	1.525	0.6491	0.6453	1.8023	1.7859	14.03	14.53	0.00833
0.870	0.1958	0.1913	480	L	2.99E-02	1.305	0.6498	0.6506	1.8053	1.8087	13.93	13.83	---
0.440	0.1900	0.1804	1080	L	1.18E-02	0.655	0.6602	0.6616	1.8502	1.8562	12.56	12.37	---
0.220	0.1786	0.1678	2400	L	5.50E-03	0.330	0.6724	0.6740	1.9028	1.9098	10.94	10.73	---
0.110	0.1659	0.1570	3720	L	3.67E-03	0.190	0.6829	0.6837	1.9482	1.9516	9.55	9.44	---
0.160	0.1562	0.1563				0.135	0.6836	0.6836	1.9513	1.9512	9.45	9.46	---
0.220	0.1563	0.1565				0.190	0.6834	0.6830	1.9503	1.9486	9.48	9.54	---
0.330	0.1569	0.1575				0.275	0.6824	0.6814	1.9460	1.9417	9.62	9.75	---
0.440	0.1587	0.1600	276	L	4.98E-02	0.385	0.6801	0.6789	1.9361	1.9309	9.92	10.08	---
0.680	0.1614	0.1671	600	L	2.26E-02	0.550	0.6732	0.6719	1.9063	1.9007	10.83	11.01	0.00176
0.870	0.1687	0.1754	600	L	2.21E-02	0.765	0.6652	0.6633	1.8718	1.8636	11.89	12.15	0.00265
1.310	0.1778	0.1892	660	L	1.94E-02	1.090	0.6519	0.6491	1.8143	1.8023	13.66	14.03	0.00394
1.740	0.1923	0.2036	1080	L	1.14E-02	1.525	0.6378	0.6345	1.7535	1.7392	15.52	15.96	0.00606
3.510	0.2089	0.2580	1440	L	7.66E-03	2.625	0.5854	0.5793	1.5273	1.5009	22.46	23.27	0.00960
7.040	0.2661	0.3160	1800	L	5.06E-03	5.275	0.5284	0.5243	1.2855	1.2635	29.88	30.56	0.01018
0.870	0.3200	0.2975	1350	L	6.30E-03	4.390	0.5468	0.5478	1.3606	1.3649	27.58	27.44	---
0.870	0.2959	0.2810	3600	L	2.54E-03	1.305	0.5627	0.5640	1.4293	1.4349	25.47	25.30	---
0.440	0.2798	0.2578				0.655	0.5860	0.5866	1.5288	1.5324	22.38	22.30	---
0.220	0.2570	0.2429				0.330	0.6007	0.6007	1.5933	1.5933	20.44	20.44	---
0.110	0.2425	0.2415				0.165	0.6017	0.6017	1.5976	1.5976	20.30	20.30	---
0.050	0.2412	0.2204				0.080	0.6225	0.6225	1.6874	1.6874	17.55	17.55	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-01**  
Depth: **0-2 (1.75)**

Initial Conditions: 0.7550  
Final Conditions: 0.6222

Height (in) **62.4**  
w<sub>c</sub> (%) **93.6**  
γ<sub>t</sub> (pcf) **52.5**  
γ<sub>d</sub> (pcf) **94.9**  
Saturation (%) **101.5**  
Void ratio, e **1.6861**

EOI = End of Primary Consolidation  
EOI = End of load increment (typically 24 hrs +/-)

Specific Gravity **2.743**  
Ring Diameter (in) **2.0000**  
Ring weight (g) **62.50**  
Height of Solids (in) **0.2316**  
Weight of Dry Soil (g) **32.71**

**ARDAMAN & ASSOCIATES, INC**  
**GEO TECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> ε
	Initial	EOP											
0	0.0806	0.0806					0.7550	0.7550	2.2594	2.2594	0.00	0.00	---
0.050	0.0806	0.0806				0.025	0.7550	0.7548	2.2594	2.2594	0.00	0.03	---
0.075	0.0810	0.0813				0.063	0.7548	0.7544	2.2594	2.2594	0.07	0.08	---
0.110	0.0825	0.0831				0.093	0.7538	0.7536	2.2543	2.2543	0.16	0.19	---
0.160	0.0835	0.0838	154	S	4.70E-01	0.135	0.7533	0.7527	2.2520	2.2495	0.23	0.30	---
0.220	0.0852	0.0863	504	S	1.43E-01	0.190	0.7516	0.7503	2.2449	2.2392	0.45	0.62	---
0.330	0.0885	0.0915	504	S	1.42E-01	0.275	0.7473	0.7434	2.2262	2.2094	1.02	1.54	---
0.440	0.0964	0.0993	614	S	1.14E-01	0.385	0.7405	0.7364	2.1968	2.1791	1.92	2.46	0.00303
0.660	0.1045	0.1155	1561	S	4.37E-02	0.550	0.7254	0.7217	2.1317	2.1157	3.92	4.41	0.00033
0.870	0.1195	0.1315	2381	S	2.75E-02	0.765	0.7097	0.7072	2.0639	2.0272	6.00	7.13	0.00649
1.310	0.1415	0.1610	1750	S	3.49E-02	1.090	0.6817	0.6702	1.9430	1.8933	9.71	11.23	0.00788
1.740	0.1729	0.1893	3837	S	1.42E-02	1.525	0.6538	0.6463	1.8225	1.7902	13.40	14.40	0.00833
0.870	0.1961	0.1924	866	S	6.19E-02	1.305	0.6500	0.6519	1.8061	1.8143	13.91	13.66	---
0.440	0.1900	0.1820	3110	S	1.77E-02	0.655	0.6599	0.6629	1.8489	1.8618	12.60	12.20	---
0.220	0.1686	0.1662	8354	S	6.82E-03	0.330	0.6731	0.6755	1.9059	1.9162	10.85	10.53	---
0.110	0.1562	0.1578	138652	S	4.23E-04	0.165	0.6839	0.6855	1.9527	1.9594	9.41	9.21	---
0.220	0.1563	0.1565	60	S	9.99E-01	0.135	0.6854	0.6854	1.9591	1.9590	9.21	9.22	---
0.330	0.1569	0.1575	240	S	2.49E-01	0.190	0.6842	0.6848	1.9581	1.9564	9.25	9.30	---
0.440	0.1585	0.1594	375	S	1.59E-01	0.275	0.6832	0.6832	1.9538	1.9495	9.38	9.51	---
0.660	0.1615	0.1658	1382	S	4.25E-02	0.385	0.6823	0.6805	1.9456	1.9378	9.63	9.87	---
0.870	0.1686	0.1746	2160	S	2.66E-02	0.550	0.6762	0.6736	1.9193	1.9080	10.44	10.78	0.00176
1.310	0.1778	0.1880	2306	S	2.41E-02	0.765	0.6676	0.6649	1.8821	1.8705	11.58	11.93	0.00265
1.740	0.1922	0.2018	3110	S	1.71E-02	1.090	0.6547	0.6507	1.8264	1.8092	13.28	13.81	0.00394
3.510	0.2090	0.2500	4234	S	1.14E-02	1.525	0.6411	0.6360	1.7677	1.7457	15.09	15.76	0.00606
7.040	0.2660	0.3111	6000	S	6.63E-03	2.625	0.5950	0.5809	1.5687	1.5078	21.19	23.06	0.00960
1.740	0.3200	0.3014	3840	S	9.52E-03	4.390	0.5444	0.5493	1.3503	1.3714	27.89	27.25	0.01018
0.870	0.2965	0.2809	14978	S	2.64E-03	1.305	0.5649	0.5661	1.4386	1.4439	25.18	25.02	---
0.440	0.2798	0.2578				0.655	0.5881	0.5887	1.5389	1.5415	22.11	22.03	---
0.220	0.2570	0.2429				0.330	0.6028	0.6028	1.6024	1.6024	20.16	20.16	---
0.110	0.2425	0.2415				0.165	0.6038	0.6038	1.6067	1.6067	20.03	20.03	---
0.050	0.2412	0.2204				0.080	0.6246	0.6246	1.6965	1.6965	17.27	17.27	---

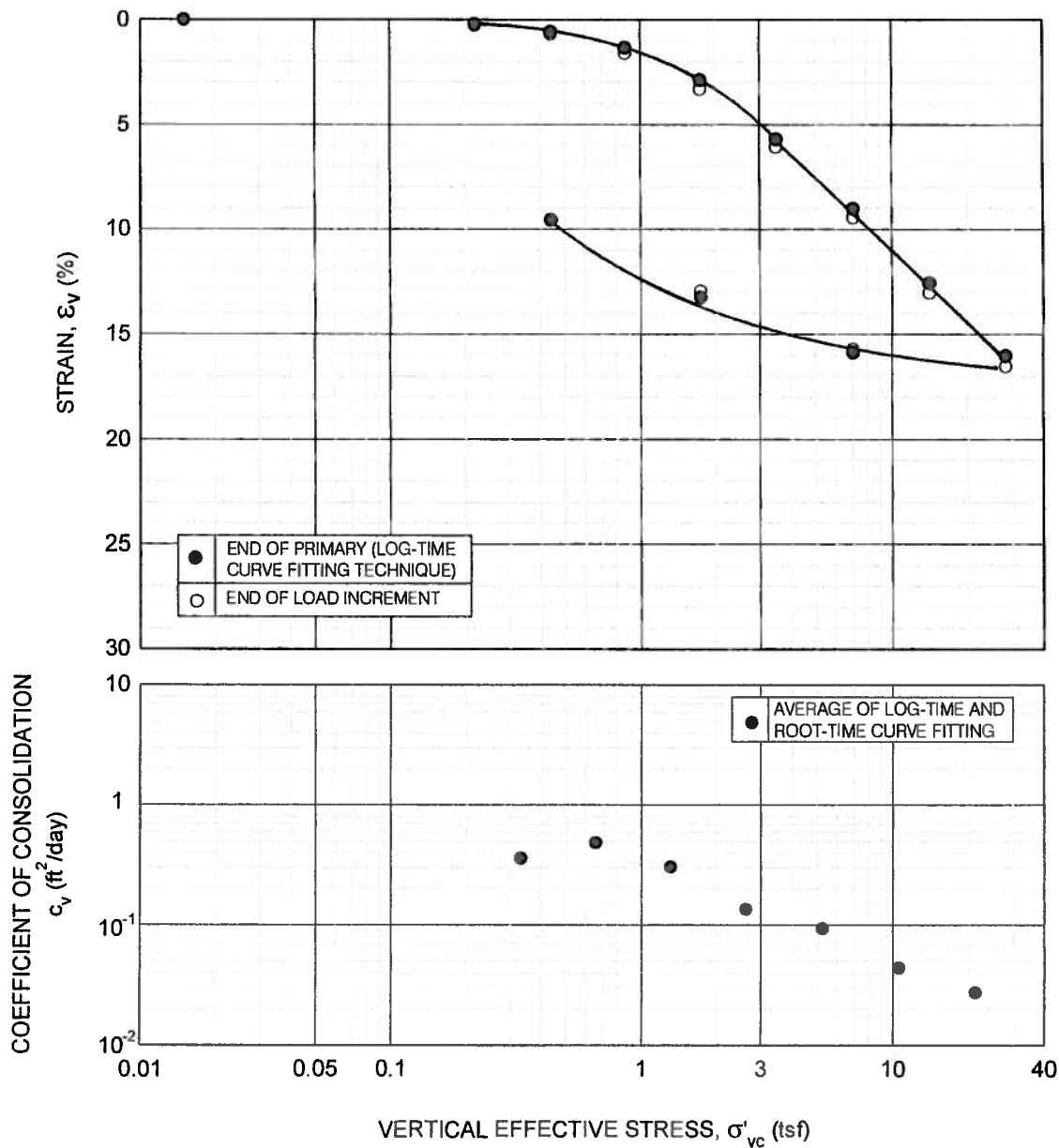
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-01**  
Depth: **0-2 (1.75)**

Initial Conditions: Height (in) 78.1, w<sub>c</sub> (%) 93.6, γ<sub>t</sub> (pcf) 52.5, γ<sub>d</sub> (pcf) 94.9, Saturation (%) 2.2594, Void ratio, e 2.2594

Final Conditions: 0.6222, 62.4, 103.5, 63.8, 101.5, 1.6861

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.743  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.50  
Height of Solids (in) 0.2316  
Weight of Dry Soil (g) 32.71



**SAMPLE DATA**

BORING NO.: B-01  
 SAMPLE NO.:  
 DEPTH (FEET): 24.5  
 DESCRIPTION: Gray SILTY CLAY (CL)

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	23.5	20.4
DRY DENSITY (lb/ft <sup>3</sup> ):	101.0	109.8
VOID RATIO:	0.66	0.53

**INDEX PROPERTIES**

LIQUID LIMIT (%): 47  
 PLASTIC LIMIT (%): 12  
 PLASTICITY INDEX (%): 35  
 SPECIFIC GRAVITY: 2.69  
 -200(%): 69

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.52
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	2.05
VIRGIN COMPRESSION RATIO, CR:	0.152

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information.  
 Privileged & Confidential  
 Work Product

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

DRAWN BY: RJB CHECKED BY: *mib* DATE: 03/13/13

FILE NO: 12-80-3741 APPROVED BY: *[Signature]* FIGURE: C2

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αe</sub>
	Initial	EOP											
0	0.0301	0.0301				-	0.7500	0.7500	0.6636	0.6636	0.00	0.00	---
0.220	0.0301	0.0316				0.118	0.7485	0.7480	0.6603	0.6592	0.20	0.27	---
0.440	0.0330	0.0354	60	L	2.76E-01	0.330	0.7457	0.7449	0.6540	0.6523	0.58	0.68	0.00047
0.870	0.0377	0.0426	60	L	2.72E-01	0.655	0.7400	0.7380	0.6415	0.6370	1.33	1.60	0.00124
1.740	0.0468	0.0565	60	L	2.66E-01	1.305	0.7284	0.7251	0.6156	0.6084	2.89	3.32	0.00213
3.510	0.0617	0.0795	240	L	6.34E-02	2.625	0.7073	0.7045	0.5689	0.5627	5.69	6.07	0.00288
7.040	0.0844	0.1065	384	L	3.71E-02	5.275	0.6824	0.6792	0.5137	0.5066	9.01	9.44	0.00359
14.100	0.1121	0.1355	600	L	2.20E-02	10.570	0.6558	0.6523	0.4547	0.4469	12.56	13.03	0.00494
28.360	0.1420	0.1645	780	L	1.56E-02	21.230	0.6298	0.6261	0.3970	0.3888	16.03	16.52	0.00505
7.040	0.1646	0.1596	300	L	3.91E-02	17.700	0.6311	0.6322	0.3999	0.4023	15.85	15.71	---
1.740	0.1572	0.1387	3300	L	3.70E-03	4.390	0.6507	0.6528	0.4434	0.4480	13.24	12.96	---
0.440	0.1371	0.1115				1.090	0.6784	0.6784	0.5048	0.5048	9.55	9.55	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-01**  
Depth: **23-25 B2 (24.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.6900

Height (in): 20.4  
w<sub>c</sub> (%): 23.5  
γ<sub>t</sub> (pcf): 124.8  
γ<sub>d</sub> (pcf): 101.0  
Saturation (%): 95.5  
Void ratio, e: 0.6636

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6925  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.40  
Height of Solids (in): 0.4508  
Weight of Dry Soil (g): 62.49



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)			Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP	EOI											
0	0.0301	0.0301	0.0301				-	0.7500	0.7500	0.6636	0.6636	0.00	0.00	----
0.220	0.0301	0.0316	0.0321				0.110	0.7485	0.7480	0.6603	0.6592	0.20	0.27	----
0.440	0.0330	0.0349	0.0361	160	S	4.45E-01	0.220	0.7461	0.7449	0.6550	0.6523	0.52	0.68	0.00047
0.870	0.0384	0.0417	0.0446	100	S	7.08E-01	0.435	0.7416	0.7387	0.6450	0.6386	1.12	1.51	0.00124
1.740	0.0492	0.0551	0.0597	200	S	3.45E-01	0.870	0.7328	0.7282	0.6255	0.6153	2.29	2.91	0.00213
3.510	0.0624	0.0727	0.0823	320	S	2.09E-01	1.755	0.7179	0.7083	0.5924	0.5711	4.28	5.56	0.00288
7.040	0.0848	0.0986	0.1097	420	S	1.49E-01	3.520	0.6945	0.6834	0.5405	0.5159	7.40	8.88	0.00359
14.100	0.1130	0.1272	0.1390	890	S	6.56E-02	7.050	0.6692	0.6574	0.4844	0.4582	10.77	12.35	0.00494
28.360	0.1420	0.1572	0.1682	1380	S	3.91E-02	14.180	0.6422	0.6312	0.4245	0.4001	14.37	15.84	0.00505
7.040	0.1626	0.1617	0.1585	470	S	1.08E-01	3.520	0.6321	0.6353	0.4021	0.4092	15.72	15.29	----
1.740	0.1550	0.1420	0.1366	11098	S	4.74E-03	0.870	0.6483	0.6537	0.4360	0.4500	13.56	12.84	----
0.440	0.1366	0.1148	0.1115	32017	S	1.76E-03	0.220	0.6755	0.6788	0.4984	0.5057	9.93	9.49	----

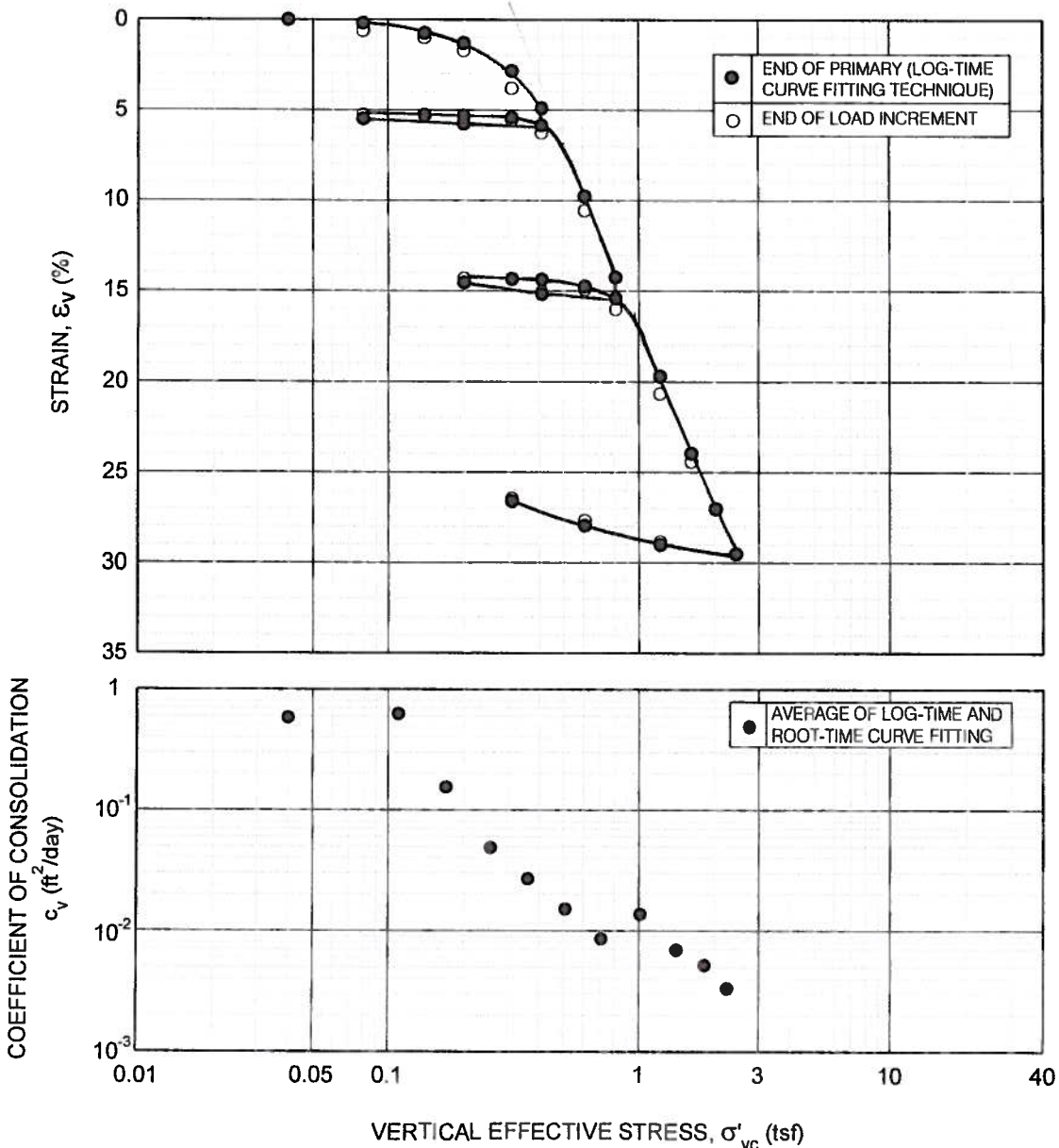
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-01**  
Depth: **23-25 B2 (24.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.6900

Height (in): 20.4  
w<sub>c</sub> (%): 23.5  
γ<sub>t</sub> (pcf): 124.8  
γ<sub>d</sub> (pcf): 101.0  
Saturation (%): 95.5  
Void ratio, e: 0.6636

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6925  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.40  
Height of Solids (in): 0.4508  
Weight of Dry Soil (g): 62.49



**SAMPLE DATA**

BORING NO.: B-02  
 SAMPLE NO.:  
 DEPTH (FEET): 3.5  
 DESCRIPTION: Gray CLAY (CH)  
 w/silt and trace organics

**INDEX PROPERTIES**

LIQUID LIMIT (%): 70  
 PLASTIC LIMIT (%): 21  
 PLASTICITY INDEX (%): 49  
 SPECIFIC GRAVITY: 2.67  
 -200(%): 97  
 ORGANIC CONTENT (%): 5.24

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	101.4	70.4
DRY DENSITY (lb/ft <sup>3</sup> ):	44.7	61.0
VOID RATIO:	2.73	1.74

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.057
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.34
VIRGIN COMPRESSION RATIO, CR:	0.36
RECOMPRESSION RATIO, RR:	0.03

**INCREMENTAL CONSOLIDATION TEST RESULTS**

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 Work Product

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OSTER BAYOU

CPRA

DRAWN BY: RJB	CHECKED BY: <i>me</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C3

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>α</sub> e
	Initial	EOP											
0	0.1540	0.1540	0.1540				0.7500	0.7500	2.7306	2.7306	0.00	0.00	---
0.080	0.1616	0.1630	0.1662	L	5.55E-01	0.040	0.7486	0.7454	2.7237	2.7078	0.19	0.61	---
0.140	0.1977	0.1987	0.2007	L	5.48E-01	0.110	0.7444	0.7425	2.7028	2.6931	0.75	1.01	0.00072
0.200	0.2112	0.2134	0.2166	L	1.36E-01	0.170	0.7403	0.7371	2.6821	2.6665	1.30	1.72	0.00219
0.310	0.2169	0.2253	0.2325	L	3.32E-02	0.255	0.7287	0.7215	2.6247	2.5889	2.84	3.80	0.00685
0.410	0.2326	0.2408	0.2479	L	1.88E-02	0.360	0.7133	0.7062	2.5481	2.5128	4.89	5.84	0.0082
0.200	0.2474	0.2467	0.2464	L	2.31E-01	0.305	0.7068	0.7072	2.5159	2.5177	5.76	5.71	---
0.080	0.2463	0.2446	0.2430	L	2.48E-01	0.140	0.7090	0.7105	2.5264	2.5342	5.47	5.27	---
0.140	0.2433	0.2433	0.2433	L		0.110	0.7105	0.7105	2.5342	2.5342	5.27	5.27	---
0.200	0.2433	0.2436	0.2437	L		0.170	0.7102	0.7101	2.5327	2.5322	5.31	5.32	---
0.310	0.2439	0.2446	0.2458	L	6.22E-01	0.255	0.7095	0.7083	2.5289	2.5230	5.41	5.57	0.00023
0.410	0.2459	0.2479	0.2510	L	1.90E-01	0.360	0.7062	0.7031	2.5128	2.4974	5.84	6.25	0.00133
0.610	0.2512	0.2775	0.2835	L	9.41E-03	0.510	0.6768	0.6708	2.3663	2.3367	9.77	10.56	0.01382
0.810	0.2835	0.3110	0.3194	L	6.88E-03	0.710	0.6433	0.6349	2.1996	2.1579	14.23	15.35	0.01354
0.410	0.3193	0.3179	0.3170	L	2.85E-01	0.610	0.6362	0.6372	2.1646	2.1693	15.17	15.05	---
0.200	0.3168	0.3129	0.3113	L	6.51E-02	0.305	0.6410	0.6426	2.1885	2.1964	14.53	14.32	---
0.310	0.3113	0.3115	0.3115	L		0.255	0.6425	0.6424	2.1957	2.1954	14.34	14.35	---
0.410	0.3117	0.3119	0.3122	L	2.55E-01	0.360	0.6422	0.6419	2.1943	2.1927	14.38	14.42	0.00013
0.610	0.3123	0.3147	0.3161	L	1.69E-01	0.510	0.6394	0.6381	2.1806	2.1740	14.74	14.92	0.00083
0.810	0.3161	0.3196	0.3243	L	9.53E-02	0.710	0.6346	0.6299	2.1566	2.1332	15.39	16.01	0.00267
1.220	0.3244	0.3520	0.3592	L	1.04E-02	1.015	0.6023	0.5951	1.9957	1.9601	19.70	20.65	0.01347
1.625	0.3593	0.3840	0.3875	L	5.24E-03	1.423	0.5704	0.5669	1.8370	1.8199	23.95	24.41	---
2.030	0.3876	0.4070	0.4074	L	2.84E-03	1.828	0.5475	0.5471	1.7231	1.7211	27.01	27.06	---
2.440	0.4076	0.4260	0.4260	L	1.91E-03	2.235	0.5287	0.5287	1.6296	1.6296	29.51	29.51	---
1.220	0.4256	0.4217	0.4206	L	7.73E-02	1.830	0.5325	0.5337	1.6489	1.6545	29.00	28.85	---
0.610	0.4203	0.4134	0.4114	L	1.78E-02	0.915	0.5405	0.5425	1.6885	1.6985	27.93	27.67	---
0.310	0.4112	0.4032	0.4020	L	7.03E-03	0.460	0.5505	0.5517	1.7383	1.7443	26.60	26.44	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-02**  
Depth: **2-4 (3.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.5500

Height (in): 70.4  
w<sub>c</sub> (%): 104.0  
γ<sub>t</sub> (pcf): 61.0  
γ<sub>d</sub> (pcf): 108.4  
Saturation (%): 99.3  
Void ratio, e: 1.7306

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6735  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.51  
Height of Solids (in): 0.2010  
Weight of Dry Soil (g): 27.67

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (Inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (Inch)	Height at EOI (Inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOP											
0	0.1540	0.1540					0.7500	0.7500	2.7306	2.7306	0.00	0.00	---
0.080	0.1610	0.1623	118	S	6.07E-01	0.040	0.7487	0.7448	2.7242	2.7048	0.17	0.69	---
0.140	0.1977	0.1984	101	S	7.00E-01	0.110	0.7441	0.7419	2.7013	2.6901	0.79	1.09	0.00072
0.200	0.2112	0.2133	405	S	1.73E-01	0.170	0.7398	0.7365	2.6797	2.6635	1.37	1.80	0.00219
0.310	0.2168	0.2232	1058	S	6.49E-02	0.255	0.7301	0.7208	2.6317	2.5854	2.65	3.89	0.00685
0.410	0.2325	0.2386	1882	S	3.49E-02	0.360	0.7147	0.7054	2.5551	2.5088	4.71	5.95	0.0082
0.200	0.2474	0.2468	194	S	3.28E-01	0.305	0.7060	0.7064	2.5115	2.5138	5.87	5.81	---
0.080	0.2461	0.2444	406	S	1.57E-01	0.140	0.7081	0.7095	2.5222	2.5292	5.59	5.40	---
0.140	0.2430	0.2433				0.110	0.7093	0.7092	2.5279	2.5277	5.43	5.44	---
0.200	0.2433	0.2437				0.170	0.7088	0.7088	2.5255	2.5255	5.50	5.50	---
0.310	0.2439	0.2447	173	S	3.70E-01	0.255	0.7080	0.7069	2.5216	2.5164	5.60	5.74	0.00023
0.410	0.2459	0.2476	240	S	2.65E-01	0.360	0.7052	0.7018	2.5079	2.4910	5.97	6.42	0.00133
0.610	0.2510	0.2697	2940	S	2.08E-02	0.510	0.6831	0.6694	2.3980	2.3296	8.92	10.75	0.01382
0.810	0.2835	0.3060	5415	S	1.02E-02	0.710	0.6469	0.6334	2.2177	2.1508	13.75	15.54	0.01354
0.410	0.3192	0.3178	217	S	2.37E-01	0.610	0.6348	0.6357	2.1578	2.1620	15.36	15.24	---
0.200	0.3167	0.3133	735	S	7.05E-02	0.305	0.6391	0.6411	2.1789	2.1889	14.79	14.52	---
0.310	0.3113	0.3115				0.255	0.6409	0.6409	2.1879	2.1879	14.55	14.55	---
0.410	0.3117	0.3119	194	S	2.70E-01	0.360	0.6400	0.6403	2.1865	2.1852	14.59	14.62	0.00013
0.610	0.3124	0.3146	280	S	1.80E-01	0.510	0.6381	0.6366	2.1742	2.1668	14.91	15.11	0.00063
0.810	0.3162	0.3196	577	S	8.92E-02	0.710	0.6332	0.6285	2.1499	2.1265	15.57	16.19	0.00267
1.220	0.3243	0.3467	2857	S	1.70E-02	1.015	0.6061	0.5937	2.0151	1.9531	19.18	20.84	0.01347
1.625	0.3592	0.3789	5078	S	8.57E-03	1.423	0.5739	0.5654	1.8549	1.8124	23.47	24.61	---
2.030	0.3875	0.4005	7798	S	7.52E-03	1.828	0.5523	0.5454	1.7474	1.7131	26.35	27.27	---
2.440	0.4076	0.4186	5302	S	4.77E-03	2.235	0.5344	0.5270	1.6584	1.6216	28.74	29.73	---
1.220	0.4255	0.4223	375	S	9.51E-02	1.830	0.5302	0.5320	1.6375	1.6462	29.30	29.07	---
0.610	0.4203	0.4145	1382	S	2.64E-02	0.915	0.5378	0.5409	1.6751	1.6905	28.29	27.88	---
0.310	0.4112	0.4053	2940	S	1.28E-02	0.460	0.5468	0.5501	1.7198	1.7363	27.09	26.65	---

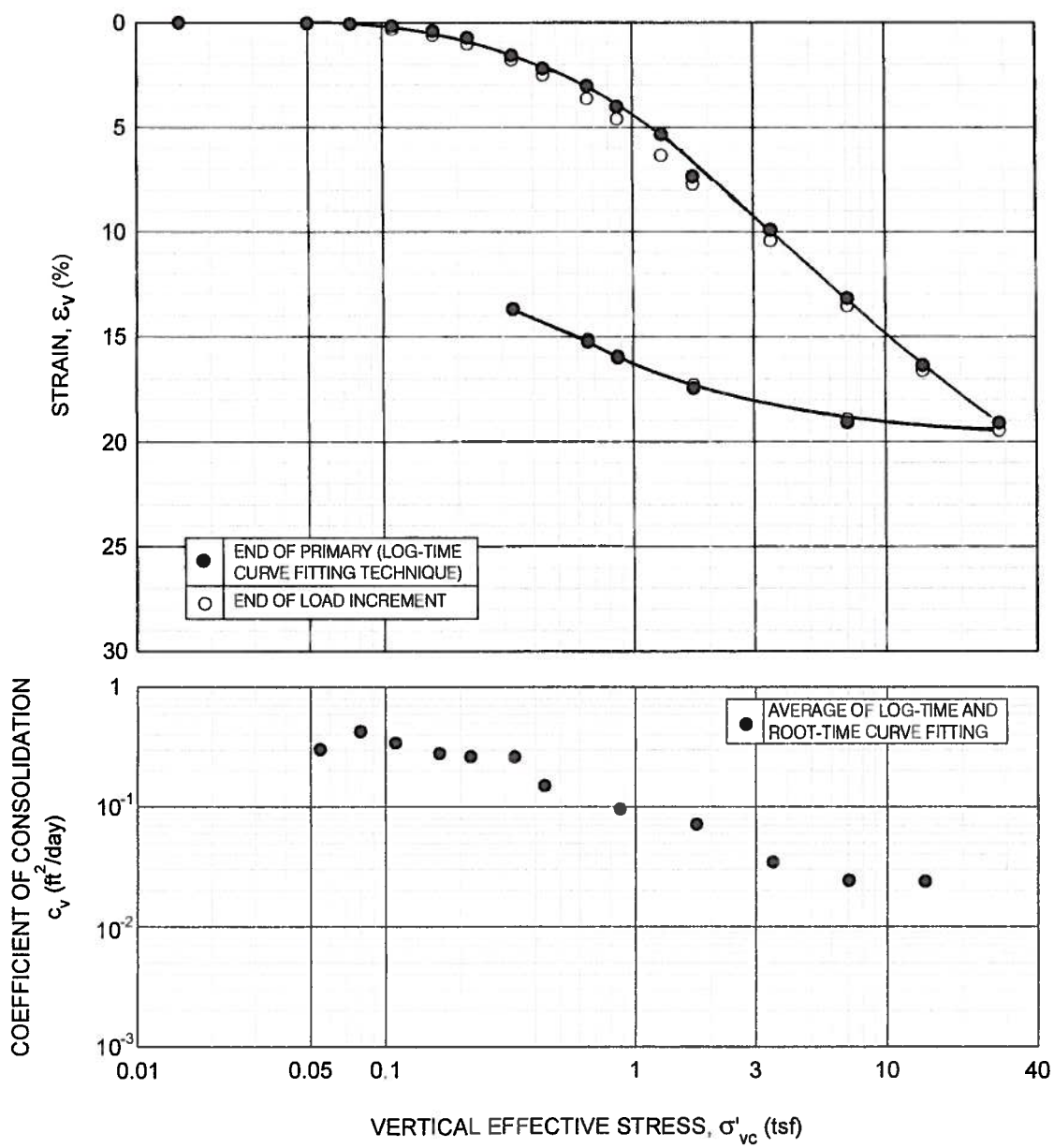
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-02**  
Depth: **2-4 (3.5)**

Initial Conditions: Height (in) 7.500, w<sub>c</sub> (%) 70.4, γ<sub>t</sub> (pcf) 104.0, γ<sub>d</sub> (pcf) 61.0, Saturation (%) 108.4, Void ratio, e 1.7306

Final Conditions: Height (in) 0.5500, w<sub>c</sub> (%) 70.4, γ<sub>t</sub> (pcf) 104.0, γ<sub>d</sub> (pcf) 61.0, Saturation (%) 108.4, Void ratio, e 1.7363

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.6735  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.51  
Height of Solids (in) 0.2010  
Weight of Dry Soil (g) 27.67



**SAMPLE DATA**

BORING NO.:	B-03
SAMPLE NO.:	
DEPTH (FEET):	19.0
DESCRIPTION:	Gray SILTYCLAY (CL) w/silt pockets

**INDEX PROPERTIES**

LIQUID LIMIT (%):	49
PLASTIC LIMIT (%):	14
PLASTICITY INDEX (%):	35
SPECIFIC GRAVITY:	2.64
-200(%):	75

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	23.0	19.3
DRY DENSITY (lb/ft <sup>3</sup> ):	95.7	110.8
VOID RATIO:	0.72	0.49

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.35
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.80
VIRGIN COMPRESSION RATIO, CR:	0.09

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information,  
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Work Product

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: RJB	CHECKED BY: <i>TMB</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C4

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αe</sub>
	Initial	EOP											
0	-0.0526	-0.0521				-	0.7500	0.7500	0.7231	0.7231	0.00	0.00	---
0.050	-0.0482	-0.0480				0.025	0.7498	0.7496	0.7227	0.7222	0.02	0.05	---
0.075	-0.0476	-0.0475				0.038	0.7495	0.7495	0.7220	0.7220	0.07	0.07	---
0.110	-0.0470	-0.0462	54	L	3.08E-01	0.055	0.7488	0.7476	0.7203	0.7176	0.17	0.32	0.00042
0.160	-0.0449	-0.0443	42	L	3.94E-01	0.080	0.7470	0.7455	0.7162	0.7128	0.40	0.60	0.00050
0.220	-0.0420	-0.0411	45	L	3.66E-01	0.110	0.7446	0.7424	0.7107	0.7057	0.72	1.01	0.00102
0.330	-0.0383	-0.0342	60	L	2.71E-01	0.165	0.7383	0.7367	0.6962	0.6926	1.56	1.77	0.00100
0.440	-0.0320	-0.0288	66	L	2.43E-01	0.220	0.7336	0.7313	0.6853	0.6801	2.19	2.50	0.00181
0.660	-0.0237	-0.0198	54	L	2.92E-01	0.330	0.7274	0.7228	0.6711	0.6605	3.02	3.63	0.00236
0.870	-0.0120	-0.0091	102	L	1.51E-01	0.435	0.7199	0.7155	0.6540	0.6438	4.01	4.61	0.00273
1.310	-0.0023	0.0032	54	L	2.79E-01	0.655	0.7100	0.7025	0.6312	0.6139	5.33	6.34	0.00454
1.740	0.0117	0.0192	240	L	6.03E-02	0.870	0.6950	0.6922	0.5967	0.5902	7.34	7.71	0.00361
3.510	0.0281	0.0445	240	L	5.78E-02	1.755	0.6758	0.6719	0.5526	0.5436	9.90	10.42	0.00392
7.040	0.0513	0.0718	480	L	2.70E-02	3.520	0.6513	0.6486	0.4964	0.4901	13.16	13.53	0.00392
14.100	0.0778	0.0989	750	L	1.61E-02	7.050	0.6274	0.6255	0.4415	0.4370	16.35	16.61	0.00375
28.360	0.1039	0.1226	630	L	1.79E-02	14.180	0.6068	0.6040	0.3940	0.3876	19.10	19.47	0.00459
7.040	0.1217	0.1187	144	L	7.55E-02	3.520	0.6069	0.6080	0.3944	0.3968	19.08	18.94	---
1.740	0.1157	0.1044	1560	L	7.16E-03	0.870	0.6193	0.6203	0.4227	0.4252	17.43	17.29	---
0.870	0.1030	0.0932	6600	L	1.76E-03	0.435	0.6301	0.6306	0.4476	0.4488	15.99	15.92	---
0.660	0.0923	0.0872	12300	L	9.66E-04	0.330	0.6357	0.6365	0.4605	0.4623	15.24	15.14	---
0.330	0.0863	0.0754				0.165	0.6474	0.6474	0.4873	0.4873	13.69	13.69	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-03**  
Depth: **18-20 (19.0)**

Initial Conditions: 0.7500  
Final Conditions: 0.6473

Height (in): 19.3  
w<sub>c</sub> (%): 132.3  
γ<sub>t</sub> (pcf): 117.7  
γ<sub>d</sub> (pcf): 95.7  
Saturation (%): 84.1  
Void ratio, e: 0.7231

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6402  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.48  
Height of Solids (in): 0.4353  
Weight of Dry Soil (g): 59.16

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>oe</sub>
	Initial	EOP											
0	-0.0526	-0.0520	-0.0520			-	0.7500	0.7500	0.7231	0.7231	0.00	0.00	---
0.050	-0.0520	-0.0479	-0.0478			0.025	0.7459	0.7458	0.7137	0.7134	0.55	0.57	---
0.075	-0.0477	-0.0476	-0.0475			0.038	0.7457	0.7455	0.7132	0.7128	0.58	0.60	---
0.110	-0.0469	-0.0461	-0.0451	S	2.95E-01	0.055	0.7447	0.7436	0.7110	0.7085	0.71	0.85	0.00042
0.160	-0.0449	-0.0444	-0.0428	S	4.58E-01	0.080	0.7432	0.7415	0.7074	0.7037	0.91	1.13	0.00050
0.220	-0.0420	-0.0411	-0.0389	S	3.23E-01	0.110	0.7406	0.7384	0.7015	0.6966	1.25	1.54	0.00102
0.330	-0.0389	-0.0351	-0.0326	S	2.88E-01	0.165	0.7346	0.7321	0.6878	0.6821	2.05	2.38	0.00100
0.440	-0.0313	-0.0288	-0.0265	S	2.84E-01	0.220	0.7296	0.7273	0.6763	0.6711	2.72	3.02	0.00181
0.660	-0.0232	-0.0199	-0.0152	S	2.32E-01	0.330	0.7240	0.7193	0.6635	0.6527	3.46	4.09	0.00236
0.870	-0.0120	-0.0090	-0.0047	S	1.50E-01	0.435	0.7163	0.7120	0.6458	0.6358	4.49	5.07	0.00273
1.310	-0.0026	0.0043	0.0108	S	2.21E-01	0.655	0.7051	0.6986	0.6199	0.6051	5.99	6.85	0.00454
1.740	0.0128	0.0176	0.0220	S	1.32E-01	0.870	0.6938	0.6894	0.5941	0.5840	7.49	8.08	0.00361
3.510	0.0286	0.0415	0.0484	S	8.58E-02	1.755	0.6765	0.6696	0.5543	0.5385	9.80	10.72	0.00392
7.040	0.0527	0.0671	0.0746	S	4.23E-02	3.520	0.6552	0.6478	0.5054	0.4883	12.64	13.63	0.00392
14.100	0.0777	0.0855	0.1009	S	3.26E-02	7.050	0.6400	0.6246	0.4704	0.4351	14.67	16.72	0.00375
28.360	0.1043	0.1184	0.1254	S	3.00E-02	14.180	0.6105	0.6035	0.4027	0.3866	18.60	19.53	0.00459
7.040	0.1210	0.1186	0.1177	S	3.84E-02	3.520	0.6059	0.6069	0.3921	0.3943	19.21	19.08	---
1.740	0.1151	0.1082	0.1034	S	1.41E-02	0.870	0.6138	0.6186	0.4102	0.4213	18.16	17.52	---
0.870	0.1030	0.0940	0.0927	S	1.56E-03	0.435	0.6276	0.6290	0.4420	0.4451	16.32	16.14	---
0.660	0.0927	0.0882	0.0865	S	1.60E-03	0.330	0.6334	0.6352	0.4553	0.4593	15.54	15.31	---
0.330	0.0865	0.0756	0.0754	S	8.52E-04	0.165	0.6460	0.6463	0.4843	0.4848	13.86	13.83	---

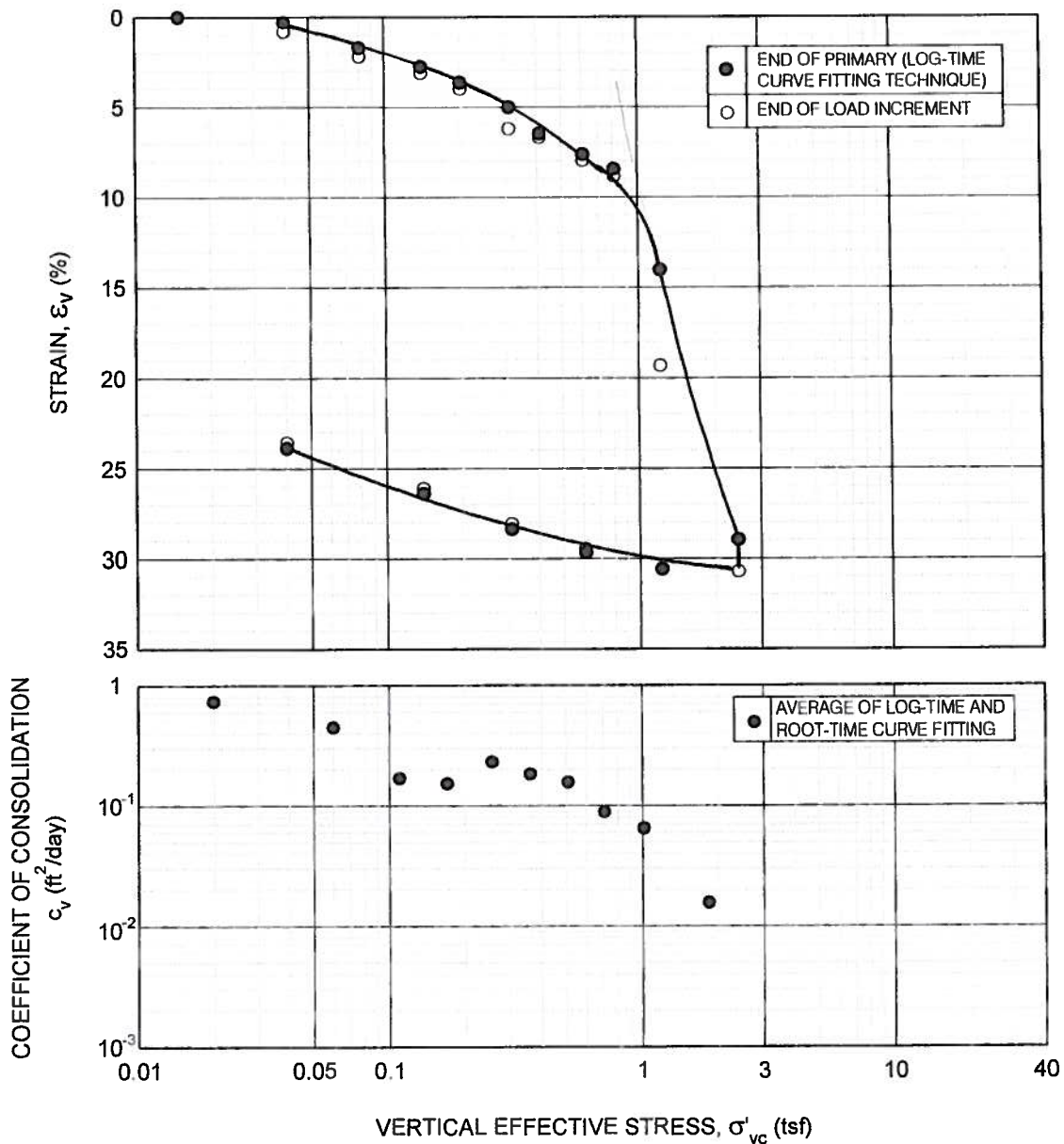
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-03**  
Depth: **18-20 (19.0)**

Initial Conditions: 0.7500  
Final Conditions: 0.6473

Height (in): 19.3  
 $w_c$  (%): 132.3  
 $\gamma_t$  (pcf): 110.8  
 $\gamma_d$  (pcf): 104.8  
Saturation (%): 84.1  
Void ratio, e: 0.7231

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6402  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.48  
Height of Solids (in): 0.4353  
Weight of Dry Soil (g): 59.16



**SAMPLE DATA**

BORING NO.: B-04  
 SAMPLE NO.:  
 DEPTH (FEET): 9.5  
 DESCRIPTION: Gray CLAY (CH) w/trace organics and shell fragments

**INDEX PROPERTIES**

LIQUID LIMIT (%): 64  
 PLASTIC LIMIT (%): 16  
 PLASTICITY INDEX (%): 48  
 SPECIFIC GRAVITY: 2.62  
 -200(%): 86  
 ORGANIC CONTENT (%): 2.70

**SPECIMEN CONDITIONS**


	INITIAL	FINAL
MOISTURE CONTENT (%)	87.6	63.4
DRY DENSITY (lb/ft <sup>3</sup> ):	49.0	64.0
VOID RATIO:	2.34	1.55

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.16
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.80
VIRGIN COMPRESSION RATIO, CR:	0.50

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
 Privileged & Confidential  
 Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU</b>  <b>CPRA</b>		
DRAWN BY: <b>RJB</b> FILE NO: <b>12-80-3741</b>	CHECKED BY: <i>[Signature]</i> APPROVED: <i>[Signature]</i>	DATE: <b>03/13/13</b> FIGURE: <b>C5</b>



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>α</sub> e
	Initial	EOP											
0	0.0879	0.0879				-	0.7500	0.7500	2.3374	2.3374	0.00	0.00	---
0.040	0.0899	0.0920	60	L	2.77E-01	0.020	0.7479	0.7439	2.3278	2.3100	0.29	0.82	---
0.080	0.0977	0.1044	210	L	7.74E-02	0.060	0.7371	0.7336	2.2800	2.2642	1.72	2.19	---
0.140	0.1093	0.1136	129	L	1.23E-01	0.110	0.7293	0.7266	2.2450	2.2330	2.77	3.13	---
0.200	0.1176	0.1214	204	L	7.63E-02	0.170	0.7228	0.7202	2.2161	2.2045	3.63	3.98	---
0.310	0.1251	0.1327	120	L	1.27E-01	0.255	0.7125	0.7036	2.1705	2.1307	5.00	6.19	---
0.410	0.1419	0.1439	96	L	1.52E-01	0.360	0.7016	0.7000	2.1218	2.1147	6.46	6.67	0.00078
0.610	0.1458	0.1528	96	L	1.50E-01	0.510	0.6930	0.6904	2.0835	2.0719	7.61	7.95	0.00124
0.810	0.1567	0.1602	129	L	1.09E-01	0.710	0.6868	0.6839	2.0561	2.0430	8.43	8.82	0.002
1.220	0.1660	0.2050	240	L	5.45E-02	1.015	0.6449	0.6052	1.8695	1.6930	14.02	19.31	---
2.440	0.2457	0.3180	1080	L	8.89E-03	1.830	0.5329	0.5197	1.3713	1.3126	28.95	30.71	0.01805
1.220	0.3311	0.3300	108	L	7.43E-02	1.830	0.5208	0.5211	1.3173	1.3186	30.57	30.53	---
0.610	0.3293	0.3227	480	L	1.70E-02	0.915	0.5276	0.5290	1.3477	1.3540	29.65	29.47	---
0.310	0.3211	0.3128	1140	L	7.39E-03	0.460	0.5373	0.5396	1.3909	1.4009	28.36	28.06	---
0.140	0.3104	0.2978	3600	L	2.45E-03	0.225	0.5522	0.5543	1.4570	1.4663	26.38	26.10	---
0.040	0.2956	0.2788	6900	L	1.36E-03	0.090	0.5710	0.5734	1.5409	1.5513	23.87	23.55	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-04**  
Depth: **8-10 (9.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.5740

Height (in): 87.6  
w<sub>c</sub> (%): 63.4  
γ<sub>t</sub> (pcf): 104.6  
γ<sub>d</sub> (pcf): 64.0  
Saturation (%): 98.1  
Void ratio, e: 2.3374

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.619  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.50  
Height of Solids (in): 0.2247  
Weight of Dry Soil (g): 30.30

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

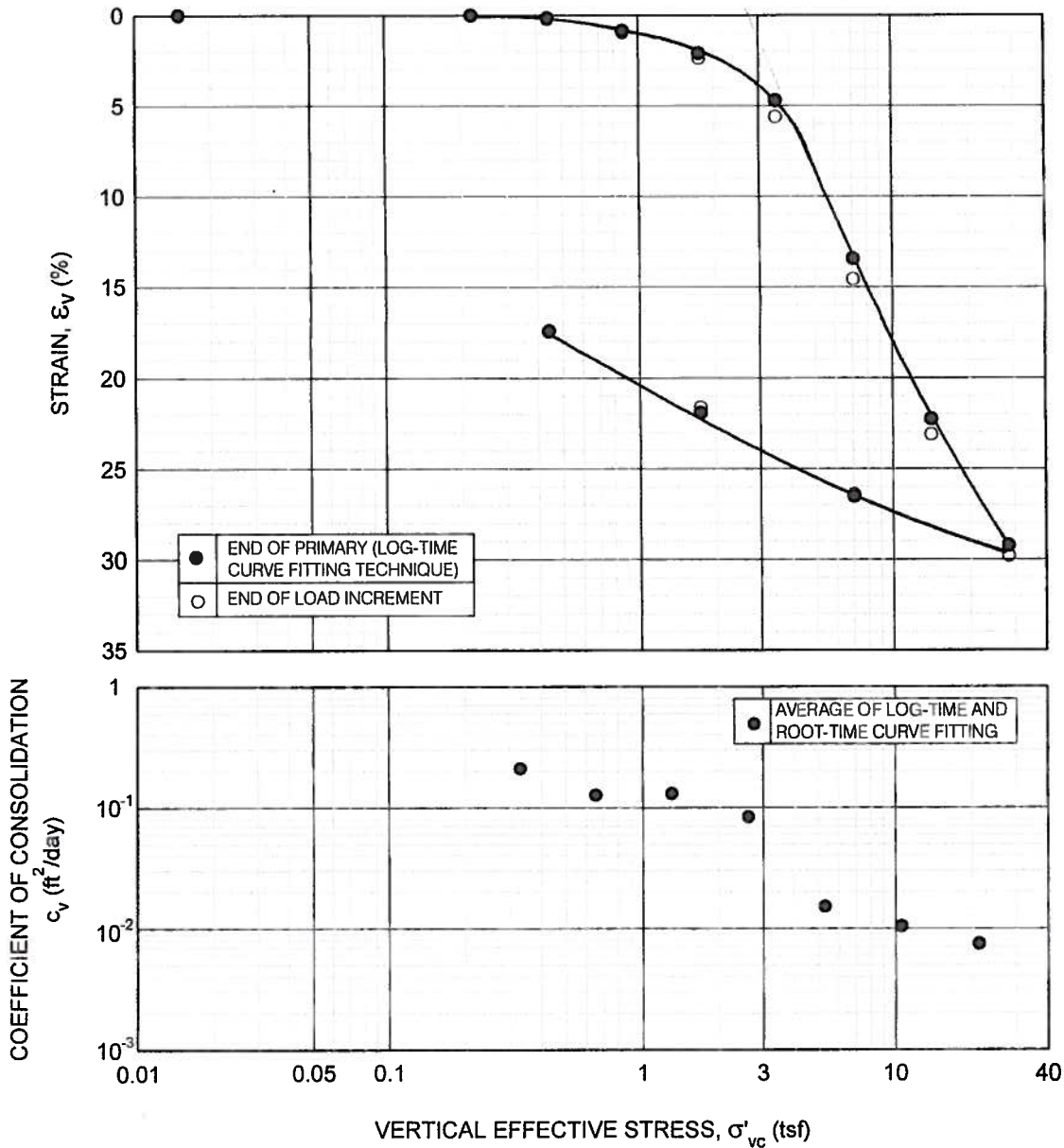
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOP											
0	0.0879	0.0879	0.0879				0.7500	0.7500	2.3374	2.3374	0.00	0.00	---
0.040	0.0895	0.0911	60	S	1.19E+00	0.020	0.7484	0.7435	2.3303	2.3085	0.21	0.87	---
0.080	0.0974	0.1003	86	S	8.17E-01	0.060	0.7406	0.7330	2.2955	2.2615	1.25	2.27	---
0.140	0.1090	0.1119	317	S	2.15E-01	0.110	0.7301	0.7257	2.2486	2.2290	2.66	3.25	---
0.200	0.1163	0.1240	290	S	2.29E-01	0.170	0.7180	0.7180	2.1948	2.1948	4.27	4.27	---
0.310	0.1243	0.1301	194	S	3.36E-01	0.255	0.7121	0.7006	2.1688	2.1173	5.05	6.59	---
0.410	0.1421	0.1441	290	S	2.15E-01	0.360	0.6986	0.6972	2.1084	2.1022	6.86	7.05	0.00078
0.610	0.1455	0.1533	375	S	1.64E-01	0.510	0.6894	0.6873	2.0675	2.0581	8.09	8.37	0.00124
0.810	0.1567	0.1607	866	S	6.92E-02	0.710	0.6833	0.6808	2.0403	2.0294	8.90	9.23	0.002
1.220	0.1632	0.2447	694	S	7.53E-02	1.015	0.5993	0.5993	1.6668	1.6668	20.09	20.09	---
2.440	0.2470	0.2948	1882	S	2.25E-02	1.830	0.5515	0.5151	1.4541	1.2921	26.47	31.32	0.01805
1.220	0.3311	0.3301	317	S	1.07E-01	1.830	0.5160	0.5165	1.2962	1.2982	31.20	31.14	---
0.610	0.3293	0.3237	1441	S	2.39E-02	0.915	0.5221	0.5245	1.3231	1.3338	30.39	30.07	---
0.310	0.3211	0.3131	4438	S	8.03E-03	0.460	0.5325	0.5350	1.3694	1.3808	29.00	28.66	---
0.140	0.3105	0.2996	11098	S	3.36E-03	0.225	0.5459	0.5498	1.4293	1.4466	27.21	26.69	---
0.040	0.2956	0.2788	35138	S	1.13E-03	0.090	0.5666	0.5690	1.5214	1.5318	24.45	24.14	---

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Initial Conditions	Final Conditions
0.7500	0.5740
87.6	63.4
91.9	104.6
49.0	64.0
98.1	106.8
2.3374	1.5542

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-04**  
Depth: **8-10 (9.5)**

Specific Gravity 2.619  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.50  
Height of Solids (in) 0.2247  
Weight of Dry Soil (g) 30.30



**SAMPLE DATA**

BORING NO.: B-05  
 SAMPLE NO.:  
 DEPTH (FEET): 39.5  
 DESCRIPTION: Tan and gray CLAY (CH)  
 w/silt layers

**INDEX PROPERTIES**

LIQUID LIMIT (%): 84  
 PLASTIC LIMIT (%): 26  
 PLASTICITY INDEX (%): 58  
 SPECIFIC GRAVITY: 2.77  
 -200(%): 100

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	51.6	36.9
DRY DENSITY (lb/ft <sup>3</sup> ):	71.2	86.3
VOID RATIO:	1.43	1.01

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.97
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	3.5
VIRGIN COMPRESSION RATIO, CR:	0.32

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
 Privileged & Confidential  
 Work Product

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO.: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C6

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>u</sub> e
	Initial	EOP											
0	0.0700	0.0700					0.7500	0.7500	1.4297	1.4297	0.00	0.00	---
0.220	0.0700	0.0700				0.118	0.7500	0.7500	1.4297	1.4297	0.00	0.00	---
0.440	0.0701	0.0711	78	L	2.14E-01	0.330	0.7490	0.7484	1.4265	1.4245	0.13	0.21	0.00037
0.870	0.0725	0.0772	210	L	7.86E-02	0.655	0.7437	0.7429	1.4093	1.4067	0.84	0.95	0.00075
1.740	0.0794	0.0880	180	L	8.99E-02	1.305	0.7343	0.7322	1.3789	1.3720	2.09	2.37	0.00138
3.510	0.0921	0.1095	360	L	4.31E-02	2.625	0.7148	0.7080	1.3157	1.2936	4.69	5.60	0.00600
7.040	0.1183	0.1770	1230	L	1.11E-02	5.275	0.6493	0.6408	1.1035	1.0759	13.43	14.56	0.01230
14.100	0.1873	0.2450	1350	L	8.22E-03	10.570	0.5831	0.5767	0.8890	0.8683	22.25	23.11	0.00889
28.360	0.2531	0.2990	1440	L	6.31E-03	21.230	0.5308	0.5265	0.7196	0.7057	29.23	29.80	0.00646
7.040	0.3022	0.2775	900	L	9.57E-03	17.700	0.5512	0.5520	0.7857	0.7883	26.51	26.40	---
1.740	0.2756	0.2420	3600	L	2.66E-03	4.390	0.5856	0.5879	0.8971	0.9046	21.92	21.61	---
0.440	0.2390	0.2075	9000	L	1.20E-03	1.090	0.6194	0.6191	1.0066	1.0056	17.41	17.45	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-05**  
Depth: **38-40 B3 (39.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.6193

Height (in): 36.9  
w<sub>c</sub> (%): 118.2  
γ<sub>t</sub> (pcf): 86.3  
γ<sub>d</sub> (pcf): 101.8  
Saturation (%): 100.0  
Void ratio, e: 1.4297

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7726  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.49  
Height of Solids (in): 0.3087  
Weight of Dry Soil (g): 44.06

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

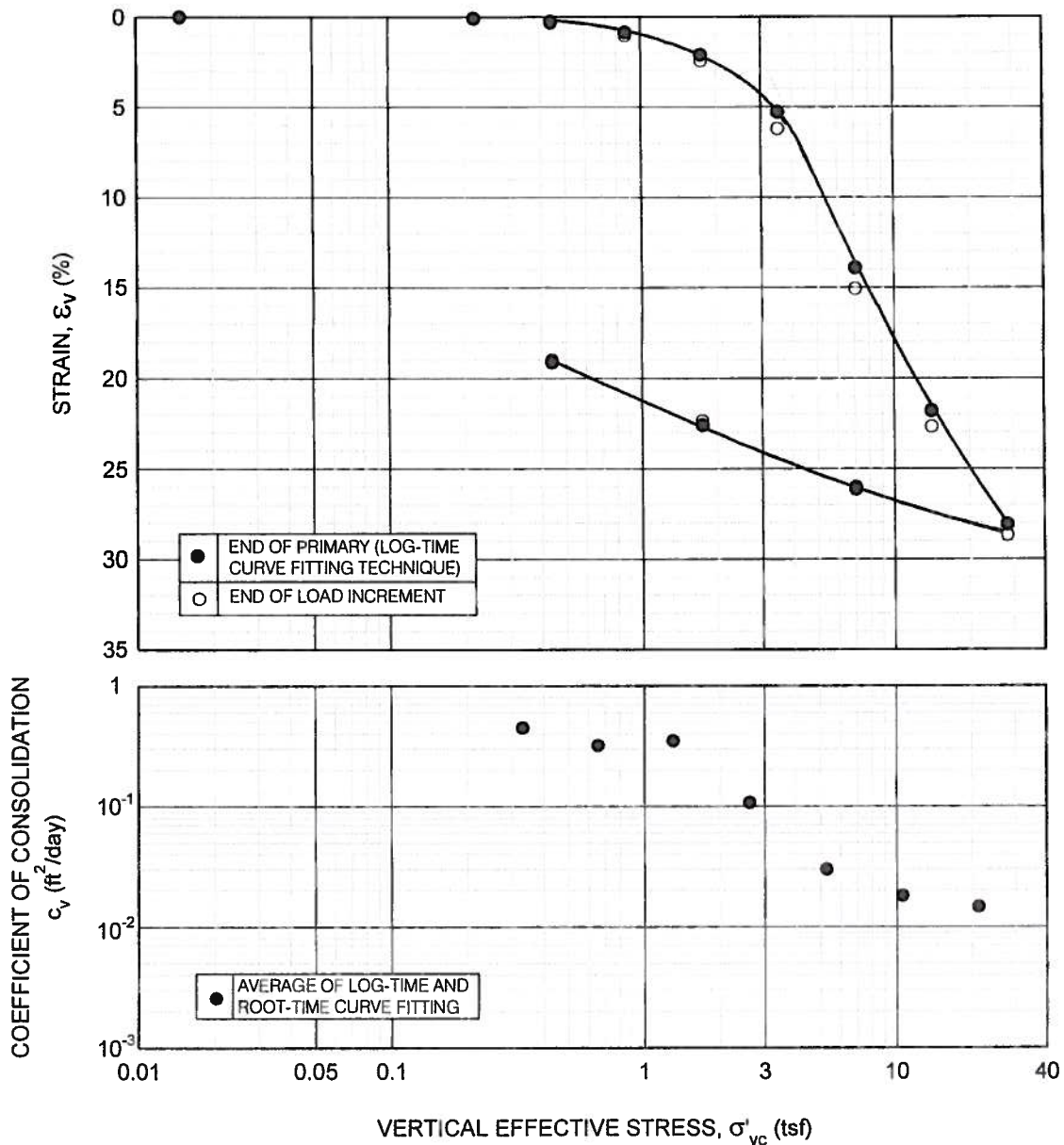
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> , e
	Initial	EOP											
0	0.0700	0.0700					0.7500	0.7500	1.4297	1.4297	0.00	0.00	---
0.220	0.0700	0.0700				0.110	0.7500	0.7500	1.4297	1.4297	0.00	0.00	---
0.440	0.0701	0.0711	345	S	2.08E-01	0.330	0.7490	0.7484	1.4265	1.4245	0.13	0.21	0.00037
0.870	0.0726	0.0758	406	S	1.75E-01	0.655	0.7452	0.7430	1.4142	1.4070	0.64	0.93	0.00075
1.740	0.0794	0.0856	406	S	1.72E-01	1.305	0.7368	0.7323	1.3870	1.3724	1.76	2.36	0.00138
3.510	0.0930	0.1036	540	S	1.25E-01	2.625	0.7217	0.7090	1.3380	1.2969	3.77	5.47	0.00600
7.040	0.1185	0.1646	3110	S	1.93E-02	5.275	0.6629	0.6420	1.1475	1.0798	11.61	14.40	0.01230
14.100	0.1885	0.2357	3840	S	1.27E-02	10.570	0.5948	0.5791	0.9269	0.8761	20.69	22.79	0.00889
28.360	0.2545	0.2928	4640	S	8.62E-03	21.230	0.5408	0.5303	0.7520	0.7180	27.89	29.29	0.00646
7.040	0.2988	0.2889	600	S	6.09E-02	17.700	0.5402	0.5524	0.7500	0.7896	27.97	26.35	---
1.740	0.2738	0.2511	6000	S	6.76E-03	4.390	0.5751	0.5865	0.8631	0.9000	23.32	21.80	---
0.440	0.2390	0.2096	35000	S	1.32E-03	1.090	0.6159	0.6177	0.9953	1.0011	17.88	17.64	---

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-05**  
 Depth: **38-40 B3 (39.5)**

Initial Conditions: 0.7500  
 Final Conditions: 0.6193  
 Height (in): 36.9  
 w<sub>c</sub> (%): 118.2  
 γ<sub>t</sub> (pcf): 86.3  
 γ<sub>d</sub> (pcf): 101.8  
 Saturation (%): 100.0  
 Void ratio, e: 1.4297

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7726  
 Ring Diameter (in): 2.0000  
 Ring weight (g): 62.49  
 Height of Solids (in): 0.3087  
 Weight of Dry Soil (g): 44.06



**SAMPLE DATA**

BORING NO.: B-06  
 SAMPLE NO.:  
 DEPTH (FEET): 54.25  
 DESCRIPTION: Gray CLAY (CH)  
 w/silt layers

**INDEX PROPERTIES**

LIQUID LIMIT (%): 63  
 PLASTIC LIMIT (%): 20  
 PLASTICITY INDEX (%): 43  
 SPECIFIC GRAVITY: 2.77  
 -200(%): 100

**SPECIMEN CONDITIONS**



	INITIAL	FINAL
MOISTURE CONTENT (%):	44.7	31.3
DRY DENSITY (lb/ft <sup>3</sup> ):	76.5	94.5
VOID RATIO:	1.26	0.83

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	1.34
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	3.2
VIRGIN COMPRESSION RATIO, CR:	0.29

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
 Privileged & Confidential  
 Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b>  <b>CPRA</b>			
DRAWN BY: <b>RJB</b>	CHECKED BY: <b>TYIB</b>	DATE: <b>03/13/13</b>	
FILE NO: <b>12-80-3741</b>	APPROVED BY: 	FIGURE: <b>C7</b>	

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.1304	0.1304	0.1304			-	0.7500	0.7500	1.2565	1.2565	0.00	0.00	---
0.220	0.1304	0.1310	0.1313			0.118	0.7494	0.7491	1.2547	1.2538	0.08	0.12	---
0.440	0.1321	0.1331	0.1338	L	3.46E-01	0.330	0.7481	0.7474	1.2508	1.2487	0.25	0.35	0.000355
0.870	0.1348	0.1386	0.1400	L	2.75E-01	0.655	0.7436	0.7422	1.2373	1.2331	0.85	1.04	0.000889
1.740	0.1414	0.1494	0.1519	L	2.45E-01	1.305	0.7342	0.7317	1.2090	1.2015	2.11	2.44	0.00133
3.510	0.1537	0.1750	0.1819	L	7.14E-02	2.625	0.7104	0.7035	1.1374	1.1166	5.28	6.20	0.00587
7.040	0.1838	0.2415	0.2503	L	2.14E-02	5.275	0.6458	0.6370	0.9430	0.9165	13.89	15.07	0.009778
14.100	0.2525	0.3030	0.3096	L	1.48E-02	10.570	0.5865	0.5799	0.7646	0.7447	21.80	22.68	0.00711
28.360	0.3120	0.3525	0.3570	L	1.19E-02	21.230	0.5394	0.5349	0.6229	0.6094	28.08	28.68	0.00542
7.040	0.3558	0.3365	0.3356	L	1.63E-01	17.700	0.5542	0.5551	0.6674	0.6701	26.11	25.99	---
1.740	0.3332	0.3077	0.3061	L	4.83E-03	4.390	0.5806	0.5822	0.7468	0.7517	22.59	22.37	---
0.440	0.3055	0.2810	0.2802	L	1.75E-03	1.090	0.6067	0.6075	0.8254	0.8278	19.11	19.00	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-06**  
Depth: **53-55 B2 (54.25)**

Initial Conditions: 0.7500  
Final Conditions: 0.6075

Height (in): 44.7  
w<sub>c</sub> (%): 31.3  
γ<sub>t</sub> (pcf): 110.8  
γ<sub>d</sub> (pcf): 76.5  
Saturation (%): 98.5  
Void ratio, e: 1.2565

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7665  
Ring Diameter (in): 1.9990  
Ring weight (g): 62.62  
Height of Solids (in): 0.3324  
Weight of Dry Soil (g): 47.29

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

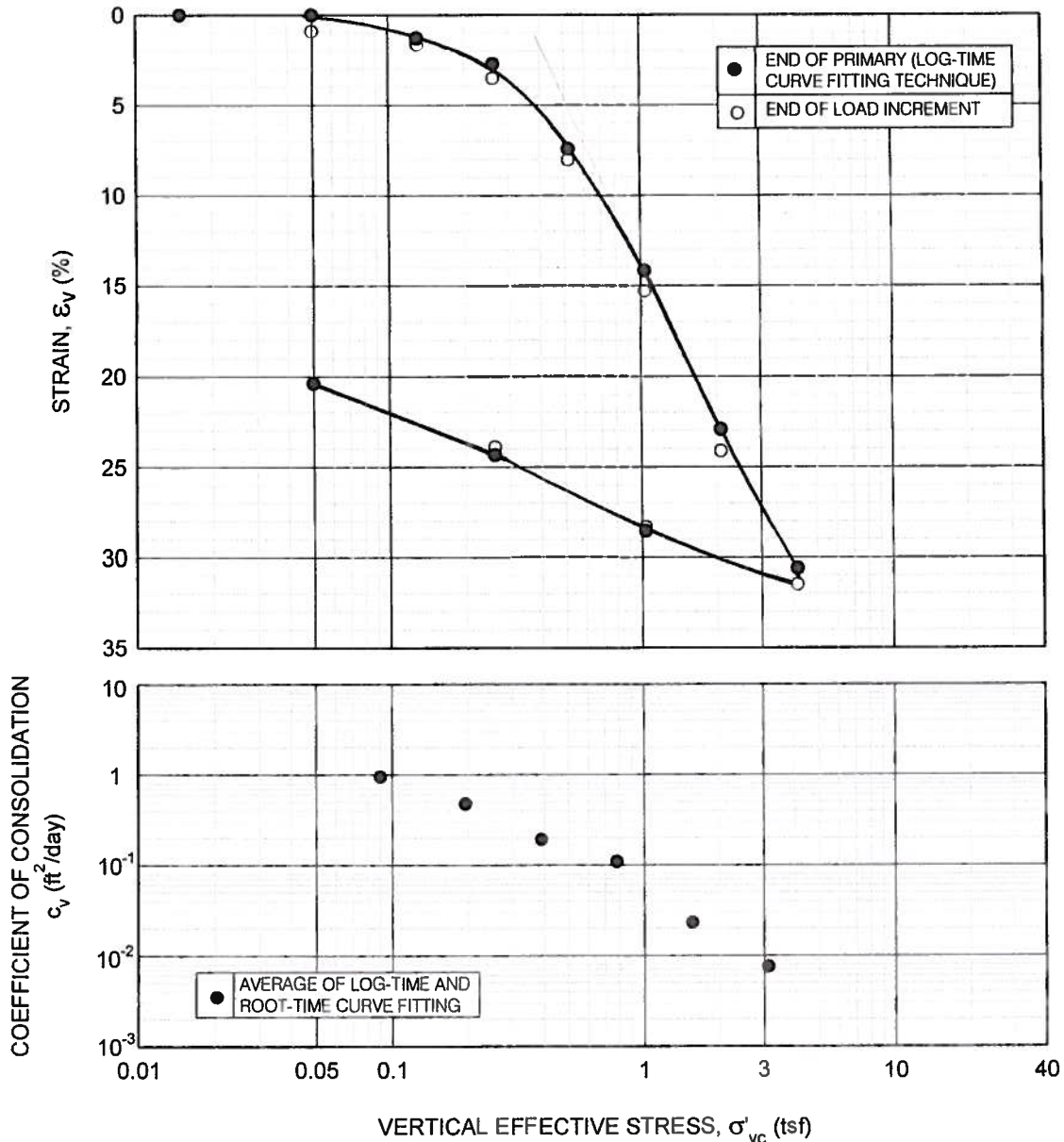
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.1304	0.1304	0.1304				0.7500	0.7500	1.2565	1.2565	0.00	0.00	---
0.220	0.1304	0.1310	0.1313			0.110	0.7494	0.7491	1.2547	1.2538	0.08	0.12	---
0.440	0.1321	0.1329	0.1338	S	5.50E-01	0.330	0.7483	0.7474	1.2514	1.2487	0.23	0.35	0.000355
0.870	0.1351	0.1381	0.1400	S	3.66E-01	0.655	0.7444	0.7425	1.2397	1.2340	0.75	1.00	0.000889
1.740	0.1430	0.1479	0.1519	S	4.54E-01	1.305	0.7376	0.7336	1.2192	1.2072	1.65	2.19	0.00133
3.510	0.1565	0.1698	0.1819	S	1.44E-01	2.625	0.7203	0.7082	1.1672	1.1308	3.96	5.57	0.00587
7.040	0.1862	0.2293	0.2503	S	3.86E-02	5.275	0.6651	0.6441	1.0011	0.9379	11.32	14.12	0.009778
14.100	0.2550	0.2959	0.3096	S	2.16E-02	10.570	0.6032	0.5895	0.8148	0.7736	19.57	21.40	0.00711
28.360	0.3130	0.3463	0.3570	S	1.75E-02	21.230	0.5562	0.5455	0.6734	0.6412	25.84	27.27	0.00542
7.040	0.3520	0.3398	0.3356	S	2.06E-02	17.700	0.5577	0.5619	0.6779	0.6906	25.64	25.08	---
1.740	0.3324	0.3117	0.3061	S	6.44E-03	4.390	0.5826	0.5882	0.7529	0.7697	22.32	21.57	---
0.440	0.3061	0.2832	0.2802	S	2.16E-03	1.090	0.6111	0.6141	0.8386	0.8476	18.52	18.12	---

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-06**  
 Depth: **53-55 B2 (54.25)**

Initial Conditions: 0.7500  
 Final Conditions: 0.6075  
 Height (in): 31.3  
 w<sub>c</sub> (%): 124.1  
 γ<sub>t</sub> (pcf): 94.5  
 γ<sub>d</sub> (pcf): 104.7  
 Saturation (%): 98.5  
 Void ratio, e: 1.2565

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)  
 Specific Gravity: 2.7665  
 Ring Diameter (in): 1.9990  
 Ring weight (g): 62.62  
 Height of Solids (in): 0.3324  
 Weight of Dry Soil (g): 47.29





**SAMPLE DATA**

BORING NO.: B-07  
 SAMPLE NO.:  
 DEPTH (FEET): 1.25  
 DESCRIPTION: Gray CLAY (CH) w/silt

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%)	79.8	61.7
DRY DENSITY (lb/ft <sup>3</sup> )	52.7	66.2
VOID RATIO	2.17	1.53

**INDEX PROPERTIES**

LIQUID LIMIT (%): 114  
 PLASTIC LIMIT (%): 27  
 PLASTICITY INDEX (%): 87  
 SPECIFIC GRAVITY: 2.68  
 -200(%): 94  
 ORGANIC CONTENT (%): 9.81

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.02
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.50
VIRGIN COMPRESSION RATIO, CR:	0.29

**INCREMENTAL CONSOLIDATION TEST RESULTS**

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C8

Confidential Information:  
 Privileged & Confidential  
 Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)			Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP	EOI											
0	0.1167	0.1167	0.1167				-	0.7500	0.7500	2.1742	2.1742	0.00	0.00	---
0.050	0.1167	0.1167	0.1234				0.033	0.7500	0.7434	2.1742	2.1460	0.00	0.89	---
0.130	0.1236	0.1265	0.1291	15	L	1.09E+00	0.090	0.7405	0.7379	2.1337	2.1227	1.27	1.62	0.00130
0.260	0.1294	0.1376	0.1435	30	L	5.32E-01	0.195	0.7297	0.7238	2.0880	2.0631	2.71	3.50	0.00320
0.520	0.1442	0.1735	0.1781	270	L	5.52E-02	0.390	0.6945	0.6899	1.9391	1.9196	7.41	8.02	0.00610
1.040	0.1790	0.2250	0.2335	244	L	5.40E-02	0.780	0.6439	0.6354	1.7249	1.6889	14.15	15.29	0.00900
2.080	0.2248	0.2820	0.2910	720	L	1.52E-02	1.560	0.5782	0.5692	1.4469	1.4088	22.91	24.11	0.01080
4.160	0.2924	0.3410	0.3478	1440	L	6.11E-03	3.120	0.5206	0.5138	1.2031	1.1743	30.59	31.50	0.00900
1.040	0.3466	0.3243	0.3227	1260	L	6.48E-03	2.600	0.5361	0.5377	1.2687	1.2755	28.53	28.31	---
0.260	0.3219	0.2920	0.2888	4140	L	2.19E-03	0.650	0.5676	0.5708	1.4020	1.4155	24.33	23.90	---
0.050	0.2883	0.2618	0.2618				0.155	0.5973	0.5973	1.5277	1.5277	20.37	20.37	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-07**  
Depth: **0-2 B2 (1.25)**

Initial Conditions: 0.7500  
Final Conditions: 0.5972

Height (in): 79.8  
w<sub>c</sub> (%): 61.7  
γ<sub>t</sub> (pcf): 107.0  
γ<sub>d</sub> (pcf): 66.2  
Saturation (%): 108.2  
Void ratio, e: 1.5276

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.68  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.49  
Height of Solids (in): 0.2363  
Weight of Dry Soil (g): 32.60

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)			Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP	EOI											
0	0.1167	0.1167	0.1167					0.7500	0.7500	2.1742	2.1742	0.00	0.00	---
0.050	0.1167	0.1167	0.1234				0.025	0.7500	0.7434	2.1742	2.1460	0.00	0.89	---
0.130	0.1236	0.1265	0.1291	86	S	8.17E-01	0.090	0.7405	0.7379	2.1337	2.1227	1.27	1.62	0.00130
0.260	0.1294	0.1376	0.1435	160	S	4.29E-01	0.195	0.7297	0.7238	2.0880	2.0631	2.71	3.50	0.00320
0.520	0.1442	0.1735	0.1781	194	S	3.31E-01	0.390	0.6945	0.6899	1.9391	1.9196	7.41	8.02	0.00610
1.040	0.1790	0.2250	0.2335	345	S	1.65E-01	0.780	0.6439	0.6354	1.7249	1.6889	14.15	15.29	0.00900
2.080	0.2248	0.2820	0.2910	1500	S	3.13E-02	1.560	0.5782	0.5692	1.4469	1.4088	22.91	24.11	0.01080
4.160	0.2924	0.3410	0.3478	4200	S	9.02E-03	3.120	0.5206	0.5138	1.2031	1.1743	30.59	31.50	0.00900
1.040	0.3466	0.3243	0.3227	3110	S	1.13E-02	2.600	0.5361	0.5377	1.2687	1.2755	28.53	28.31	---
0.260	0.3219	0.2920	0.2888				0.650	0.5676	0.5708	1.4020	1.4155	24.33	23.90	---
0.050	0.2883	0.2618	0.2618				0.155	0.5973	0.5973	1.5277	1.5277	20.37	20.37	---

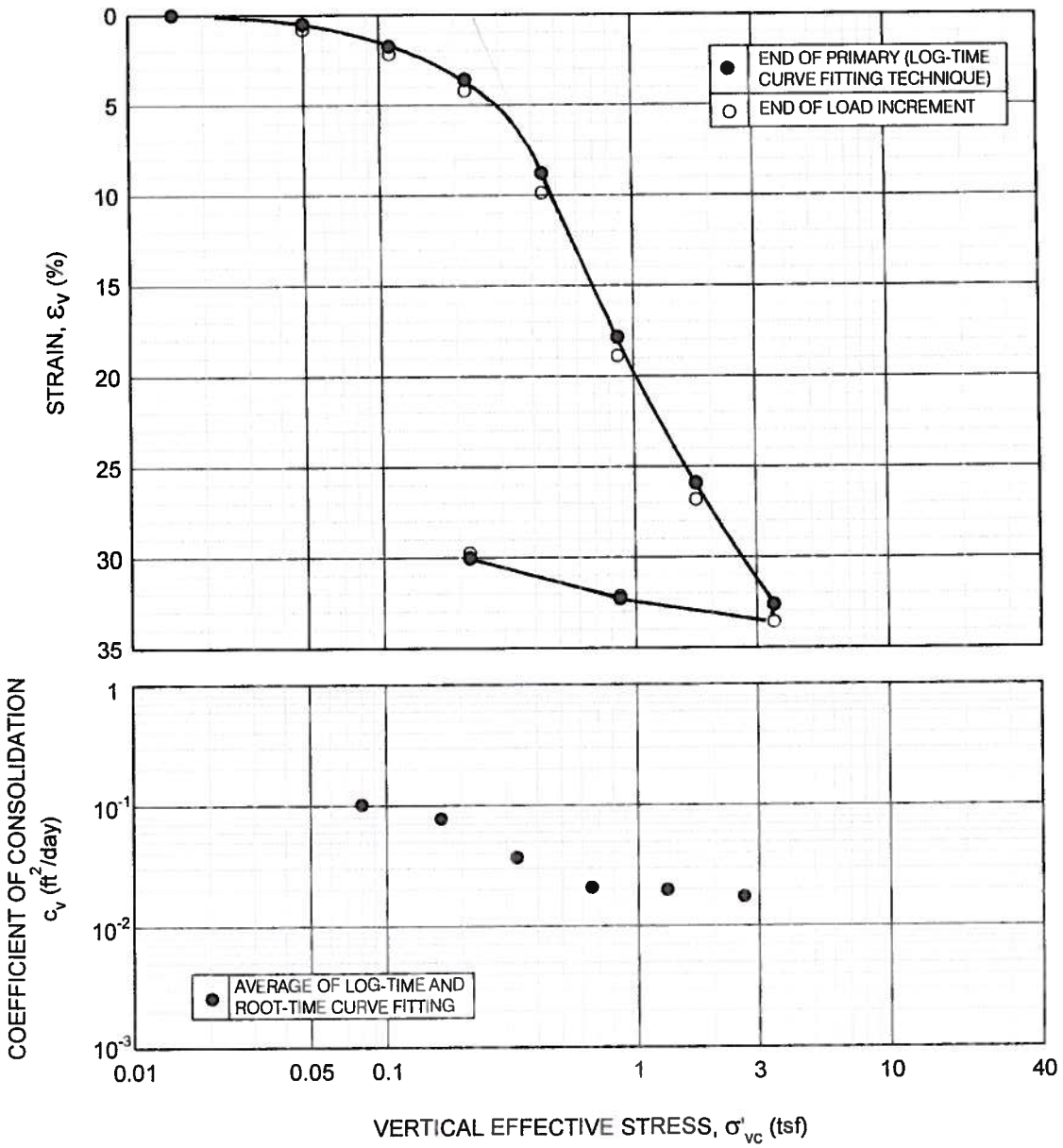
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-07**  
Depth: **0-2 B2 (1.25)**

Initial Conditions: 0.7500  
Height (in): 0.5972  
 $w_c$  (%): 61.7  
 $\gamma_t$  (pcf): 107.0  
 $\gamma_d$  (pcf): 66.2  
Saturation (%): 108.2  
Void ratio, e: 1.5276

Final Conditions: 0.5972  
Height (in): 61.7  
 $w_c$  (%): 107.0  
 $\gamma_t$  (pcf): 66.2  
 $\gamma_d$  (pcf): 108.2  
Saturation (%): 1.5276  
Void ratio, e: 1.5276

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.68  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.49  
Height of Solids (in): 0.2363  
Weight of Dry Soil (g): 32.60




SAMPLE DATA	
BORING NO.:	B-07
SAMPLE NO.:	
DEPTH (FEET):	5.25
DESCRIPTION:	Gray CLAY (CH) w/silt and shells
INDEX PROPERTIES	
LIQUID LIMIT (%):	91
PLASTIC LIMIT (%):	25
PLASTICITY INDEX (%):	66
SPECIFIC GRAVITY:	2.72
-200(%):	89

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	79.0	45.5
DRY DENSITY (lb/ft <sup>3</sup> ):	54.2	77.1
VOID RATIO:	2.14	1.20
CONSOLIDATION PARAMETERS		
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.086	
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.315	
VIRGIN COMPRESSION RATIO, CR:	0.29	

## INCREMENTAL CONSOLIDATION TEST RESULTS

Confidential Information.  
Privileged & Confidential  
Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU</b>		
<b>CPRA</b>		
DRAWN BY: <b>RJB</b>	CHECKED BY: <i>[Signature]</i>	DATE: <b>03/13/13</b>
FILE NO: <b>12-80-3741</b>	APPROVED: <i>[Signature]</i>	FIGURE: <b>C9</b>

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP											
0	0.0215	0.0215					0.7500	0.7500	2.1356	2.1356	0.00	0.00	
0.050	0.0215	0.0252			0.033	0.7463	0.7439	0.7439	2.1201	2.1101	0.49	0.81	
0.110	0.0282	0.0351	180	L	9.03E-02	0.7370	0.7337	0.7337	2.0813	2.0675	1.73	2.17	0.00210
0.220	0.0387	0.0494	300	L	5.24E-02	0.7230	0.7184	0.7184	2.0227	2.0035	3.60	4.21	0.00380
0.440	0.0550	0.0892	660	L	2.21E-02	0.6842	0.6760	0.6760	1.8605	1.8262	8.77	9.87	0.01020
0.870	0.0962	0.1560	780	L	1.59E-02	0.655	0.6162	0.6084	1.5762	1.5436	17.84	18.88	0.01020
1.740	0.1642	0.2168	630	L	1.59E-02	1.305	0.5558	0.5489	1.3237	1.2948	25.89	26.81	0.00800
3.510	0.2245	0.2681	570	L	1.45E-02	2.625	0.5053	0.4982	1.1126	1.0829	32.63	33.57	0.00710
0.870	0.2739	0.2642	222	L	3.38E-02	2.190	0.5079	0.5089	1.1234	1.1276	32.28	32.15	
0.220	0.2622	0.2462	1320	L	6.00E-03	0.545	0.5249	0.5269	1.1945	1.2029	30.01	29.75	

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-07**  
 Depth: **4-6 B1 (5.25)**

Initial Conditions: 0.7500  
 Final Conditions: 0.5268  
 Height (in): 79.0  
 w<sub>c</sub> (%): 45.5  
 γ<sub>t</sub> (pcf): 96.9  
 γ<sub>d</sub> (pcf): 54.2  
 Saturation (%): 100.6  
 Void ratio, e: 2.1356

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.72  
 Ring Diameter (in): 1.9990  
 Ring weight (g): 62.49  
 Height of Solids (in): 0.2392  
 Weight of Dry Soil (g): 33.46

**ARDAMAN & ASSOCIATES, INC**  
**GEO TECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

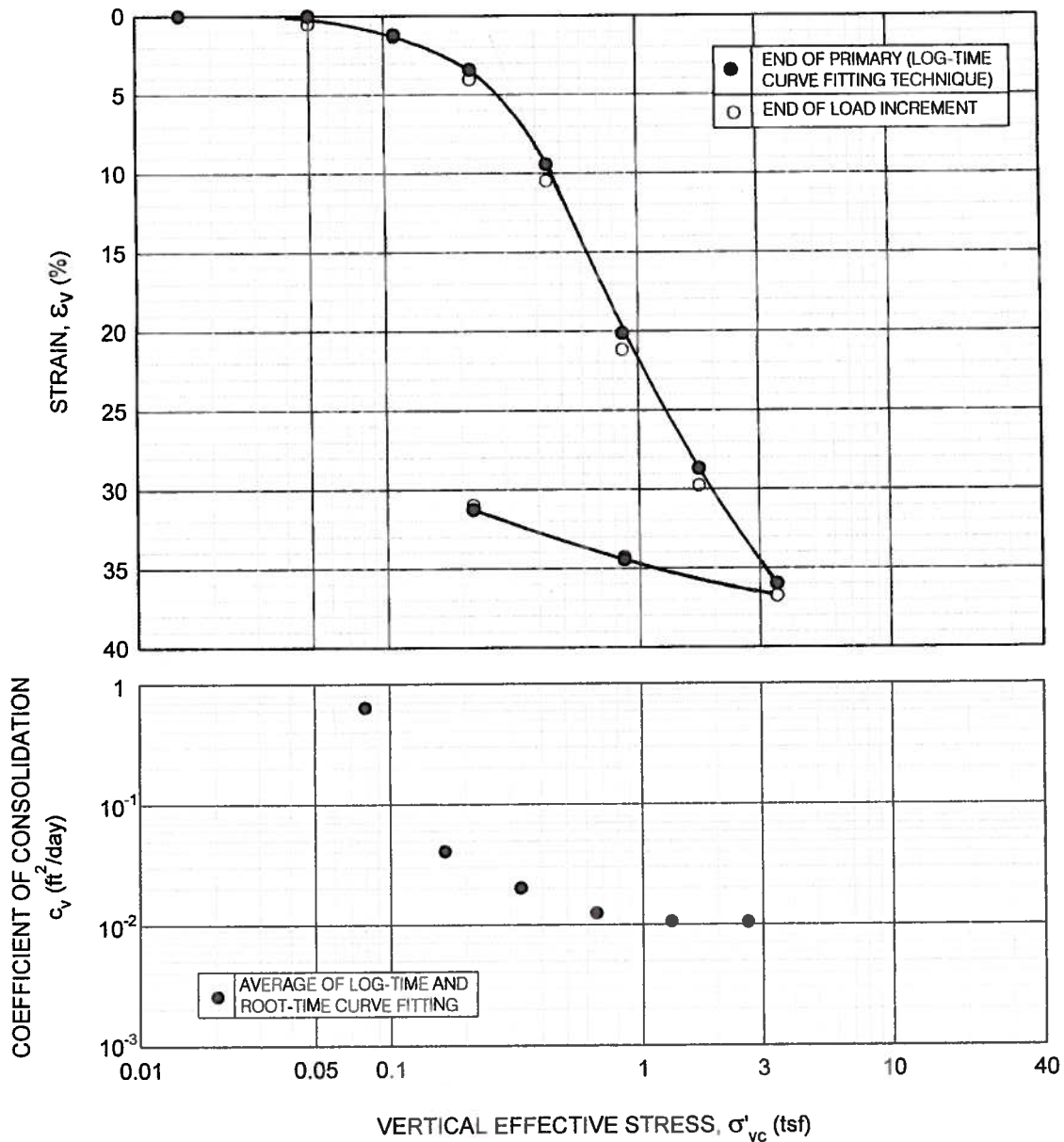
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.0215	0.0215	0.0215				0.7500	0.7500	2.1356	2.1356	0.00	0.00	---
0.050	0.0215	0.0215	0.0276			0.025	0.7500	0.7439	2.1356	2.1101	0.00	0.81	---
0.110	0.0282	0.0352	0.0384	S	1.14E-01	0.080	0.7369	0.7337	2.0808	2.0675	1.75	2.17	0.00210
0.220	0.0387	0.0494	0.0540	S	1.04E-01	0.165	0.7230	0.7184	2.0227	2.0035	3.60	4.21	0.00380
0.440	0.0550	0.0892	0.0974	S	5.17E-02	0.330	0.6842	0.6760	1.8605	1.8262	8.77	9.87	0.01020
0.870	0.0962	0.1560	0.1638	S	2.55E-02	0.655	0.6162	0.6084	1.5762	1.5436	17.84	18.88	0.01020
1.740	0.1642	0.2168	0.2237	S	2.38E-02	1.305	0.5558	0.5489	1.3237	1.2948	25.89	26.81	0.00800
3.510	0.2245	0.2681	0.2752	S	2.03E-02	2.625	0.5053	0.4982	1.1126	1.0829	32.63	33.57	0.00710
0.870	0.2739	0.2642	0.2632	S	4.65E-02	2.190	0.5079	0.5089	1.1234	1.1276	32.28	32.15	---
0.220	0.2622	0.2462	0.2442	S	8.45E-03	0.545	0.5249	0.5269	1.1945	1.2029	30.01	29.75	---

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-07**  
 Depth: **4-6 B1 (5.25)**

Initial Conditions: 0.7500  
 Final Conditions: 0.5268  
 Height (in): 79.0  
 w<sub>c</sub> (%): 45.5  
 γ<sub>t</sub> (pcf): 96.9  
 γ<sub>d</sub> (pcf): 77.1  
 Saturation (%): 100.6  
 Void ratio, e: 2.1356

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.72  
 Ring Diameter (in): 1.9990  
 Ring weight (g): 62.49  
 Height of Solids (in): 0.2392  
 Weight of Dry Soil (g): 33.46



**SAMPLE DATA**

BORING NO.:	B-07
SAMPLE NO.:	
DEPTH (FEET):	9.5
DESCRIPTION:	Gray CLAY (CH) w/silt and sand

**INDEX PROPERTIES**

LIQUID LIMIT (%):	71
PLASTIC LIMIT (%):	19
PLASTICITY INDEX (%):	52
SPECIFIC GRAVITY:	2.74
-200(%):	97
ORGANIC CONTENT (%):	4.13

**SPECIMEN CONDITIONS**


	INITIAL	FINAL
MOISTURE CONTENT (%):	89.2	52.0
DRY DENSITY (lb/ft <sup>3</sup> ):	49.3	71.5
VOID RATIO:	2.47	1.39

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.156
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.31
VIRGIN COMPRESSION RATIO, CR:	0.34

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
Privileged & Confidential  
Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b>  <b>CPRA</b>			
DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13	
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE:	<b>C10</b>

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>v</sub> ε
	Initial	EOP											
0	0.0548	0.0548	0.0548			-	0.7500	0.7500	2.4664	2.4664	0.00	0.00	---
0.050	0.0548	0.0548	0.0587			0.033	0.7500	0.7461	2.4664	2.4484	0.00	0.52	---
0.110	0.0590	0.0640	0.0650	L	4.55E-01	0.080	0.7411	0.7401	2.4253	2.4206	1.19	1.32	0.00170
0.220	0.0662	0.0820	0.0866	L	2.79E-02	0.165	0.7243	0.7197	2.3476	2.3264	3.43	4.04	0.00430
0.440	0.0877	0.1280	0.1360	L	1.73E-02	0.330	0.6794	0.6714	2.1401	2.1031	9.41	10.48	0.01080
0.870	0.1367	0.2090	0.2169	L	1.05E-02	0.655	0.5991	0.5912	1.7690	1.7324	20.12	21.17	0.01070
1.740	0.2175	0.2738	0.2819	L	9.22E-03	1.305	0.5349	0.5268	1.4722	1.4348	28.68	29.76	0.00930
3.510	0.2827	0.3294	0.3352	L	8.95E-03	2.625	0.4801	0.4743	1.2190	1.1921	35.99	36.76	0.00670
0.870	0.3344	0.3170	0.3158	L	1.44E-02	2.190	0.4917	0.4929	1.2726	1.2781	34.44	34.28	---
0.220	0.3155	0.2928	0.2907	L	4.05E-03	0.545	0.5156	0.5177	1.3830	1.3927	31.25	30.97	---

**Project Name:** Oyster Bayou  
**File Number:** 12-80-3741  
**Boring Number:** B-07  
**Depth:** 8-10 B3 (9.5)

**Initial Conditions**  
 Height (in) 0.7500  
 $w_c$  (%) 89.2  
 $\gamma_t$  (pcf) 93.4  
 $\gamma_d$  (pcf) 49.3  
 Saturation (%) 99.1  
 Void ratio, e 2.4664

**Final Conditions**  
 Height (in) 0.5177  
 $w_c$  (%) 52.0  
 $\gamma_t$  (pcf) 108.7  
 $\gamma_d$  (pcf) 71.5  
 Saturation (%) 102.3  
 Void ratio, e 1.3927

**EOP= End of Primary Consolidation**  
**EOI= End of load increment (typically 24 hrs +/-)**  
 Specific Gravity 2.74  
 Ring Diameter (in) 2.0000  
 Ring weight (g) 62.41  
 Height of Solids (in) 0.2164  
 Weight of Dry Soil (g) 30.52



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)			Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>cc</sub> ε
	Initial	EOP	EOI											
0	0.0548	0.0548	0.0548				-	0.7500	0.7500	2.4664	2.4664	0.00	0.00	
0.050	0.0548	0.0548	0.0587				0.025	0.7500	0.7461	2.4664	2.4484	0.00	0.52	
0.110	0.0590	0.0640	0.0650	86	S	8.21E-01	0.080	0.7411	0.7401	2.4253	2.4206	1.19	1.32	0.00170
0.220	0.0662	0.0820	0.0866	1269	S	5.39E-02	0.165	0.7243	0.7197	2.3476	2.3264	3.43	4.04	0.00430
0.440	0.0877	0.1280	0.1360	2693	S	2.32E-02	0.330	0.6794	0.6714	2.1401	2.1031	9.41	10.48	0.01080
0.870	0.1367	0.2090	0.2169	3557	S	1.45E-02	0.655	0.5991	0.5912	1.7690	1.7324	20.12	21.17	0.01070
1.740	0.2175	0.2738	0.2819	3375	S	1.20E-02	1.305	0.5349	0.5268	1.4722	1.4348	28.68	29.76	0.00930
3.510	0.2827	0.3294	0.3352	2700	S	1.20E-02	2.625	0.4801	0.4743	1.2190	1.1921	35.99	36.76	0.00670
0.870	0.3344	0.3170	0.3158	1058	S	2.81E-02	2.190	0.4917	0.4929	1.2726	1.2781	34.44	34.28	
0.220	0.3155	0.2928	0.2907	5645	S	5.75E-03	0.545	0.5156	0.5177	1.3830	1.3927	31.25	30.97	

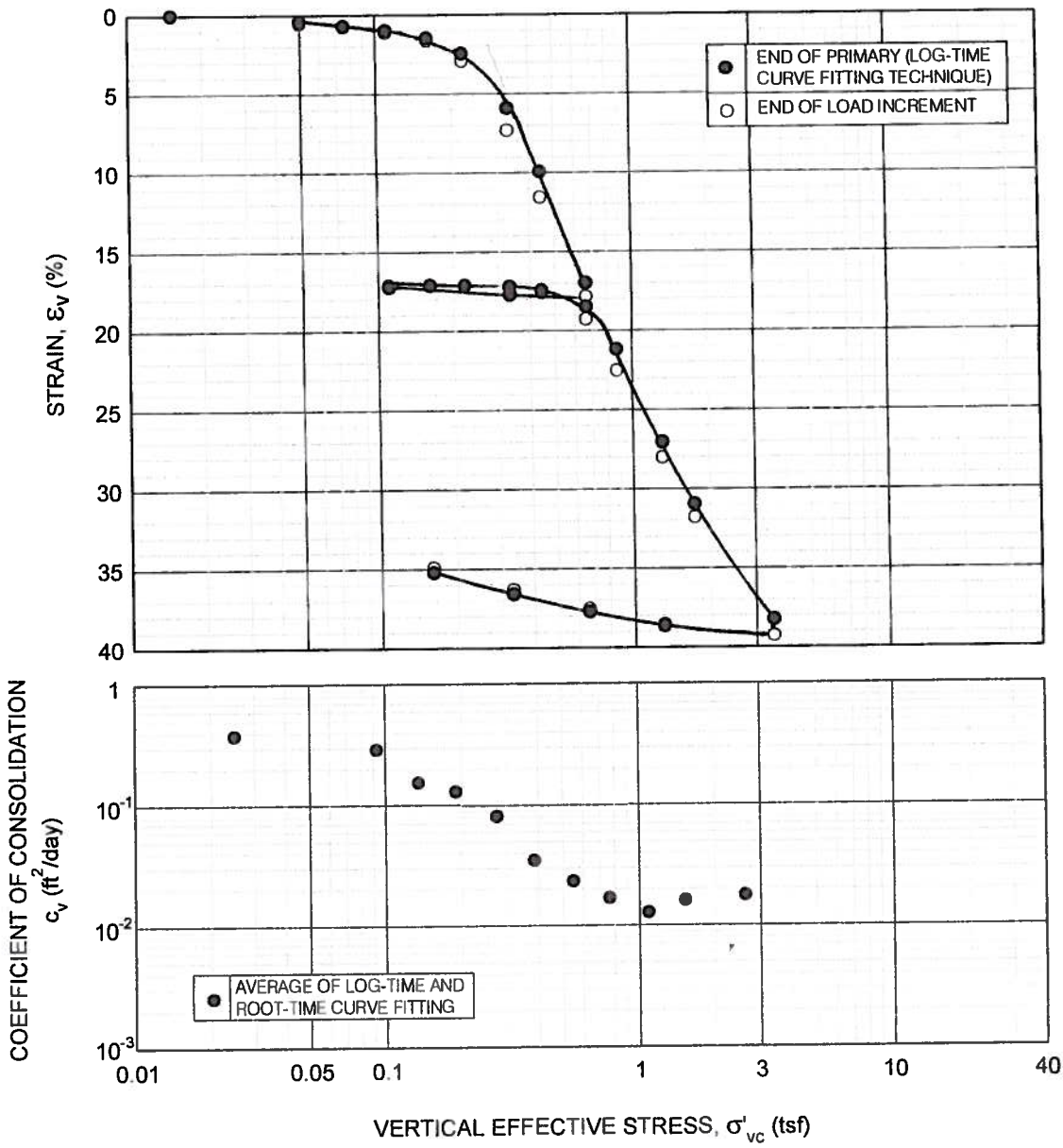
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Sample Name: **B-07**  
Depth: **8-10 B3 (9.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.5177

Height (in): 52.0  
w<sub>c</sub> (%): 89.2  
γ<sub>t</sub> (pcf): 93.4  
γ<sub>d</sub> (pcf): 49.3  
Saturation (%): 99.1  
Void ratio, e: 2.4664

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.74  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.41  
Height of Solids (in): 0.2164  
Weight of Dry Soil (g): 30.52



SAMPLE DATA	
BORING NO.:	B-08
SAMPLE NO.:	
DEPTH (FEET):	5.75
DESCRIPTION:	Gray SANDY CLAY (CL) w/shells
INDEX PROPERTIES	
LIQUID LIMIT (%):	85
PLASTIC LIMIT (%):	25
PLASTICITY INDEX (%):	60
SPECIFIC GRAVITY:	2.69
-200(%):	86

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	85.5	47.4
DRY DENSITY (lb/ft³):	51.0	78.7
VOID RATIO:	2.30	1.14
CONSOLIDATION PARAMETERS		
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.094	
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.27	
VIRGIN COMPRESSION RATIO, CR:	0.36	

## INCREMENTAL CONSOLIDATION TEST RESULTS

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Work Product

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: <b>RJB</b>	CHECKED BY: <i>[Signature]</i>	DATE: <b>03/13/13</b>
FILE NO: <b>12-80-3741</b>	APPROVED: <i>[Signature]</i>	FIGURE: <b>C11</b>

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP											
0	0.0701	0.0703	0.0703				0.7500	0.7500	2.2993	2.2993	0.00	0.00	
0.050	0.0703	0.0734	0.0744	L	3.46E-01	0.025	0.7459	0.7459	2.2857	2.2812	0.41	0.55	
0.075	0.1007	0.1018	0.1022			0.063	0.7448	0.7444	2.2762	2.2744	0.70	0.75	
0.110	0.1127	0.1144	0.1154	L	3.41E-01	0.093	0.7427	0.7417	2.2669	2.2625	0.98	1.11	
0.160	0.1221	0.1248	0.1259	L	1.50E-01	0.135	0.7390	0.7379	2.2509	2.2458	1.47	1.62	0.00081
0.220	0.1264	0.1326	0.1362	L	1.33E-01	0.190	0.7317	0.7281	2.2186	2.2027	2.45	2.93	0.00224
0.330	0.1367	0.1591	0.1696	L	7.62E-02	0.275	0.7057	0.6952	2.1042	2.0580	5.91	7.31	0.01037
0.440	0.1704	0.1900	0.2022	L	3.32E-02	0.385	0.6756	0.6634	1.9718	1.9181	9.93	11.55	0.01177
0.660	0.2030	0.2438	0.2501	L	1.51E-02	0.550	0.6226	0.6163	1.7386	1.7109	16.99	17.83	0.01080
0.330	0.2495	0.2485	0.2483	L	9.40E-02	0.495	0.6172	0.6175	1.7151	1.7162	17.71	17.67	
0.110	0.2478	0.2445	0.2435	L	5.57E-02	0.220	0.6208	0.6218	1.7309	1.7351	17.23	17.10	
0.160	0.2428	0.2428	0.2428			0.135	0.6218	0.6218	1.7351	1.7351	17.10	17.10	
0.220	0.2431	0.2433	0.2433			0.190	0.6216	0.6216	1.7344	1.7342	17.12	17.13	
0.330	0.2438	0.2443	0.2450	L	1.91E-01	0.275	0.6211	0.6204	1.7322	1.7289	17.19	17.29	
0.440	0.2452	0.2463	0.2474	L	1.90E-01	0.385	0.6193	0.6182	1.7241	1.7193	17.43	17.58	0.00046
0.660	0.2478	0.2546	0.2605	L	5.49E-02	0.550	0.6114	0.6055	1.6893	1.6634	18.49	19.27	0.00425
0.870	0.2613	0.2755	0.2855	L	1.54E-02	0.765	0.5913	0.5813	1.6009	1.5569	21.17	22.50	0.01084
1.310	0.2859	0.3200	0.3272	L	1.43E-02	1.090	0.5472	0.5400	1.4069	1.3753	27.05	28.01	0.00988
1.740	0.3275	0.3495	0.3559	L	1.06E-02	1.525	0.5180	0.5116	1.2785	1.2503	30.94	31.79	0.01084
3.510	0.3576	0.4060	0.4136	L	1.47E-02	2.625	0.4632	0.4556	1.0374	1.0040	38.25	39.26	0.01077
1.310	0.4129	0.4082	0.4074	L	3.34E-02	2.410	0.4603	0.4611	1.0247	1.0282	38.63	38.53	
0.660	0.4069	0.4008	0.3995	L	1.42E-02	0.985	0.4672	0.4685	1.0550	1.0607	37.71	37.54	
0.330	0.3987	0.3916	0.3895	L	5.50E-03	0.495	0.4756	0.4777	1.0920	1.1012	36.59	36.31	
0.160	0.3891	0.3808	0.3785	L	2.29E-03	0.245	0.4860	0.4883	1.1377	1.1478	35.21	34.90	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-08**  
Depth: **4-6 (5.75)**

Initial Conditions: Height (in) 0.7500, w<sub>c</sub> (%) 85.5, γ<sub>t</sub> (pcf) 94.6, γ<sub>d</sub> (pcf) 51.0, Saturation (%) 100.2, Void ratio, e 2.2993

Final Conditions: EOP= End of Primary Consolidation 0.4860, EOI= End of load increment (typically 24 hrs +/-) 47.4, Specific Gravity 2.6942, Ring Diameter (in) 116.0, Ring weight (g) 62.39, Height of Solids (in) 112.3, Weight of Dry Soil (g) 31.53

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**

**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C o e
	Initial	EOP											
0	0.0701	0.0703	0.0703			-	0.7500	0.7500	2.2993	2.2993	0.00	0.00	---
0.050	0.0725	0.0732	0.0744	S	4.15E-01	0.025	0.7493	0.7481	2.2960	2.2907	0.10	0.26	---
0.075	0.1007	0.1019	0.1022	S	2.45E-01	0.063	0.7468	0.7465	2.2852	2.2839	0.43	0.47	---
0.110	0.1132	0.1145	0.1154	S	1.61E-01	0.093	0.7452	0.7443	2.2780	2.2740	0.65	0.77	---
0.160	0.1222	0.1254	0.1259	S	1.29E-01	0.135	0.7411	0.7406	2.2599	2.2577	1.19	1.26	0.00081
0.220	0.1279	0.1325	0.1362	S	8.66E-02	0.190	0.7360	0.7323	2.2375	2.2212	1.87	2.37	0.00224
0.330	0.1427	0.1547	0.1696	S	3.67E-02	0.275	0.7203	0.7054	2.1684	2.1029	3.97	5.95	0.01037
0.440	0.1710	0.1892	0.2022	S	3.17E-02	0.385	0.6872	0.6742	2.0228	1.9656	8.38	10.11	0.01177
0.660	0.2025	0.2319	0.2501	S	9.34E-02	0.550	0.6448	0.6266	1.8363	1.7563	14.03	16.46	0.01080
0.330	0.2495	0.2486	0.2483	S		0.495	0.6274	0.6277	1.7601	1.7614	16.34	16.30	---
0.110	0.2472	0.2451	0.2435	S		0.220	0.6298	0.6314	1.7706	1.7777	16.02	15.81	---
0.160	0.2435	0.2428	0.2428	S		0.135	0.6321	0.6321	1.7808	1.7808	15.72	15.72	---
0.220	0.2428	0.2433	0.2433			0.190	0.6316	0.6316	1.7786	1.7786	15.78	15.78	---
0.330	0.2436	0.2443	0.2450	S	2.94E-01	0.275	0.6309	0.6302	1.7754	1.7722	15.88	15.98	---
0.440	0.2452	0.2463	0.2474	S	2.11E-01	0.385	0.6291	0.6280	1.7675	1.7627	16.12	16.26	0.00046
0.660	0.2478	0.2537	0.2605	S	7.64E-02	0.550	0.6221	0.6153	1.7367	1.7068	17.05	17.96	0.00425
0.870	0.2610	0.2749	0.2855	S	1.86E-02	0.765	0.6014	0.5908	1.6457	1.5990	19.81	21.22	0.01084
1.310	0.2862	0.3199	0.3251	S	1.15E-02	1.090	0.5571	0.5519	1.4508	1.4279	25.72	26.41	0.00988
1.740	0.3274	0.3435	0.3539	S	2.16E-02	1.525	0.5358	0.5254	1.3571	1.3113	28.56	29.94	0.01084
3.510	0.3590	0.3990	0.4136	S	2.09E-02	2.625	0.4854	0.4708	1.1354	1.0712	35.28	37.22	0.01077
1.310	0.4127	0.4086	0.4074	S		2.410	0.4749	0.4761	1.0892	1.0945	36.68	36.52	---
0.660	0.4068	0.4016	0.3995	S	2.03E-02	0.985	0.4813	0.4834	1.1173	1.1266	35.82	35.54	---
0.330	0.3980	0.3908	0.3895	S	3.88E-03	0.495	0.4906	0.4919	1.1583	1.1640	34.58	34.41	---
0.160	0.3890	0.3820	0.3787	S	3.40E-03	0.245	0.4989	0.5022	1.1948	1.2093	33.48	33.04	---

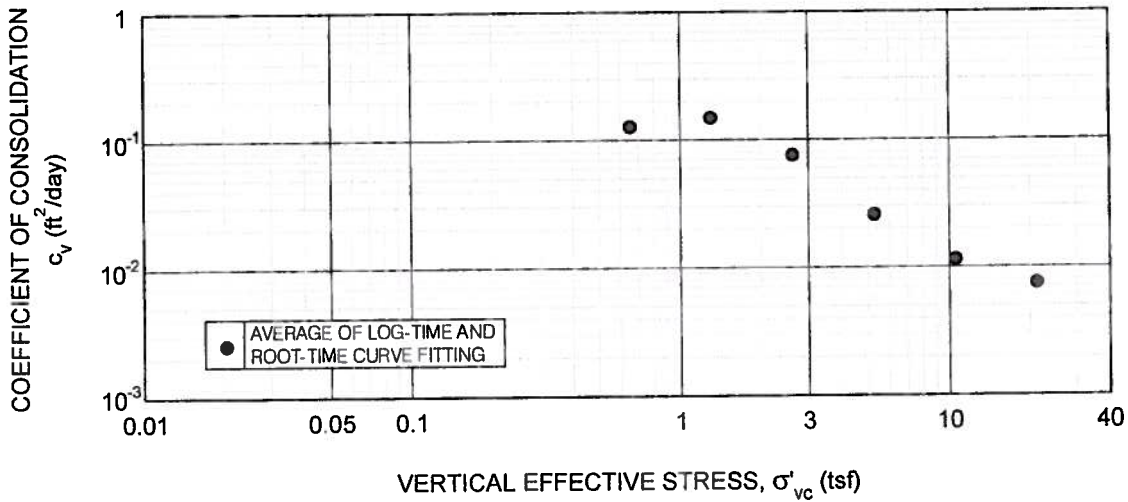
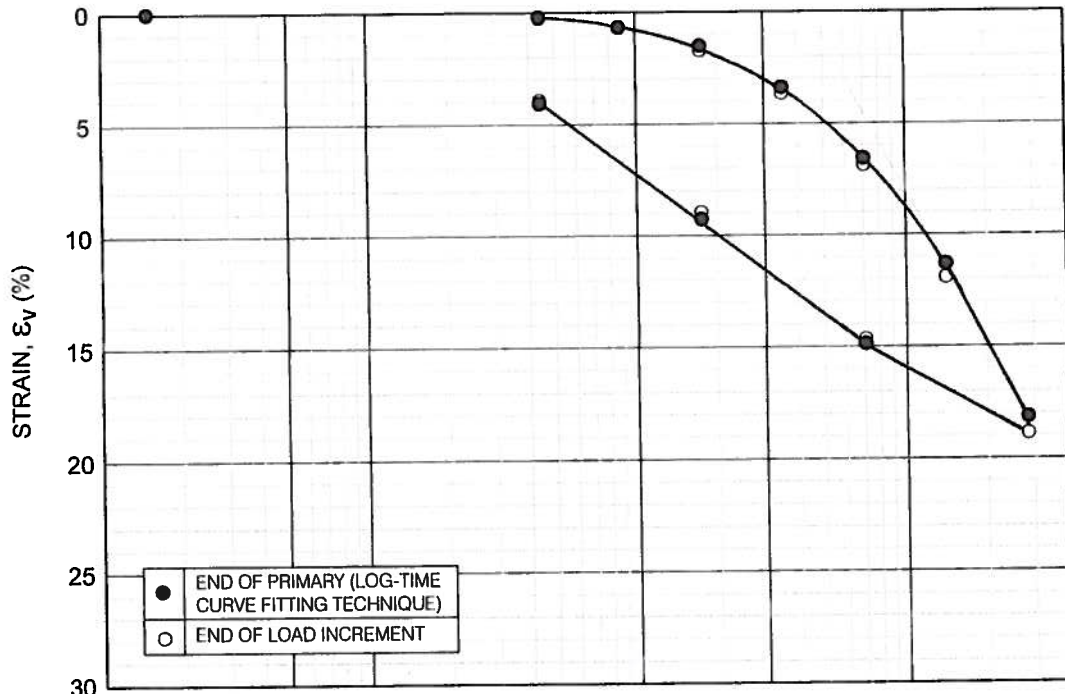
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-08**  
Depth: **4-6 (5.75)**

Initial Conditions: 0.7500  
Final Conditions: 0.4860

Height (in): 47.4  
 $w_c$  (%): 116.0  
 $\gamma_t$  (pcf): 78.7  
 $\gamma_d$  (pcf): 112.3  
Saturation (%): 1.1379  
Void ratio, e: 2.2993

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.6942  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.39  
Height of Solids (in): 0.2273  
Weight of Dry Soil (g): 31.53



**SAMPLE DATA**

BORING NO.: B-09  
 SAMPLE NO.:  
 DEPTH (FEET): 34.5  
 DESCRIPTION: Tan and gray SILTY CLAY (CL)

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%)	44.4	42.7
DRY DENSITY (lb/ft <sup>3</sup> )	76.1	79.2
VOID RATIO:	1.28	1.19

**INDEX PROPERTIES**


LIQUID LIMIT (%): 39  
 PLASTIC LIMIT (%): 20  
 PLASTICITY INDEX (%): 19  
 SPECIFIC GRAVITY: 2.78  
 -200(%): 100

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.825
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	7.0
VIRGIN COMPRESSION RATIO, CR:	0.23

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
 Privileged & Confidential  
 Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b>  <b>CPRA</b>			
DRAWN BY: <b>RJB</b>	CHECKED BY: <i>[Signature]</i>	DATE: <b>03/13/13</b>	
FILE NO: <b>12-80-3741</b>	APPROVED BY: <i>[Signature]</i>	FIGURE:	<b>C12</b>

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>v</sub> ε
	Initial	EOI											
0	0.0109	0.0109				-	0.7500	0.7500	1.2815	1.2815	0.00	0.00	---
0.440	0.0109	0.0124				0.228	0.7485	0.7481	1.2770	1.2756	0.20	0.26	---
0.870	0.0138	0.0168	258	L	6.40E-02	0.655	0.7450	0.7447	1.2663	1.2654	0.67	0.71	0.00066
1.740	0.0190	0.0250	132	L	1.24E-01	1.305	0.7387	0.7372	1.2471	1.2426	1.51	1.71	0.00131
3.510	0.0286	0.0412	480	L	3.30E-02	2.625	0.7246	0.7226	1.2043	1.1982	3.39	3.65	0.00185
7.040	0.0456	0.0675	780	L	1.93E-02	5.275	0.7007	0.6985	1.1316	1.1249	6.57	6.87	0.00360
14.100	0.0724	0.1057	1380	L	9.99E-03	10.570	0.6652	0.6607	1.0236	1.0099	11.31	11.91	0.00552
28.360	0.1132	0.1600	2040	L	5.90E-03	21.230	0.6139	0.6084	0.8675	0.8506	18.15	18.89	0.00870
7.040	0.1632	0.1330	1860	L	6.20E-03	17.700	0.6386	0.6400	0.9425	0.9469	14.86	14.67	---
1.740	0.1335	0.0930	3720	L	3.47E-03	4.390	0.6805	0.6828	1.0701	1.0771	9.27	8.96	---
0.440	0.0917	0.0550	12000	L	1.21E-03	1.090	0.7195	0.7205	1.1887	1.1918	4.07	3.93	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-09**  
Depth: **33-35 B3 (34.5)**

Initial Conditions: 0.7500  
Final Conditions: 0.7205

Height (in): 42.7  
w<sub>c</sub> (%): 44.4  
γ<sub>t</sub> (pcf): 109.8  
γ<sub>d</sub> (pcf): 76.1  
Saturation (%): 96.2  
Void ratio, e: 1.2815

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.78  
Ring Diameter (in): 1.9990  
Ring weight (g): 62.52  
Height of Solids (in): 0.3287  
Weight of Dry Soil (g): 47.00

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.0109	0.0109				-	0.7500	0.7500	1.2815	1.2815	0.00	0.00	---
0.440	0.0109	0.0124			0.220	0.7485	0.7481	1.2770	1.2756	1.2770	0.20	0.26	---
0.870	0.0138	0.0168	375	S	1.90E-01	0.7450	0.7447	1.2663	1.2654	1.2663	0.67	0.71	0.00066
1.740	0.0190	0.0250	406	S	1.73E-01	0.7387	0.7372	1.2471	1.2426	1.2471	1.51	1.71	0.00131
3.510	0.0286	0.0412	576	S	1.18E-01	0.7246	0.7226	1.2043	1.1982	1.2043	3.39	3.65	0.00185
7.040	0.0456	0.0675	2020	S	3.20E-02	0.7007	0.6985	1.1316	1.1249	1.1316	6.57	6.87	0.00360
14.100	0.0724	0.1057	4640	S	1.28E-02	0.6652	0.6607	1.0236	1.0099	1.0236	11.31	11.91	0.00552
28.360	0.1132	0.1600	5760	S	9.00E-03	0.6139	0.6084	0.8675	0.8506	0.8675	18.15	18.89	0.00870
7.040	0.1632	0.1330	4200	S	1.18E-02	0.6386	0.6400	0.9425	0.9469	0.9425	14.86	14.67	---
1.740	0.1335	0.0930	15360	S	3.62E-03	0.4390	0.6805	0.6828	1.0701	1.0771	9.27	8.96	---
0.440	0.0917	0.0550			1.090	0.7195	0.7205	1.1887	1.1918	1.1887	4.07	3.93	---

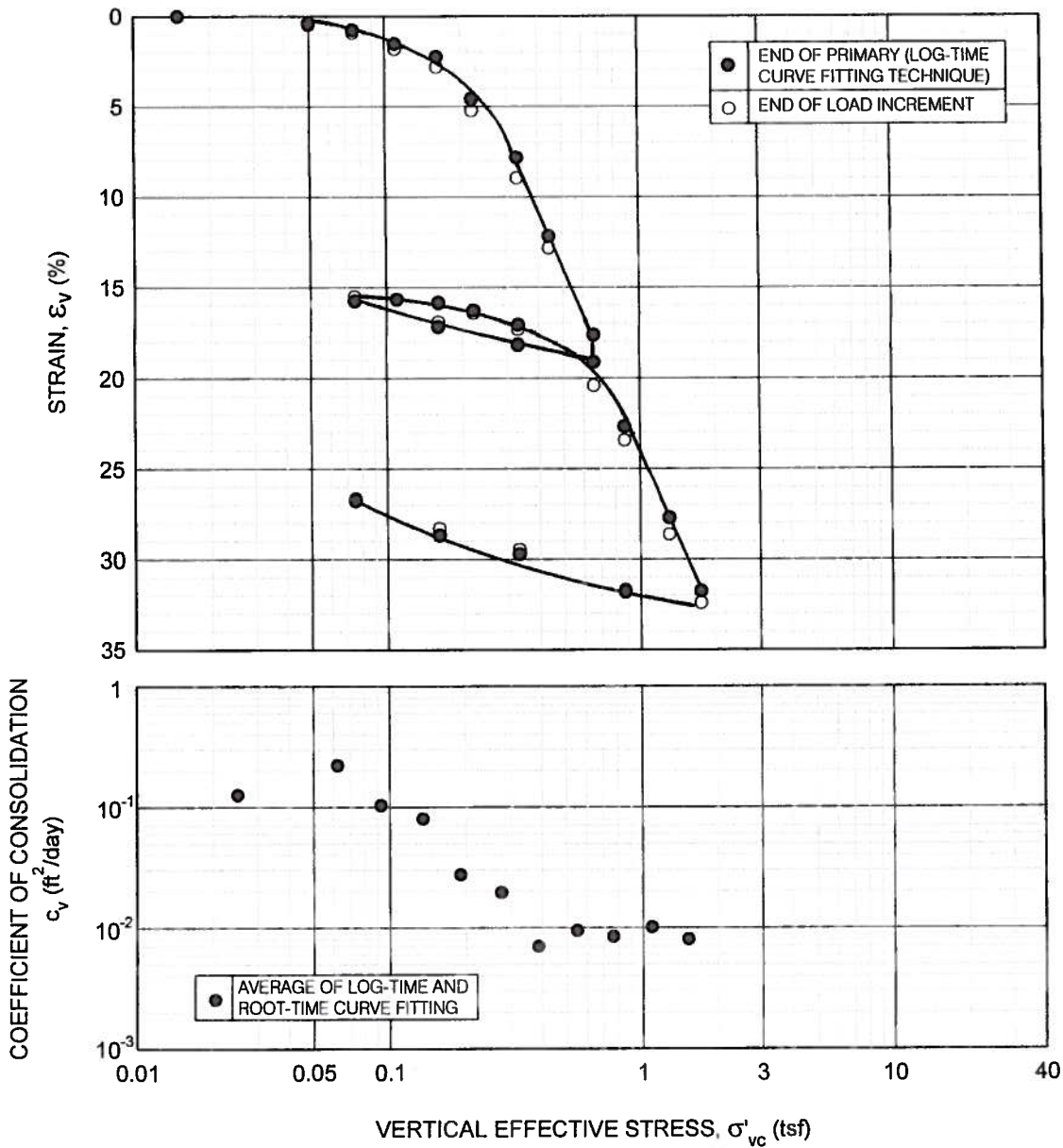
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-09**  
Depth: **33-35 B3 (34.5)**

Initial Conditions: 0.7500  
44.4  
109.8  
76.1  
96.2  
1.2815

Final Conditions: 0.7205  
42.7  
113.0  
79.2  
99.7  
1.1918

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.78  
Ring Diameter (in): 1.9990  
Ring weight (g): 62.52  
Height of Solids (in): 0.3287  
Weight of Dry Soil (g): 47.00



SAMPLE DATA	
BORING NO.:	B-10
SAMPLE NO.:	
DEPTH (FEET):	7.75
DESCRIPTION:	Gray CLAY (CH)

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	92.9	59.8
DRY DENSITY (lb/ft <sup>3</sup> ):	48.8	67.7
VOID RATIO:	2.50	1.52

INDEX PROPERTIES	
LIQUID LIMIT (%):	
PLASTIC LIMIT (%):	
PLASTICITY INDEX (%):	
SPECIFIC GRAVITY:	2.74
-200(%):	94

CONSOLIDATION PARAMETERS	
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.127
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.24
VIRGIN COMPRESSION RATIO, CR:	0.309
RECOMPRESSION RATIO, RR:	0.029

## INCREMENTAL CONSOLIDATION TEST RESULTS

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C13

Confidential Information:  
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Work Product



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (incht)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>α</sub> e
	Initial	EOP											
0	0.0735	0.0735	0.0724				0.7560	0.7560	2.5019	2.5019	0.00	0.00	---
0.050	0.0724	0.0753	0.0761	L	1.34E-01	0.025	0.7531	0.7523	2.4885	2.4848	0.38	0.49	---
0.075	0.0761	0.0782	0.0794	L	2.66E-01	0.063	0.7502	0.7490	2.4750	2.4695	0.77	0.93	---
0.110	0.0795	0.0840	0.0862	L	9.84E-02	0.093	0.7445	0.7423	2.4486	2.4384	1.52	1.81	0.00147
0.160	0.0863	0.0895	0.0939	L	7.97E-02	0.135	0.7391	0.7347	2.4236	2.4032	2.24	2.82	0.00264
0.220	0.0941	0.1074	0.1122	L	2.28E-02	0.190	0.7214	0.7166	2.3416	2.3194	4.58	5.21	0.00718
0.330	0.1124	0.1320	0.1406	L	1.54E-02	0.275	0.6970	0.6884	2.2286	2.1888	7.80	8.94	0.01661
0.440	0.1406	0.1650	0.1699	L	5.65E-03	0.385	0.6640	0.6591	2.0757	2.0530	12.17	12.82	0.01805
0.660	0.1697	0.2060	0.2173	L	8.12E-03	0.550	0.6228	0.6115	1.8849	1.8326	17.62	19.11	---
0.330	0.2192	0.2121	0.2116	L	8.90E-02	0.495	0.6186	0.6191	1.8654	1.8678	18.17	18.11	---
0.160	0.2114	0.2043	0.2023	L	2.74E-02	0.245	0.6262	0.6282	1.9007	1.9099	17.17	16.90	---
0.075	0.2020	0.1932	0.1913	L	8.99E-03	0.118	0.6370	0.6389	1.9507	1.9595	15.74	15.49	---
0.110	0.1915	0.1928	0.1929	L	5.03E-02	0.093	0.6376	0.6375	1.9536	1.9530	15.66	15.67	---
0.160	0.1929	0.1940	0.1945	L	8.35E-02	0.135	0.6364	0.6359	1.9479	1.9456	15.82	15.89	---
0.220	0.1945	0.1974	0.1984	L	5.23E-02	0.190	0.6330	0.6320	1.9321	1.9275	16.27	16.40	0.00103
0.330	0.1985	0.2034	0.2053	L	3.92E-02	0.275	0.6271	0.6252	1.9048	1.8960	17.05	17.30	0.00161
0.660	0.2054	0.2190	0.2288	L	3.78E-02	0.495	0.6116	0.6018	1.8330	1.7876	19.10	20.40	0.00903
0.870	0.2288	0.2460	0.2517	L	6.96E-03	0.765	0.5846	0.5789	1.7080	1.6816	22.67	23.43	---
1.310	0.2519	0.2842	0.2912	L	7.82E-03	1.090	0.5466	0.5396	1.5319	1.4995	27.70	28.62	0.01365
1.740	0.2893	0.3130	0.3179	L	6.88E-03	1.525	0.5159	0.5110	1.3897	1.3670	31.76	32.41	0.01135
0.870	0.3179	0.3133	0.3124	L	7.23E-02	1.305	0.5156	0.5165	1.3883	1.3925	31.80	31.68	---
0.330	0.3114	0.2965	0.2946	L	1.13E-02	0.600	0.5314	0.5333	1.4615	1.4703	29.71	29.46	---
0.160	0.2946	0.2886	0.2857	L	6.46E-03	0.245	0.5393	0.5422	1.4981	1.5116	28.66	28.28	---
0.075	0.2856	0.2740	0.2731	L	1.85E-03	0.118	0.5538	0.5547	1.5653	1.5695	26.75	26.63	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-10**  
Depth: **6-8 (7.75)**

Initial Conditions: Height (in) 0.7560, w<sub>c</sub> (%) 92.9, γ<sub>t</sub> (pcf) 94.1, γ<sub>d</sub> (pcf) 48.8, Saturation (%) 101.6, Void ratio, e 2.5019

Final Conditions: 0.5450, 59.8, 108.2, 67.7, 107.4, 1.5245

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7362  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.59  
Height of Solids (in) 0.2159  
Weight of Dry Soil (g) 30.41

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ae</sub>
	Initial	EOP											
0	0.0735	0.0735	0.0724				0.7560	0.7560	2.5019	2.5019	0.00	0.00	
0.050	0.0724	0.0755	0.0761	S	1.18E-01	0.025	0.7529	0.7523	2.4875	2.4848	0.41	0.49	
0.075	0.0761	0.0782	0.0794	S	1.77E-01	0.063	0.7502	0.7490	2.4750	2.4695	0.77	0.93	
0.110	0.0796	0.0837	0.0862	S	1.09E-01	0.093	0.7449	0.7424	2.4505	2.4389	1.47	1.80	0.00147
0.160	0.0862	0.0895	0.0939	S	8.09E-02	0.135	0.7391	0.7347	2.4236	2.4032	2.24	2.82	0.00264
0.220	0.0939	0.1051	0.1122	S	3.25E-02	0.190	0.7235	0.7164	2.3513	2.3185	4.30	5.24	0.00718
0.330	0.1121	0.1288	0.1406	S	2.38E-02	0.275	0.6997	0.6879	2.2411	2.1865	7.45	9.01	0.01661
0.440	0.1406	0.1610	0.1699	S	8.38E-03	0.385	0.6675	0.6586	2.0920	2.0507	11.71	12.88	0.01805
0.660	0.1699	0.2052	0.2173	S	1.08E-02	0.550	0.6233	0.6112	1.8872	1.8312	17.55	19.15	
0.330	0.2192	0.2133	0.2116	S	1.52E-01	0.495	0.6171	0.6188	1.8585	1.8664	18.37	18.15	
0.160	0.2115	0.2075	0.2023	S	1.21E-01	0.245	0.6228	0.6280	1.8849	1.9090	17.62	16.93	
0.075	0.2022	0.1960	0.1913	S	2.13E-02	0.118	0.6342	0.6389	1.9377	1.9595	16.11	15.49	
0.110	0.1914	0.1921	0.1929	S	2.68E-01	0.093	0.6382	0.6374	1.9560	1.9523	15.59	15.69	
0.160	0.1929	0.1937	0.1945	S	1.63E-01	0.135	0.6366	0.6358	1.9486	1.9449	15.80	15.91	0.00103
0.220	0.1946	0.1966	0.1984	S	3.09E-01	0.190	0.6398	0.6320	1.9356	1.9273	16.17	16.41	
0.330	0.1987	0.2031	0.2053	S	1.99E-02	0.275	0.6276	0.6254	1.9069	1.8967	16.99	17.28	0.00161
0.660	0.2055	0.2188	0.2288	S	3.85E-02	0.495	0.6121	0.6021	1.8351	1.7888	19.04	20.36	0.00903
0.870	0.2288	0.2432	0.2517	S	9.94E-03	0.765	0.5877	0.5792	1.7221	1.6827	22.27	23.39	
1.310	0.2517	0.2790	0.2912	S	1.24E-02	1.090	0.5519	0.5397	1.5563	1.4997	27.00	28.62	0.01365
1.740	0.2912	0.3090	0.3179	S	9.13E-03	1.525	0.5219	0.5130	1.4173	1.3761	30.97	32.15	0.01135
0.870	0.3174	0.3140	0.3124	S	7.74E-02	1.305	0.5164	0.5180	1.3918	1.3992	31.70	31.49	
0.330	0.3115	0.2993	0.2946	S	1.86E-02	0.600	0.5302	0.5349	1.4557	1.4775	29.87	29.25	
0.160	0.2946	0.2894	0.2857	S	8.71E-03	0.245	0.5401	0.5438	1.5016	1.5187	28.56	28.08	
0.075	0.2856	0.2731	0.2731			0.118	0.5563	0.5563	1.5766	1.5766	26.42	26.42	

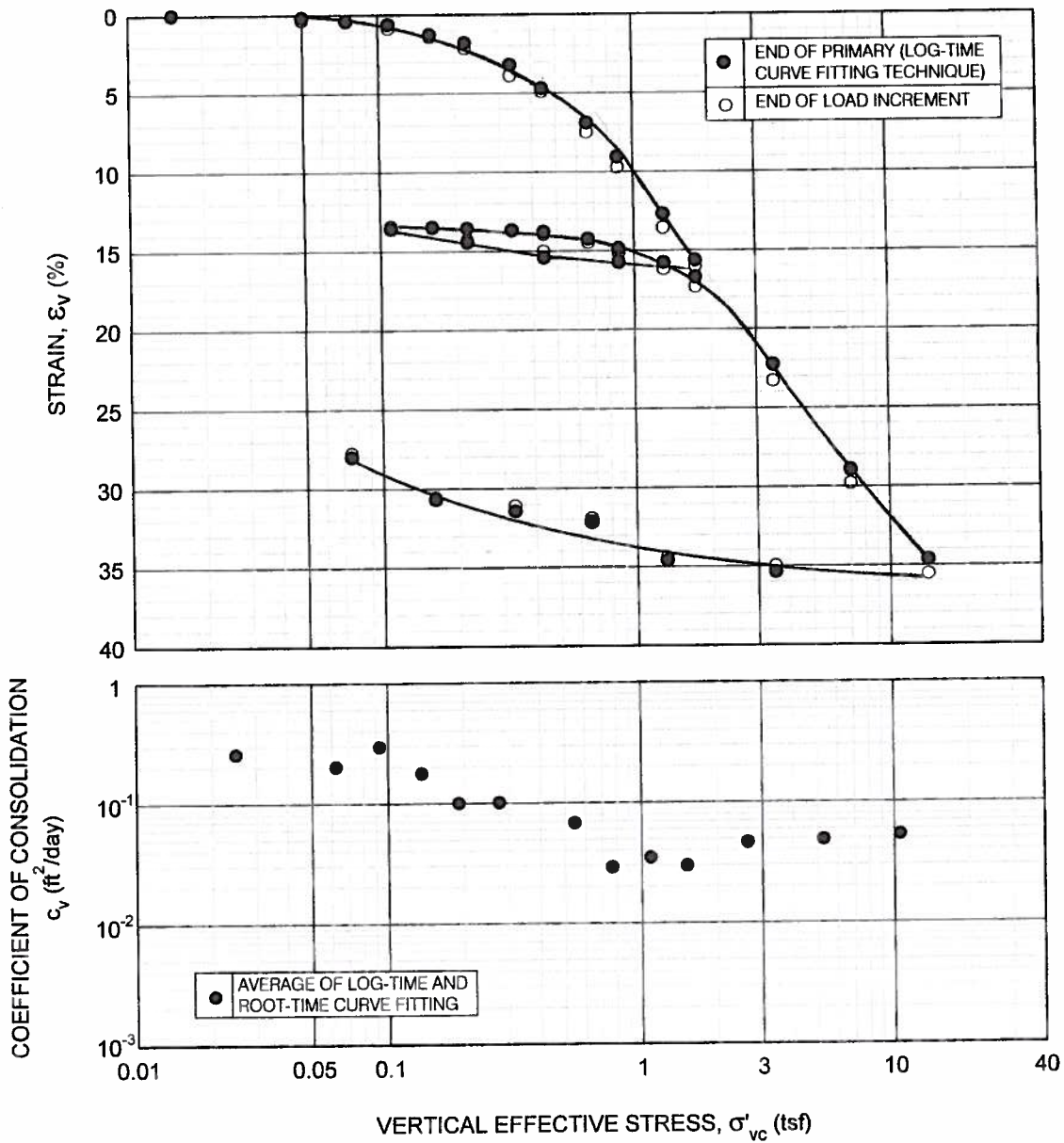
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-10**  
Depth: **6-8 (7.75)**

Initial Conditions: 0.7560, 92.9, 94.1, 48.8, 101.6, 2.5019  
Final Conditions: 0.5450, 59.8, 108.2, 67.7, 107.4, 1.5245

Height (in): 0.7560, 0.5450  
w<sub>c</sub> (%): 92.9, 59.8  
γ<sub>t</sub> (pcf): 94.1, 108.2  
γ<sub>d</sub> (pcf): 48.8, 67.7  
Saturation (%): 101.6, 107.4  
Void ratio, e: 2.5019, 1.5245

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7362  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.59  
Height of Solids (in): 0.2159  
Weight of Dry Soil (g): 30.41



**SAMPLE DATA**

BORING NO.:	B-11
SAMPLE NO.:	
DEPTH (FEET):	3.75
DESCRIPTION:	Gray CLAY (CH) w/organics

**INDEX PROPERTIES**

LIQUID LIMIT (%):	93
PLASTIC LIMIT (%):	25
PLASTICITY INDEX (%):	68
SPECIFIC GRAVITY:	2.73
-200(%):	77

**SPECIMEN CONDITIONS**


	INITIAL	FINAL
MOISTURE CONTENT (%):	66.1	41.0
DRY DENSITY (lb/ft³):	60.6	80.8
VOID RATIO:	1.81	1.11

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.062
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.6
VIRGIN COMPRESSION RATIO, CR:	0.22
RECOMPRESSION RATIO, RR:	0.04

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
Privileged & Confidential  
Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b>  <b>CPRA</b>			
DRAWN BY: RJB	CHECKED BY: <i>MJB</i>	DATE: 03/13/13	
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE:	<b>C14</b>

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (Inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (Inch)	Height at EOI (Inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ci</sub> e
	Initial	EOP											
0	0.1002	0.1002	0.0999				0.7590	0.7590	1.8108	1.8108	0.00	0.00	
0.050	0.1003	0.1014	0.1028	L	2.84E-01	0.025	0.7579	0.7565	1.8065	1.8015	0.15	0.33	
0.075	0.1030	0.1034	0.1038			0.063	0.7561	0.7557	1.7984	1.7984	0.39	0.44	
0.110	0.1042	0.1054	0.1073	L	3.76E-01	0.093	0.7545	0.7526	1.7939	1.7869	0.60	0.85	
0.160	0.1081	0.1112	0.1123	L	1.88E-01	0.135	0.7494	0.7483	1.7751	1.7711	1.27	1.41	
0.220	0.1140	0.1168	0.1196	L	9.19E-02	0.190	0.7455	0.7428	1.7608	1.7506	1.78	2.14	
0.330	0.1200	0.1280	0.1333	L	5.39E-02	0.275	0.7348	0.7295	1.7210	1.7015	3.19	3.89	0.00355
0.440	0.1335	0.1397	0.1412			0.385	0.7233	0.7218	1.6786	1.6730	4.70	4.90	
0.660	0.1418	0.1570	0.1614	L	2.80E-02	0.550	0.7057	0.7023	1.6171	1.6008	6.89	7.47	0.00701
0.870	0.1614	0.1734	0.1784	L	2.00E-02	0.765	0.6903	0.6854	1.5564	1.5380	9.05	9.70	0.00763
1.310	0.1789	0.2015	0.2082	L	2.36E-02	1.090	0.6628	0.6561	1.4543	1.4297	12.68	13.56	0.00750
1.740	0.2084	0.2240	0.2271	L	1.09E-02	1.525	0.6405	0.6374	1.3717	1.3605	15.62	16.02	0.00793
0.870	0.2263	0.2242	0.2235	L	2.24E-01	1.305	0.6395	0.6402	1.3682	1.3708	15.74	15.65	
0.440	0.2231	0.2214	0.2184	L	6.77E-02	0.655	0.6420	0.6450	1.3773	1.3884	15.42	15.03	
0.220	0.2181	0.2138	0.2125	L	2.07E-02	0.330	0.6494	0.6505	1.4049	1.4090	14.44	14.30	
0.110	0.2123	0.2068	0.2058	L	8.43E-03	0.165	0.6567	0.6571	1.4293	1.4332	13.57	13.43	
0.160	0.2058	0.2062	0.2063	L		0.135	0.6562	0.6568	1.4317	1.4314	13.48	13.50	
0.220	0.2065	0.2072	0.2072	L	2.84E-01	0.190	0.6562	0.6559	1.4301	1.4288	13.54	13.59	
0.330	0.2074	0.2080	0.2083	L	2.12E-01	0.275	0.6553	0.6550	1.4266	1.4254	13.67	13.71	
0.440	0.2084	0.2090	0.2101	L	2.12E-01	0.385	0.6544	0.6532	1.4232	1.4190	13.79	13.94	
0.660	0.2103	0.2126	0.2142	L	1.17E-01	0.550	0.6509	0.6493	1.4103	1.4043	14.25	14.46	0.00108
0.870	0.2145	0.2175	0.2196	L	1.22E-01	0.765	0.6463	0.6442	1.3932	1.3856	14.86	15.13	0.00133
1.310	0.2189	0.2246	0.2278	L	1.27E-01	1.090	0.6395	0.6363	1.3680	1.3562	15.75	16.17	0.00217
1.740	0.2280	0.2320	0.2366	L	1.42E-01	1.525	0.6322	0.6277	1.3412	1.3243	16.71	17.31	0.00289
3.510	0.2376	0.2750	0.2828	L	3.05E-02	2.625	0.5903	0.5825	1.1858	1.1570	22.23	23.26	0.00882
7.040	0.2830	0.3260	0.3325	L	3.11E-02	5.275	0.5394	0.5330	0.9975	0.9736	28.93	29.78	0.00723
14.100	0.3334	0.3702	0.3769	L	4.36E-02	10.570	0.4961	0.4894	0.8372	0.8124	34.64	35.52	0.00682
3.510	0.3729	0.3716	0.3689	L		8.805	0.4907	0.4934	0.8172	0.8272	35.35	34.99	
1.310	0.3686	0.3656	0.3643	L	3.36E-02	2.410	0.4964	0.4977	0.8393	0.8431	34.60	34.43	
0.860	0.3625	0.3450	0.3436	L	1.10E-02	0.985	0.5152	0.5166	0.9077	0.9129	32.13	31.94	
0.330	0.3435	0.3396	0.3372	L	2.66E-03	0.495	0.5205	0.5229	0.9274	0.9384	31.43	31.11	
0.160	0.3369	0.3336	0.3328	L	1.84E-03	0.245	0.5262	0.5270	0.9486	0.9516	30.67	30.57	
0.075	0.3328	0.3130	0.3114	L	1.51E-03	0.118	0.5466	0.5463	1.0242	1.0303	27.98	27.77	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-11**  
Depth: **2-4 (3.75)**

Initial Conditions: Height (in) 66.1, w<sub>e</sub> (%) 100.7, γ<sub>d</sub> (pcf) 60.6, Saturation (%) 99.7, Void ratio, e 1.8108

Final Conditions: Height (in) 41.0, w<sub>e</sub> (%) 113.9, γ<sub>d</sub> (pcf) 80.8, Saturation (%) 100.8, Void ratio, e 1.1109

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7506  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.61  
Height of Solids (in) 0.2700  
Weight of Dry Soil (g) 37.96

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>u</sub> e
	Initial	EOP											
0	0.1002	0.1002	0.0999				0.7590	0.7590	1.8108	1.8108	0.00	0.00	
0.050	0.1003	0.1014	0.1028	S	2.31E-01	0.025	0.7579	0.7585	1.8067	1.8015	0.14	0.33	
0.075	0.1027	0.1034	0.1038	S	2.03E-01	0.063	0.7559	0.7554	1.7991	1.7976	0.42	0.47	
0.110	0.1042	0.1058	0.1073	S	2.11E-01	0.093	0.7539	0.7523	1.7918	1.7861	0.87	0.88	
0.160	0.1080	0.1112	0.1123	S	1.71E-01	0.135	0.7491	0.7480	1.7741	1.7702	1.30	1.44	
0.220	0.1140	0.1166	0.1196	S	1.09E-01	0.190	0.7454	0.7425	1.7605	1.7496	1.79	2.18	
0.330	0.1200	0.1251	0.1333	S	1.48E-01	0.275	0.7374	0.7292	1.7307	1.7006	2.85	3.92	0.00355
0.440	0.1335	0.1397	0.1412	S		0.385	0.7230	0.7215	1.6776	1.6720	4.74	4.94	
0.660	0.1421	0.1505	0.1614	S	1.07E-01	0.550	0.7131	0.7022	1.6409	1.6006	6.04	7.48	0.00701
0.870	0.1614	0.1700	0.1784	S	3.83E-02	0.765	0.6936	0.6853	1.5687	1.5378	8.61	9.71	0.00763
1.310	0.1789	0.1959	0.2082	S	4.60E-02	1.090	0.6683	0.6560	1.4748	1.4295	11.95	13.57	0.00750
1.740	0.2082	0.2171	0.2271	S	4.89E-02	1.525	0.6471	0.6372	1.3965	1.3597	14.74	16.05	0.00793
0.870	0.2263	0.2245	0.2235	S	2.68E-01	1.305	0.6390	0.6400	1.3663	1.3700	15.81	15.68	
0.440	0.2231	0.2205	0.2184	S	1.40E-01	0.855	0.6426	0.6447	1.3797	1.3876	15.34	15.05	
0.220	0.2183	0.2154	0.2125	S	7.25E-02	0.330	0.6476	0.6505	1.3984	1.4091	14.67	14.29	
0.110	0.2124	0.2085	0.2058	S	1.96E-02	0.165	0.6544	0.6572	1.4236	1.4337	13.78	13.41	
0.220	0.2065	0.2067	0.2072	S		0.135	0.6569	0.6567	1.4326	1.4319	13.45	13.48	
0.330	0.2072	0.2076	0.2083	S	1.29E-01	0.190	0.6564	0.6559	1.4310	1.4291	13.51	13.58	
0.440	0.2083	0.2103	0.2101	S	3.56E-01	0.275	0.6541	0.6548	1.4276	1.4250	13.63	13.72	
0.660	0.2103	0.2124	0.2142	S	1.72E-01	0.385	0.6541	0.6530	1.4224	1.4184	13.82	13.96	
0.870	0.2145	0.2171	0.2196	S	1.34E-01	0.765	0.6465	0.6441	1.3943	1.3852	14.62	15.14	0.00133
1.310	0.2198	0.2242	0.2278	S	1.55E-01	1.090	0.6397	0.6361	1.3689	1.3556	15.72	16.19	0.00217
1.740	0.2280	0.2309	0.2366	S	2.14E-01	1.525	0.6332	0.6275	1.3449	1.3239	16.58	17.32	0.00289
3.510	0.2380	0.2679	0.2828	S	6.16E-02	2.625	0.5976	0.5827	1.2132	1.1580	21.26	23.22	0.00892
7.040	0.2830	0.3152	0.3325	S	6.67E-02	5.275	0.5505	0.5333	1.0388	0.9749	27.47	29.74	0.00723
14.100	0.3340	0.3634	0.3769	S	6.38E-02	10.570	0.5039	0.4904	0.8660	0.8160	33.61	35.39	0.00662
3.510	0.3769	0.3710	0.3689	S	5.75E-02	8.805	0.4963	0.4984	0.8379	0.8457	34.61	34.34	
1.310	0.3684	0.3660	0.3643	S	3.68E-02	2.410	0.5008	0.5025	0.8546	0.8608	34.02	33.80	
0.660	0.3821	0.3482	0.3436	S	1.35E-02	0.985	0.5164	0.5210	0.9123	0.9294	31.96	31.36	
0.330	0.3436	0.3396	0.3372	S	6.31E-03	0.495	0.5274	0.5274	0.9442	0.9532	30.83	30.51	
0.160	0.3372	0.3351	0.3328	S	9.52E-03	0.245	0.5295	0.5318	0.9610	0.9695	30.23	29.93	
0.075	0.3328	0.3164	0.3114	S	2.42E-03	0.118	0.5482	0.5533	1.0303	1.0490	27.77	27.10	

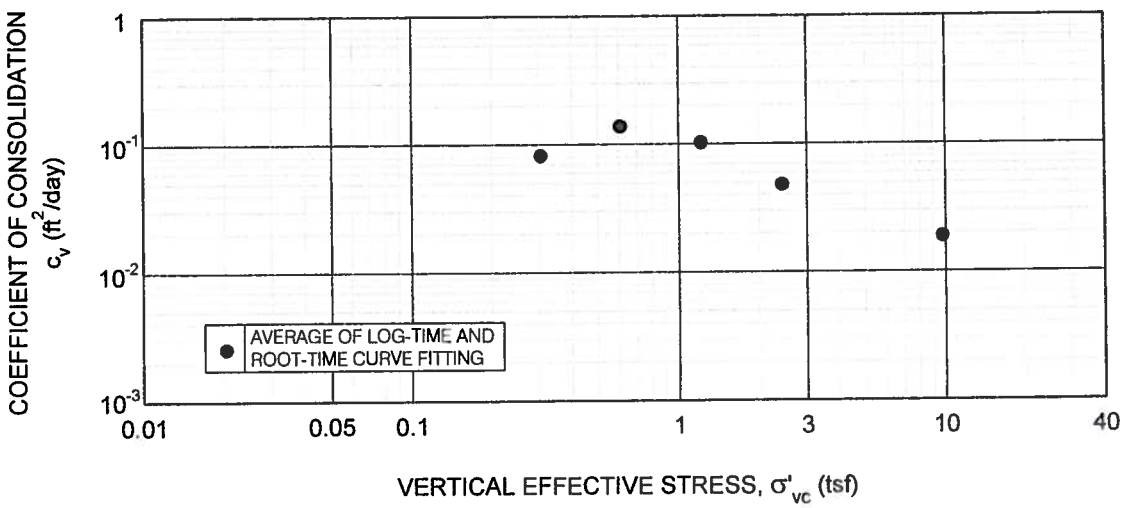
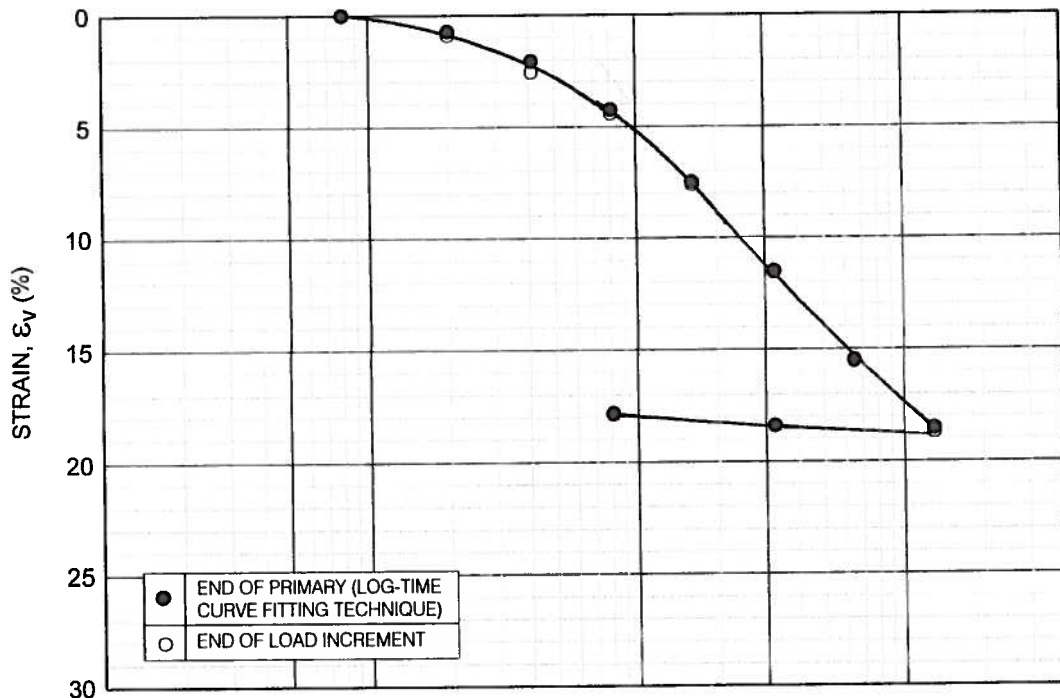
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-11**  
Depth: **2-4 (3.75)**

Initial Conditions: Height (in) 66.1, w<sub>c</sub> (%) 100.7, γ<sub>d</sub> (pcf) 60.6, Saturation (%) 99.7, Void ratio, e 1.8108

Final Conditions: Height (in) 41.0, w<sub>c</sub> (%) 113.9, γ<sub>d</sub> (pcf) 80.8, Saturation (%) 100.8, Void ratio, e 1.1109

EOP = End of Primary Consolidation  
EOI = End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7306  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.61  
Height of Solids (in) 0.2700  
Weight of Dry Soil (g) 37.96



SAMPLE DATA	
BORING NO.:	B-12
SAMPLE NO.:	
DEPTH (FEET):	28.25
DESCRIPTION:	Tan and gray CLAY (CH) w/silty sand layers

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	33.8	32.6
DRY DENSITY (lb/ft <sup>3</sup> ):	87.5	91.1
VOID RATIO:	0.92	0.84

INDEX PROPERTIES	
LIQUID LIMIT (%):	59
PLASTIC LIMIT (%):	17
PLASTICITY INDEX (%):	42
SPECIFIC GRAVITY:	2.69
-200(%):	88

CONSOLIDATION PARAMETERS	
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.635
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.80
VIRGIN COMPRESSION RATIO, CR:	0.132

## INCREMENTAL CONSOLIDATION TEST RESULTS

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: <b>12-80-3741</b>	APPROVED BY: <i>[Signature]</i>	FIGURE: <b>C15</b>

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Privileged & Confidential  
Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>α</sub> e
	Initial	EOP											
0	0.0662	0.0662				-	0.7500	0.7500	0.9199	0.9199	0.00	0.00	
0.200	0.0662	0.0716				0.100	0.7446	0.7433	0.9060	0.9026	0.72	0.90	
0.410	0.0732	0.0820	210	L	7.71E-02	0.305	0.7345	0.7308	0.8800	0.8706	2.07	2.57	
0.810	0.0864	0.0990	132	L	1.18E-01	0.610	0.7182	0.7169	0.8383	0.8350	4.25	4.42	
1.625	0.1013	0.1243	114	L	1.29E-01	1.218	0.6939	0.6929	0.7761	0.7736	7.49	7.62	
3.250	0.1268	0.1558	240	L	5.68E-02	2.438	0.6639	0.6634	0.6993	0.6980	11.49	11.55	
6.500	0.1581	0.1875				4.875	0.6340	0.6336	0.6228	0.6218	15.47	15.53	
13.000	0.1905	0.2130	1080	L	1.06E-02	9.750	0.6111	0.6097	0.5642	0.5607	18.53	18.71	
3.250	0.2134	0.2110	30	L	3.69E-01	8.125	0.6121	0.6121	0.5667	0.5669	18.39	18.39	
0.810	0.2109	0.2068	360	L	3.11E-02	2.030	0.6162	0.6166	0.5773	0.5782	17.84	17.79	
0.200	0.1560	0.1200	4200	L	2.84E-03	0.505	0.6526	0.6554	0.6704	0.6776	12.99	12.62	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-12**  
Depth: **28-30 B1 (28.25)**

Initial Conditions  
0.7500  
33.8  
117.0  
87.5  
98.8  
0.9199

Final Conditions  
0.7200  
32.6  
120.8  
91.1  
104.0  
0.8431

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.69  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.50  
Height of Solids (in) 0.3907  
Weight of Dry Soil (g) 54.10

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	Coe
	Initial	EOP											
0	0.0662	0.0662				-	0.7500	0.7500	0.9199	0.9199	0.00	0.00	---
0.200	0.0662	0.0716				0.100	0.7446	0.7433	0.9060	0.9026	0.72	0.90	---
0.410	0.0732	0.0833	800	S	8.69E-02	0.305	0.7332	0.7308	0.8767	0.8706	2.25	2.57	---
0.810	0.0864	0.0990				0.610	0.7182	0.7169	0.8383	0.8350	4.25	4.42	---
1.625	0.1013	0.1230	400	S	1.59E-01	1.218	0.6952	0.6929	0.7794	0.7736	7.31	7.62	---
3.250	0.1268	0.1512	780	S	7.58E-02	2.438	0.6685	0.6634	0.7111	0.6980	10.87	11.55	---
6.500	0.1581	0.1828				4.875	0.6387	0.6336	0.6348	0.6218	14.85	15.53	---
13.000	0.1905	0.2038	1270	S	3.95E-02	9.750	0.6203	0.6097	0.5877	0.5607	17.30	18.71	---
3.250	0.2134	0.2110				8.125	0.6121	0.6121	0.5667	0.5669	18.39	18.39	---
0.810	0.2109	0.2066	1780	S	2.71E-02	2.030	0.6164	0.6166	0.5779	0.5782	17.81	17.79	---
0.200	0.1560	0.1200				0.505	0.6526	0.6554	0.6704	0.6776	12.99	12.62	---

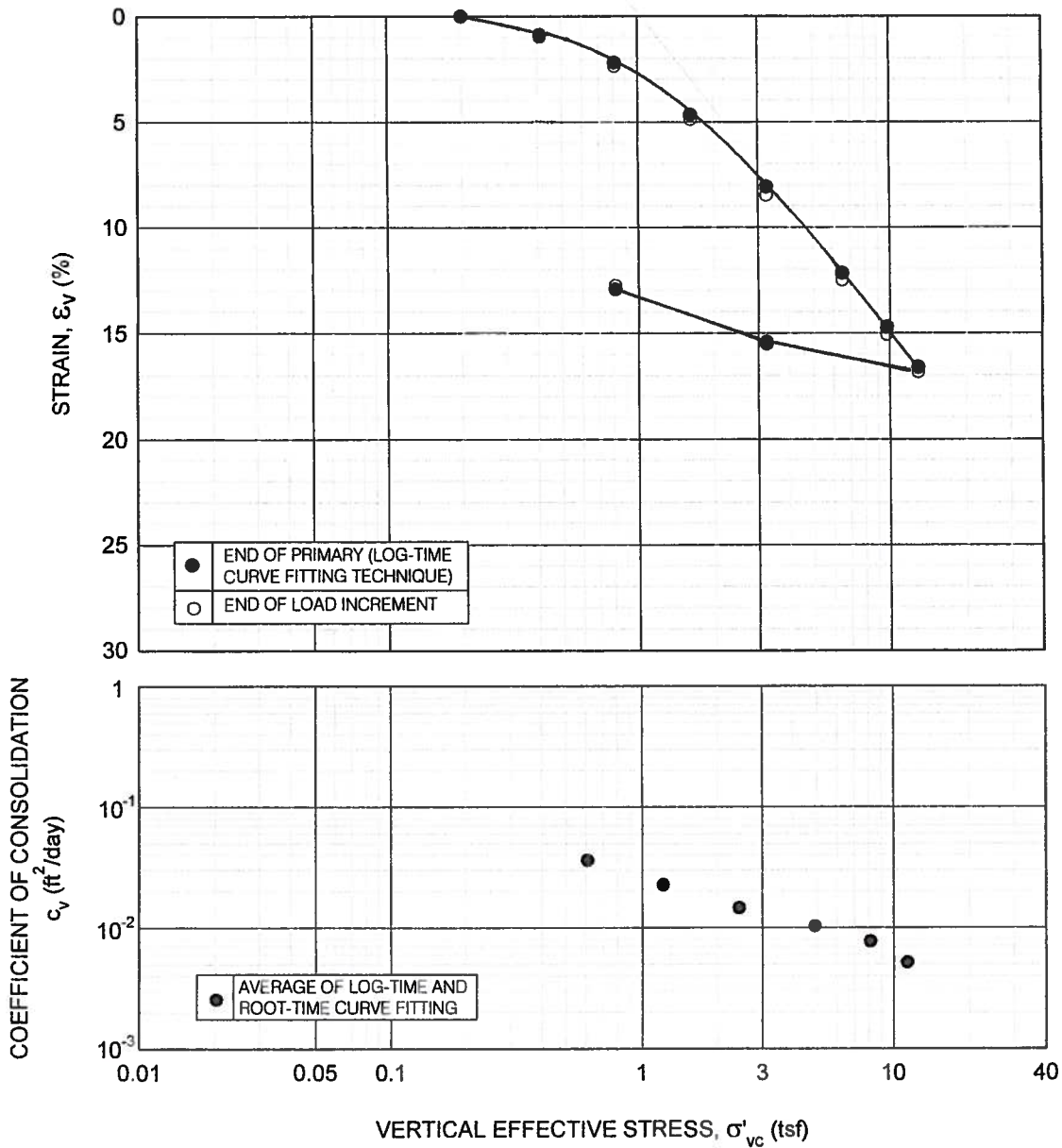
EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Initial Conditions	Final Conditions
0.7500	0.7200
33.8	32.6
117.0	120.8
87.5	91.1
98.8	104.0
0.9199	0.8431

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-12**  
Depth: **28-30 B1 (28.25)**

Specific Gravity 2.69  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.50  
Height of Solids (in) 0.3907  
Weight of Dry Soil (g) 54.10





**SAMPLE DATA**

BORING NO.:	B-14
SAMPLE NO.:	
DEPTH (FEET):	33.75
DESCRIPTION:	Gray SILTY CLAY (CL) w/sand

**INDEX PROPERTIES**

LIQUID LIMIT (%):	49
PLASTIC LIMIT (%):	20
PLASTICITY INDEX (%):	29
SPECIFIC GRAVITY:	2.74
-200(%):	92

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	33.9	30.4
DRY DENSITY (lb/ft <sup>3</sup> ):	87.6	93.2
VOID RATIO:	0.96	0.84

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.80
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	1.7
VIRGIN COMPRESSION RATIO, CR:	0.145

**INCREMENTAL CONSOLIDATION TEST RESULTS**



OYSTER BAYOU  
CPRA

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Work Product

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C16

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP											
0	0.1544	0.1544					0.7500	0.7500	0.9551	0.9551	0.00	0.00	
0.410	0.1544	0.1610			0.205	0.7434	0.7427	0.9360	0.9379	0.88	0.97		
0.810	0.1621	0.1712	546	L	2.96E-02	0.610	0.7336	0.7324	0.9122	2.19	2.35	0.00126	
1.625	0.1732	0.1905	780	L	1.99E-02	1.218	0.7151	0.7135	0.8640	4.66	4.87	0.00200	
3.250	0.1932	0.2172	1380	L	1.06E-02	2.438	0.6895	0.6865	0.7972	8.07	8.47	0.00333	
6.500	0.2217	0.2493	1380	L	9.72E-03	4.875	0.6588	0.6564	0.7173	12.16	12.49	0.00316	
9.750	0.2515	0.2682	1740	L	7.16E-03	8.125	0.6397	0.6371	0.6674	14.71	15.05	0.00367	
13.000	0.2707	0.2823	2520	L	4.69E-03	11.375	0.6255	0.6239	0.6305	16.60	16.81	0.00271	
3.250	0.2826	0.2726	720	L	1.63E-02	8.125	0.6339	0.6347	0.6523	15.49	15.37		
0.810	0.2710	0.2526	3600	L	3.41E-03	2.030	0.6531	0.6544	0.7025	12.92	12.75		
0.410	0.2492	0.1890			0.610	0.7146	0.7176	0.8627	0.8706	4.73	4.32		

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-14**  
Depth: **33-35 B1 (33.75)**

Initial Conditions: 0.7500  
Final Conditions: 0.7050

Height (in): 30.4  
w<sub>c</sub> (%): 121.5  
γ<sub>t</sub> (pcf): 93.2  
γ<sub>d</sub> (pcf): 99.5  
Saturation (%): 0.8378  
Void ratio, e: 0.9551

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7431  
Ring Diameter (in): 1.9990  
Ring weight (g): 62.53  
Height of Solids (in): 0.3836  
Weight of Dry Soil (g): 54.12

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

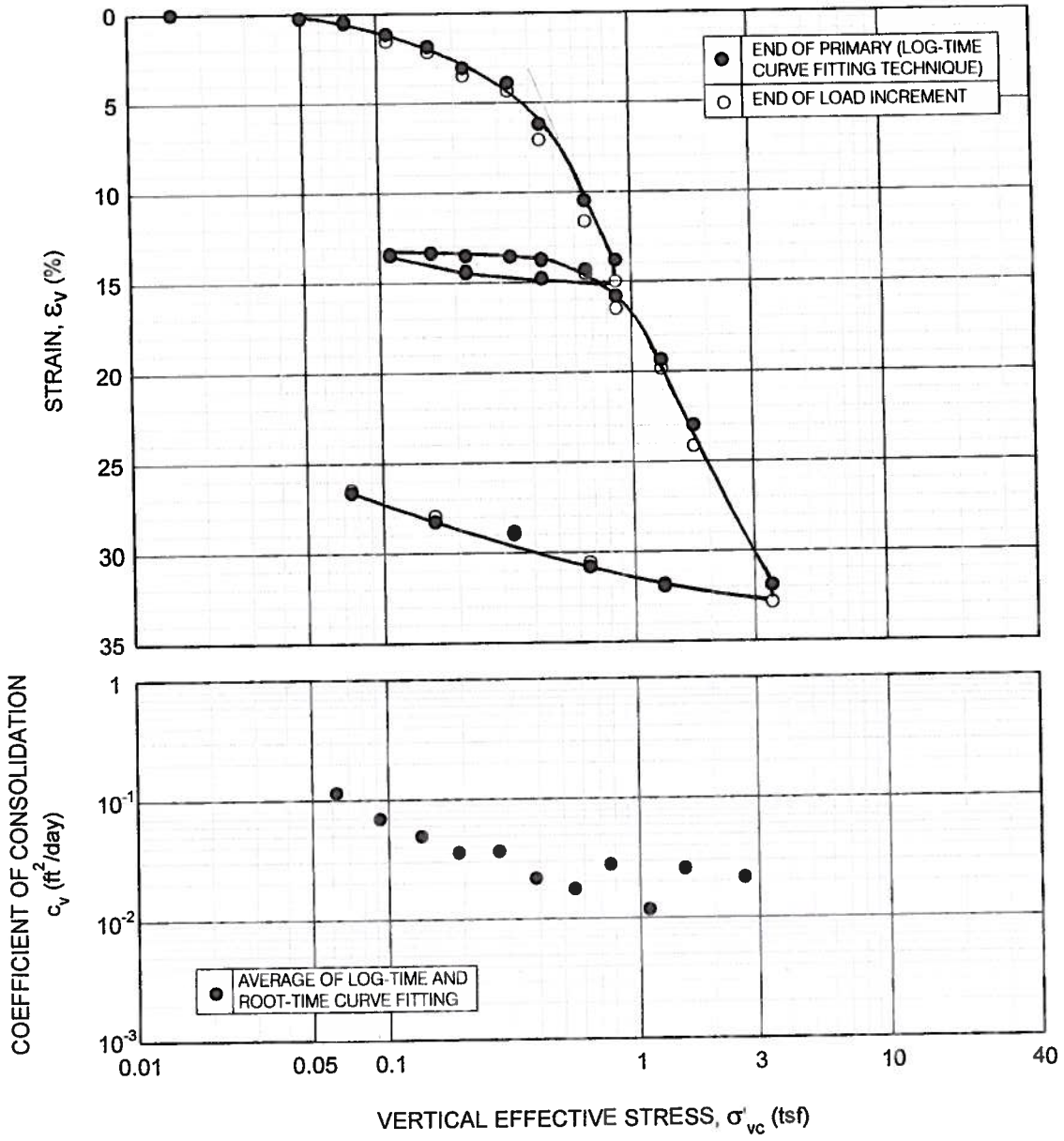
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>α</sub> e
	Initial	EOP											
0	0.1544	0.1544				-	0.7500	0.7500	0.9551	0.9551	0.00	0.00	---
0.410	0.1544	0.1610				0.205	0.7434	0.7427	0.9379	0.9360	0.88	0.97	---
0.810	0.1621	0.1712	1620	S	4.29E-02	0.610	0.7336	0.7324	0.9122	0.9091	2.19	2.35	0.00126
1.625	0.1732	0.1905	2610	S	2.56E-02	1.218	0.7151	0.7135	0.8640	0.8598	4.66	4.87	0.00200
3.250	0.1932	0.2172	3375	S	1.86E-02	2.438	0.6895	0.6865	0.7972	0.7894	8.07	8.47	0.00333
6.500	0.2217	0.2493	5300	S	1.09E-02	4.875	0.6588	0.6564	0.7173	0.7109	12.16	12.49	0.00316
9.750	0.2515	0.2682	6490	S	8.26E-03	8.125	0.6397	0.6371	0.6674	0.6608	14.71	15.05	0.00367
13.000	0.2707	0.2823	8930	S	5.70E-03	11.375	0.6255	0.6239	0.6305	0.6264	16.60	16.81	0.00271
3.250	0.2826	0.2726	2460	S	2.05E-02	8.125	0.6339	0.6347	0.6523	0.6545	15.49	15.37	---
0.810	0.2710	0.2526	13860	S	3.82E-03	2.030	0.6531	0.6544	0.7025	0.7057	12.92	12.75	---
0.410	0.2492	0.1890				0.610	0.7146	0.7176	0.8627	0.8706	4.73	4.32	---

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-14**  
 Depth: **33-35 B1 (33.75)**

Initial Conditions: 0.7500  
 Final Conditions: 0.7050  
 Height (in): 30.4  
 w<sub>c</sub> (%): 117.3  
 γ<sub>t</sub> (pcf): 87.6  
 γ<sub>d</sub> (pcf): 97.4  
 Saturation (%): 0.9551  
 Void ratio, e: 0.8378

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.7431  
 Ring Diameter (in): 1.9990  
 Ring weight (g): 62.53  
 Height of Solids (in): 0.3836  
 Weight of Dry Soil (g): 54.12



SAMPLE DATA	
BORING NO.:	B-15
SAMPLE NO.:	
DEPTH (FEET):	13.75
DESCRIPTION:	Gray CLAY (CH) w/silt

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	85.3	54.8
DRY DENSITY (lb/ft <sup>3</sup> ):	52.0	71.2
VOID RATIO:	2.31	1.41

INDEX PROPERTIES	
LIQUID LIMIT (%):	90
PLASTIC LIMIT (%):	25
PLASTICITY INDEX (%):	65
SPECIFIC GRAVITY:	2.75
-200(%):	98

CONSOLIDATION PARAMETERS	
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.226
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.36
VIRGIN COMPRESSION RATIO, CR:	0.28
RECOMPRESSION RATIO, RR:	0.025

## INCREMENTAL CONSOLIDATION TEST RESULTS

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13	
FILE NO: <b>12-80-3741</b>	APPROVED BY: <i>[Signature]</i>	FIGURE:	<b>C17</b>

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Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**

**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOP											
0	0.0320	0.0320	0.0320				0.7510	0.7510	2.3056	2.3056	0.00	0.00	
0.050	0.0320	0.0335	0.0340			0.025	0.7495	0.7490	2.2988	2.2966	0.21	0.27	
0.075	0.0340	0.0351	0.0360	L	1.38E-01	0.063	0.7478	0.7469	2.2914	2.2876	0.43	0.55	
0.110	0.0367	0.0411	0.0442	L	7.21E-02	0.093	0.7425	0.7395	2.2682	2.2548	1.13	1.54	0.00205
0.160	0.0442	0.0465	0.0488	L	2.69E-02	0.135	0.7372	0.7349	2.2446	2.2345	1.84	2.15	
0.220	0.0490	0.0558	0.0591	L	2.64E-02	0.190	0.7281	0.7248	2.2046	2.1903	3.06	3.49	
0.330	0.0589	0.0619	0.0653	L	3.23E-02	0.275	0.7218	0.7185	2.1771	2.1623	3.89	4.33	
0.440	0.0655	0.0794	0.0860	L	1.79E-02	0.385	0.7046	0.6980	2.1011	2.0723	6.19	7.06	0.01025
0.660	0.0869	0.1125	0.1212	L	1.93E-02	0.550	0.6724	0.6637	1.9596	1.9213	10.47	11.62	0.01062
0.870	0.1218	0.1380	0.1471	L	2.65E-02	0.765	0.6475	0.6384	1.8498	1.8100	13.79	14.99	0.00832
0.440	0.1461	0.1446	0.1442	L	3.36E-01	0.655	0.6398	0.6403	1.8163	1.8183	14.80	14.74	
0.220	0.1436	0.1414	0.1407	L	8.13E-02	0.330	0.6500	0.6507	1.8608	1.8641	13.46	13.36	
0.110	0.1407	0.1340	0.1333	L	1.88E-02	0.165	0.6510	0.6507	1.8652	1.8639	13.32	13.36	
0.160	0.1333	0.1330	0.1333			0.190	0.6497	0.6496	1.8595	1.8593	13.50	13.50	
0.220	0.1330	0.1340	0.1341			0.275	0.6493	0.6491	1.8577	1.8569	13.55	13.58	
0.330	0.1341	0.1344	0.1346			0.385	0.6481	0.6474	1.8527	1.8496	13.70	13.79	0.00036
0.440	0.1349	0.1358	0.1365	L	2.08E-01	0.550	0.6436	0.6418	1.8326	1.8249	14.31	14.54	0.00131
0.660	0.1370	0.1408	0.1426	L	1.14E-01	0.765	0.6323	0.6272	1.7829	1.7605	15.81	16.49	0.00451
0.870	0.1430	0.1525	0.1576	L	4.46E-02	1.090	0.6058	0.6021	1.6665	1.6500	19.33	19.83	0.00626
1.310	0.1577	0.1790	0.1828	L	9.63E-03	1.525	0.5784	0.5698	1.5457	1.5080	22.99	24.13	0.01134
1.740	0.1833	0.2070	0.2156	L	1.91E-02	2.625	0.5115	0.5044	1.2514	1.2199	31.89	32.84	0.00903
3.510	0.2162	0.2745	0.2817	L	1.60E-02	2.410	0.5114	0.5123	1.2508	1.2549	30.81	31.78	
1.310	0.2814	0.2744	0.2735	L	5.31E-02	0.985	0.5197	0.5215	1.2873	1.2954	30.81	30.56	
0.660	0.2728	0.2654	0.2636	L	1.64E-02	0.495	0.5337	0.5344	1.3489	1.3520	28.94	28.85	
0.330	0.2626	0.2504	0.2497	L	5.50E-03	0.245	0.5389	0.5413	1.3721	1.3826	28.24	27.92	
0.160	0.2494	0.2448	0.2425			0.118	0.5512	0.5525	1.4261	1.4317	26.61	26.44	
0.075	0.2425	0.2326	0.2314										

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-15**  
Depth: **12-14 (13.75)**

Initial Conditions: Height (in) 0.7510, w<sub>c</sub> (%) 85.3, γ<sub>t</sub> (pcf) 96.3, γ<sub>d</sub> (pcf) 52.0, Saturation (%) 101.8, Void ratio, e 2.3056

Final Conditions: 0.5524, 54.8, 109.4, 70.7, 105.3, 1.4314

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7522  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.57  
Height of Solids (in) 0.2272  
Weight of Dry Soil (g) 32.19

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	Cone
	Initial	EOP											
0	0.0320	0.0320				-	0.7510	0.7510	2.3056	2.3056	0.00	0.00	
0.050	0.0320	0.0335				0.025	0.7490	0.7490	2.2988	2.2966	0.21	0.27	
0.075	0.0342	0.0351	778	S	9.19E-02	0.063	0.7480	0.7471	2.2924	2.2886	0.40	0.52	
0.110	0.0366	0.0412	1058	S	6.69E-02	0.093	0.7425	0.7396	2.2683	2.2553	1.13	1.52	0.00205
0.160	0.0442	0.0460	960	S	7.25E-02	0.135	0.7378	0.7350	2.2474	2.2351	1.76	2.13	
0.220	0.0489	0.0545	1500	S	4.56E-02	0.190	0.7294	0.7248	2.2104	2.1904	2.88	3.48	
0.330	0.0590	0.0619	1622	S	4.12E-02	0.275	0.7219	0.7186	2.1777	2.1629	3.87	4.32	
0.440	0.0645	0.0772	2535	S	2.55E-02	0.385	0.7059	0.6971	2.1070	2.0685	6.01	7.17	0.01025
0.560	0.0865	0.1157	3650	S	1.63E-02	0.550	0.6679	0.6624	1.9400	1.9157	11.06	11.79	0.01062
0.870	0.1217	0.1365	1881	S	2.91E-02	0.765	0.6376	0.6371	1.8506	1.8042	13.76	15.17	0.00832
0.440	0.1461	0.1447	154	S	3.37E-01	0.555	0.6385	0.6390	1.8103	1.8128	14.98	14.91	
0.220	0.1433	0.1412	1215	S	4.30E-02	0.330	0.6411	0.6417	1.8220	1.8244	14.63	14.56	
0.110	0.1407	0.1360	1058	S	5.00E-02	0.165	0.6464	0.6491	1.8451	1.8572	13.93	13.56	
0.160	0.1333	0.1333				0.135	0.6491	0.6491	1.8570	1.8570	13.57	13.57	
0.220	0.1330	0.1340				0.190	0.6481	0.6480	1.8526	1.8524	13.70	13.71	
0.330	0.1341	0.1344				0.275	0.6477	0.6475	1.8508	1.8508	13.76	13.78	
0.440	0.1351	0.1359	406	S	1.32E-01	0.385	0.6467	0.6461	1.8464	1.8438	13.89	13.97	0.00036
0.660	0.1370	0.1401	290	S	1.83E-01	0.550	0.6430	0.6405	1.8301	1.8194	14.38	14.71	0.00131
0.870	0.1430	0.1517	913	S	5.66E-02	0.765	0.6318	0.6259	1.7811	1.7551	15.87	16.65	0.00451
1.310	0.1555	0.1772	3466	S	1.39E-02	1.090	0.6043	0.5987	1.6597	1.6351	19.54	20.28	0.00626
1.740	0.1840	0.2018	1382	S	2.73E-02	1.525	0.5809	0.5671	1.5568	1.4963	22.65	24.48	0.01134
3.510	0.2177	0.2645	1382	S	2.73E-02	2.625	0.5203	0.5032	1.2903	1.2498	30.72	33.00	0.00903
1.310	0.2814	0.2746	614	S	5.33E-02	2.410	0.5100	0.5111	1.2447	1.2498	32.09	31.94	
0.660	0.2728	0.2677	778	S	4.33E-02	0.985	0.5162	0.5204	1.2722	1.2905	31.26	30.71	
0.330	0.2634	0.2524	4234	S	8.34E-03	0.495	0.5314	0.5341	1.3389	1.3508	29.24	28.88	
0.160	0.2494	0.2448	6120	S	6.00E-03	0.245	0.5386	0.5410	1.3709	1.3814	28.28	27.96	
0.075	0.2424	0.2326	11929	S	3.19E-03	0.118	0.5508	0.5521	1.4245	1.4300	26.66	26.49	

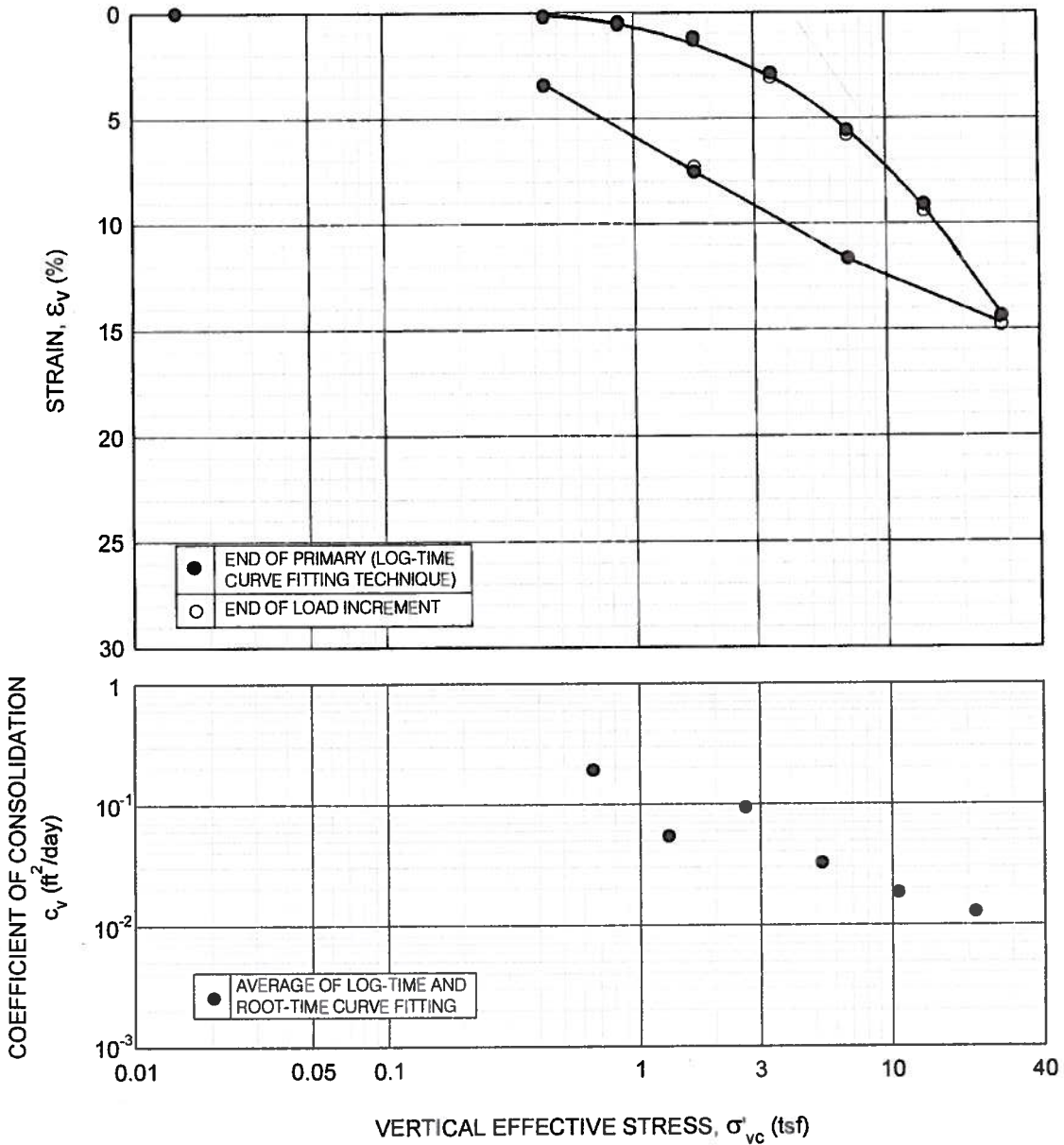
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-15**  
Depth: **12-14 (13.75)**

Initial Conditions: Height (in) 0.7510,  $w_c$  (%) 85.3,  $\gamma^t$  (pcf) 96.3,  $\gamma^d$  (pcf) 52.0, Saturation (%) 101.8, Void ratio, e 2.3056

Final Conditions: Height (in) 0.5480,  $w_c$  (%) 54.8,  $\gamma^t$  (pcf) 110.2,  $\gamma^d$  (pcf) 71.2, Saturation (%) 106.7, Void ratio, e 1.4121

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7522  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.57  
Height of Solids (in) 0.2272  
Weight of Dry Soil (g) 32.19



SAMPLE DATA	
BORING NO.:	B-16
SAMPLE NO.:	
DEPTH (FEET):	34.0
DESCRIPTION:	Tan and gray CLAY (CH) w/silt layers

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	36.8	36.4
DRY DENSITY (lb/ft <sup>3</sup> ):	84.2	87.2
VOID RATIO:	1.05	0.98

INDEX PROPERTIES	
LIQUID LIMIT (%):	67
PLASTIC LIMIT (%):	25
PLASTICITY INDEX (%):	42
SPECIFIC GRAVITY:	2.76
-200(%):	100

CONSOLIDATION PARAMETERS	
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.81
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	6.2
VIRGIN COMPRESSION RATIO, CR:	0.174

## INCREMENTAL CONSOLIDATION TEST RESULTS

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**

**CPRA**

DRAWN BY: RJB	CHECKED BY: <i>ma</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED: <i>[Signature]</i>	FIGURE: C18

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**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOI											
0	0.0420	0.0420					0.7500	0.7500	1.0466	1.0466	0.00	0.00	
0.440	0.0420	0.0431			0.220	0.7489	0.7484	1.0436	1.0422	1.0422	0.15	0.21	
0.870	0.0441	0.0460	120	L	1.38E-01	0.7465	0.7457	1.0369	1.0347	1.0347	0.47	0.58	
1.740	0.0486	0.0531	360	L	4.55E-02	0.7412	0.7402	1.0225	1.0197	1.0197	1.18	1.31	0.00090
3.510	0.0555	0.0672	264	L	6.06E-02	0.7285	0.7269	0.9878	0.9836	0.9836	2.87	3.08	0.00162
7.040	0.0715	0.0902	900	L	1.70E-02	0.7082	0.7065	0.9325	0.9278	0.9278	5.57	5.81	0.00226
14.100	0.0953	0.1200	1200	L	1.19E-02	0.6818	0.6795	0.8604	0.8541	0.8541	9.10	9.41	0.00406
28.360	0.1262	0.1635	1380	L	9.38E-03	0.6422	0.6390	0.7523	0.7437	0.7437	14.38	14.80	0.00552
7.040	0.1667	0.1430			17.700	0.6627	0.6627	0.8082	0.8082	0.8082	11.65	11.65	
1.740	0.1409	0.1100	4200	L	3.25E-03	0.6935	0.6953	0.8924	0.8973	0.8973	7.53	7.29	
0.440	0.1070	0.0780	8400	L	1.78E-03	1.090	0.7243	0.9765	0.9758	0.9758	3.43	3.46	

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-16**  
 Depth: **33-35 (34.0)**

Initial Conditions  
 0.7500  
 36.8  
 115.1  
 84.2  
 96.9  
 1.0466

Final Conditions  
 0.7243  
 36.4  
 118.9  
 87.2  
 102.9  
 0.9765

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.76  
 Ring Diameter (in) 2.0000  
 Ring weight (g) 62.62  
 Height of Solids (in) 0.3665  
 Weight of Dry Soil (g) 52.07



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

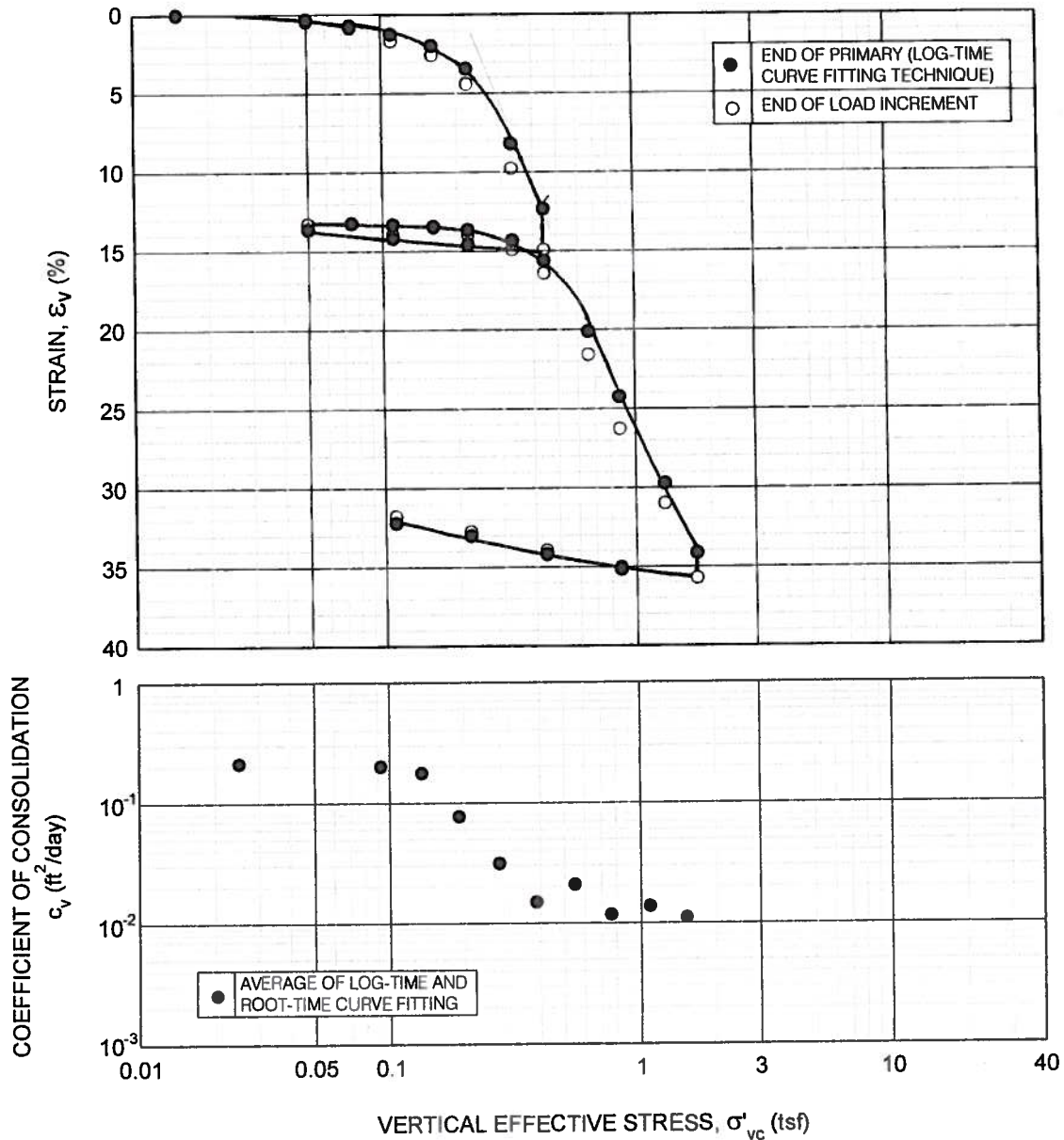
Effective Stress (tsf)	Dial Readings (inch)			Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP	EOI											
0	0.0420	0.0420	0.0420					0.7500	0.7500	1.0466	1.0466	0.00	0.00	---
0.440	0.0420	0.0431	0.0436			0.220	0.220	0.7489	0.7484	1.0436	1.0422	0.15	0.15	---
0.870	0.0442	0.0455	0.0468	290	S	2.46E-01	0.655	0.7471	0.7458	1.0387	1.0351	0.39	0.39	---
1.740	0.0486	0.0524	0.0541	1110	S	6.36E-02	1.305	0.7420	0.7403	1.0248	1.0201	1.07	1.07	0.00090
3.510	0.0555	0.0644	0.0688	540	S	1.28E-01	2.625	0.7314	0.7271	0.9958	0.9840	2.48	2.48	0.00162
7.040	0.0715	0.0844	0.0920	1380	S	4.80E-02	5.275	0.7142	0.7066	0.9488	0.9282	4.78	4.78	0.00226
14.100	0.0953	0.1138	0.1223	2460	S	2.52E-02	10.570	0.6881	0.6796	0.8777	0.8545	8.25	8.25	0.00406
28.360	0.1262	0.1558	0.1667	3465	S	1.63E-02	21.230	0.6500	0.6392	0.7737	0.7441	13.33	13.33	0.00552
7.040	0.1667	0.1430	0.1430				17.700	0.6628	0.6628	0.8087	0.8087	11.63	11.63	---
1.740	0.1410	0.1110	0.1082	20300	S	2.89E-03	4.390	0.6928	0.6956	0.8905	0.8982	7.63	7.63	---
0.440	0.1074	0.0814	0.0783	27478	S	2.33E-03	1.090	0.7216	0.7248	0.9691	0.9777	3.79	3.79	---

Project Name: **Oyster Bayou**  
 File Number: **12-80-3741**  
 Boring Number: **B-16**  
 Depth: **33-35 (34.0)**

Initial Conditions: 0.7500  
 Final Conditions: 0.7243  
 Height (in): 36.4  
 w<sub>c</sub> (%): 115.1  
 γ<sub>t</sub> (pcf): 84.2  
 γ<sub>d</sub> (pcf): 96.9  
 Saturation (%): 1.0466  
 Void ratio, e: 0.9765

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.76  
 Ring Diameter (in): 2.0000  
 Ring weight (g): 62.62  
 Height of Solids (in): 0.3665  
 Weight of Dry Soil (g): 52.07



**SAMPLE DATA**

BORING NO.:	B-17
SAMPLE NO.:	
DEPTH (FEET):	3.75
DESCRIPTION:	Gray CLAY (CH) w/trace silt

**INDEX PROPERTIES**

LIQUID LIMIT (%):	119
PLASTIC LIMIT (%):	29
PLASTICITY INDEX (%):	90
SPECIFIC GRAVITY:	2.76
-200(%)	99

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	130.4	79.5
DRY DENSITY (lb/ft³):	37.3	54.6
VOID RATIO:	3.62	2.15

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vc}$ (tsf):	0.062
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.25
VIRGIN COMPRESSION RATIO, CR:	0.40
RECOMPRESSION RATIO, RR:	0.035

**INCREMENTAL CONSOLIDATION TEST RESULTS**

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

OYSTER BAYOU

CPRA

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C19

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Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.0490	0.0497	0.0502				0.7550	0.7550	3.6161	3.6161	0.00	0.00	---
0.050	0.0502	0.0525	0.0536	L	2.81E-01	0.025	0.7527	0.7516	3.6020	3.5953	0.30	0.45	---
0.075	0.0536	0.0558	0.0568			0.063	0.7494	0.7485	3.5818	3.5760	0.74	0.87	---
0.110	0.0576	0.0605	0.0638	L	2.12E-01	0.093	0.7456	0.7423	3.5583	3.5381	1.25	1.69	0.00141
0.160	0.0638	0.0659	0.0704	L	1.81E-01	0.135	0.7402	0.7366	3.5253	3.4974	1.97	2.57	0.00181
0.220	0.0704	0.0769	0.0842	L	7.95E-02	0.190	0.7291	0.7219	3.4577	3.4134	3.43	4.39	---
0.330	0.0844	0.1130	0.1249	L	2.60E-02	0.275	0.6933	0.6814	3.2385	3.1658	8.18	9.75	0.01183
0.440	0.1249	0.1443	0.1639	L	5.62E-03	0.385	0.6620	0.6424	3.0471	2.9273	12.32	14.92	---
0.220	0.1637	0.1614	0.1608	L	2.05E-01	0.330	0.6446	0.6453	2.9411	2.9450	14.62	14.54	---
0.110	0.1602	0.1576	0.1559	L	5.90E-02	0.165	0.6479	0.6496	2.9609	2.9713	14.19	13.97	---
0.050	0.1559	0.1532	0.1506	L	6.98E-02	0.080	0.6523	0.6549	2.9878	3.0040	13.61	13.26	---
0.075	0.1506	0.1503	0.1503			0.063	0.6552	0.6552	3.0056	3.0056	13.23	13.23	---
0.110	0.1502	0.1509	0.1512			0.093	0.6544	0.6541	3.0007	2.9992	13.33	13.36	---
0.160	0.1514	0.1520	0.1524	L	2.82E-01	0.135	0.6535	0.6531	2.9953	2.9927	13.45	13.50	---
0.220	0.1525	0.1536	0.1559	L	2.10E-01	0.190	0.6519	0.6497	2.9857	2.9719	13.66	13.95	---
0.330	0.1560	0.1589	0.1632	L	9.89E-02	0.275	0.6468	0.6425	2.9542	2.9279	14.34	14.91	0.00222
0.440	0.1634	0.1687	0.1748	L	5.78E-02	0.385	0.6372	0.6310	2.8955	2.8579	15.61	16.42	0.00479
0.660	0.1753	0.2030	0.2142	L	1.64E-02	0.550	0.6033	0.5922	2.6886	2.6204	20.09	21.57	0.01643
0.870	0.2144	0.2345	0.2499	L	8.81E-03	0.765	0.5720	0.5567	2.4972	2.4033	24.24	26.27	0.01625
1.310	0.2500	0.2760	0.2857	L	1.39E-02	1.090	0.5307	0.5210	2.2444	2.1854	29.72	30.99	0.01203
1.740	0.2857	0.3094	0.3213	L	9.49E-03	1.525	0.4973	0.4854	2.0402	1.9674	34.14	35.72	0.01347
0.870	0.3208	0.3165	0.3156	L	5.87E-02	1.305	0.4897	0.4906	1.9937	1.9995	35.15	35.02	---
0.440	0.3155	0.3092	0.3075	L	2.19E-02	0.655	0.4969	0.4986	2.0377	2.0484	34.19	33.96	---
0.220	0.3072	0.3000	0.2982	L	6.23E-03	0.330	0.5058	0.5077	2.0925	2.1038	33.01	32.76	---
0.110	0.2982	0.2939	0.2906			0.165	0.5119	0.5153	2.1239	2.1502	32.19	31.75	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-17**  
Depth: **2-4 (3.75)**

Initial Conditions: Height (in) 130.4,  $w_c$  (%) 86.0,  $\gamma_t$  (pcf) 37.3, Saturation (%) 99.5, Void ratio, e 3.6161  
Final Conditions: Height (in) 79.5,  $w_c$  (%) 98.0,  $\gamma_t$  (pcf) 54.6, Saturation (%) 101.8, Void ratio, e 2.1542

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.76  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.60  
Height of Solids (in) 0.1636  
Weight of Dry Soil (g) 23.24

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>o</sub> e
	Initial	EOP											
0	0.0490	0.0497	0.0502				0.7550	0.7550	3.6161	3.6161	0.00	0.00	---
0.050	0.0502	0.0527	0.0536	S	1.45E-01	0.025	0.7525	0.7516	3.6008	3.5953	0.33	0.45	---
0.075	0.0536	0.0558	0.0568	S		0.063	0.7494	0.7485	3.5818	3.5760	0.74	0.87	---
0.110	0.0576	0.0605	0.0638	S	1.90E-01	0.093	0.7456	0.7423	3.5583	3.5381	1.25	1.69	0.00141
0.160	0.0638	0.0659	0.0704	S	1.73E-01	0.135	0.7402	0.7357	3.5253	3.4977	1.97	2.56	0.00181
0.220	0.0709	0.0763	0.0842	S	7.51E-02	0.190	0.7303	0.7224	3.4647	3.4167	3.28	4.32	---
0.330	0.0840	0.1090	0.1249	S	3.68E-02	0.275	0.6974	0.6815	3.2639	3.1667	7.63	9.74	0.01183
0.440	0.1249	0.1443	0.1639	S	2.42E-02	0.385	0.6621	0.6425	3.0481	2.9282	12.30	14.90	---
0.220	0.1636	0.1615	0.1608	S	1.99E-01	0.330	0.6446	0.6454	2.9411	2.9457	14.62	14.52	---
0.110	0.1605	0.1581	0.1559	S	9.88E-02	0.165	0.6478	0.6500	2.9603	2.9738	14.21	13.91	---
0.050	0.1559	0.1533	0.1506	S	8.59E-02	0.080	0.6526	0.6553	2.9897	3.0065	13.57	13.21	---
0.075	0.1506	0.1503	0.1503			0.063	0.6556	0.6556	3.0080	3.0080	13.17	13.17	---
0.110	0.1506	0.1509	0.1512			0.093	0.6552	0.6543	3.0056	3.0040	13.22	13.26	---
0.160	0.1514	0.1520	0.1524	S	3.16E-01	0.135	0.6543	0.6539	3.0002	2.9976	13.34	13.40	---
0.220	0.1525	0.1536	0.1559	S	2.81E-01	0.190	0.6527	0.6505	2.9906	2.9768	13.55	13.85	0.00222
0.330	0.1560	0.1589	0.1632	S	1.85E-01	0.275	0.6476	0.6433	2.9591	2.9328	14.23	14.80	0.00479
0.440	0.1633	0.1677	0.1748	S	7.14E-02	0.385	0.6389	0.6318	2.9059	2.8625	15.38	16.32	0.01643
0.660	0.1748	0.1976	0.2142	S	2.52E-02	0.550	0.6090	0.5924	2.7231	2.6219	19.34	21.54	0.01625
0.870	0.2142	0.2364	0.2499	S	1.47E-02	0.765	0.5702	0.5568	2.4852	2.4040	24.48	26.26	0.01203
1.310	0.2500	0.2767	0.2857	S	1.36E-02	1.090	0.5301	0.5211	2.2407	2.1860	29.79	30.98	0.01347
1.740	0.2857	0.3094	0.3213	S	1.27E-02	1.525	0.4974	0.4855	2.0411	1.9683	34.12	35.70	---
0.870	0.3212	0.3173	0.3156	S	1.05E-01	1.305	0.4894	0.4912	1.9922	2.0029	35.18	34.95	---
0.440	0.3155	0.3104	0.3075	S	3.24E-02	0.655	0.4963	0.4992	2.0341	2.0521	34.27	33.88	---
0.220	0.3075	0.3025	0.2982	S	1.84E-02	0.330	0.5042	0.5086	2.0827	2.1093	33.22	32.64	---
0.110	0.2982	0.2939	0.2906	S	5.13E-03	0.165	0.5128	0.5162	2.1354	2.1557	32.08	31.64	---

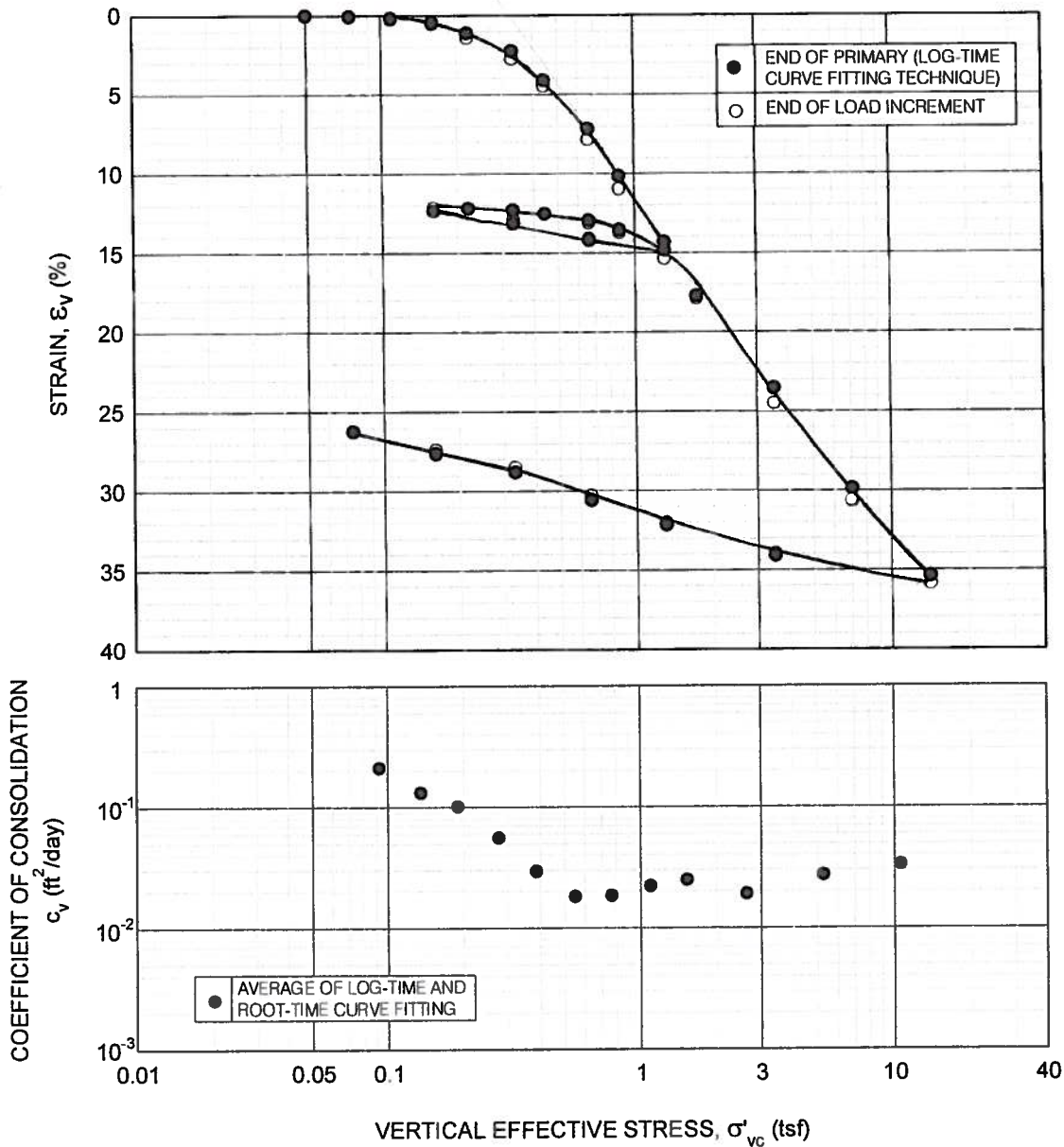
Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-17**  
Depth: **2-4 (3.75)**

Initial Conditions: 0.7550  
Final Conditions: 0.5159

Height (in) 79.5  
 $w_c$  (%) 130.4  
 $\gamma_t$  (pcf) 86.0  
 $\gamma_d$  (pcf) 37.3  
Saturation (%) 99.5  
Void ratio, e 3.6161

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.76  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.60  
Height of Solids (in) 0.1636  
Weight of Dry Soil (g) 23.24



**SAMPLE DATA**

BORING NO.: B-19  
 SAMPLE NO.:  
 DEPTH (FEET): 19.75  
 DESCRIPTION: Gray CLAY (CH)

**INDEX PROPERTIES**

LIQUID LIMIT (%): 98  
 PLASTIC LIMIT (%): 19  
 PLASTICITY INDEX (%): 79  
 SPECIFIC GRAVITY: 2.75  
 -200(%): 91

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	67.6	40.7
DRY DENSITY ( $\text{lb}/\text{ft}^3$ ):	60.5	81.9
VOID RATIO:	1.84	1.10

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.376
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.45
VIRGIN COMPRESSION RATIO, CR:	0.26
RECOMPRESSION RATIO, RR:	0.043

**INCREMENTAL CONSOLIDATION TEST RESULTS**

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

DRAWN BY: RJB	CHECKED BY: <i>[Signature]</i>	DATE: 03/13/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C20

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 Privileged & Confidential  
 Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (incht)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (incht)	Height at EOI (incht)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>αε</sub>
	Initial	EOP											
0	0.1565	0.1568	0.1570				0.7540	0.7540	1.8413	1.8413	0.00	0.00	
0.075	0.1570	0.1574	0.1575			0.038	0.7537	0.7535	1.8400	1.8394	0.05	0.07	
0.110	0.1582	0.1589	0.1596	L	1.75E-01	0.093	0.7528	0.7521	1.8368	1.8341	0.16	0.25	
0.160	0.1598	0.1611	0.1620	L	9.30E-02	0.135	0.7509	0.7499	1.8294	1.8258	0.42	0.54	0.00070
0.220	0.1625	0.1668	0.1690	L	8.63E-02	0.190	0.7456	0.7434	1.8096	1.8013	1.11	1.41	0.00192
0.330	0.1695	0.1758	0.1796	L	5.01E-02	0.275	0.7371	0.7333	1.7776	1.7633	2.24	2.75	0.00410
0.440	0.1795	0.1897	0.1925	L	2.02E-02	0.385	0.7231	0.7203	1.7248	1.7143	4.10	4.47	
0.660	0.1926	0.2130	0.2180	L	1.22E-02	0.550	0.6999	0.6949	1.6374	1.6186	7.18	7.84	0.00811
0.870	0.2188	0.2362	0.2424	L	1.29E-02	0.765	0.6775	0.6713	1.5530	1.5296	10.15	10.97	0.00793
1.310	0.2418	0.2670	0.2702	L	1.26E-02	1.030	0.6461	0.6429	1.4347	1.4226	14.31	14.73	0.01025
0.660	0.2701	0.2861	0.2852	L	1.14E-01	0.985	0.6469	0.6478	1.4377	1.4411	14.20	14.08	
0.330	0.2652	0.2580	0.2563	L	3.49E-02	0.495	0.6550	0.6567	1.4682	1.4746	13.13	12.90	
0.160	0.2561	0.2517	0.2504	L	1.79E-02	0.245	0.6611	0.6624	1.4912	1.4961	12.32	12.15	
0.220	0.2504	0.2506	0.2507	L		0.190	0.6622	0.6621	1.4954	1.4950	12.18	12.19	
0.330	0.2506	0.2514	0.2518	L	2.16E-01	0.275	0.6613	0.6609	1.4920	1.4905	12.29	12.35	
0.440	0.2522	0.2535	0.2537	L	3.59E-02	0.335	0.6596	0.6594	1.4856	1.4848	12.52	12.55	
0.660	0.2540	0.2570	0.2582	L	8.56E-02	0.550	0.6564	0.6552	1.4735	1.4690	12.94	13.10	0.00090
0.870	0.2583	0.2616	0.2629	L	7.04E-02	0.785	0.6519	0.6506	1.4565	1.4516	13.54	13.71	0.00124
1.310	0.2632	0.2716	0.2757	L	4.92E-02	1.030	0.6422	0.6381	1.4200	1.4045	14.83	15.37	0.00397
1.740	0.2758	0.2935	0.2946	L	9.78E-03	1.525	0.6204	0.6193	1.3378	1.3337	17.72	17.86	
3.510	0.2954	0.3380	0.3450	L	1.86E-02	2.625	0.5767	0.5697	1.1732	1.1468	23.51	24.44	0.00816
7.040	0.3462	0.3870	0.3929	L	2.13E-02	5.275	0.5289	0.5230	0.9930	0.9708	29.85	30.64	0.00693
14.100	0.3942	0.4298	0.4336	L	2.43E-02	10.570	0.4874	0.4836	0.8367	0.8223	35.36	35.86	0.00433
3.510	0.4324	0.4190	0.4181	L	5.49E-02	8.805	0.4970	0.4979	0.8728	0.8762	34.08	33.97	
1.310	0.4171	0.4033	0.4022	L	8.39E-03	2.410	0.5117	0.5128	0.9282	0.9324	32.14	31.99	
0.660	0.4014	0.3906	0.3883	L	4.42E-03	0.985	0.5236	0.5259	0.9731	0.9817	30.56	30.25	
0.330	0.3881	0.3770	0.3748	L	2.68E-03	0.495	0.5370	0.5392	1.0236	1.0319	28.78	28.49	
0.160	0.3746	0.3680	0.3663			0.245	0.5458	0.5475	1.0567	1.0631	27.61	27.39	
0.075	0.3662	0.3573	0.3573			0.118	0.5564	0.5564	1.0967	1.0967	26.21	26.21	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-19**  
Depth: **18-20 (19.75)**

Initial Conditions: Height (in) 0.7540, w<sub>c</sub> (%) 67.6, γ<sub>d</sub> (pcf) 101.4, γ<sub>d</sub> (pcf) 60.5, Saturation (%) 101.1, Void ratio, e 1.8413

Final Conditions: Height (in) 0.5565, w<sub>c</sub> (%) 40.7, γ<sub>d</sub> (pcf) 115.3, γ<sub>d</sub> (pcf) 81.9, Saturation (%) 102.0, Void ratio, e 1.0970

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7522  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.49  
Height of Solids (in) 0.2654  
Weight of Dry Soil (g) 37.60

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

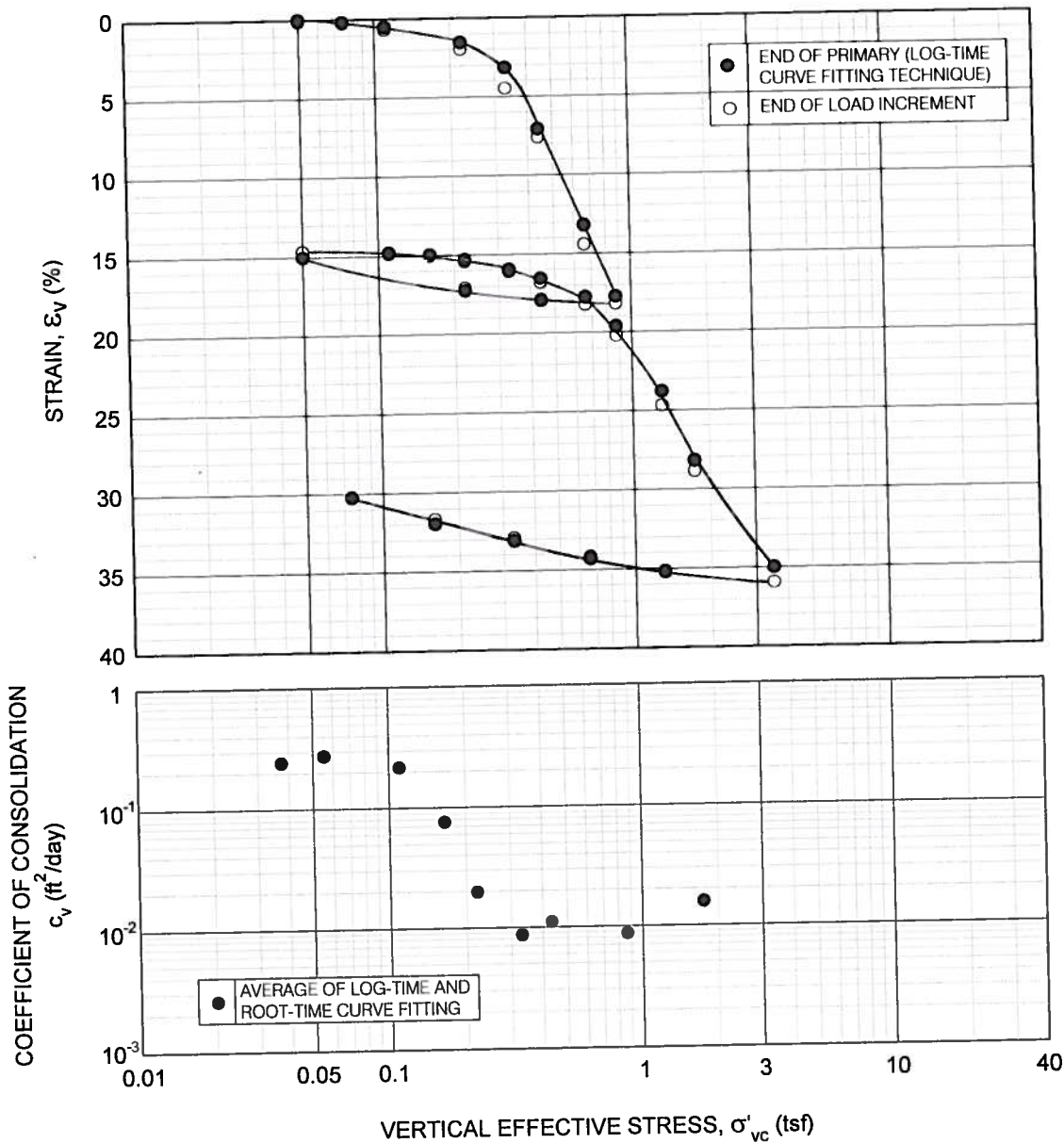
Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv ( $ft^2/day$ )	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C $_{\alpha\epsilon}$
	Initial	EOP											
0	0.1565	0.1568	0.1570			-	0.7540	0.7540	1.8413	1.8413	0.00	0.00	
0.075	0.1570	0.1574	0.1575			0.038	0.7537	0.7535	1.8400	1.8394	0.05	0.07	
0.110	0.1580	0.1589	0.1596	S	2.50E-01	0.093	0.7526	0.7519	1.8360	1.8334	0.19	0.28	
0.160	0.1597	0.1608	0.1620	S	1.72E-01	0.135	0.7507	0.7496	1.8290	1.8245	0.43	0.59	0.00070
0.220	0.1625	0.1661	0.1690	S	1.16E-01	0.190	0.7460	0.7431	1.8109	1.8000	1.07	1.45	0.00192
0.330	0.1695	0.1753	0.1796	S	6.02E-02	0.275	0.7373	0.7330	1.7782	1.7620	2.22	2.79	0.00410
0.440	0.1796	0.1867	0.1925	S	3.88E-02	0.385	0.7259	0.7201	1.7352	1.7134	3.73	4.50	
0.660	0.1925	0.2097	0.2180	S	2.47E-02	0.550	0.7029	0.6946	1.6485	1.6173	6.78	7.88	0.00811
0.870	0.2186	0.2320	0.2424	S	2.46E-02	0.785	0.6812	0.6708	1.5668	1.5276	9.66	11.04	0.00793
1.310	0.2424	0.2584	0.2702	S	3.20E-02	1.090	0.6548	0.6430	1.4673	1.4228	13.16	14.73	0.01025
0.660	0.2702	0.2676	0.2652	S	3.44E-01	0.985	0.6456	0.6480	1.4326	1.4417	14.38	14.06	
0.330	0.2649	0.2586	0.2563	S	3.61E-02	0.945	0.6543	0.6566	1.4654	1.4741	13.23	12.92	
0.160	0.2563	0.2525	0.2504	S	2.94E-02	0.245	0.6604	0.6625	1.4884	1.4963	12.42	12.14	
0.220	0.2504	0.2506	0.2507	S		0.190	0.6623	0.6622	1.4955	1.4952	12.17	12.18	
0.330	0.2507	0.2515	0.2518	S	1.28E-01	0.275	0.6614	0.6611	1.4922	1.4910	12.29	12.33	
0.440	0.2520	0.2528	0.2537	S	1.92E-01	0.385	0.6603	0.6594	1.4882	1.4846	12.43	12.55	
0.660	0.2538	0.2569	0.2582	S	9.20E-02	0.550	0.6562	0.6549	1.4727	1.4678	12.97	13.14	0.00090
0.870	0.2584	0.2612	0.2629	S	8.88E-02	0.785	0.6521	0.6504	1.4573	1.4509	13.51	13.74	0.00124
1.310	0.2632	0.2705	0.2757	S	6.16E-02	1.090	0.6431	0.6378	1.4234	1.4038	14.71	15.40	0.00397
1.740	0.2750	0.2857	0.2946	S	4.02E-02	1.525	0.6272	0.6183	1.3835	1.3299	16.82	18.00	
3.510	0.2955	0.3359	0.3450	S	1.98E-02	2.625	0.5779	0.5688	1.1775	1.1434	23.36	24.56	0.00816
7.040	0.3469	0.3802	0.3929	S	3.35E-02	5.275	0.5355	0.5228	1.0179	0.9701	28.98	30.66	0.00693
14.100	0.3940	0.4218	0.4336	S	4.25E-02	10.570	0.4950	0.4832	0.8653	0.8208	34.35	35.92	0.00433
3.510	0.4324	0.4247	0.4181	S	2.57E-01	8.805	0.4909	0.4975	0.8498	0.8747	34.89	34.02	
1.310	0.4171	0.4073	0.4022	S	2.08E-02	2.410	0.5073	0.5124	0.9116	0.9309	32.72	32.04	
0.660	0.4020	0.3916	0.3883	S	6.45E-03	0.985	0.5228	0.5261	0.9701	0.9825	30.66	30.23	
0.330	0.3881	0.3770	0.3748	S		0.495	0.5372	0.5394	1.0243	1.0326	28.75	28.46	
0.160	0.3746	0.3680	0.3663			0.245	0.5460	0.5477	1.0575	1.0639	27.59	27.36	
0.075	0.3662	0.3573	0.3573			0.118	0.5566	0.5566	1.0974	1.0974	26.18	26.18	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-19**  
Depth: **18-20 (19.75)**

Initial Conditions: Height (in) 0.7540,  $w_c$  (%) 67.6,  $\gamma_d$  (pcf) 101.4, Saturation (%) 101.1, Void ratio, e 1.8413  
Final Conditions: Height (in) 0.5565,  $w_c$  (%) 40.7,  $\gamma_d$  (pcf) 115.3, Saturation (%) 102.0, Void ratio, e 1.0970

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7522  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.49  
Height of Solids (in) 0.2654  
Weight of Dry Soil (g) 37.60



**SAMPLE DATA**

BORING NO.: B-05  
 SAMPLE NO.:  
 DEPTH (FEET): 5.5  
 DESCRIPTION: Gray CLAY (CH)

**INDEX PROPERTIES**

LIQUID LIMIT (%): 87  
 PLASTIC LIMIT (%): 22  
 PLASTICITY INDEX (%): 65  
 SPECIFIC GRAVITY: 2.72  
 -200(%): 95  
 ORGANIC CONTENT (%): 6.6

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	86.5	49.4
DRY DENSITY (lb/ft <sup>3</sup> ):	51.3	73.8
VOID RATIO:	2.31	1.30

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.09
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.31
VIRGIN COMPRESSION RATIO, CR:	0.36
RECOMPRESSION RATIO, RR:	0.035

**INCREMENTAL CONSOLIDATION TEST RESULTS**

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

Confidential Information:  
 Privileged & Confidential  
 Work Product

DRAWN BY: RJB	CHECKED BY: TMB	DATE: 07/01/13
FILE NO: 12-80-3741	APPROVED BY: [Signature]	FIGURE: C21



**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C o e
	Initial	EOP											
0	0.0618	0.0618		-	-	-	0.7500	0.7500	2.3114	2.3114	0.00	0.00	---
0.050	0.0618	0.0618		-	-	0.025	0.7500	0.7492	2.3114	2.3078	0.00	0.11	---
0.075	0.0627	0.0632	290	S	2.47E-01	0.038	0.7487	0.7483	2.3057	2.3039	0.17	0.22	---
0.110	0.0644	0.0665	90	L	1.84E-01	0.055	0.7463	0.7450	2.2948	2.2894	0.50	0.66	---
0.220	0.0683	0.0748	120	L	1.36E-01	0.110	0.7385	0.7352	2.2604	2.2461	1.54	1.97	0.00242
0.330	0.0783	0.0873	240	L	6.80E-02	0.165	0.7262	0.7164	2.2064	2.1629	3.17	4.48	0.00632
0.440	0.0971	0.1165	1320	L	1.12E-02	0.220	0.6970	0.6932	2.0772	2.0604	7.07	7.58	0.00942
0.660	0.1206	0.1627	1560	L	8.59E-03	0.330	0.6510	0.6418	1.8743	1.8337	13.20	14.42	0.01070
0.870	0.1721	0.1970	1800	L	6.52E-03	0.435	0.6169	0.6135	1.7238	1.7086	17.74	18.20	---
0.440	0.1998	0.1977	60	L	1.87E-01	0.220	0.6155	0.6160	1.7176	1.7198	17.93	17.86	---
0.220	0.1967	0.1922	180	L	6.30E-02	0.110	0.6205	0.6218	1.7397	1.7452	17.26	17.10	---
0.050	0.1903	0.1747	810	L	1.45E-02	0.025	0.6374	0.6401	1.8141	1.8260	15.02	14.66	---
0.110	0.1724	0.1735	84	L	1.44E-01	0.055	0.6399	0.6384	1.8209	1.8187	14.81	14.88	---
0.160	0.1741	0.1747	108	L	1.12E-01	0.080	0.6379	0.6373	1.8163	1.8136	14.95	15.03	---
0.220	0.1755	0.1774	180	L	6.67E-02	0.110	0.6354	0.6344	1.8052	1.8010	15.28	15.41	---
0.330	0.1786	0.1827	252	L	4.70E-02	0.165	0.6303	0.6293	1.7827	1.7785	15.96	16.09	---
0.440	0.1838	0.1871	222	L	5.26E-02	0.220	0.6260	0.6240	1.7637	1.7551	16.54	16.80	0.00168
0.660	0.1893	0.1965	228	L	5.01E-02	0.330	0.6169	0.6133	1.7236	1.7077	17.75	18.23	0.00333
0.870	0.2002	0.2107	540	L	2.03E-02	0.435	0.6028	0.5984	1.6613	1.6421	19.63	20.21	0.00590
1.310	0.2153	0.2420	636	L	1.60E-02	0.655	0.5717	0.5650	1.5240	1.4944	23.78	24.67	0.01449
1.740	0.2488	0.2752	1260	L	7.16E-03	0.870	0.5386	0.5386	1.3779	1.3560	28.19	28.85	0.01000
3.510	0.2824	0.3285	600	L	1.29E-02	1.755	0.4875	0.4804	1.1525	1.1209	35.00	35.12	0.00993
1.310	0.3343	0.3287	129	L	5.37E-02	0.655	0.4860	0.4866	1.1455	1.1483	35.21	34.16	---
0.660	0.3276	0.3214	480	L	1.48E-02	0.330	0.4927	0.4938	1.1754	1.1803	34.30	32.92	---
0.330	0.3198	0.3118	1200	L	6.12E-03	0.165	0.5018	0.5031	1.2154	1.2213	33.10	31.67	---
0.160	0.3102	0.3031	6998	S	4.68E-03	0.080	0.5102	0.5125	1.2527	1.2626	31.97	31.67	---
0.075	0.3005	0.2896				0.038	0.5234	0.5234	1.3107	1.3107	30.22	30.22	---

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-05**  
Depth: **4-6 (5.5)**

LL = **87**      -200 = **95**  
PI = **65**        OC = **6.6**

Initial Conditions  
0.7500  
86.5  
95.6  
51.3  
101.8  
2.3114

Final Conditions  
0.5210  
49.4  
110.3  
73.8  
103.3  
1.3003

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity **2.7195**  
Ring Diameter (in) **2.0000**  
Ring weight (g) **62.57**  
Height of Solids (in) **0.2265**  
Weight of Dry Soil (g) **31.71**

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	Case
	Initial	EOP											
0.000	0.0618	0.0618		-	-	-	0.7500	0.7500	2.3114	2.3114	0.00	0.00	---
0.050	0.0618	0.0618		S	2.47E-01	0.025	0.7500	0.7492	2.3114	2.3078	0.00	0.11	---
0.075	0.0627	0.0632	290	S	3.68E-01	0.063	0.7487	0.7483	2.3057	2.3039	0.17	0.22	---
0.110	0.0644	0.0660	194	S	2.93E-01	0.093	0.7450	0.7450	2.2969	2.2894	0.44	0.66	---
0.220	0.0680	0.0732	240	S	2.93E-01	0.165	0.7398	0.7349	2.2664	2.2448	1.36	2.01	0.00242
0.330	0.0782	0.0863	778	S	8.76E-02	0.275	0.7268	0.7159	2.2090	2.1609	3.09	4.54	0.00832
0.440	0.0972	0.1101	2306	S	2.79E-02	0.385	0.7030	0.6928	2.1039	2.0589	6.26	7.62	0.00942
0.660	0.1203	0.1633	6742	S	8.53E-03	0.550	0.6414	0.6414	1.8690	1.8320	13.36	14.48	0.01070
0.870	0.1719	0.1890	3286	S	1.56E-02	0.765	0.6129	0.6129	1.7565	1.7061	16.76	18.28	---
0.440	0.1998	0.1979	217	S	2.22E-01	0.655	0.6148	0.6155	1.7145	1.7176	18.02	17.93	---
0.220	0.1967	0.1935	406	S	1.20E-01	0.330	0.6187	0.6212	1.7317	1.7428	17.50	17.17	---
0.050	0.1905	0.1781	2160	S	2.33E-02	0.135	0.6336	0.6397	1.7975	1.8244	15.52	14.70	---
0.110	0.1724	0.1731	154	S	3.39E-01	0.080	0.6390	0.6381	1.8211	1.8172	14.80	14.92	---
0.160	0.1741	0.1745	194	S	2.68E-01	0.135	0.6377	0.6369	1.8154	1.8119	14.98	15.08	---
0.220	0.1754	0.1770	505	S	1.02E-01	0.190	0.6309	0.6289	1.8048	1.7991	15.30	15.47	---
0.330	0.1786	0.1817	614	S	8.31E-02	0.275	0.6261	0.6237	1.7854	1.7765	15.88	16.15	---
0.440	0.1838	0.1866	694	S	7.24E-02	0.385	0.6261	0.6237	1.7642	1.7536	16.52	16.84	0.00333
0.660	0.1892	0.1958	778	S	6.31E-02	0.550	0.6171	0.6130	1.7244	1.7063	17.72	18.27	0.00590
0.870	0.2002	0.2071	913	S	5.19E-02	0.765	0.6061	0.5982	1.6759	1.6410	19.19	20.24	0.01449
1.310	0.2154	0.2265	505	S	1.02E-02	1.525	0.5440	0.5342	1.5920	1.4975	21.72	24.58	0.01000
1.740	0.2487	0.2704	3840	S	1.85E-02	2.625	0.4920	0.4805	1.4017	1.3584	27.47	28.78	0.00993
3.510	0.2820	0.3242	1815	S	8.59E-02	2.410	0.4848	0.4867	1.1721	1.1213	34.40	35.94	---
1.310	0.3343	0.3300	346	S	8.59E-02	2.410	0.4848	0.4867	1.1403	1.1487	35.36	35.11	---
0.660	0.3275	0.3229	1109	S	2.75E-02	0.985	0.4913	0.4939	1.1690	1.1805	34.50	34.15	---
0.330	0.3198	0.3136	2940	S	1.07E-02	0.495	0.5001	0.5032	1.2079	1.2216	33.32	32.91	---
0.160	0.3102	0.3031	6998	S	4.68E-03	0.245	0.5103	0.5125	1.2529	1.2626	31.96	31.67	---
0.075	0.3005	0.2896		S		0.118	0.5234	0.5234	1.3107	1.3107	30.22	30.22	---

Final Conditions  
 0.5210  
 49.4  
 110.3  
 73.8  
 103.3  
 1.3003

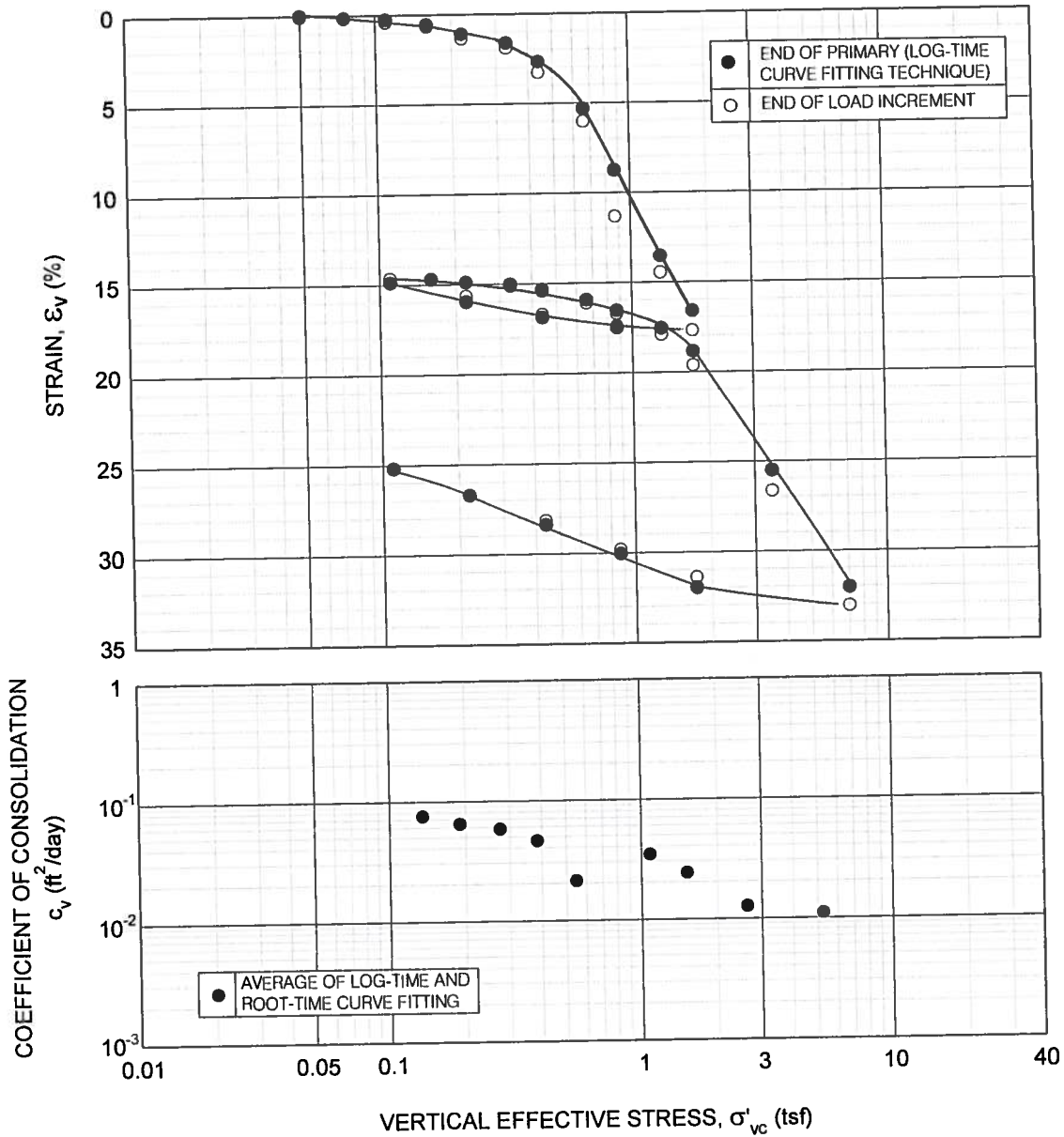
Initial Conditions  
 0.7500  
 86.5  
 95.6  
 51.3  
 101.8  
 2.3114

Project Name: Oyster Bayou  
 File Number: 12-80-3741  
 Boring Number: B-05  
 Depth: 4-6 (5-5)

LL = 87  
 PI = 65

EOP= End of Primary Consolidation  
 EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7195  
 Ring Diameter (in) 2.0000  
 Ring weight (g) 62.57  
 Height of Solids (in) 0.2265  
 Weight of Dry Soil (g) 31.71



**SAMPLE DATA**

BORING NO.: B-13  
 SAMPLE NO.:  
 DEPTH (FEET): 9.75  
 DESCRIPTION: Gray CLAY (CH)

**INDEX PROPERTIES**

LIQUID LIMIT (%):  
 PLASTIC LIMIT (%):  
 PLASTICITY INDEX (%):  
 SPECIFIC GRAVITY: 2.72  
 -200(%): 97  
 ORGANIC CONTENT (%):

**SPECIMEN CONDITIONS**


	INITIAL	FINAL
MOISTURE CONTENT (%):	64.7	41.5
DRY DENSITY (lb/ft <sup>3</sup> ):	61.6	81.3
VOID RATIO:	1.75	1.09

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.16
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.50
VIRGIN COMPRESSION RATIO, CR:	0.28
RECOMPRESSION RATIO, RR:	0.03

**INCREMENTAL CONSOLIDATION TEST RESULTS**

Confidential Information:  
 Privileged & Confidential  
 Work Product

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU</b>  <b>CPRA</b>		
DRAWN BY: RJB	CHECKED BY: <i>MS</i>	DATE: 07/01/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C22

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>vc</sub>
	Initial	EOP											
0.000	0.0726	0.0726					0.7540	0.7540	1.7527	1.7527	0.00	0.00	
0.050	0.0726	0.0726			0.025	0.7540	0.7540	1.7527	1.7504	1.7504	0.00	0.09	
0.075	0.0735	0.0739			0.063	0.7529	0.7530	1.7487	1.7489	1.7489	0.15	0.14	
0.110	0.0749	0.0757	217	S	0.093	0.7522	0.7510	1.7460	1.7418	1.7418	0.25	0.40	
0.160	0.0773	0.0784	960	S	7.49E-02	0.7499	0.7489	1.7378	1.7341	1.7341	0.54	0.68	
0.220	0.0797	0.0828	1109	S	6.43E-02	0.7458	0.7439	1.7228	1.7157	1.7157	1.09	1.35	
0.330	0.0851	0.0871	540	L	3.03E-02	0.7398	0.7398	1.7086	1.7009	1.7009	1.60	1.88	
0.440	0.0897	0.0957	1500	S	4.62E-02	0.7338	0.7338	1.6790	1.6626	1.6626	2.68	3.28	
0.660	0.1024	0.1177	3110	S	0.850	0.7140	0.7088	1.6067	1.5875	1.5875	5.31	6.00	
0.870	0.1275	0.1481	194	S	3.21E-01	0.655	0.6882	1.5123	1.4415	1.4415	8.73	11.31	
1.310	0.1720	0.1887	1622	S	3.43E-02	0.6521	0.6521	1.3805	1.3550	1.3550	13.52	14.45	
1.740	0.1987	0.2148	2160	S	2.40E-02	0.6290	0.6290	1.2962	1.2668	1.2668	16.58	17.65	
0.870	0.2225	0.2212	277	S	1.78E-01	0.6222	0.6222	1.2716	1.2739	1.2739	17.48	17.39	
0.440	0.2197	0.2158	1058	S	0.655	0.6268	0.6268	1.2882	1.2927	1.2927	16.88	16.71	
0.220	0.2143	0.2087	2381	S	4.71E-02	0.6336	0.6336	1.3132	1.3221	1.3221	15.97	15.64	
0.110	0.2059	0.2000	5302	S	2.13E-02	0.6420	0.6436	1.3437	1.3497	1.3497	14.86	14.64	
0.160	0.1986	0.1989			0.165	0.6433	0.6433	1.3484	1.3486	1.3486	14.69	14.69	
0.220	0.1991	0.2005	614	S	0.135	0.6419	0.6419	1.3433	1.3433	1.3433	14.87	14.87	
0.440	0.2012	0.2022	1215	S	8.55E-02	0.6408	0.6408	1.3395	1.3368	1.3368	15.01	15.11	
0.660	0.2061	0.2099	1162	S	4.29E-02	0.6385	0.6377	1.3310	1.3282	1.3282	15.32	15.42	
1.310	0.2117	0.2150	1270	S	4.44E-02	0.6339	0.6326	1.3143	1.3096	1.3096	15.93	16.10	
1.740	0.2284	0.2355	1215	S	4.00E-02	0.6280	0.6293	1.2976	1.2928	1.2928	16.54	16.71	
3.510	0.2450	0.2894	3466	S	3.98E-02	1.525	0.6120	1.2342	1.2342	1.2342	18.84	19.61	
7.040	0.3005	0.3411	3286	S	1.10E-02	2.625	0.5618	0.5532	1.0509	1.0197	25.49	26.63	
1.740	0.3460	0.3380	778	S	4.25E-02	5.275	0.5126	0.5050	0.8715	0.8438	32.01	33.02	
0.870	0.3336	0.3234	5302	S	4.25E-02	4.390	0.5130	0.5174	0.8730	0.8890	31.96	31.38	
0.440	0.3212	0.3105	12269	S	6.57E-03	1.305	0.5276	0.5294	0.9263	0.9326	30.02	29.79	
0.220	0.3085	0.2975			2.97E-03	0.655	0.5401	0.5418	0.9717	0.9781	28.37	28.14	
0.110	0.2968	0.2854			0.330	0.5528	0.5528	1.0181	1.0181	1.0181	26.69	26.69	
					0.165	0.5642	0.5642	1.0597	1.0597	1.0597	25.18	25.18	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-13**  
Depth: **8-10 (9.75)**

LL = N/A  
PI = N/A

Initial Conditions  
Height (in) 0.7540  
w<sub>c</sub> (%) 64.7  
γ<sub>d</sub> (pcf) 101.5  
γ<sub>d</sub> (pcf) 61.6  
Saturation (%) 100.4  
Void ratio, e 1.7527

Final Conditions  
0.5720  
41.5  
115.0  
81.3  
103.7  
1.0583

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7182  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.53  
Height of Solids (in) 0.2739  
Weight of Dry Soil (g) 96.33

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ve</sub>
	Initial	EOP											
0.000	0.0726	0.0726					0.7540	0.7540	1.7527	1.7527	0.00	0.00	
0.050	0.0726	0.0726		S		0.025	0.7540	0.7534	1.7527	1.7504	0.00	0.09	
0.075	0.0735	0.0739		S		0.063	0.7529	0.7487	1.7487	1.7487	0.15	0.15	
0.110	0.0749	0.0757	217	S	3.33E-01	0.093	0.7521	0.7509	1.7458	1.7414	0.25	0.41	
0.160	0.0773	0.0784	960	S	7.49E-02	0.135	0.7498	0.7488	1.7374	1.7338	0.56	0.69	
0.220	0.0797	0.0828	1109	S	6.43E-02	0.190	0.7457	0.7438	1.7224	1.7155	1.10	1.35	
0.330	0.0849	0.0872	821	S	8.57E-02	0.275	0.7414	0.7395	1.7068	1.6997	1.67	1.93	
0.440	0.0897	0.0957	1500	S	4.61E-02	0.385	0.7335	0.7293	1.6778	1.6624	2.72	3.28	
0.660	0.1024	0.1177	3110	S	2.14E-02	0.550	0.7140	0.7087	1.6066	1.5872	5.31	6.01	
0.870	0.1275	0.1481	194	S	3.21E-01	0.765	0.6881	0.6694	1.5120	1.4437	8.75	11.23	
1.310	0.1720	0.1887	1622	S	3.44E-02	1.090	0.6527	0.6457	1.3828	1.3572	13.44	14.37	
1.740	0.1987	0.2148	2160	S	2.40E-02	1.525	0.6296	0.6215	1.2984	1.2689	16.50	17.58	
0.870	0.2225	0.2212	277	S	1.78E-01	1.305	0.6228	0.6234	1.2736	1.2758	17.41	17.33	
0.440	0.2197	0.2158	1058	S	4.72E-02	0.655	0.6273	0.6285	1.2900	1.2944	16.81	16.65	
0.220	0.2143	0.2087	2381	S	2.14E-02	0.330	0.6341	0.6365	1.3149	1.3236	15.91	15.59	
0.110	0.2059	0.2000	5302	S	9.84E-03	0.165	0.6424	0.6440	1.3452	1.3510	14.81	14.59	
0.160	0.1986	0.1989		S		0.135	0.6436	0.6436	1.3497	1.3497	14.64	14.64	
0.220	0.1991	0.2005		S		0.190	0.6422	0.6422	1.3444	1.3444	14.83	14.83	
0.330	0.2012	0.2022	614	S	8.56E-02	0.275	0.6411	0.6405	1.3407	1.3385	14.97	15.05	
0.440	0.2033	0.2049	1215	S	4.30E-02	0.385	0.6389	0.6383	1.3326	1.3304	15.26	15.34	
0.660	0.2061	0.2099	1162	S	4.45E-02	0.550	0.6345	0.6333	1.3166	1.3122	15.84	16.00	
0.870	0.2117	0.2150	1270	S	4.01E-02	0.765	0.6300	0.6287	1.3001	1.2954	16.44	16.61	
1.310	0.2171	0.2234	1109	S	4.50E-02	1.090	0.6224	0.6197	1.2724	1.2625	17.45	17.81	
1.740	0.2284	0.2355	1215	S	3.99E-02	1.525	0.6126	0.6068	1.2366	1.2154	18.75	19.52	
3.510	0.2450	0.2894	3466	S	1.26E-02	2.625	0.5624	0.5540	1.0533	1.0227	25.41	26.52	
7.040	0.3005	0.3411	3286	S	1.11E-02	5.275	0.5134	0.5059	0.8745	0.8471	31.91	32.90	
1.740	0.3460	0.3380	778	S	4.27E-02	4.390	0.5139	0.5183	0.8763	0.8923	31.84	31.26	
0.870	0.3336	0.3234	5302	S	6.60E-03	1.305	0.5285	0.5285	0.9296	0.9358	29.90	29.68	
0.440	0.3212	0.3105	12269	S	2.98E-03	0.655	0.5409	0.5426	0.9749	0.9811	28.26	28.03	
0.220	0.3085	0.2975		S		0.330	0.5536	0.5536	1.0210	1.0210	26.58	26.58	
0.110	0.2968	0.2854		S		0.165	0.5650	0.5650	1.0627	1.0627	25.07	25.07	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-13**  
Depth: **8-10 (9.75)**

LL = N/A  
PI = N/A

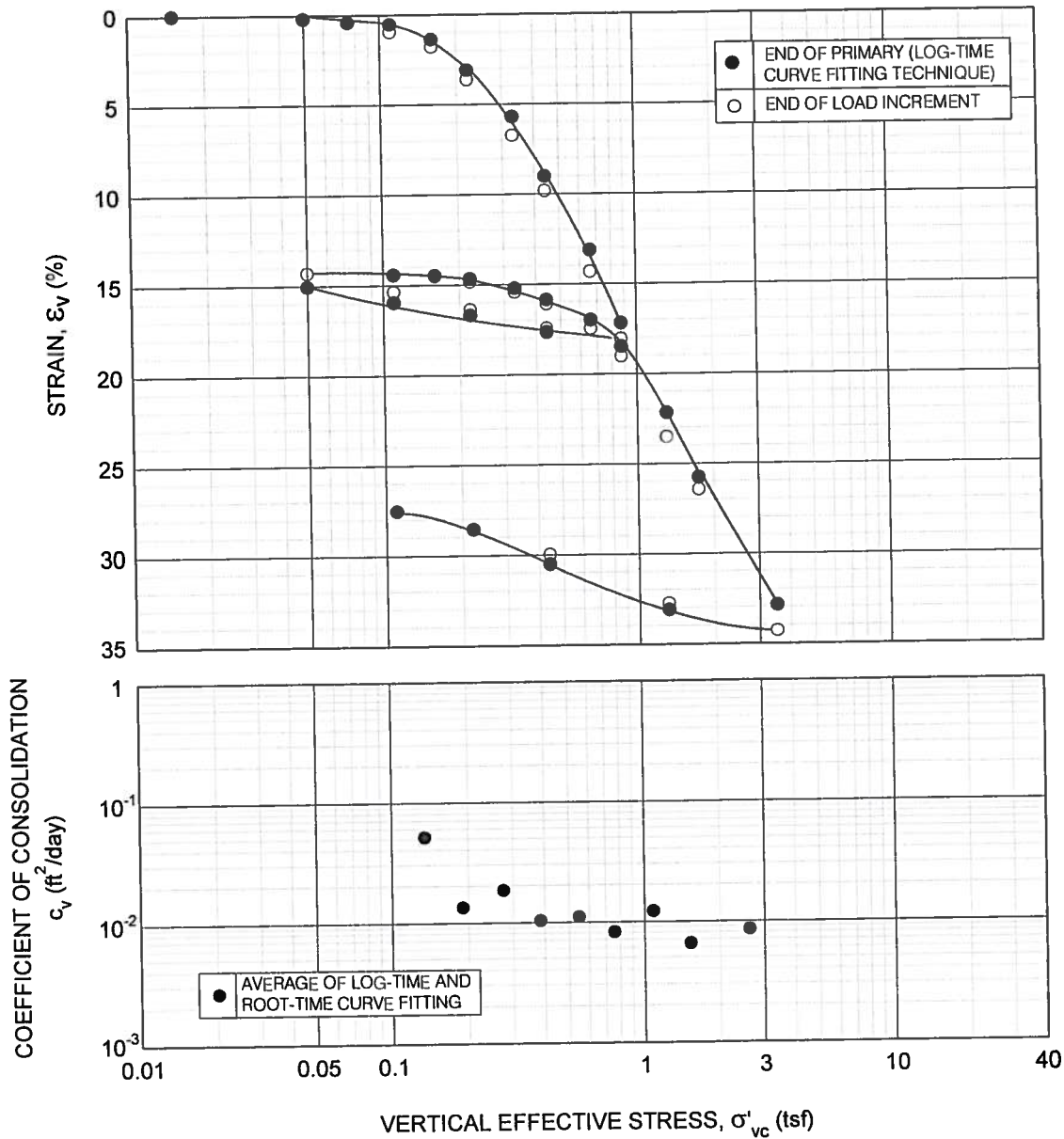
OC = -200 = 97.2  
OC = N/A

Initial Conditions  
Height (in) 0.7540  
w<sub>c</sub> (%) 64.7  
γ<sub>s</sub> (pcf) 101.5  
γ<sub>d</sub> (pcf) 61.6  
Saturation (%) 100.4  
Void ratio, e 1.7527

Final Conditions  
Height (in) 0.5720  
w<sub>c</sub> (%) 41.5  
γ<sub>s</sub> (pcf) 115.0  
γ<sub>d</sub> (pcf) 81.3  
Saturation (%) 103.7  
Void ratio, e 1.0883

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.7182  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.53  
Height of Solids (in) 0.2739  
Weight of Dry Soil (g) 38.33



**SAMPLE DATA**

BORING NO.: B-09  
 SAMPLE NO.:  
 DEPTH (FEET): 11.75  
 DESCRIPTION: Gray CLAY (CH) w/silt

**INDEX PROPERTIES**

LIQUID LIMIT (%): 99  
 PLASTIC LIMIT (%): 27  
 PLASTICITY INDEX (%): 72  
 SPECIFIC GRAVITY: 2.78  
 -200(%): 99

**SPECIMEN CONDITIONS**

	INITIAL	FINAL
MOISTURE CONTENT (%):	93.0	58.5
DRY DENSITY (lb/ft <sup>3</sup> ):	48.5	66.9
VOID RATIO:	2.58	1.59

**CONSOLIDATION PARAMETERS**

EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.19
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.29
VIRGIN COMPRESSION RATIO, CR:	0.29
RECOMPRESSION RATIO, RR:	0.03

**INCREMENTAL CONSOLIDATION TEST RESULTS**

**Ardaman & Associates, Inc.**  
 Geotechnical, Environmental and  
 Materials Consultants

OYSTER BAYOU

CPRA

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 Work Product

DRAWN BY: RJB	CHECKED BY: <i>JMS</i>	DATE: 07/01/13
FILE NO: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: C23

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (incht)		Time, t <sub>100</sub> (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (incht)	Height at EOI (incht)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOP											
0.000	0.0463	0.0463					0.7580	0.7580	2.5818	2.5818	0.00	0.00	
0.015	0.0463	0.0463				0.008	0.7580	0.7581	2.5818	2.5821	0.00	-0.01	
0.050	0.0461	0.0476				0.033	0.7566	0.7566	2.5750	2.5750	0.19	0.19	
0.075	0.0476	0.0492				0.063	0.7550	0.7550	2.5674	2.5674	0.40	0.40	
0.110	0.0494	0.0503	66	S	1.10E+00	0.093	0.7541	0.7509	2.5632	2.5481	0.52	0.94	
0.160	0.0535	0.0568	1058	S	6.77E-02	0.135	0.7476	0.7445	2.5325	2.5181	1.38	1.78	
0.220	0.0599	0.0698	5302	S	1.32E-02	0.190	0.7346	0.7306	2.4713	2.4524	3.09	3.61	
0.330	0.0740	0.0897	3650	S	1.83E-02	0.275	0.7149	0.7071	2.3782	2.3411	5.69	6.72	
0.440	0.0976	0.1149	6000	S	1.04E-02	0.385	0.6898	0.6836	2.2593	2.2303	9.00	9.82	
0.660	0.1211	0.1461	5189	S	1.11E-02	0.550	0.6586	0.6495	2.1121	2.0691	13.11	14.31	
0.870	0.1552	0.1769	6365	S	8.18E-03	0.765	0.6278	0.6213	1.9666	1.9356	17.18	18.04	
0.440	0.1832	0.1802	470	S	4.15E-02	0.330	0.6316	0.6339	1.9846	1.9576	17.65	17.43	
0.220	0.1784	0.1727	1215	S	5.37E-02	0.165	0.6372	0.6416	2.0108	2.0318	15.94	15.36	
0.110	0.1704	0.1671	960	S	6.78E-02	0.080	0.6440	0.6497	2.0431	2.0698	15.04	14.29	
0.050	0.1625	0.1601	778	S		0.080	0.6488	0.6488	2.0656	2.0656	14.41	14.41	
0.110	0.1548	0.1557	154	S	3.49E-01	0.135	0.6485	0.6488	2.0621	2.0621	14.45	14.51	
0.160	0.1557	0.1560	1058	S	5.06E-02	0.190	0.6469	0.6456	2.0570	2.0509	14.65	14.82	
0.220	0.1566	0.1577	1685	S	3.14E-02	0.275	0.6427	0.6412	2.0372	2.0299	15.21	15.41	
0.330	0.1595	0.1624	2160	S	2.42E-02	0.385	0.6378	0.6361	2.0138	2.0058	15.86	16.08	
0.440	0.1641	0.1675	1382	S	3.70E-02	0.550	0.6292	0.6255	1.9732	1.9559	16.99	17.47	
0.660	0.1694	0.1763	3286	S	1.50E-02	0.765	0.6179	0.6139	1.9200	1.9009	18.48	19.01	
0.870	0.1801	0.1877	3840	S	1.20E-02	1.090	0.5901	0.5797	1.7884	1.7395	22.15	23.52	
1.310	0.1918	0.2156	6365	S	6.54E-03	1.525	0.5628	0.5577	1.6596	1.6355	25.75	26.42	
1.740	0.2260	0.2429	4234	S	8.57E-03	2.625	0.5089	0.4982	1.4049	1.3541	32.86	34.28	
3.510	0.2500	0.2988	1270	S	2.54E-02	2.410	0.5073	0.5099	1.3971	1.4097	33.08	32.73	
1.310	0.3087	0.2996	4860	S	7.06E-03	0.875	0.5268	0.5308	1.4895	1.5084	30.50	29.97	
0.440	0.2968	0.2799				0.330	0.5417	0.5417	1.5597	1.5966	28.54	28.54	
0.220	0.2758	0.2649				0.165	0.5495	0.5495	1.5966	1.5966	27.51	27.51	
0.110	0.2645	0.2567											

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-09**  
Depth: **10-12 (11.75)**

LL = 99  
PI = 72

Initial Conditions  
Height (in) 0.7580  
w<sub>c</sub> (%) 93.0  
γ<sub>t</sub> (pcf) 93.6  
γ<sub>d</sub> (pcf) 48.5  
Saturation (%) 100.2  
Void ratio, e 2.5818

Final Conditions  
0.5490  
58.5  
106.1  
66.9  
102.0  
1.5942

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity 2.78118  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.59  
Height of Solids (in) 0.2116  
Weight of Dry Soil (g) 30.30

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EO (inch)	Void Ratio at EOP	Void Ratio at EO	Strain at EOP (%)	Strain at EO (%)	Crane
	Initial	EOP											
0.000	0.0463	0.0463					0.7580	0.7580	2.5818	2.5818	0.00	0.00	
0.015	0.0463	0.0463				0.008	0.7580	0.7581	2.5818	2.5821	0.00	-0.01	
0.050	0.0462	0.0476				0.033	0.7567	0.7555	2.5755	2.5755	0.18	0.18	
0.075	0.0476	0.0489				0.063	0.7554	0.7554	2.5693	2.5693	0.35	0.35	
0.110	0.0494	0.0503	66	S	1.10E+00	0.093	0.7545	0.7513	2.5651	2.5499	0.47	0.89	
0.160	0.0535	0.0568	2018	S	3.55E-02	0.135	0.7480	0.7456	2.5344	2.5230	1.33	1.64	
0.220	0.0599	0.0698	5302	S	1.32E-02	0.190	0.7357	0.7317	2.4762	2.4573	2.95	3.48	
0.330	0.0740	0.0897	3650	S	1.83E-02	0.275	0.7160	0.7061	2.3831	2.3458	5.55	6.59	
0.440	0.0976	0.1149	6000	S	1.04E-02	0.385	0.6908	0.6846	2.2641	2.2348	8.87	9.69	
0.660	0.1211	0.1461	5189	S	1.11E-02	0.550	0.6596	0.6505	2.1166	2.0736	12.99	14.19	
0.870	0.1552	0.1769	6365	S	8.20E-03	0.765	0.6288	0.6222	1.9711	1.9399	17.05	17.92	
0.440	0.1832	0.1802	470	S	1.06E-01	0.655	0.6252	0.6268	1.9541	1.9886	17.53	17.32	
0.220	0.1784	0.1727	1215	S	4.16E-02	0.330	0.6325	0.6347	1.9886	1.9990	16.56	16.27	
0.110	0.1704	0.1671	960	S	5.38E-02	0.165	0.6380	0.6424	2.0146	2.0354	15.84	15.26	
0.050	0.1625	0.1601	778	S	6.79E-02	0.080	0.6448	0.6504	2.0467	2.0732	14.94	14.20	
0.110	0.1548	0.1556		S	3.49E-01	0.080	0.6495	0.6487	2.0691	2.0691	14.31	14.31	
0.160	0.1557	0.1560	154	S	5.07E-02	0.190	0.6476	0.6476	2.0604	2.0570	14.56	14.65	
0.220	0.1566	0.1577	1058	S	3.16E-02	0.275	0.6440	0.6425	2.0433	2.0363	15.03	15.23	
0.330	0.1595	0.1624	1685	S	2.43E-02	0.385	0.6391	0.6374	2.0202	2.0122	15.68	15.91	
0.440	0.1641	0.1675	2160	S	3.71E-02	0.550	0.6305	0.6268	1.9795	1.9621	16.82	17.30	
0.660	0.1684	0.1763	1382	S	1.51E-02	0.765	0.6192	0.6151	1.9261	1.9068	18.31	18.85	
0.870	0.1801	0.1877	3286	S	1.21E-02	1.090	0.5913	0.5809	1.7941	1.7449	21.99	23.37	
1.310	0.1918	0.2156	3840	S	6.57E-03	1.525	0.5640	0.5589	1.6651	1.6410	25.59	26.27	
1.740	0.2260	0.2429	6365	S	8.61E-03	2.625	0.5101	0.4993	1.4104	1.3596	32.71	34.12	
3.510	0.2500	0.2988	4234	S	2.55E-02	2.410	0.5084	0.5109	1.4026	1.4144	32.92	32.59	
1.310	0.3087	0.2996	1270	S	7.08E-03	0.875	0.5278	0.5316	1.4942	1.5122	30.36	29.86	
0.440	0.2968	0.2799	4860	S		0.330	0.5423	0.5423	1.5625	1.5625	28.46	28.46	
0.220	0.2758	0.2651				0.165	0.5501	0.5501	1.5994	1.5994	27.43	27.43	
0.110	0.2645	0.2567											
0.000													

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-09**  
Depth: **10-12 (11.75)**

LL = 99  
PI = 72

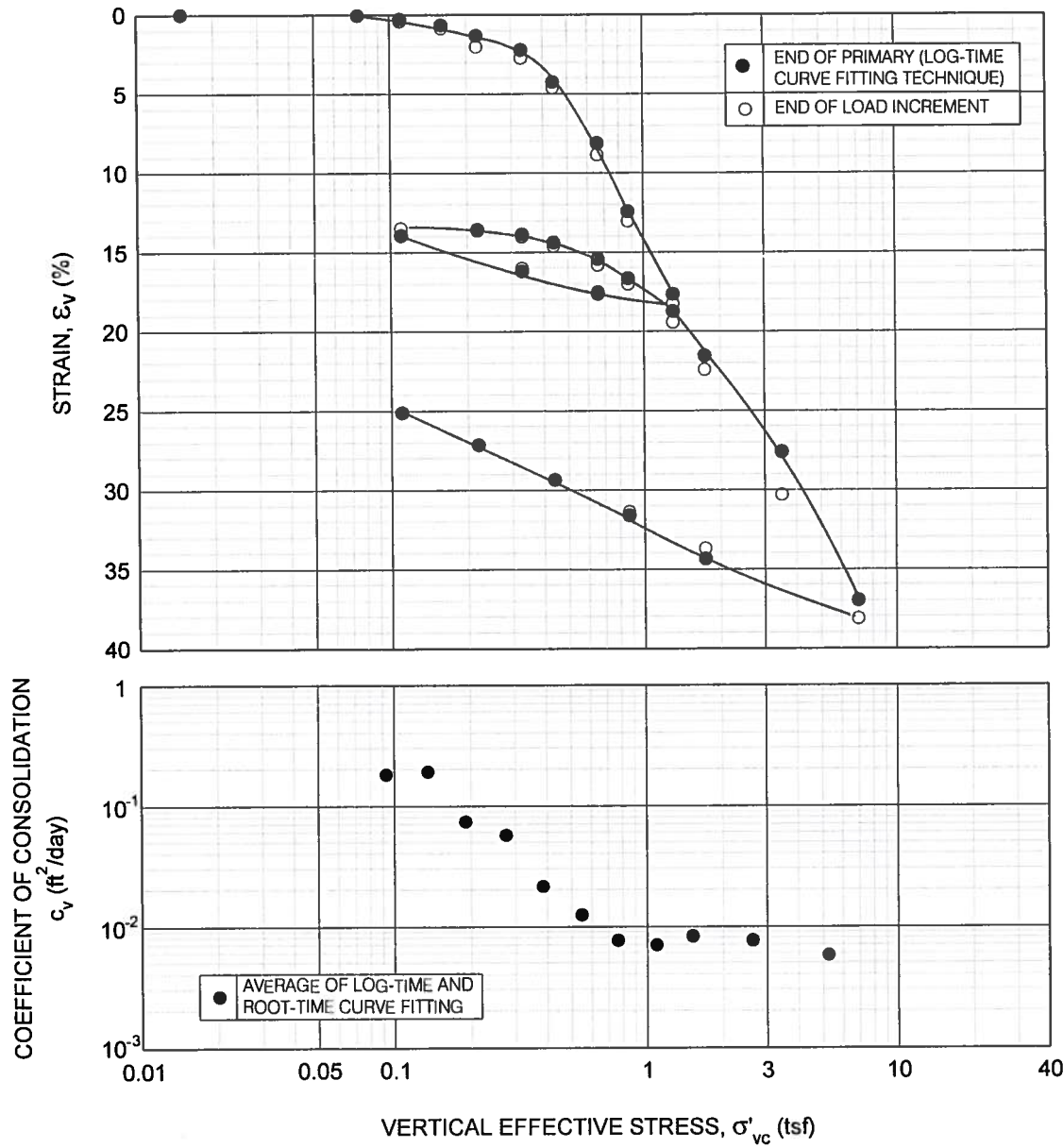
Initial Conditions  
0.5490  
58.5  
106.1  
66.9  
102.0  
1.5942

Final Conditions  
0.5490  
58.5  
106.1  
66.9  
102.0  
1.5942

EOI = End of Primary Consolidation  
EOP = End of load increment (typically 24 hrs +/-)

Specific Gravity 2.78118  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.59  
Height of Solids (in) 0.2116  
Weight of Dry Soil (g) 30.30





SAMPLE DATA	
BORING NO.:	B-14
SAMPLE NO.:	
DEPTH (FEET):	5.75
DESCRIPTION:	Gray CLAY (CH)

SPECIMEN CONDITIONS	INITIAL	FINAL
MOISTURE CONTENT (%):	92.2	61.5
DRY DENSITY (lb/ft <sup>3</sup> ):	48.6	66.0
VOID RATIO:	2.47	1.56

INDEX PROPERTIES	
LIQUID LIMIT (%):	107
PLASTIC LIMIT (%):	27
PLASTICITY INDEX (%):	80
SPECIFIC GRAVITY:	2.71
-200(%):	99
ORGANIC CONTENT (%):	5.4

CONSOLIDATION PARAMETERS	
EFFECTIVE OVERBURDEN STRESS, $\sigma'_{vo}$ (tsf):	0.09
PRECONSOLIDATION PRESSURE, $\sigma'_p$ (tsf):	0.41
VIRGIN COMPRESSION RATIO, CR:	0.36
RECOMPRESSION RATIO, RR:	0.045

## INCREMENTAL CONSOLIDATION TEST RESULTS

**Ardaman & Associates, Inc.**  
Geotechnical, Environmental and  
Materials Consultants

**OYSTER BAYOU**  
**CPRA**

DRAWN BY: <b>RJB</b>	CHECKED BY: <i>[Signature]</i>	DATE: <b>07/01/13</b>
FILE NO: <b>12-80-3741</b>	APPROVED BY: <i>[Signature]</i>	FIGURE: <b>C24</b>

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Work Product

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq ft)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Strain at EOP (%)	Strain at EOI (%)	Cone
	Initial	EOP										
0.000	0.0762	0.0762					0.7500	0.7500	2.4745	0.00	0.00	
0.015	0.0762	0.0762				0.008	0.7500	0.7521	2.4745	0.00	-0.28	
0.050	0.0745	0.0759				0.033	0.7507	0.7507	2.4777	-0.09	-0.09	
0.075	0.0759	0.0769				0.063	0.7497	0.7497	2.4731	0.04	0.04	
0.110	0.0773	0.0790	102	L	1.63E-01	0.093	0.7480	0.7468	2.4597	0.27	0.43	
0.160	0.0804	0.0821	210	L	7.86E-02	0.135	0.7451	0.7436	2.4518	0.65	0.85	
0.220	0.0841	0.0876	300	L	5.44E-02	0.190	0.7401	0.7348	2.4448	1.32	2.03	
0.330	0.0929	0.0944	240	L	6.86E-02	0.275	0.7333	0.7295	2.3971	2.23	2.73	
0.440	0.0987	0.1101	1200	L	1.29E-02	0.385	0.7181	0.7154	2.3267	4.25	4.61	0.00615
0.660	0.1130	0.1392	1350	L	1.09E-02	0.550	0.6892	0.6837	2.1928	8.11	8.84	
0.870	0.1451	0.1720	2040	L	6.53E-03	0.765	0.6568	0.6522	2.0427	12.43	13.04	0.01190
1.310	0.1770	0.2115	1860	L	6.43E-03	1.090	0.6177	0.6131	1.8616	17.64	18.25	0.01203
0.660	0.2156	0.2108	300	L	3.74E-02	0.985	0.6179	0.6188	1.8625	17.61	17.49	
0.330	0.2095	0.1998	780	L	1.48E-02	0.495	0.6285	0.6299	1.9116	16.20	16.01	
0.110	0.1982	0.1826	6490	S	8.00E-03	0.220	0.6455	0.6488	1.9904	13.93	13.49	
0.220	0.1796	0.1802	1058	S	5.07E-02	0.220	0.6482	0.6477	2.0029	13.57	13.64	
0.330	0.1809	0.1826	960	S	5.59E-02	0.275	0.6460	0.6448	1.9925	13.87	14.03	
0.440	0.1839	0.1865	1750	S	3.02E-02	0.385	0.6422	0.6405	1.9749	14.38	14.61	
0.660	0.1883	0.1944	2018	S	2.57E-02	0.550	0.6344	0.6315	1.9387	15.42	15.81	
0.870	0.1974	0.2038	2693	S	1.87E-02	0.785	0.6251	0.6225	1.8956	16.66	17.01	
1.310	0.2066	0.2195	3025	S	1.60E-02	1.090	0.6096	0.6044	1.8238	17.97	19.42	
1.740	0.2247	0.2406	5530	S	8.21E-03	1.525	0.5885	0.5820	1.7261	16.960	22.41	
3.510	0.2480	0.2869	5302	S	7.62E-03	2.625	0.5431	0.5229	1.5158	14.222	27.59	30.29
7.040	0.3090	0.3590	5415	S	5.84E-03	5.275	0.4729	0.4643	1.1905	1.1507	36.95	38.10
1.740	0.3760	0.3477	2774	S	1.05E-02	4.390	0.4926	0.4974	1.2818	1.3040	34.33	33.69
0.870	0.3427	0.3269	11426	S	2.85E-03	1.305	0.5132	0.5148	1.3772	1.3847	31.58	31.37
0.440	0.3249	0.3097				0.655	0.5300	0.5300	1.4551	1.4551	29.34	29.34
0.220	0.3094	0.2929				0.330	0.5465	0.5465	1.5315	1.5315	27.14	27.14
0.110	0.2928	0.2776				0.165	0.5617	0.5617	1.6019	1.6019	25.11	25.11

Project Name: Oyster Bayou  
File Number: 12-80-3741  
Boring Number: B-14  
Depth: 4-6 (5.75)

LL = 107  
PI = 80

Initial Conditions: 0.7500  
Final Conditions: 0.5520

Height (in): 92.2  
 $w_c$  (%): 93.4  
 $\gamma_t$  (pcf): 48.6  
Saturation (%): 100.8  
Void ratio, e: 2.4745

EOP= End of Primary Consolidation  
EOI= End of load increment (typically 24 hrs +/-)

Specific Gravity: 2.705  
Ring Diameter (in): 2.0000  
Ring weight (g): 62.57  
Height of Solids (in): 0.2159  
Weight of Dry Soil (g): 30.06

**ARDAMAN & ASSOCIATES, INC**  
**GEOTECHNICAL TESTING LABORATORY**  
**ONE-DIMENSIONAL INCREMENTAL LOADING CONSOLIDATION TEST SUMMARY SHEET**

Effective Stress (tsf)	Dial Readings (inch)		Time, $t_{100}$ (sec)	Method (L=log, S=sq rt)	Cv (ft <sup>2</sup> /day)	Average Effective Stress (tsf)	Height at EOP (inch)	Height at EOI (inch)	Void Ratio at EOP	Void Ratio at EOI	Strain at EOP (%)	Strain at EOI (%)	C <sub>ce</sub>
	Initial	EOP											
0.003	0.0762	0.0762					0.7500	0.7500	2.4745	2.4745	0.00	0.00	
0.015	0.0762	0.0762				0.008	0.7500	0.7521	2.4745	2.4842	0.00	-0.28	
0.050	0.0741	0.0758				0.033	0.7504	0.7504	2.4763	2.4763	-0.05	-0.05	
0.075	0.0759	0.0769				0.063	0.7494	0.7494	2.4717	2.4717	0.08	0.08	
0.110	0.0771	0.0789	375	S	1.91E-01	0.093	0.7476	0.7463	2.4634	2.4573	0.32	0.49	
0.160	0.0803	0.0815	240	S	2.96E-01	0.135	0.7451	0.7430	2.4518	2.4421	0.65	0.93	
0.220	0.0840	0.0869	778	S	9.02E-02	0.190	0.7401	0.7341	2.4286	2.4008	1.32	2.12	
0.330	0.0932	0.0951	1500	S	4.57E-02	0.275	0.7322	0.7291	2.3920	2.3777	2.37	2.79	
0.440	0.0984	0.1068	2306	S	2.91E-02	0.385	0.7207	0.7147	2.3387	2.3110	3.91	4.71	0.00615
0.660	0.1128	0.1358	4646	S	1.36E-02	0.550	0.6917	0.6830	2.2044	2.1641	7.77	8.93	
0.870	0.1447	0.1698	6742	S	8.51E-03	0.765	0.6579	0.6511	2.0478	2.0163	12.28	13.19	0.01190
1.310	0.1766	0.2087	6998	S	7.36E-03	1.090	0.6190	0.6116	1.8676	1.8333	17.47	18.45	0.01203
0.660	0.2158	0.2118	735	S	6.54E-02	0.985	0.6156	0.6175	1.8519	1.8607	17.92	17.67	
0.330	0.2096	0.2014	2614	S	1.89E-02	0.495	0.6257	0.6287	1.8986	1.9125	16.57	16.17	
0.110	0.1982	0.1826	6490	S	7.97E-03	0.220	0.6443	0.6476	1.9848	2.0001	14.09	13.65	
0.220	0.1796	0.1826	1058	S	5.05E-02	0.220	0.6470	0.6465	1.9973	1.9950	13.73	13.80	
0.330	0.1809	0.1826	960	S	5.54E-02	0.275	0.6448	0.6436	1.9869	1.9813	14.03	14.19	
0.440	0.1839	0.1865	1750	S	3.01E-02	0.385	0.6410	0.6393	1.9693	1.9614	14.54	14.77	
0.660	0.1883	0.1944	2018	S	2.58E-02	0.550	0.6332	0.6303	1.9332	1.9197	15.58	15.97	
0.870	0.1974	0.2038	2693	S	1.86E-02	0.765	0.6239	0.6213	1.8901	1.8780	16.82	17.17	
1.310	0.2066	0.2195	3025	S	1.59E-02	1.090	0.6084	0.6034	1.8183	1.7951	18.89	19.55	
1.740	0.2247	0.2406	5530	S	8.18E-03	1.525	0.5875	0.5810	1.7214	1.6913	21.67	22.54	
3.510	0.2480	0.2869	5302	S	7.59E-03	2.625	0.5421	0.5219	1.5111	1.4175	27.73	30.42	
7.040	0.3090	0.3590	5415	S	5.82E-03	5.275	0.4719	0.4916	1.1859	1.1461	37.09	38.23	
1.740	0.3760	0.3477	2774	S	1.05E-02	4.390	0.4916	0.4984	1.2772	1.2994	34.46	33.82	
0.870	0.3427	0.3269	11426	S	2.84E-03	1.305	0.5122	0.5138	1.3726	1.3800	31.71	31.50	
0.440	0.3249	0.3097				0.655	0.5290	0.5290	1.4504	1.4504	29.47	29.47	
0.220	0.3094	0.2929				0.330	0.5455	0.5455	1.5269	1.5269	27.27	27.27	
0.110	0.2928	0.2779				0.165	0.5604	0.5604	1.5959	1.5959	25.29	25.29	

Project Name: **Oyster Bayou**  
File Number: **12-80-3741**  
Boring Number: **B-14**  
Depth: **4-6 (5.75)**

LL = 107  
PI = 80

-200 = 99  
OC = 5.4

Initial Conditions  
Height (in) 0.7500  
w<sub>c</sub> (%) 92.2  
γ<sub>t</sub> (pcf) 93.4  
γ<sub>d</sub> (pcf) 48.6  
Saturation (%) 100.8  
Void ratio, e 2.4745

Final Conditions  
Height (in) 0.5520  
Specific Gravity 2.705  
Ring Diameter (in) 2.0000  
Ring weight (g) 62.57  
Height of Solids (in) 0.2159  
Weight of Dry Soil (g) 30.06

EOP = End of Primary Consolidation  
EOI = End of load increment (typically 24 hrs +/-)

## **APPENDIX D. UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS**

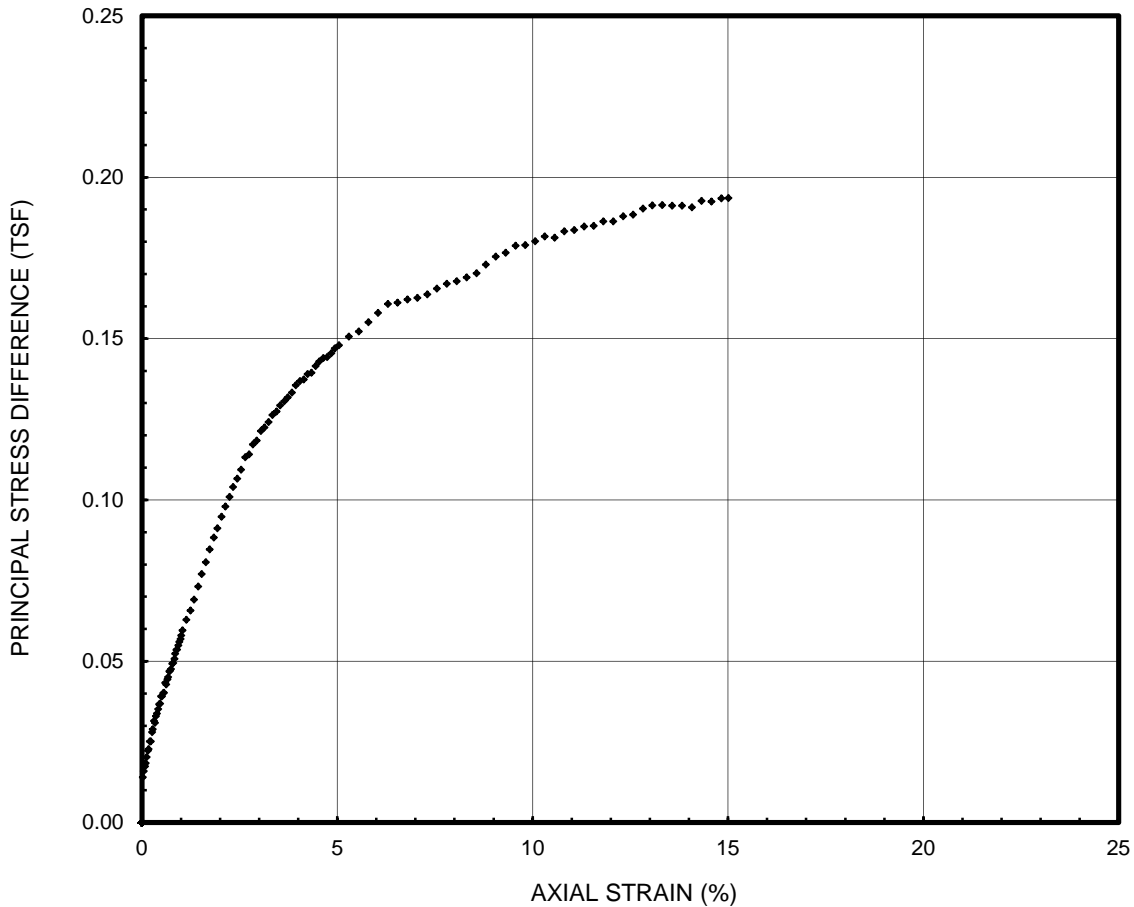
This Appendix contains the following:

- Unconsolidated Undrained Compressive Strength – Stress Strain Curve




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 0-2 ft  
**Description** Brown and gray CLAY (CH) with shells and trace organics

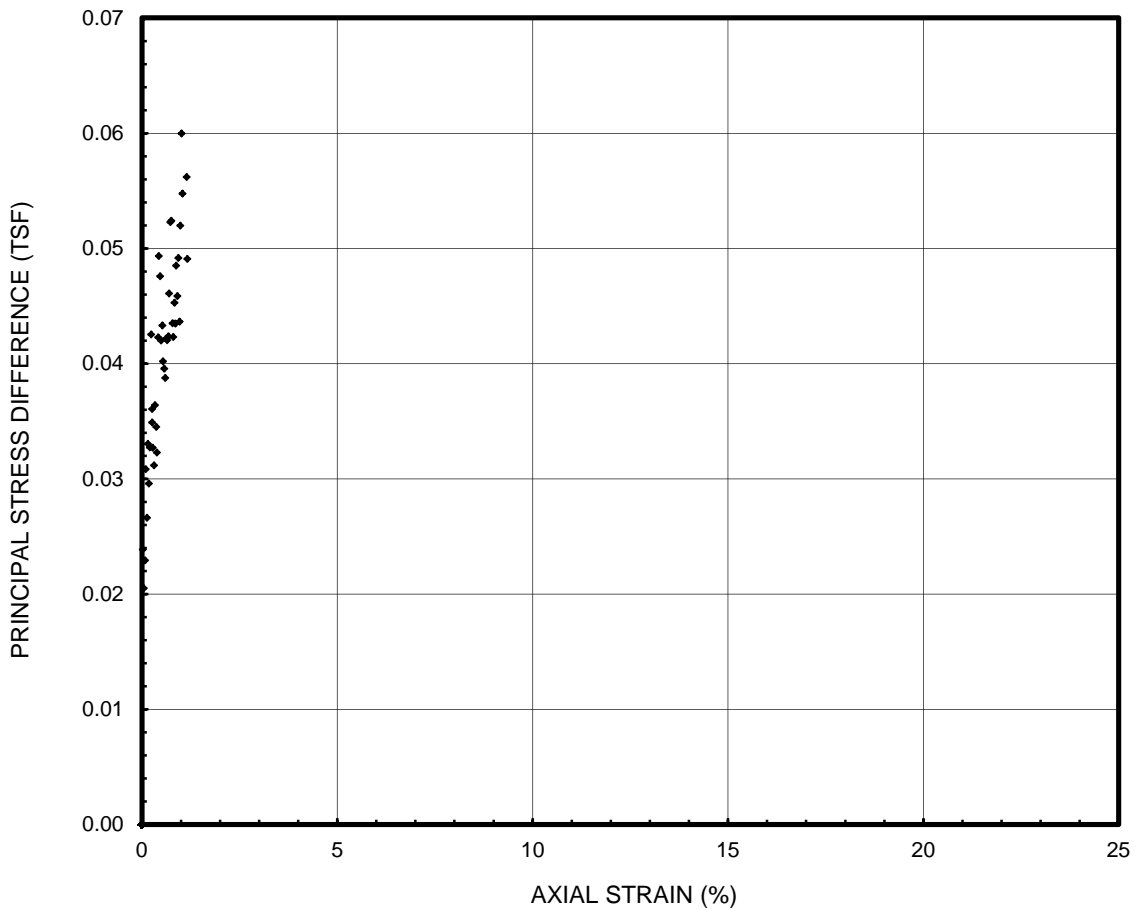


<b>Initial Height</b>	5.810	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.810	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	49.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.194	ton/ft <sup>2</sup>
<b>Water Content</b>	89.7	%	<b>Strain at Peak Stress</b>	15.01	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>GTP</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-04-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-1</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 4-6 ft  
**Description** Brown and gray CLAY (CH) with shells and trace organics

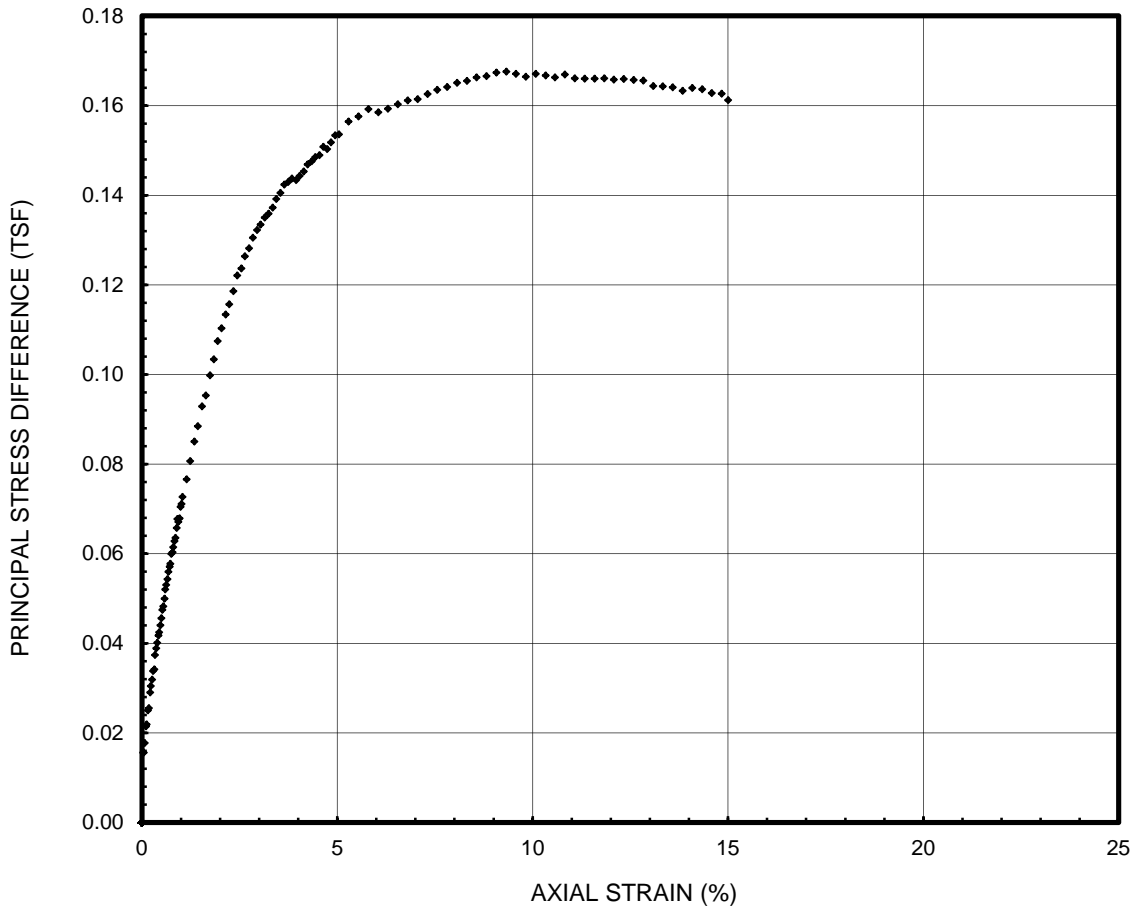


<b>Initial Height</b>	2.793	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.389	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	59.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.06	ton/ft <sup>2</sup>
<b>Water Content</b>	68.6	%	<b>Strain at Peak Stress</b>	1.02	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-2</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 8-10 ft  
**Description** Brown and gray CLAY (CH) with shells and trace organics

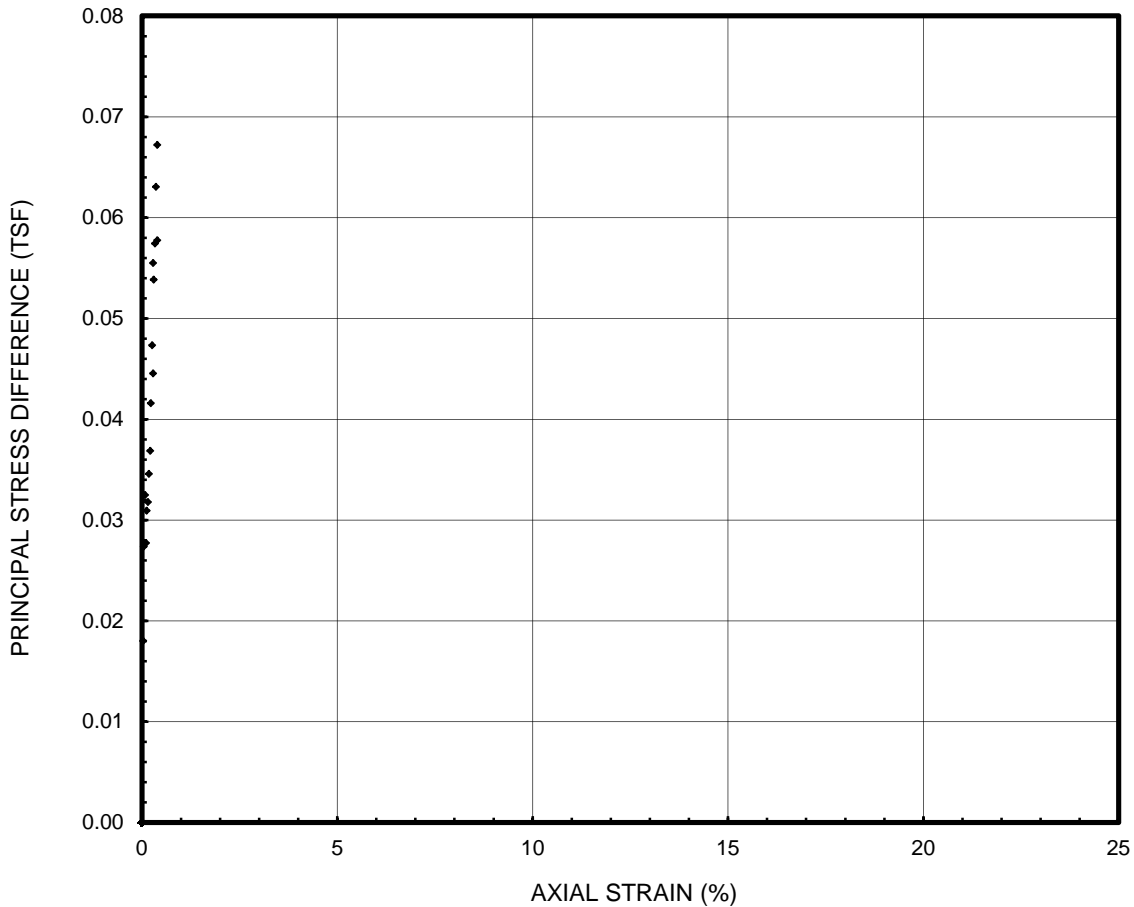


<b>Initial Height</b>	5.754	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.793	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.168	ton/ft <sup>2</sup>
<b>Water Content</b>	82.7	%	<b>Strain at Peak Stress</b>	9.32	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>GTP</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-04-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-3</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 12-14 ft  
**Description** Brown and gray CLAY (CH) with shells and trace organics



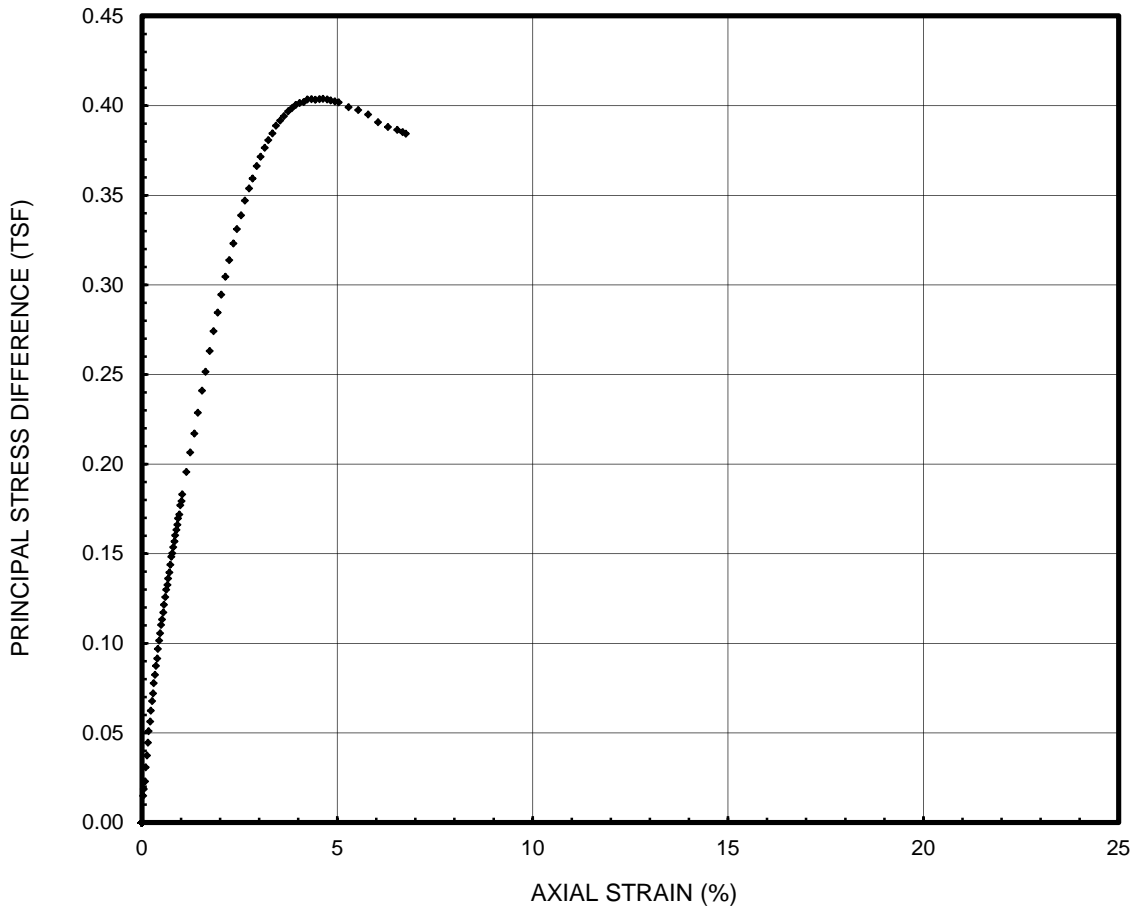
<b>Initial Height</b>	2.788	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.330	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	60.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.067	ton/ft <sup>2</sup>
<b>Water Content</b>	68.0	%	<b>Strain at Peak Stress</b>	0.39	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>GTP</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-04-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-4</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 16-18 ft  
**Description** Gray CLAY (CH) w/ organics

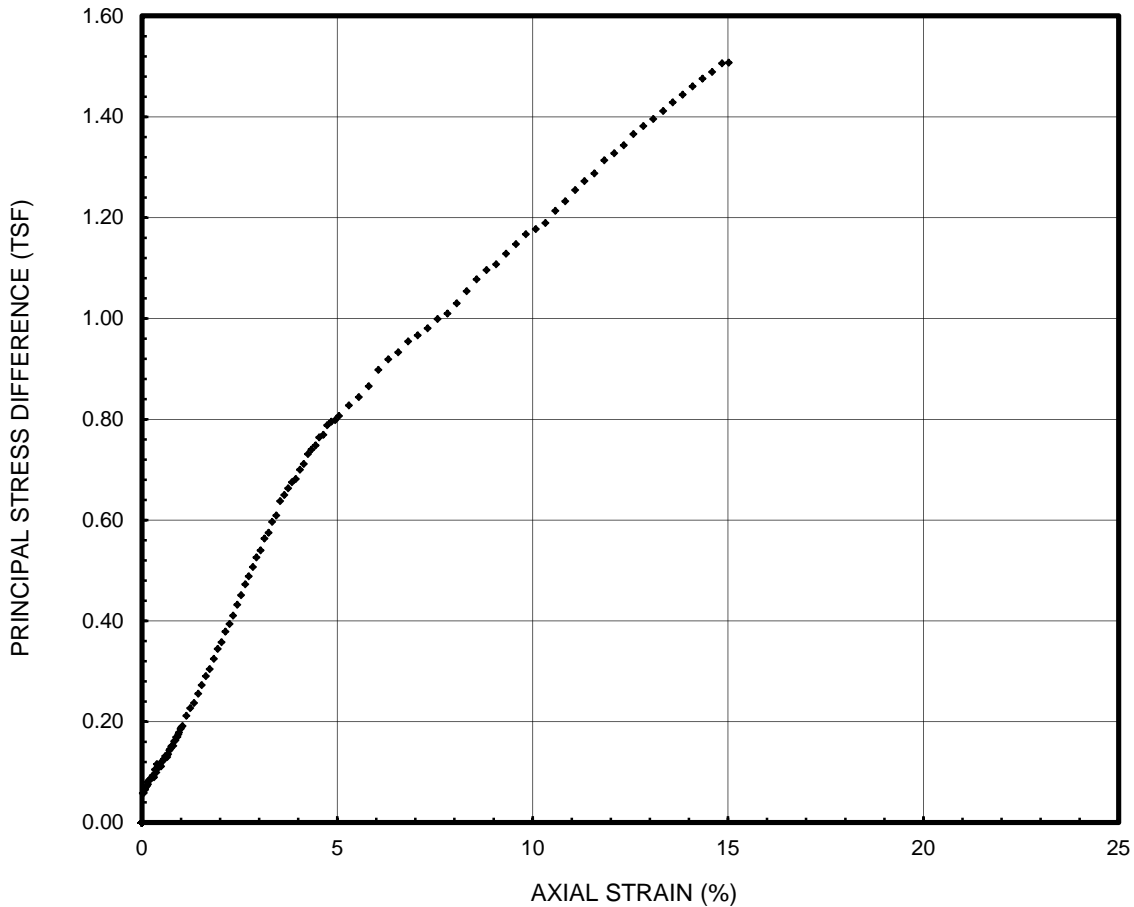


<b>Initial Height</b>	5.583	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.819	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	35.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.404	ton/ft <sup>2</sup>
<b>Water Content</b>	140.8	%	<b>Strain at Peak Stress</b>	4.64	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-5</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL) w/ sand

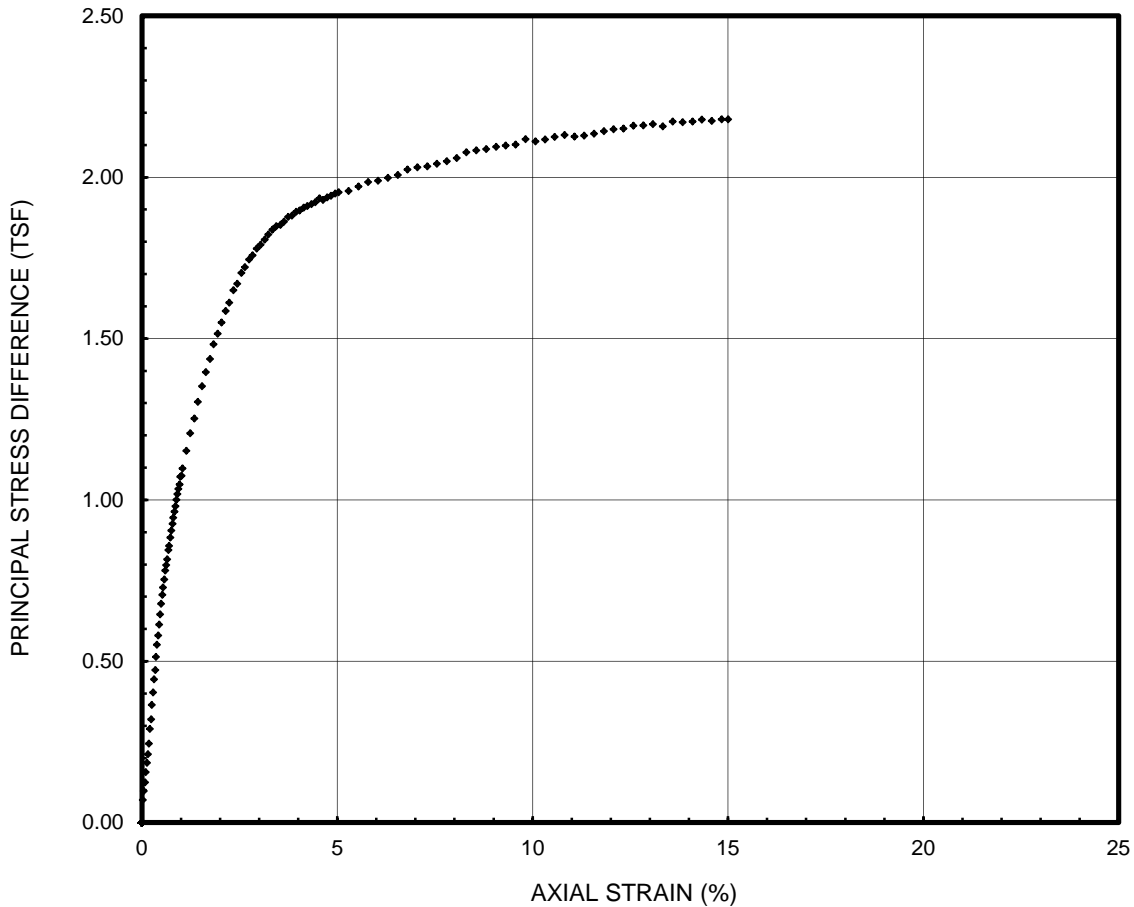


<b>Initial Height</b>	2.572	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.393	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	120.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.508	ton/ft <sup>2</sup>
<b>Water Content</b>	17.9	%	<b>Strain at Peak Stress</b>	15.02	%
<b>Saturation</b>	126	%	<b>Failure Type</b>	Bulging	


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-6</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-01  
**Depth**                23-25        ft  
**Description**         Gray SILTY CLAY (CL)

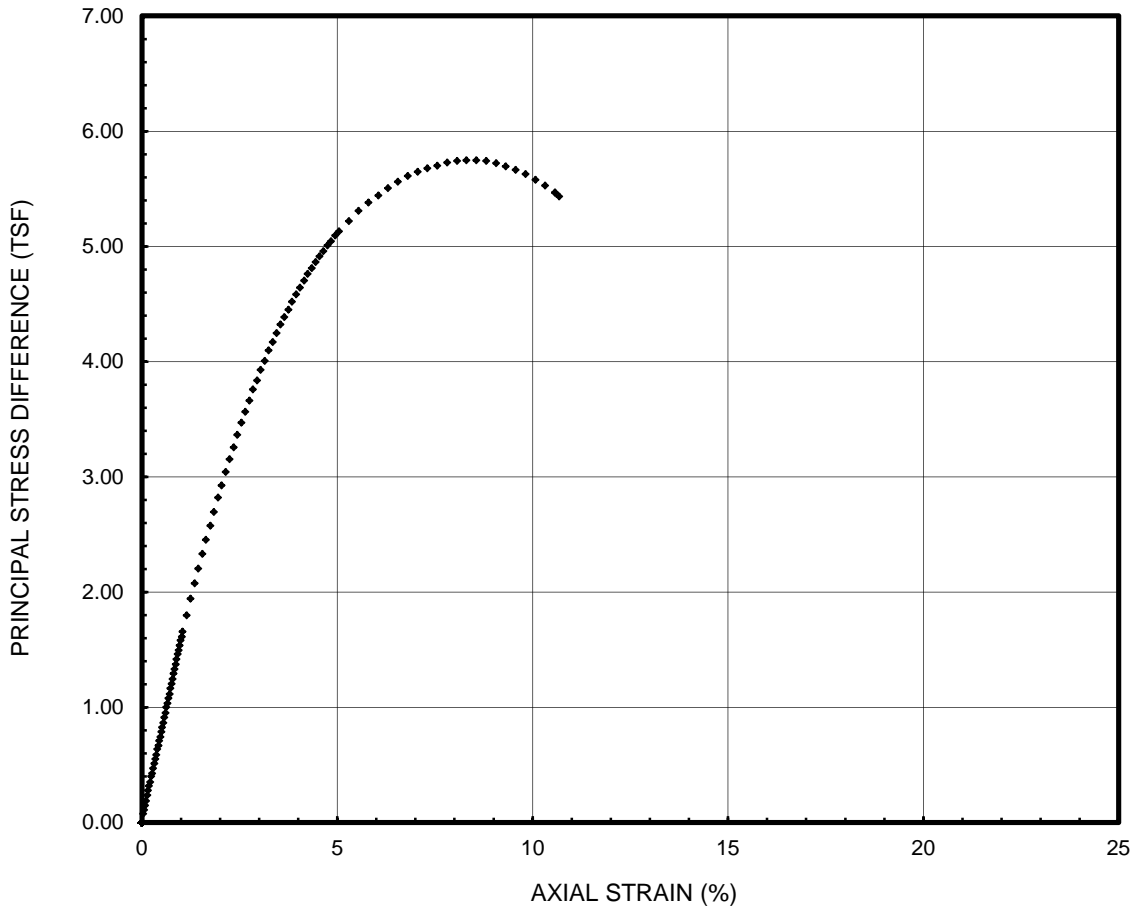


<b>Initial Height</b>	2.801	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.414	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	107.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.180	ton/ft <sup>2</sup>
<b>Water Content</b>	19.7	%	<b>Strain at Peak Stress</b>	15.01	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-7</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 33-35 ft  
**Description** Gray SILTY SAND (SM) w/ trace clay

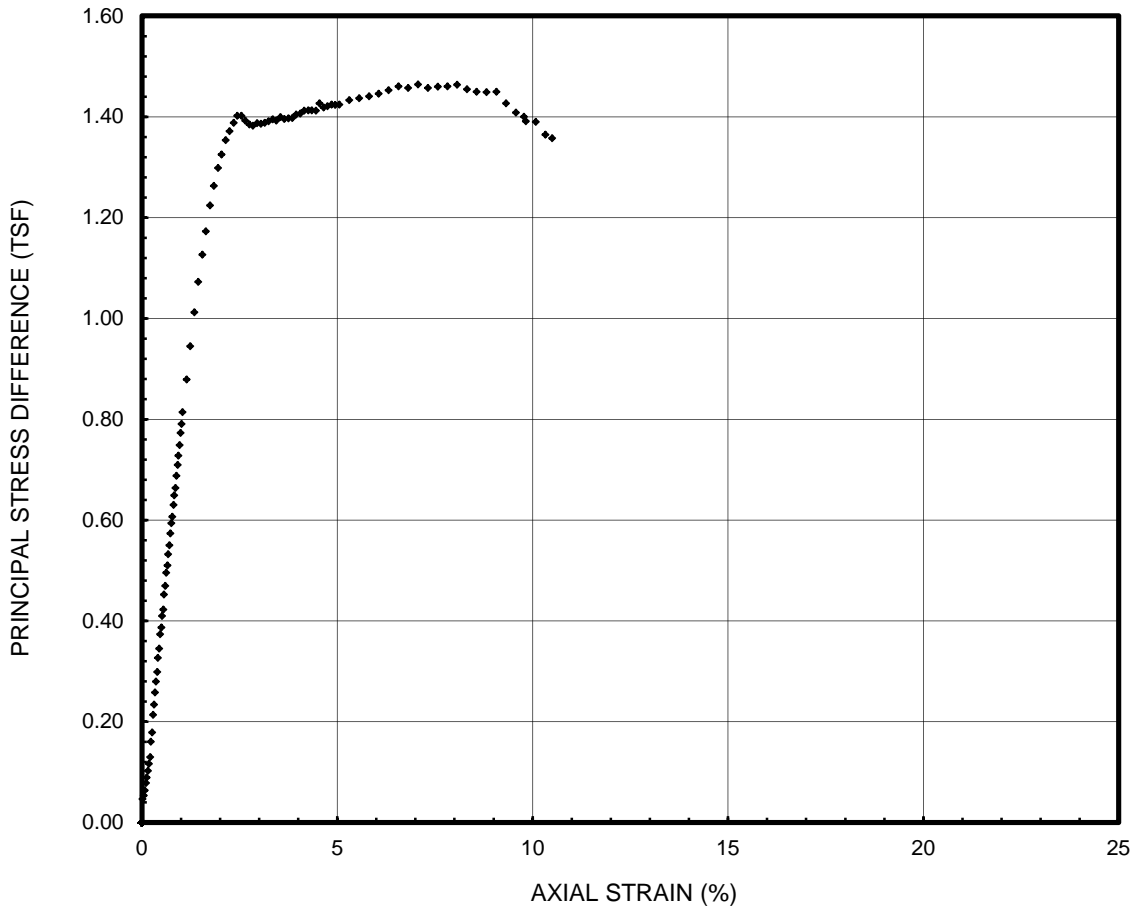


<b>Initial Height</b>	2.801	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.400	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	101.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	5.748	ton/ft <sup>2</sup>
<b>Water Content</b>	24.4	%	<b>Strain at Peak Stress</b>	8.31	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-8</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-01  
**Depth** 38-40 ft  
**Description** Brown and gray CLAY (CH) w/ silty sand layers

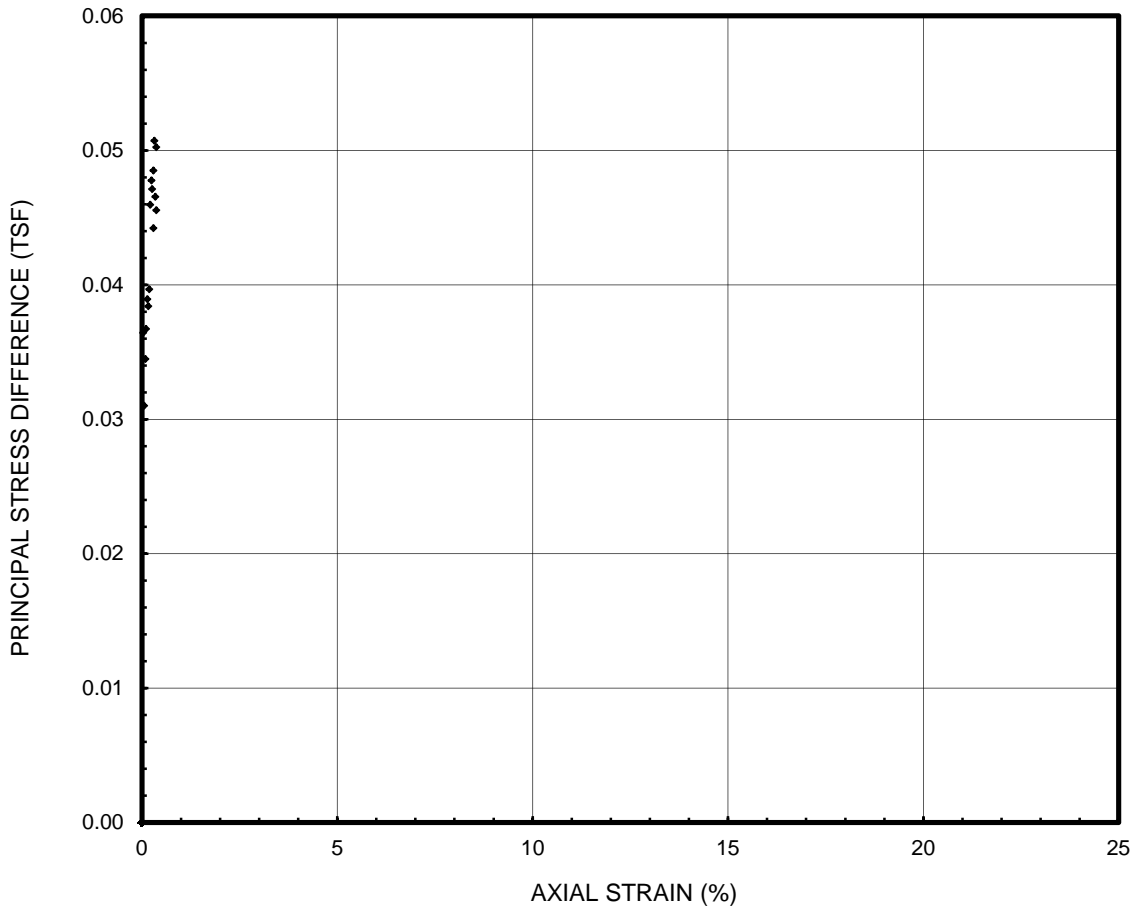


<b>Initial Height</b>	2.463	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.438	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	88.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.464	ton/ft <sup>2</sup>
<b>Water Content</b>	32.2	%	<b>Strain at Peak Stress</b>	7.07	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-9</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH) w/ silt and trace organics

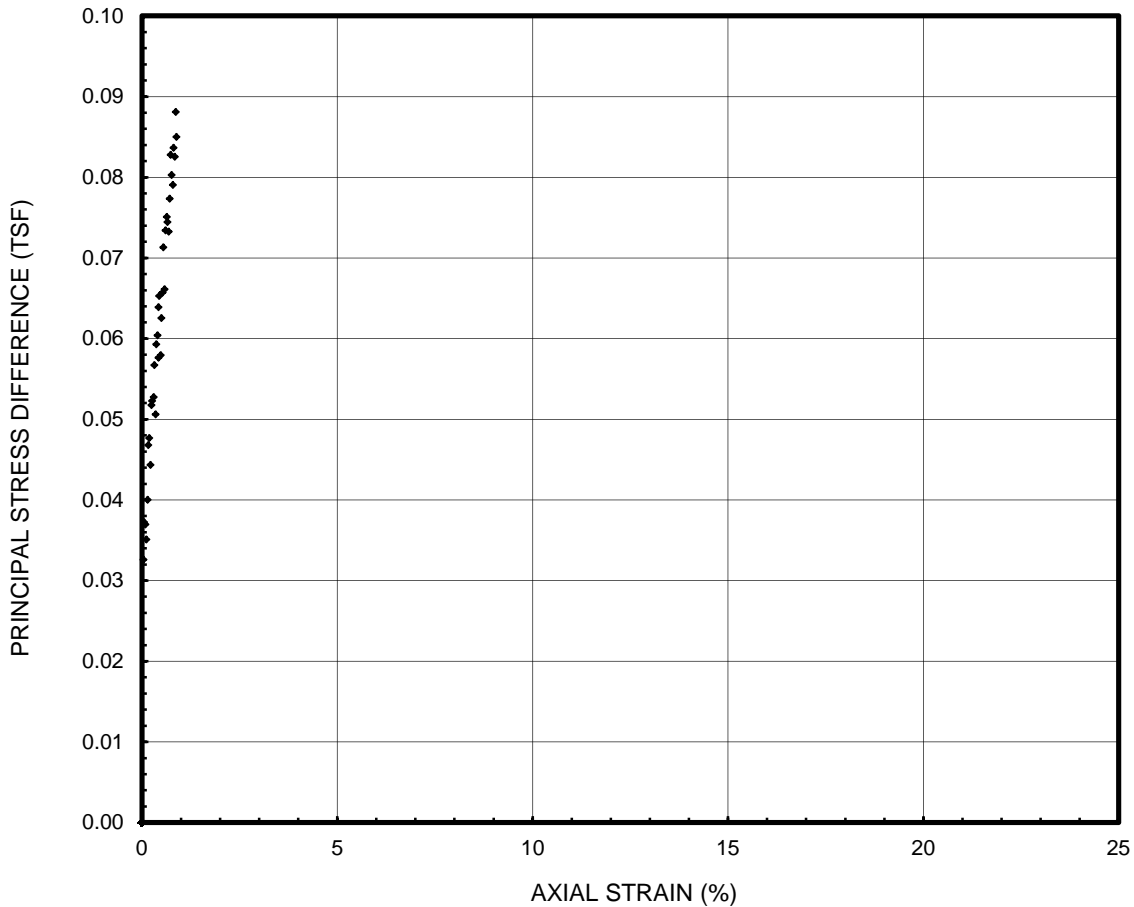


<b>Initial Height</b>	2.785	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.354	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	71.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.051	ton/ft <sup>2</sup>
<b>Water Content</b>	51.9	%	<b>Strain at Peak Stress</b>	0.31	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-06-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-10</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ silt, trace organics, and shells

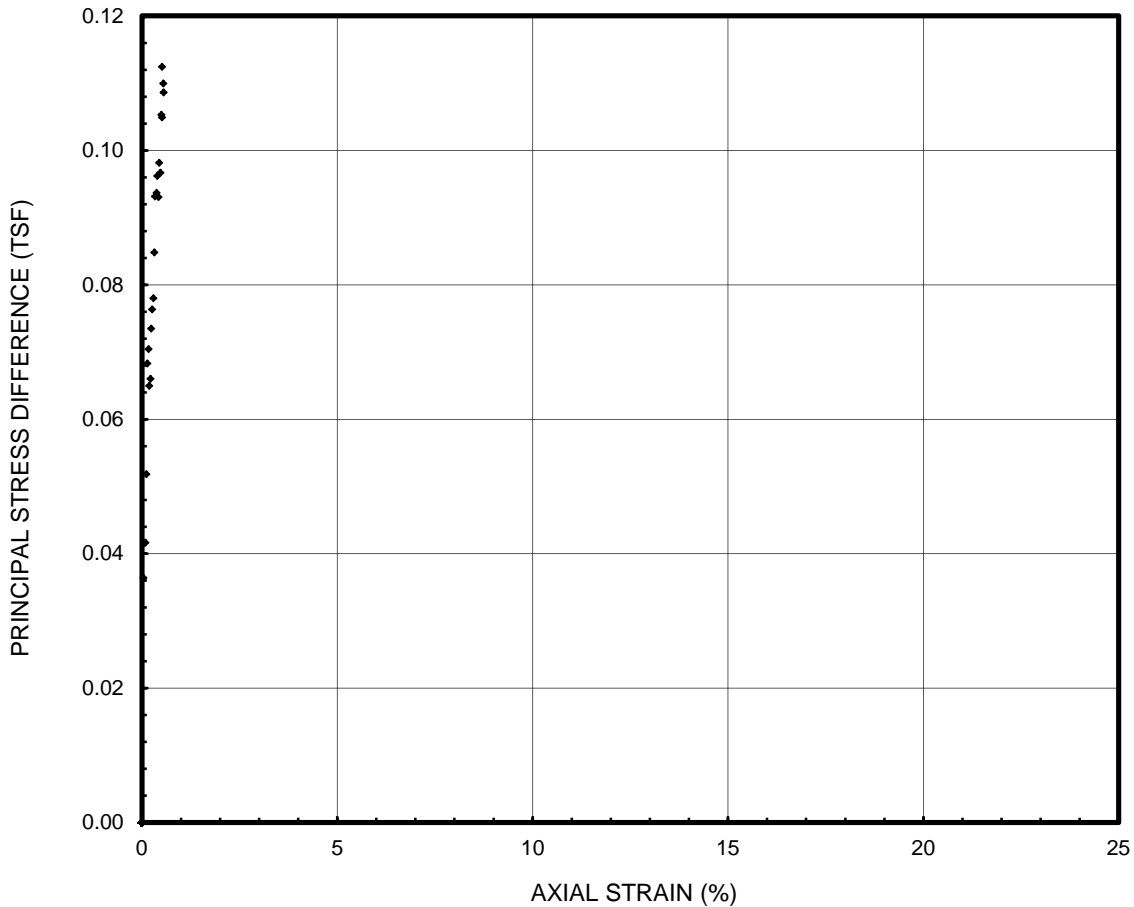


<b>Initial Height</b>	2.837	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.394	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.088	ton/ft <sup>2</sup>
<b>Water Content</b>	72.5	%	<b>Strain at Peak Stress</b>	0.87	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-11</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ silt, trace organics, and shells



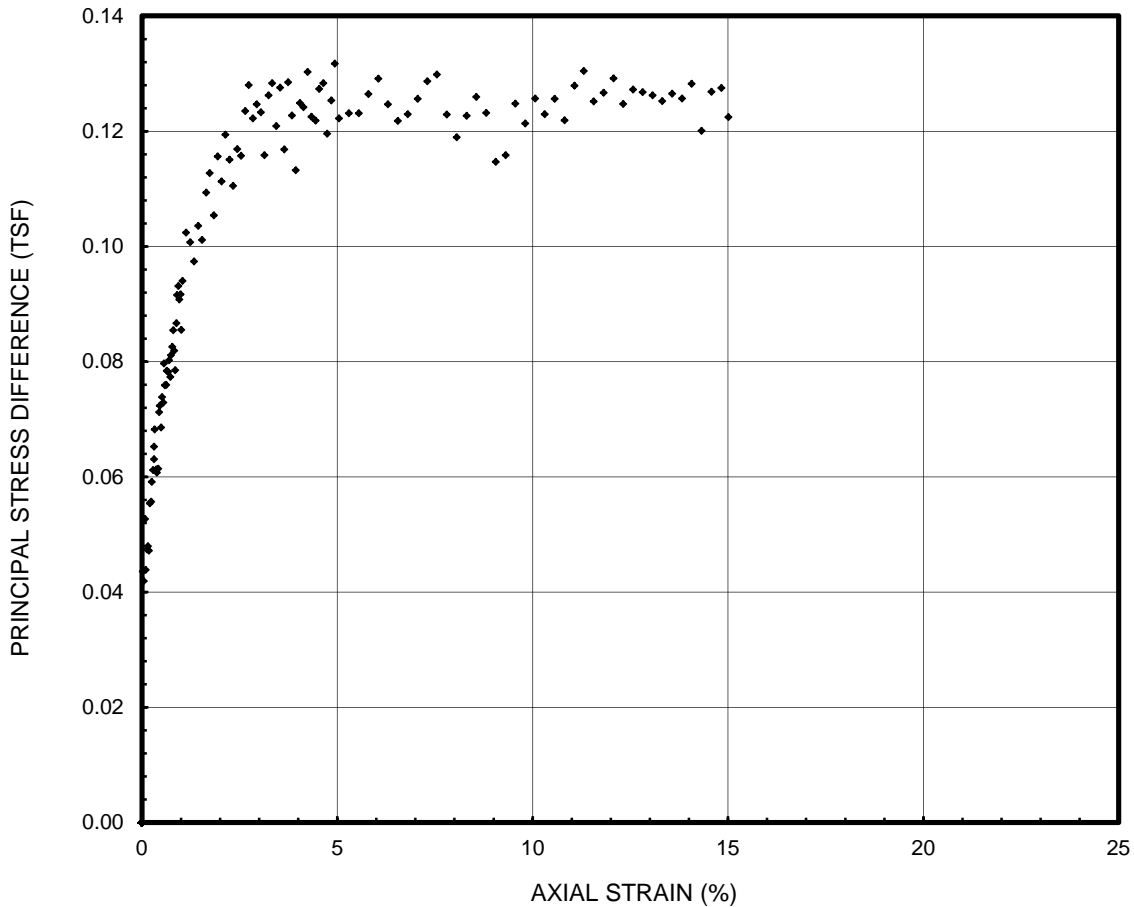
<b>Initial Height</b>	2.801	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.346	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	56.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.112	ton/ft <sup>2</sup>
<b>Water Content</b>	73.9	%	<b>Strain at Peak Stress</b>	0.52	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-12</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH) w/ silt, trace organics, and shells

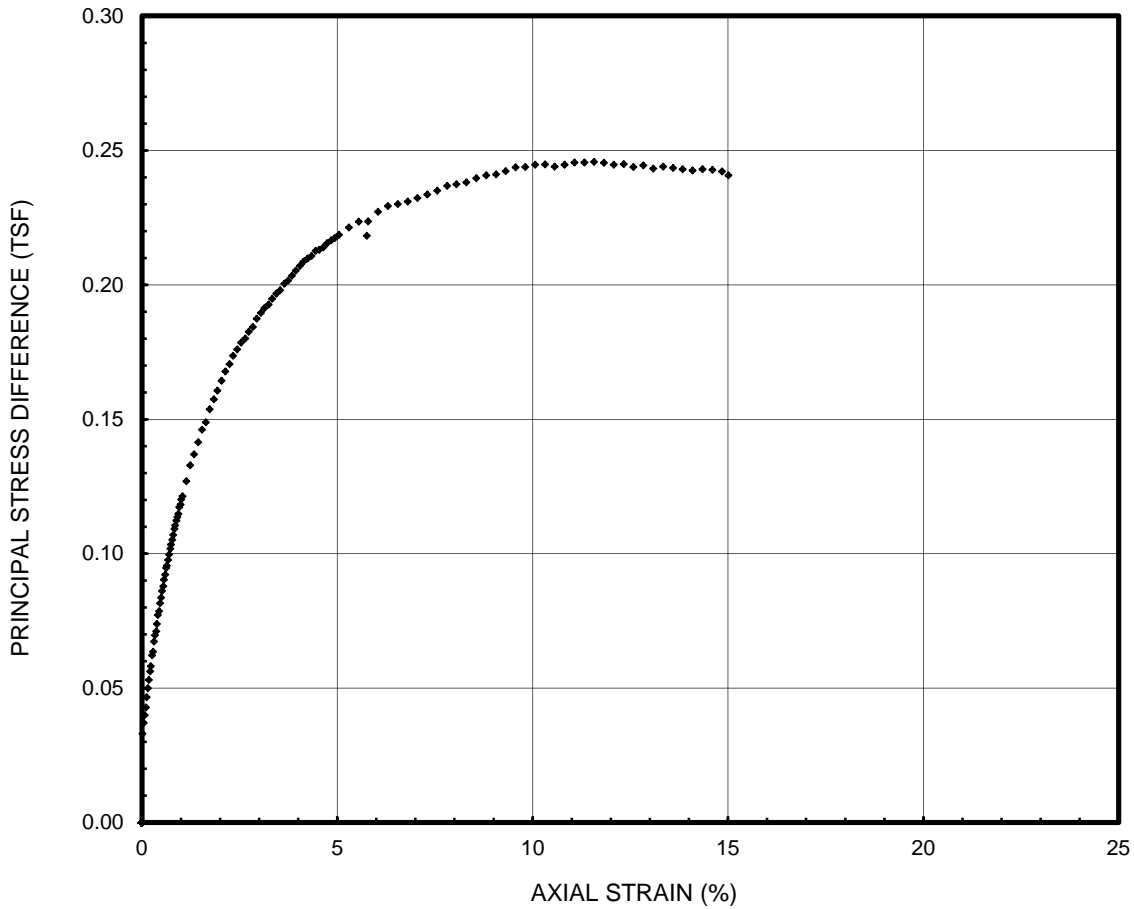


<b>Initial Height</b>	2.777	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.363	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	64.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.132	ton/ft <sup>2</sup>
<b>Water Content</b>	61.3	%	<b>Strain at Peak Stress</b>	4.94	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-13</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH) w/ silt, trace organics, and shells

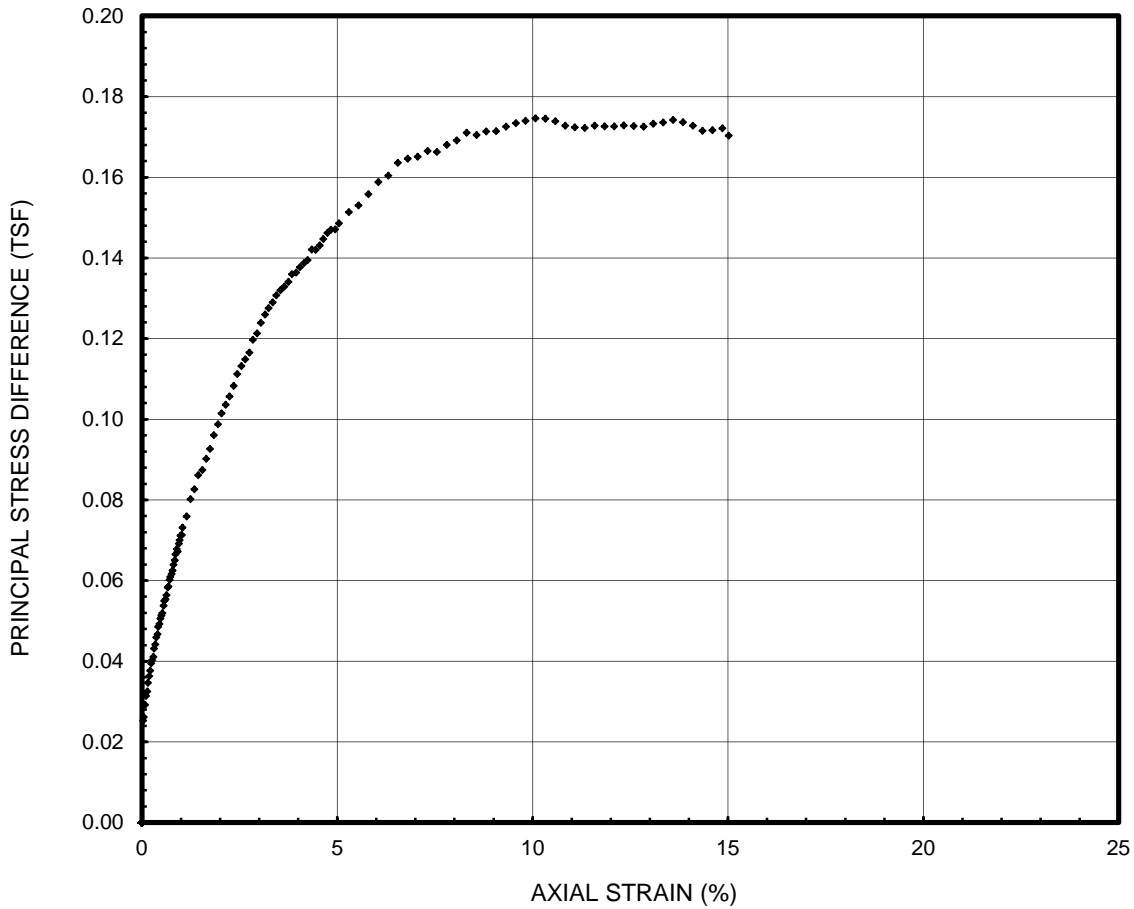


<b>Initial Height</b>	5.576	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.789	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	70.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.246	ton/ft <sup>2</sup>
<b>Water Content</b>	52.2	%	<b>Strain at Peak Stress</b>	11.57	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-14</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL)

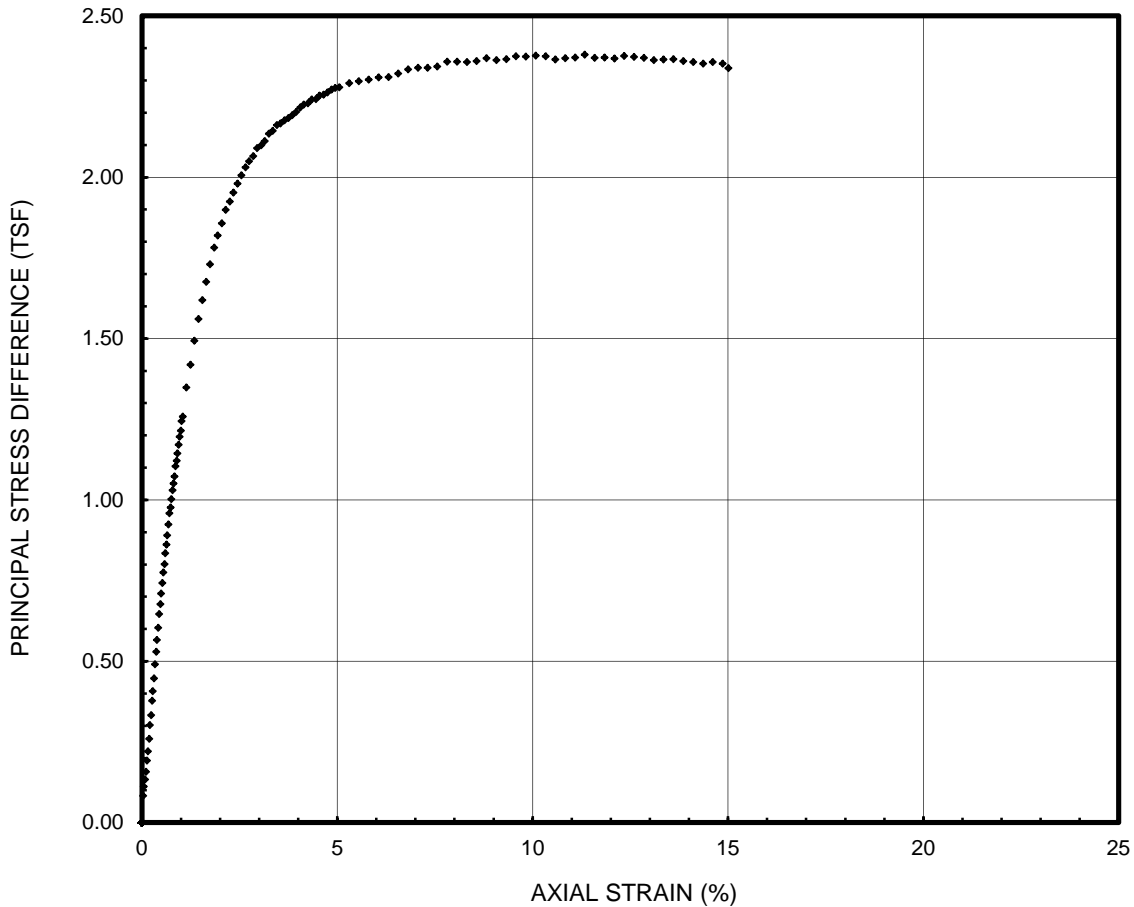


<b>Initial Height</b>	5.801	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.788	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	74.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.175	ton/ft <sup>2</sup>
<b>Water Content</b>	50.0	%	<b>Strain at Peak Stress</b>	10.07	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Other	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-15</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 28-30 ft  
**Description** Gray SILTY CLAY (CL)

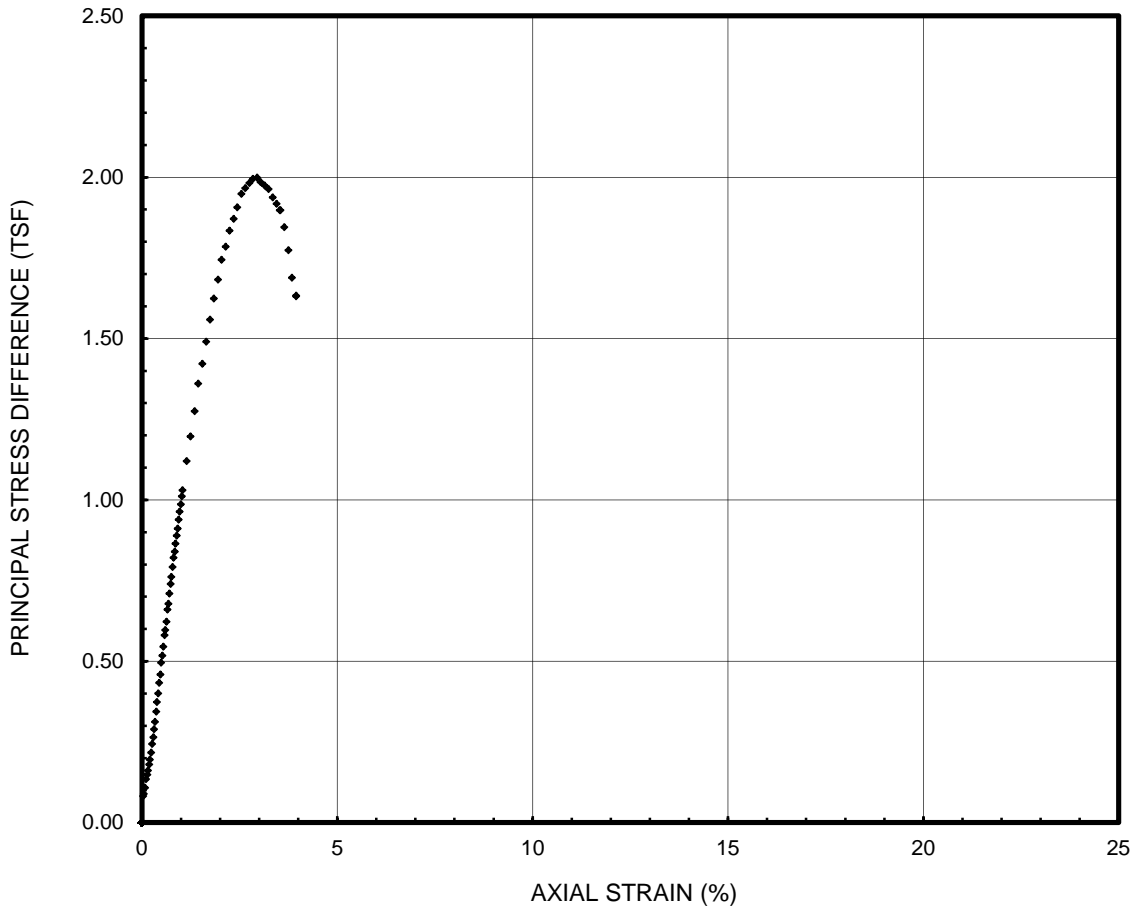


<b>Initial Height</b>	2.806	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.387	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	109.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.380	ton/ft <sup>2</sup>
<b>Water Content</b>	19.6	%	<b>Strain at Peak Stress</b>	11.34	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-16</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-02  
**Depth** 43-45 ft  
**Description** Gray CLAY (CH) w/ silt layers

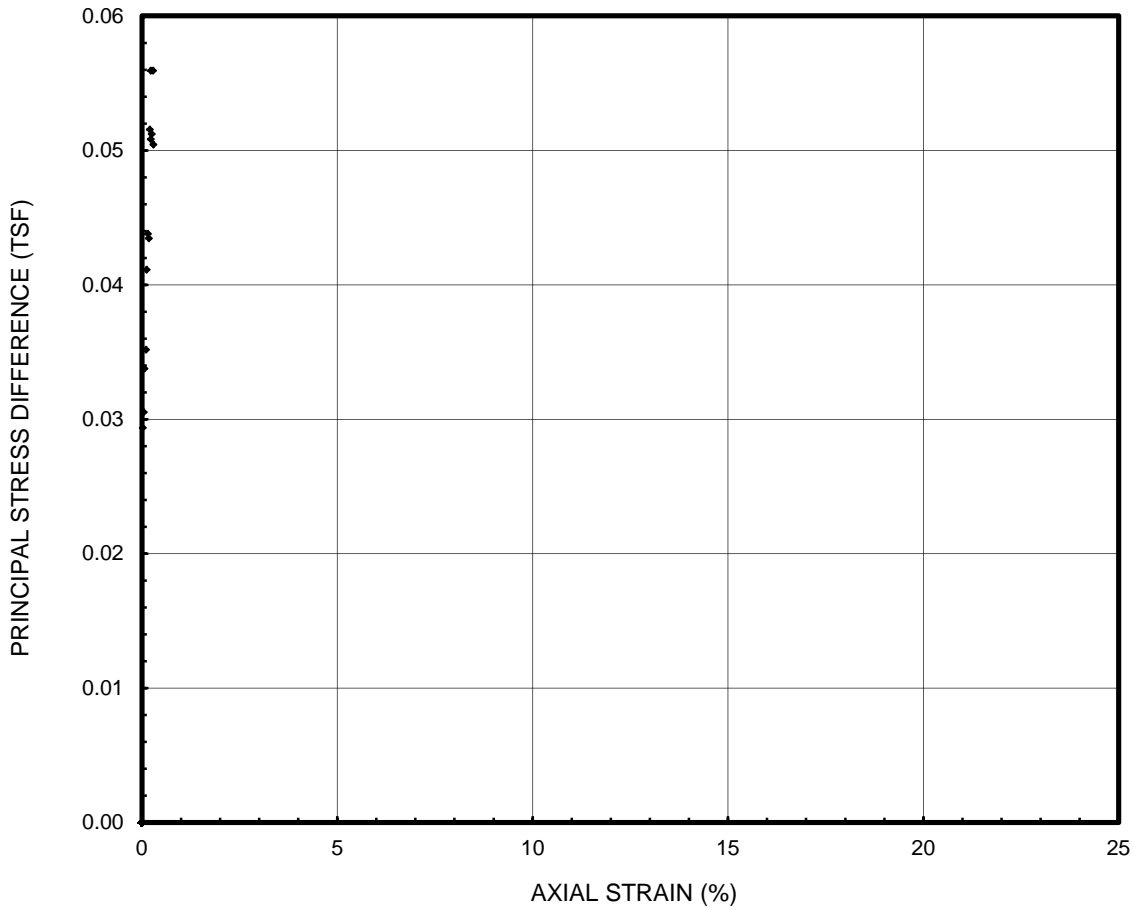


<b>Initial Height</b>	2.816	in	<b>Cell Pressure</b>	18.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.423	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	90.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.999	ton/ft <sup>2</sup>
<b>Water Content</b>	30.4	%	<b>Strain at Peak Stress</b>	2.95	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Other	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-17</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 0-2 ft  
**Description** Gray CLAY (CH) w/ silt

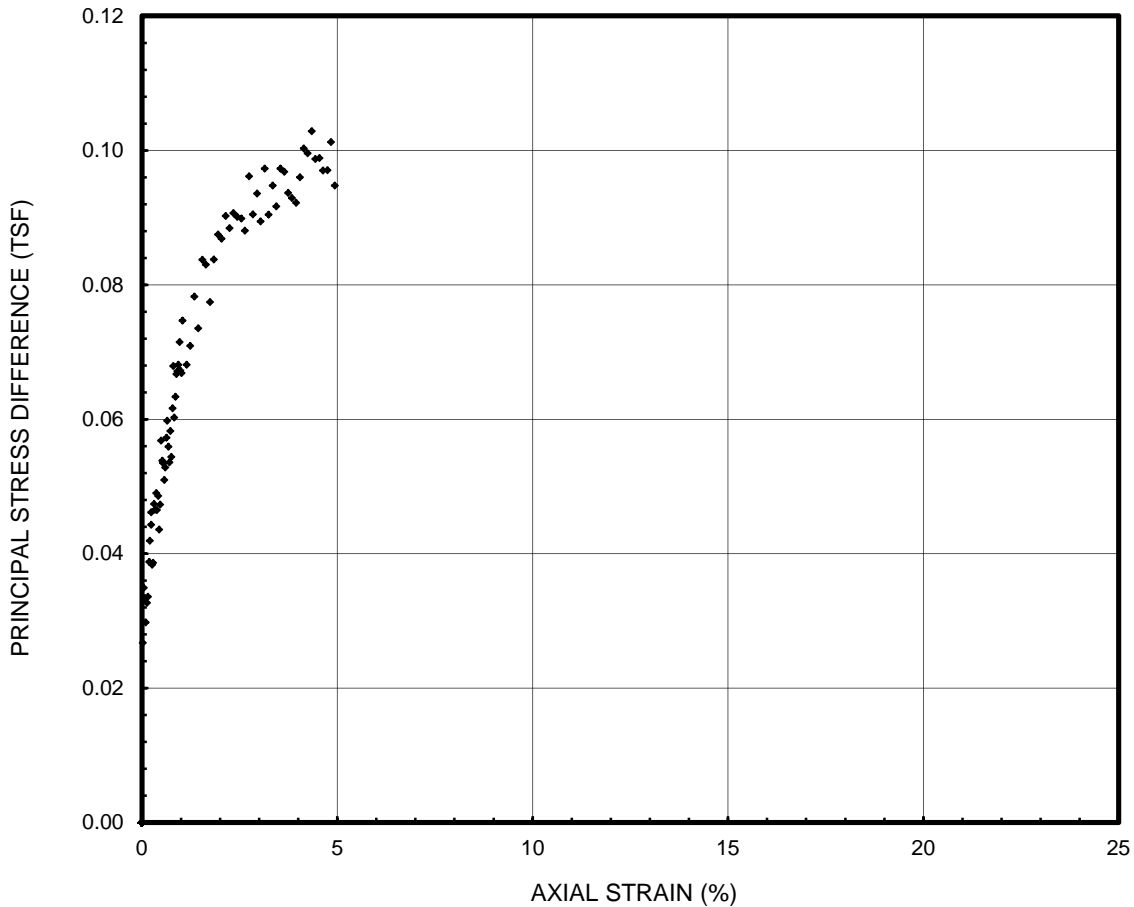


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.346	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	65.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.056	ton/ft <sup>2</sup>
<b>Water Content</b>	58.9	%	<b>Strain at Peak Stress</b>	0.23	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-18</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 2-4 ft  
**Description** Gray SILTY CLAY (CL) w/ shells

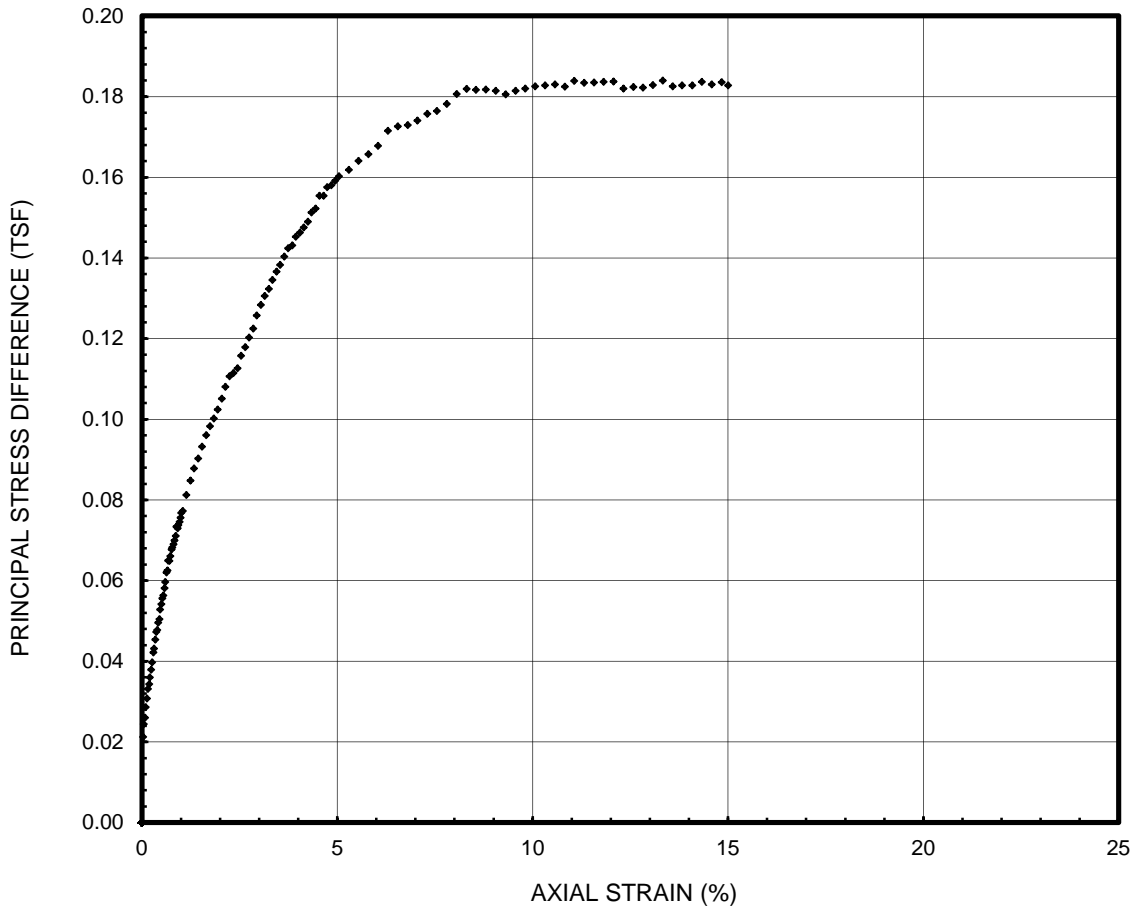


<b>Initial Height</b>	2.753	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.371	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	72.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.103	ton/ft <sup>2</sup>
<b>Water Content</b>	50.5	%	<b>Strain at Peak Stress</b>	4.34	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-19</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 6-8 ft  
**Description** Gray SILTY CLAY (CL) w/ shells



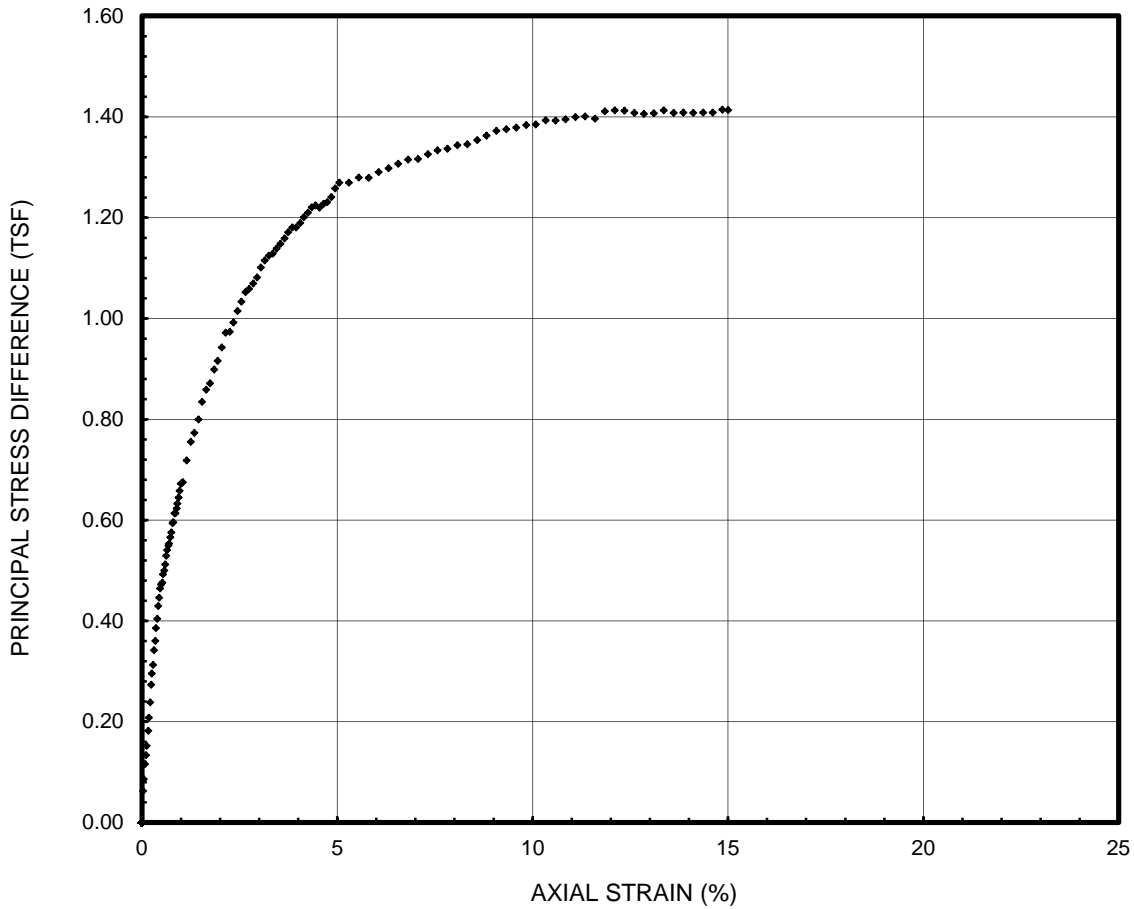
<b>Initial Height</b>	5.805	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.800	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	68.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.184	ton/ft <sup>2</sup>
<b>Water Content</b>	56.6	%	<b>Strain at Peak Stress</b>	13.33	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-20</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 16-18 ft  
**Description** Gray SILTY CLAY (CL) w/ silt pockets

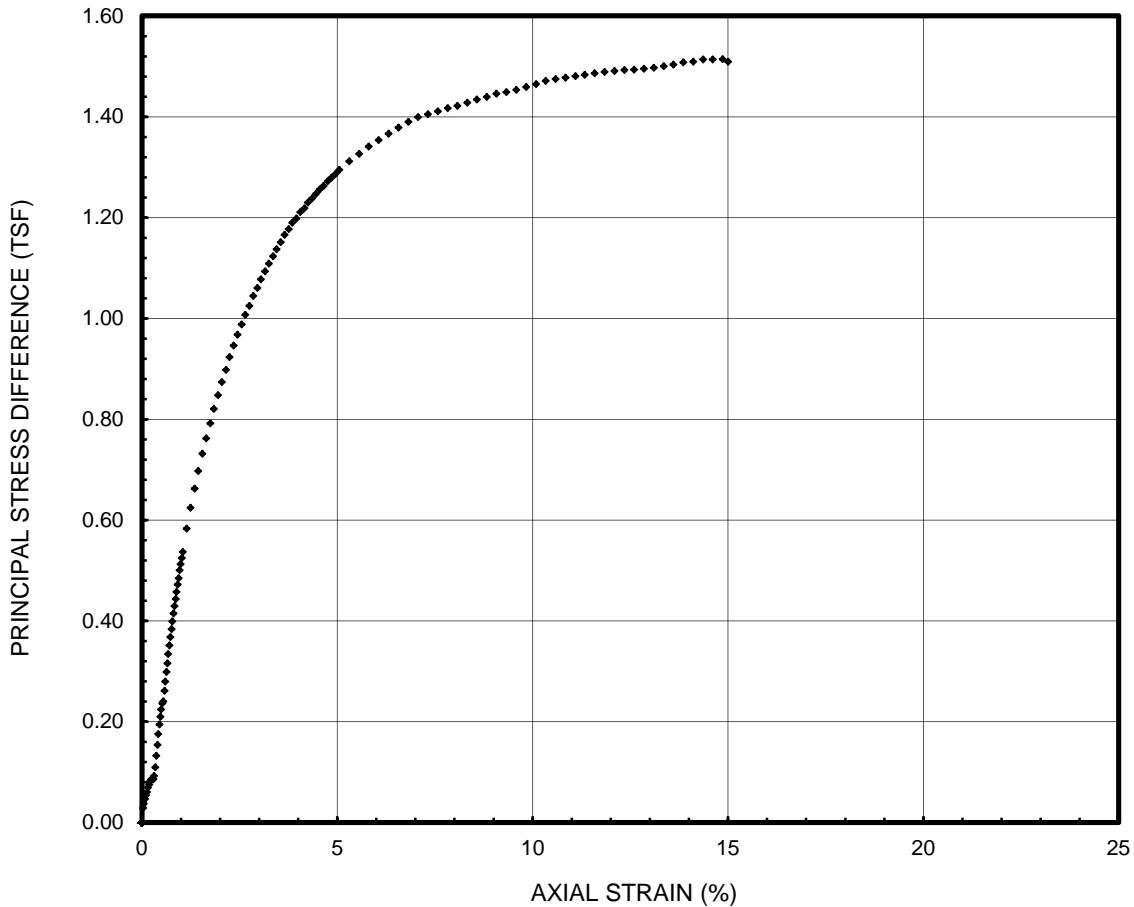


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.372	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	103.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.414	ton/ft <sup>2</sup>
<b>Water Content</b>	23.4	%	<b>Strain at Peak Stress</b>	14.85	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-21</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL) w/ silt pockets

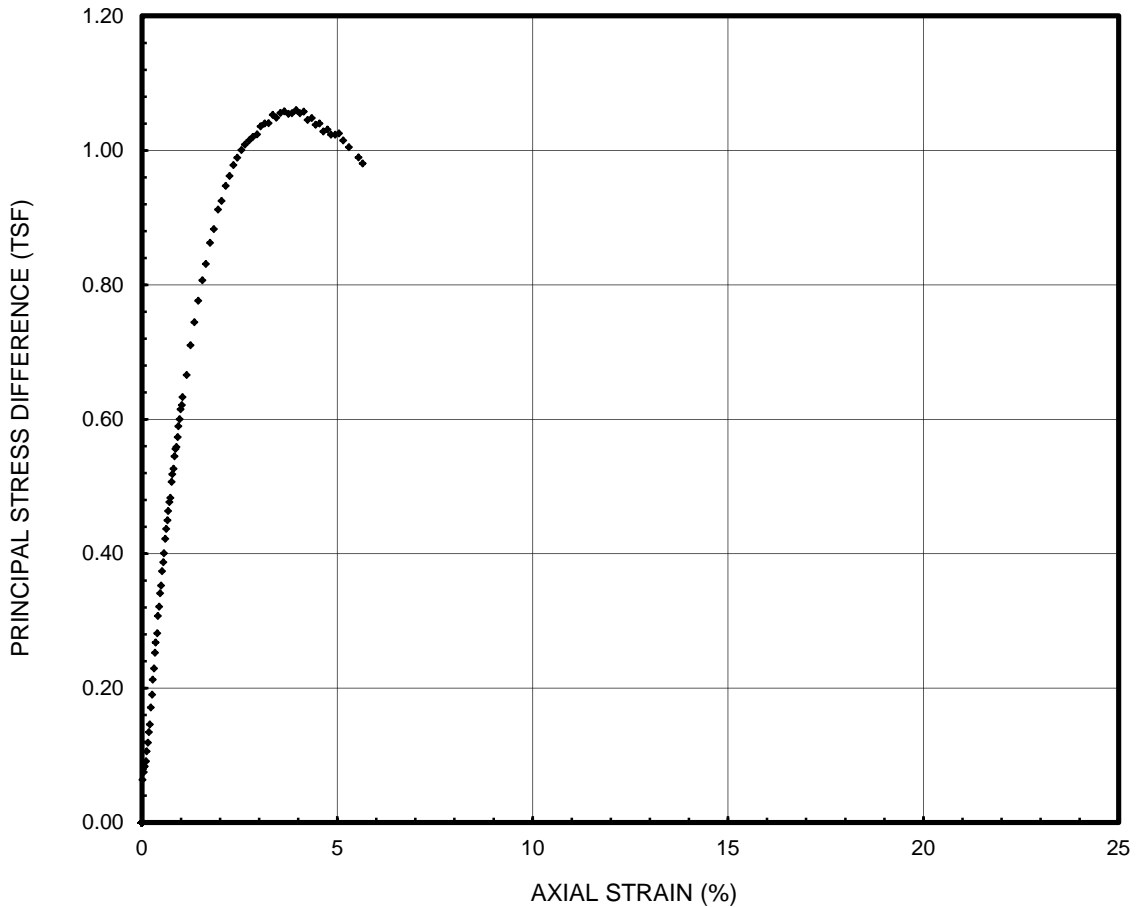


<b>Initial Height</b>	5.822	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.833	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	103.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.514	ton/ft <sup>2</sup>
<b>Water Content</b>	23.3	%	<b>Strain at Peak Stress</b>	14.86	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-22</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-03  
**Depth** 33-35 ft  
**Description** Light gray SILTY CLAY (CL)

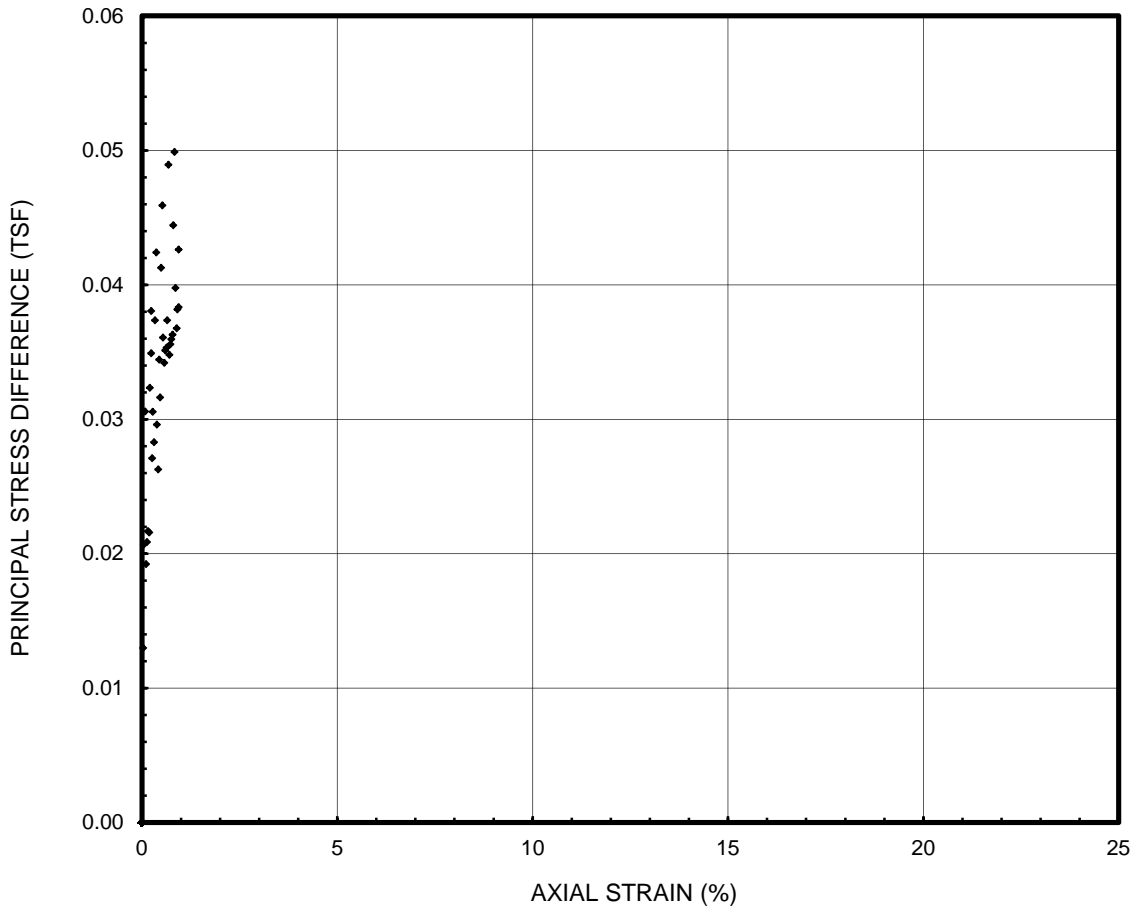


<b>Initial Height</b> 2.797 in	<b>Cell Pressure</b> 14.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 1.391 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 86.0 lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.060 ton/ft <sup>2</sup>
<b>Water Content</b> 35.4 %	<b>Strain at Peak Stress</b> 3.95 %
<b>Saturation</b> 102 %	<b>Failure Type</b> Combination


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-23</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH) w/ trace organics and shell fragments

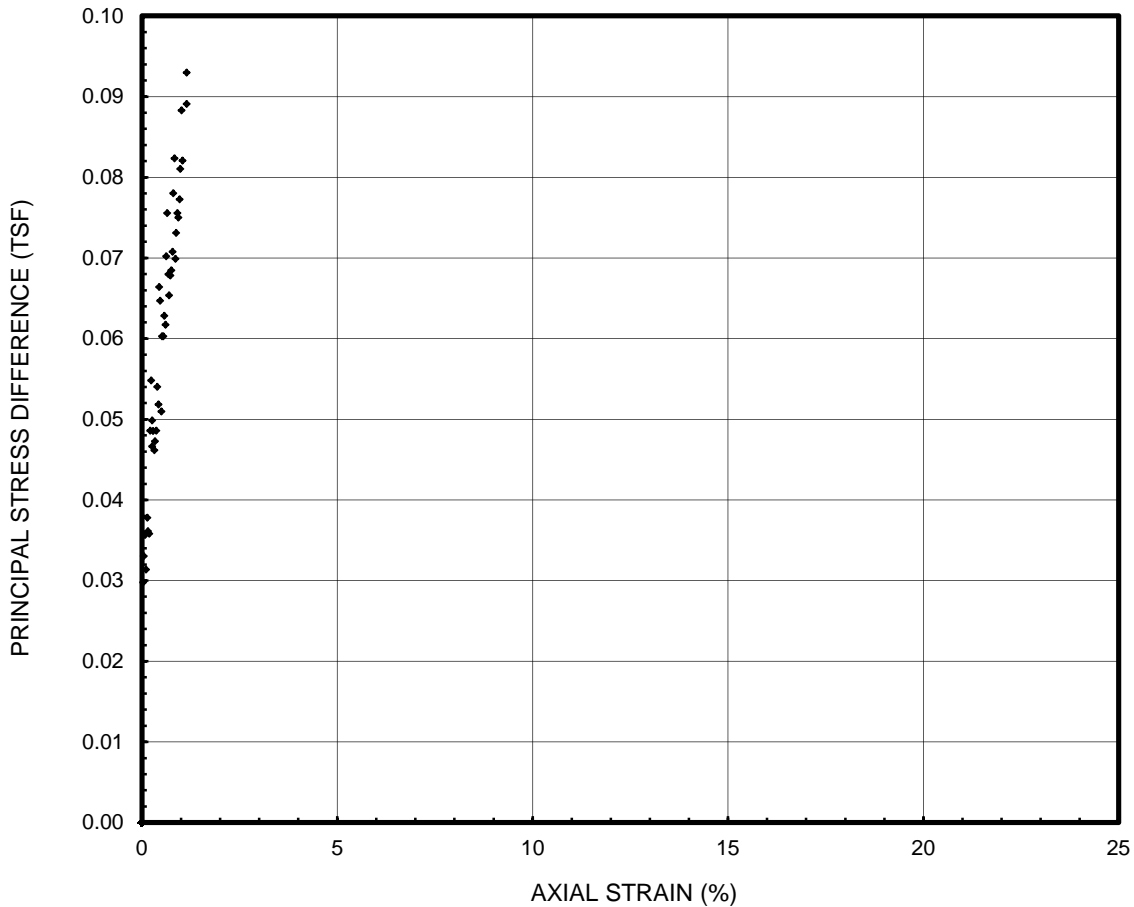


<b>Initial Height</b>	2.766	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.373	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	65.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.050	ton/ft <sup>2</sup>
<b>Water Content</b>	60.5	%	<b>Strain at Peak Stress</b>	0.84	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-24</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ trace organics and shell fragments

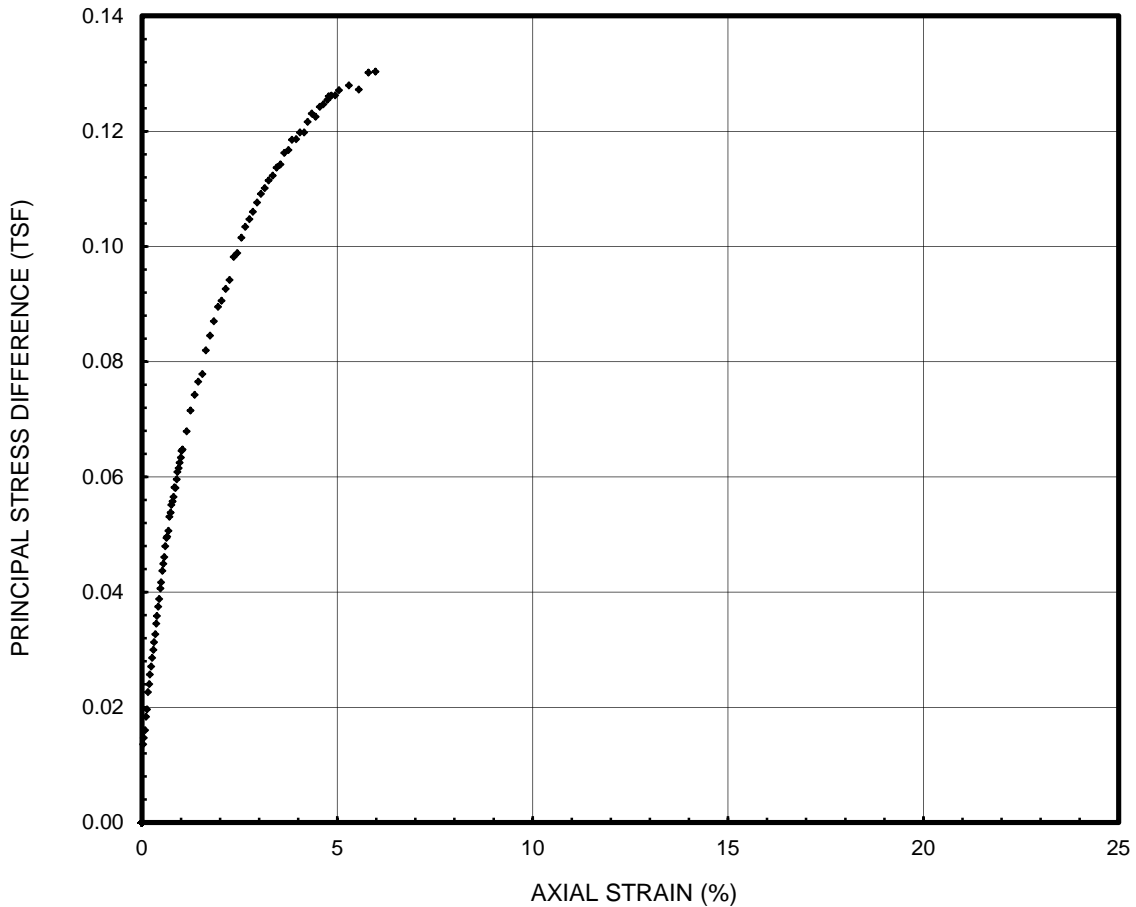


<b>Initial Height</b>	2.770	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.370	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.093	ton/ft <sup>2</sup>
<b>Water Content</b>	80.9	%	<b>Strain at Peak Stress</b>	1.14	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Other	


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Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-07-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-25</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ trace organics and shell fragments

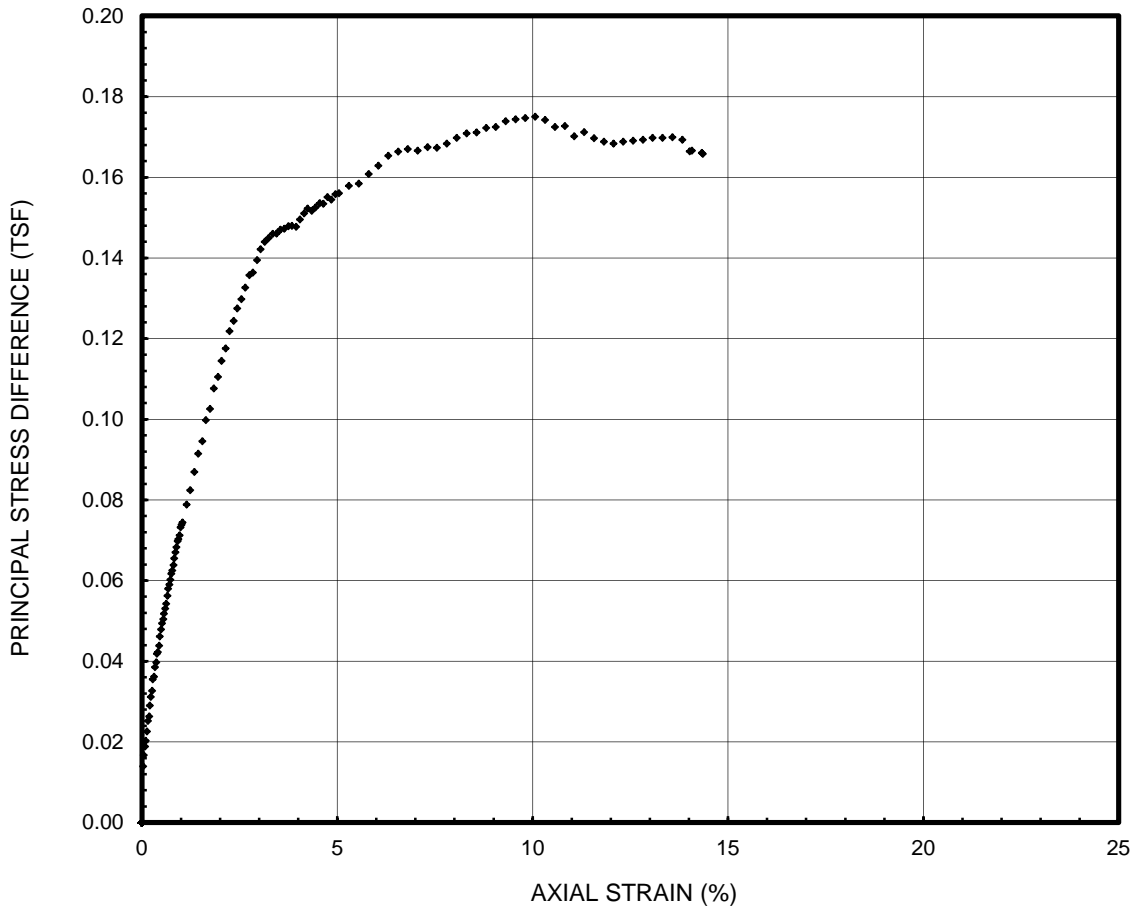


<b>Initial Height</b>	5.800	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.801	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	58.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.130	ton/ft <sup>2</sup>
<b>Water Content</b>	74.4	%	<b>Strain at Peak Stress</b>	5.98	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-07-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-26</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ trace organics and shell fragments

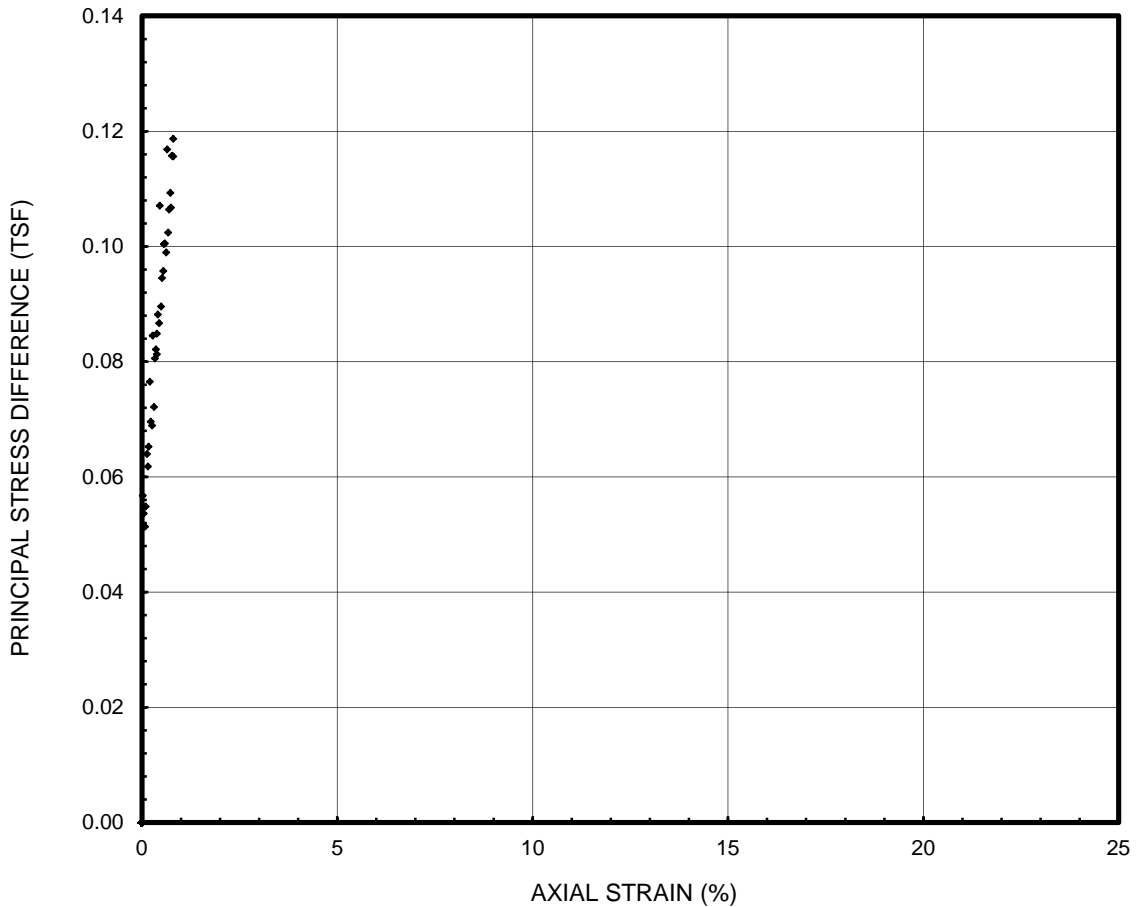


<b>Initial Height</b>	5.810	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.787	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.175	ton/ft <sup>2</sup>
<b>Water Content</b>	80.5	%	<b>Strain at Peak Stress</b>	10.07	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-07-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-27</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 16-18 ft  
**Description** Gray SILTY CLAY (CL)



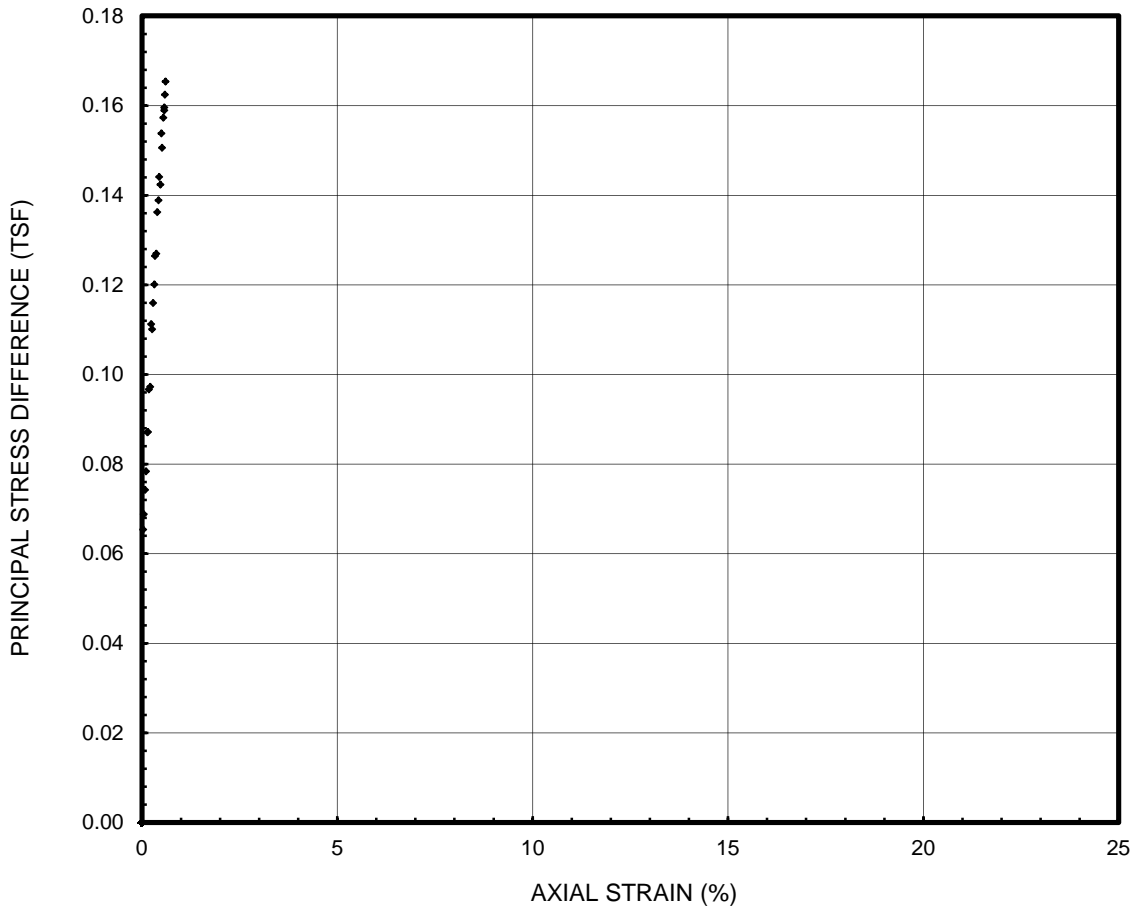
<b>Initial Height</b>	2.769	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.394	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	99.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.119	ton/ft <sup>2</sup>
<b>Water Content</b>	25.5	%	<b>Strain at Peak Stress</b>	0.80	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Bulging	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-08-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-28</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL)

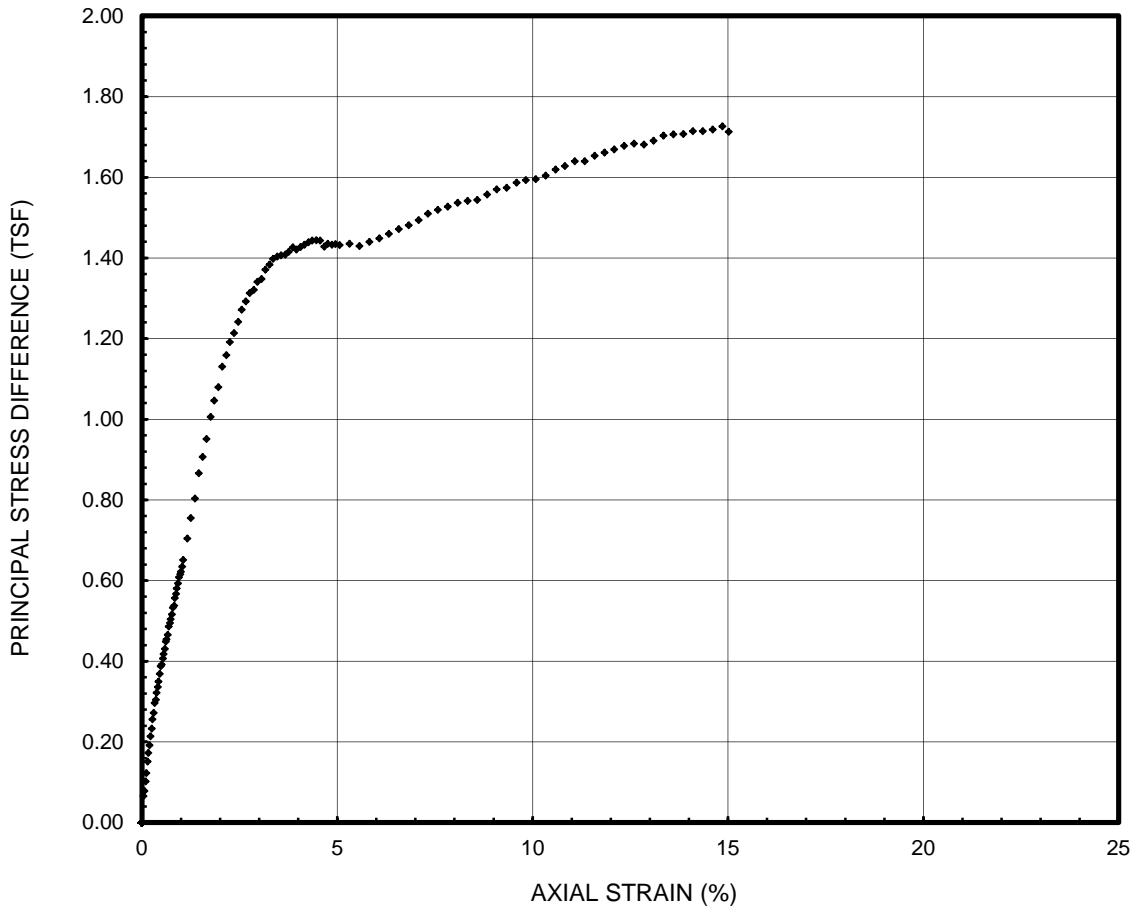


<b>Initial Height</b>	2.766	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.340	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	106.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.165	ton/ft <sup>2</sup>
<b>Water Content</b>	23.1	%	<b>Strain at Peak Stress</b>	0.60	%
<b>Saturation</b>	112	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-29</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 23-25 ft  
**Description** Gray SANDY CLAY (CL) w/ silt

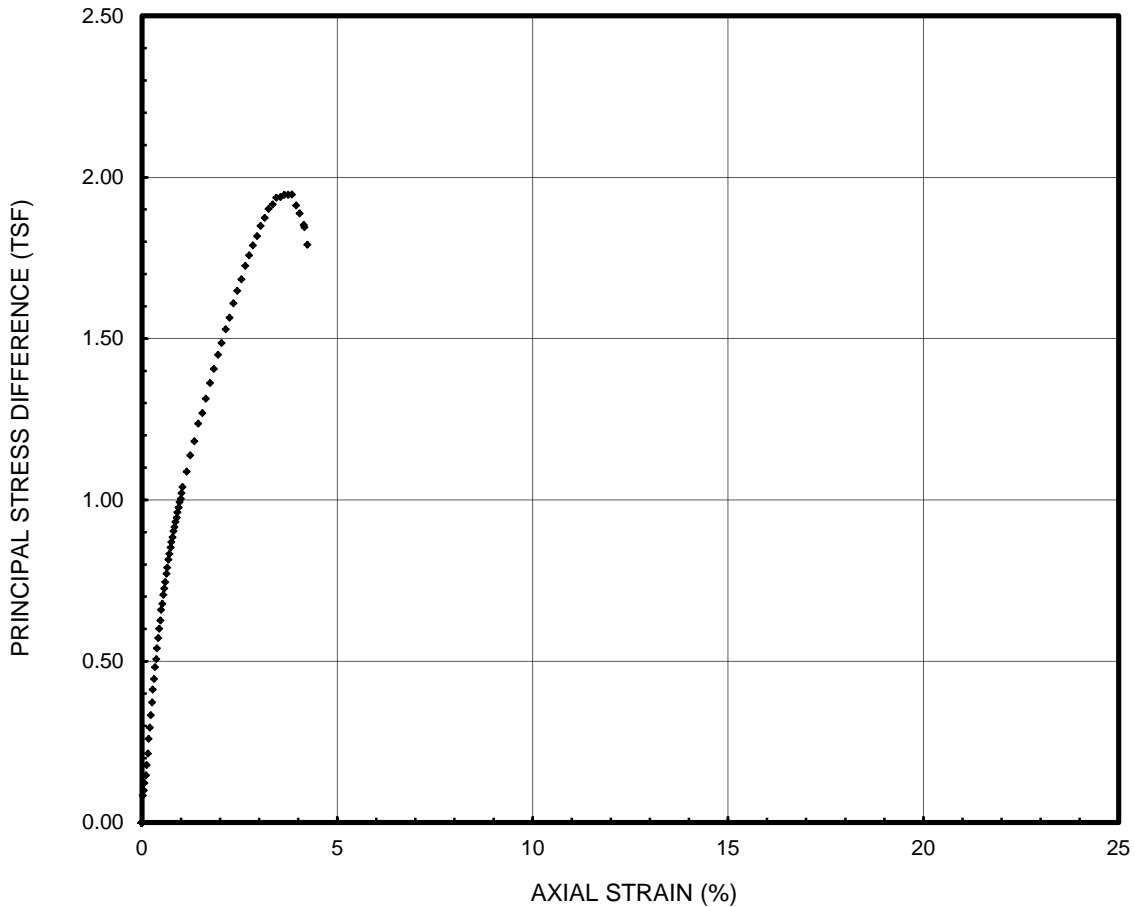


<b>Initial Height</b>	2.804	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.392	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	109.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.726	ton/ft <sup>2</sup>
<b>Water Content</b>	19.7	%	<b>Strain at Peak Stress</b>	14.86	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-30</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-04  
**Depth** 33-35 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

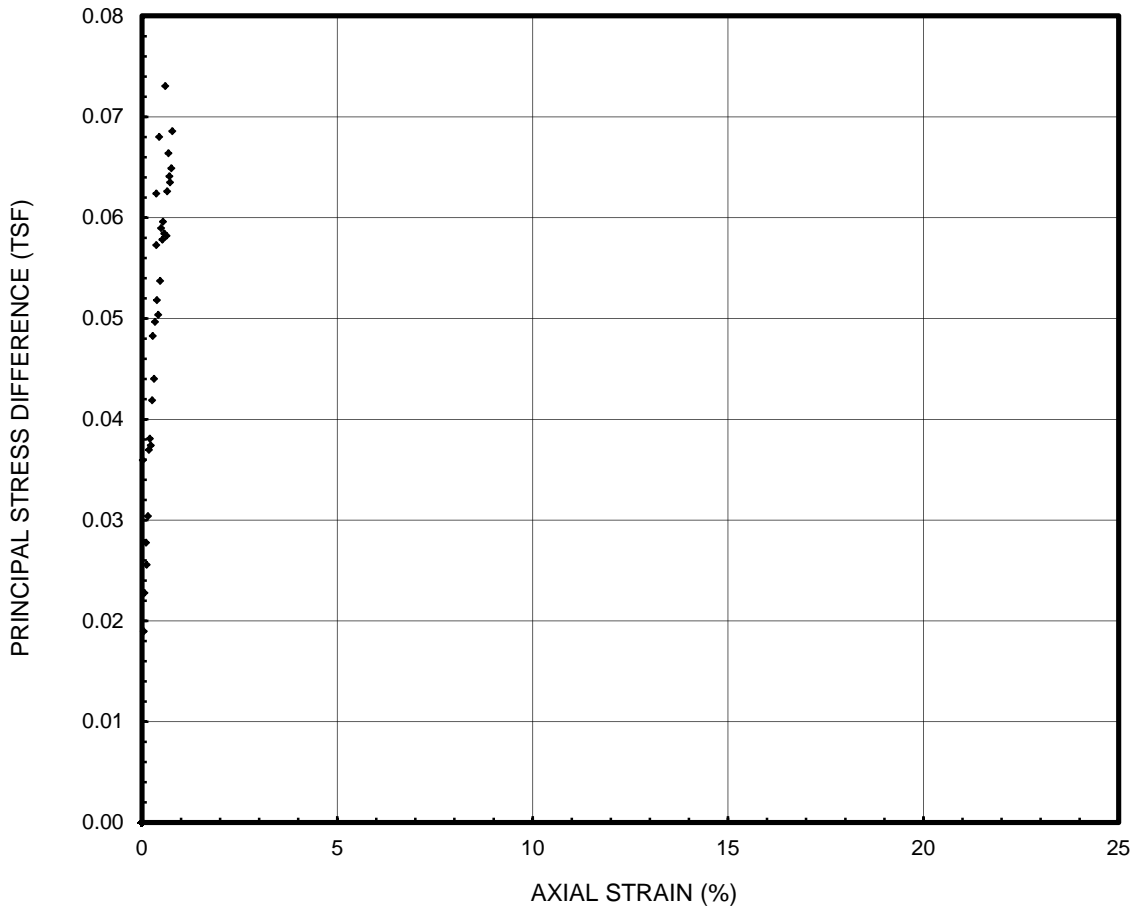


<b>Initial Height</b>	2.811	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.401	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	85.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.947	ton/ft <sup>2</sup>
<b>Water Content</b>	37.2	%	<b>Strain at Peak Stress</b>	3.84	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Diagonal Plane	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-31</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH)

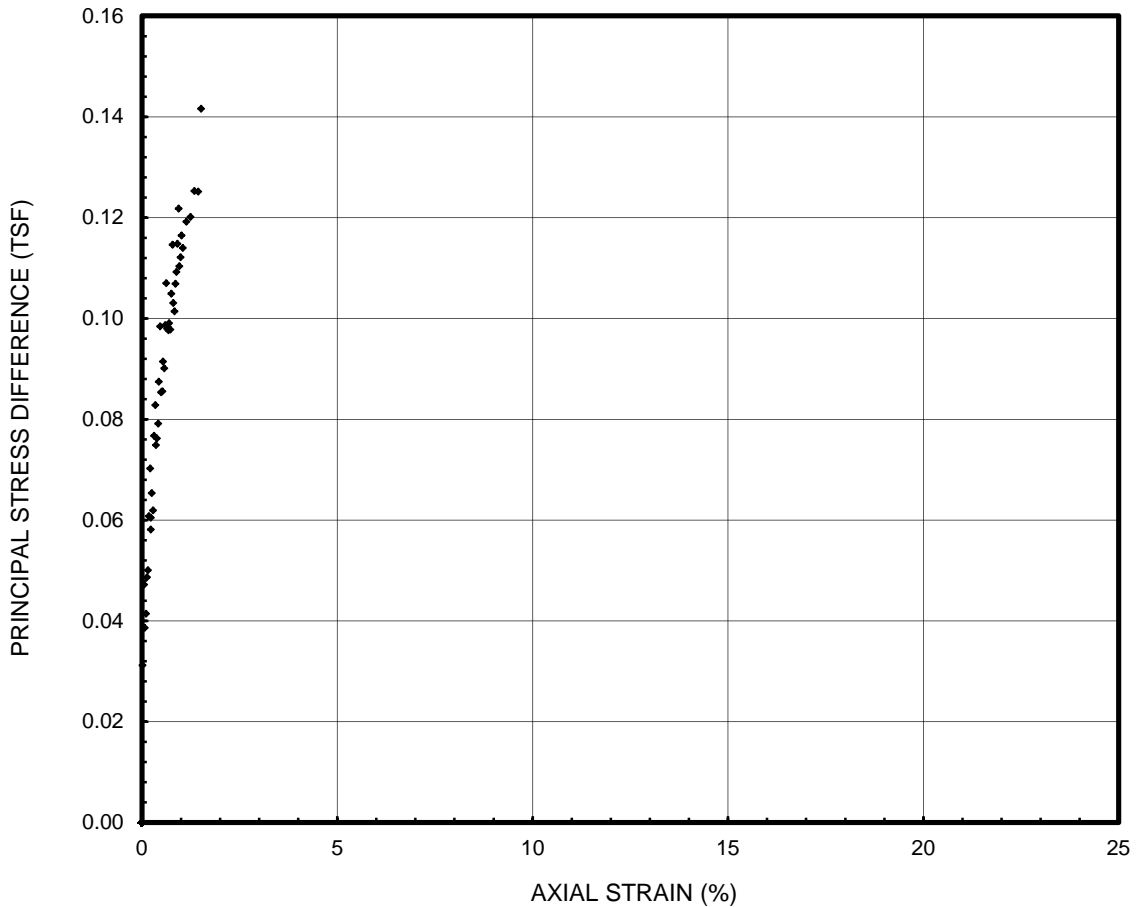


<b>Initial Height</b>	2.801	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.375	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	49.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.073	ton/ft <sup>2</sup>
<b>Water Content</b>	93.4	%	<b>Strain at Peak Stress</b>	0.59	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-32</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) with shells

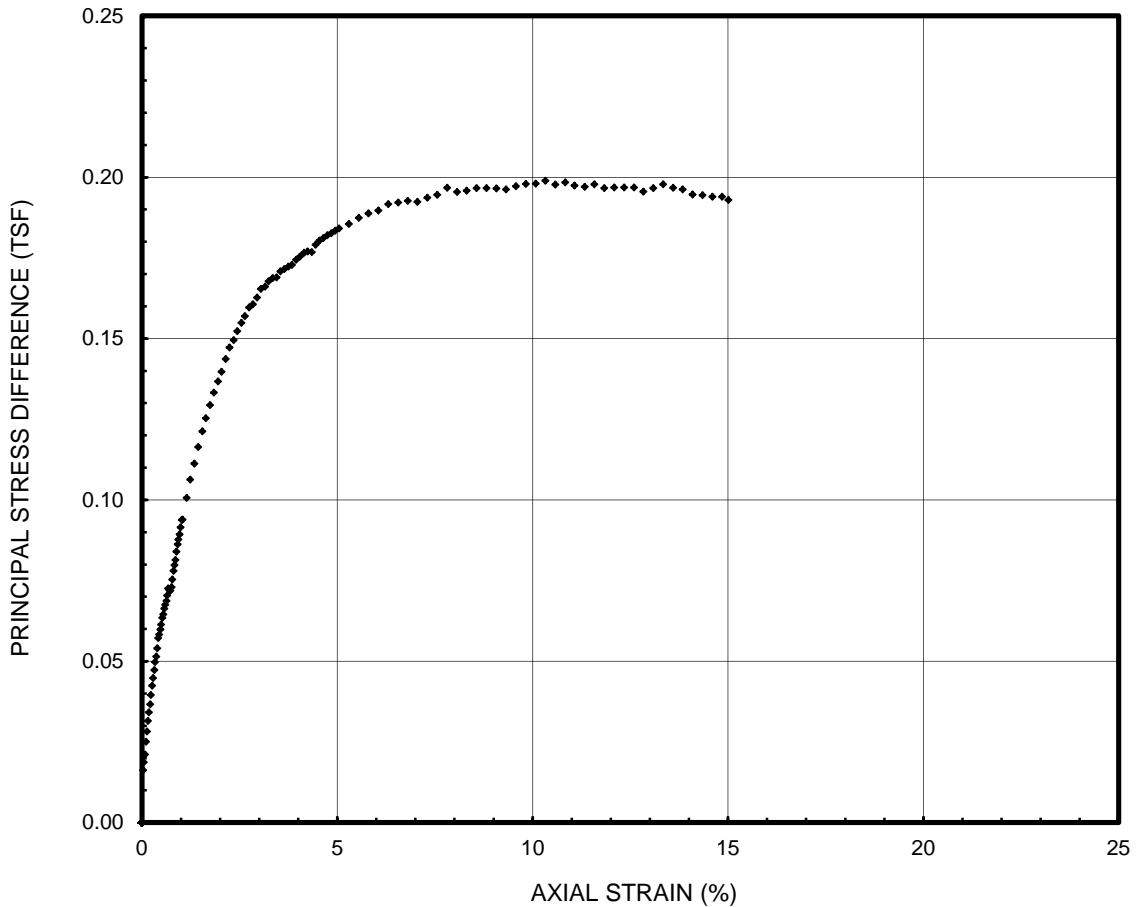


<b>Initial Height</b>	2.781	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.397	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.142	ton/ft <sup>2</sup>
<b>Water Content</b>	82.9	%	<b>Strain at Peak Stress</b>	1.51	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: 12-80-3741	APPROVED BY: MGB	FIGURE: D-33

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH)

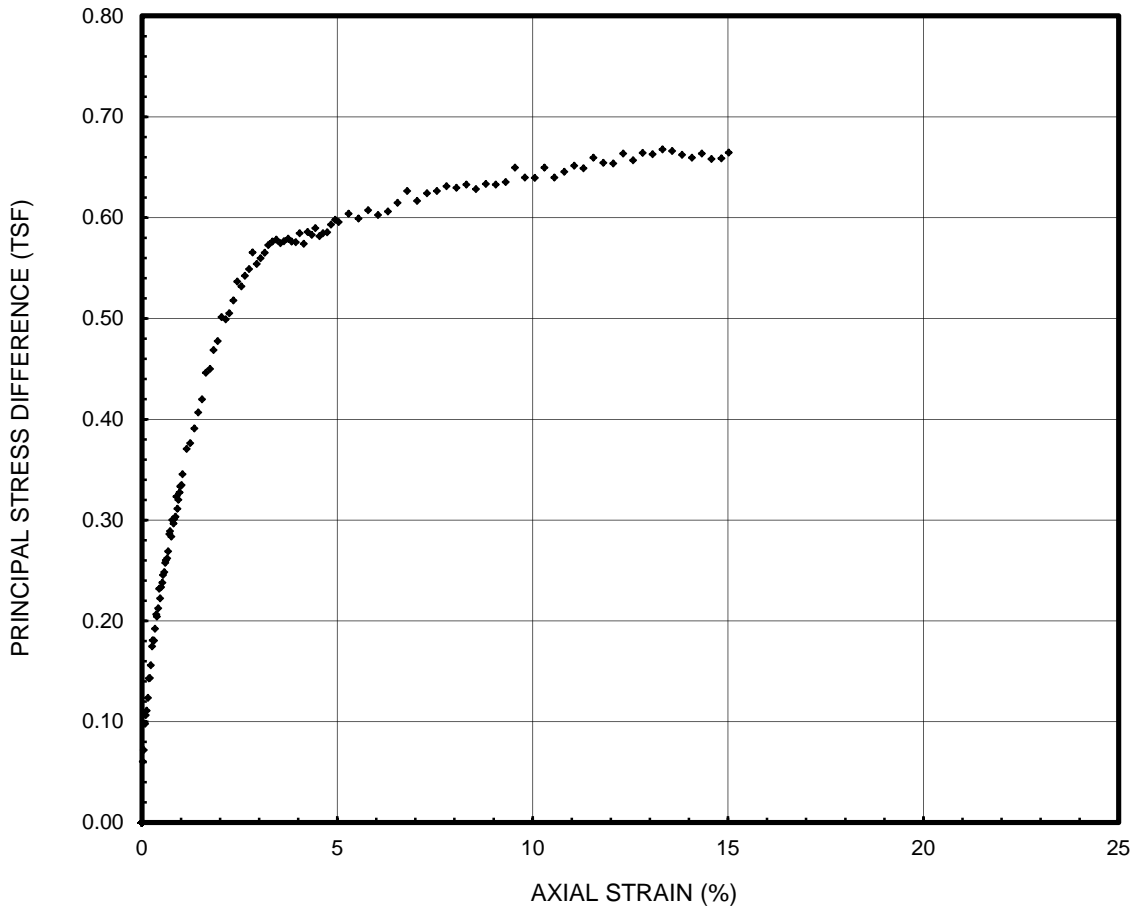


<b>Initial Height</b>	5.801	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.831	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	56.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.199	ton/ft <sup>2</sup>
<b>Water Content</b>	73.5	%	<b>Strain at Peak Stress</b>	10.33	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-34</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 16-18 ft  
**Description** Brown and gray CLAY (CH) w/ silty sand

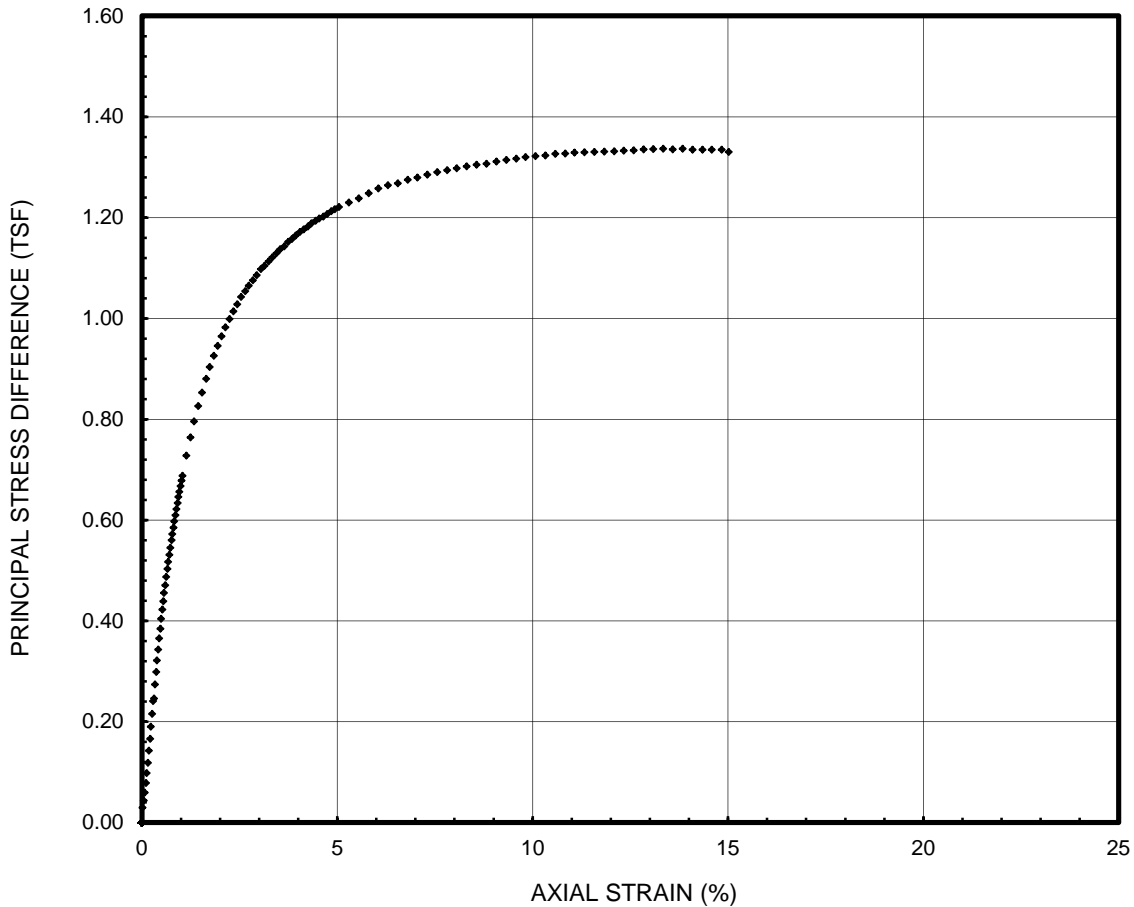


<b>Initial Height</b>	2.802	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.390	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	92.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.668	ton/ft <sup>2</sup>
<b>Water Content</b>	28.0	%	<b>Strain at Peak Stress</b>	13.32	%
<b>Saturation</b>	94	%	<b>Failure Type</b>	Bulging	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: 12-80-3741	APPROVED BY: MGB	FIGURE: D-35

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-05  
**Depth**                18-20        ft  
**Description**         Brown and gray CLAY (CH) w/ silty sand



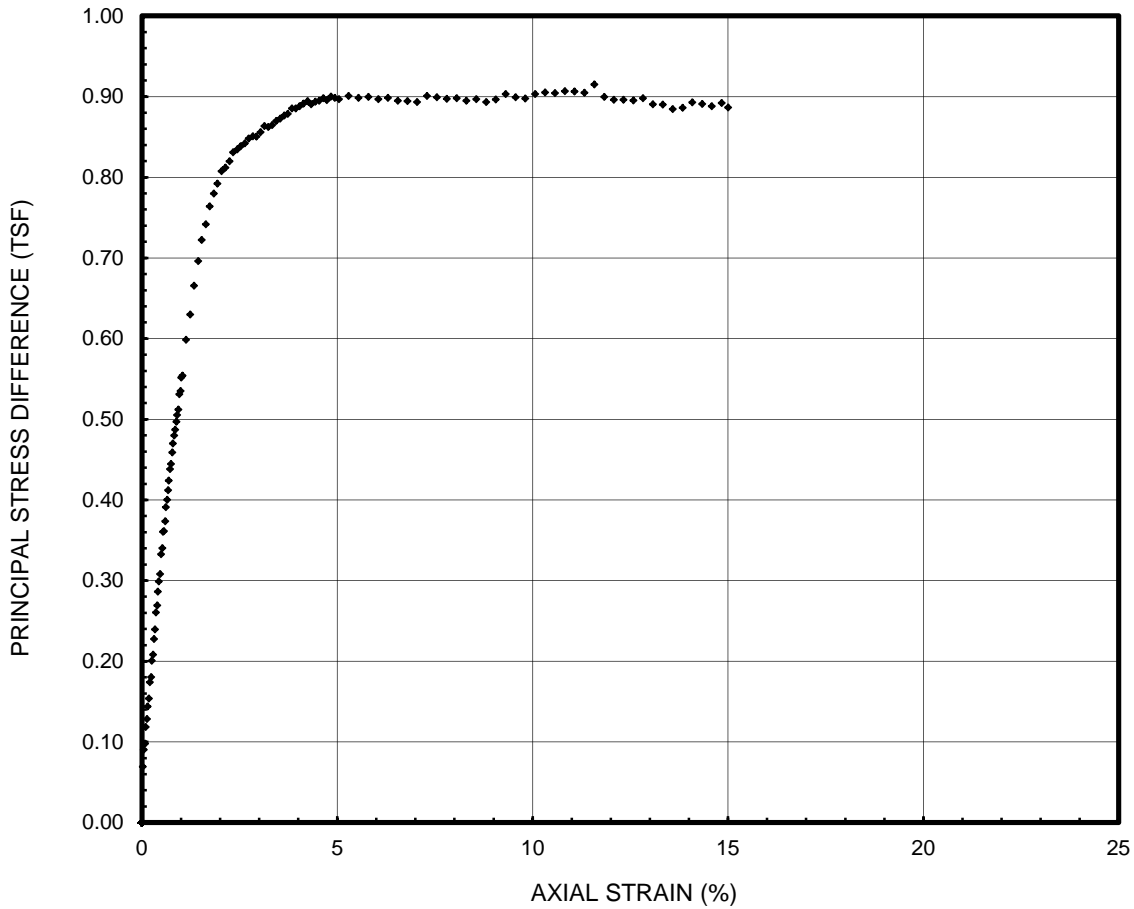
<b>Initial Height</b> 5.825      in	<b>Cell Pressure</b> 8.00        lb/in <sup>2</sup>
<b>Initial Diameter</b> 2.837      in	<b>Strain Rate</b> 1.0         %/min
<b>Dry Density</b> 105.8      lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.337      ton/ft <sup>2</sup>
<b>Water Content</b> 22.9       %	<b>Strain at Peak Stress</b> 13.34      %
<b>Saturation</b> 108        %	<b>Failure Type</b> Combination

<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-36</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 28-30 ft  
**Description** Gray SILTY CLAY (CL)

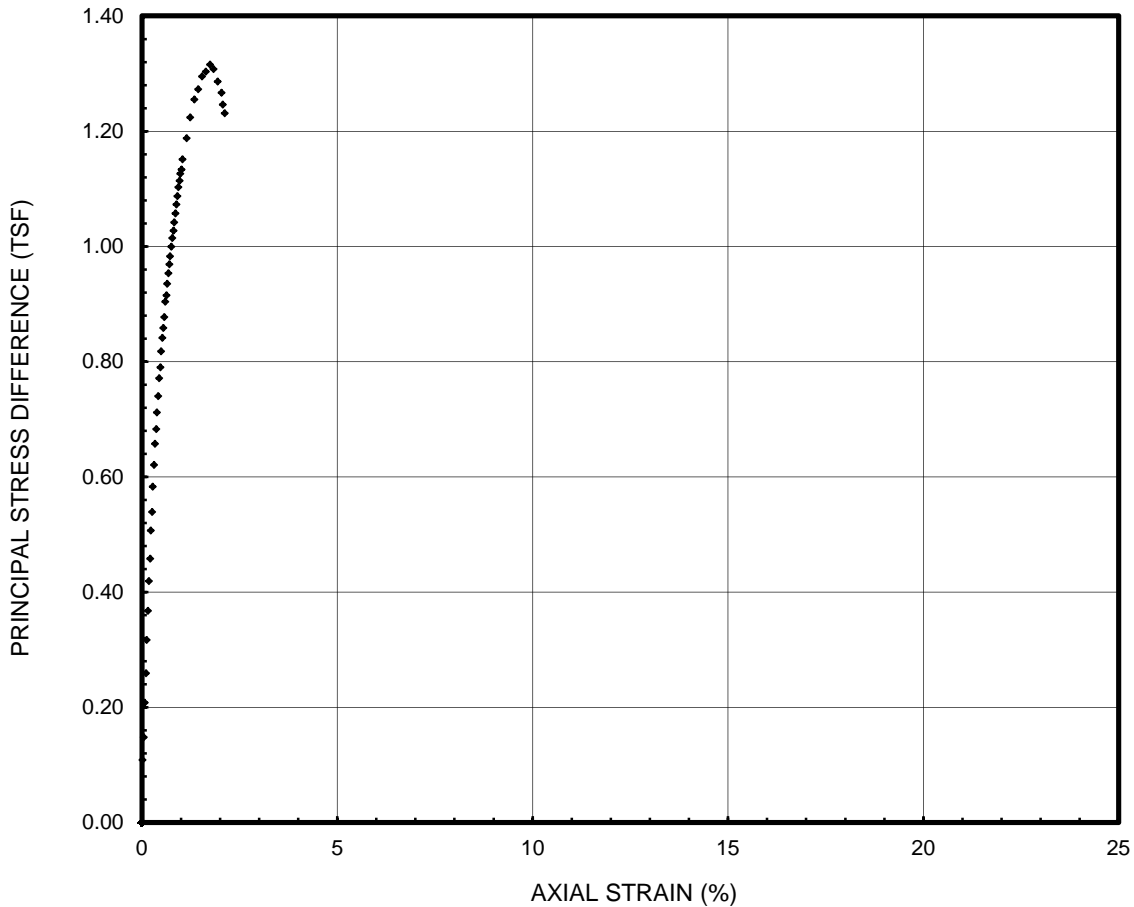


<b>Initial Height</b>	2.804	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.369	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	90.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.915	ton/ft <sup>2</sup>
<b>Water Content</b>	33.0	%	<b>Strain at Peak Stress</b>	11.58	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-37</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-05  
**Depth** 38-40 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

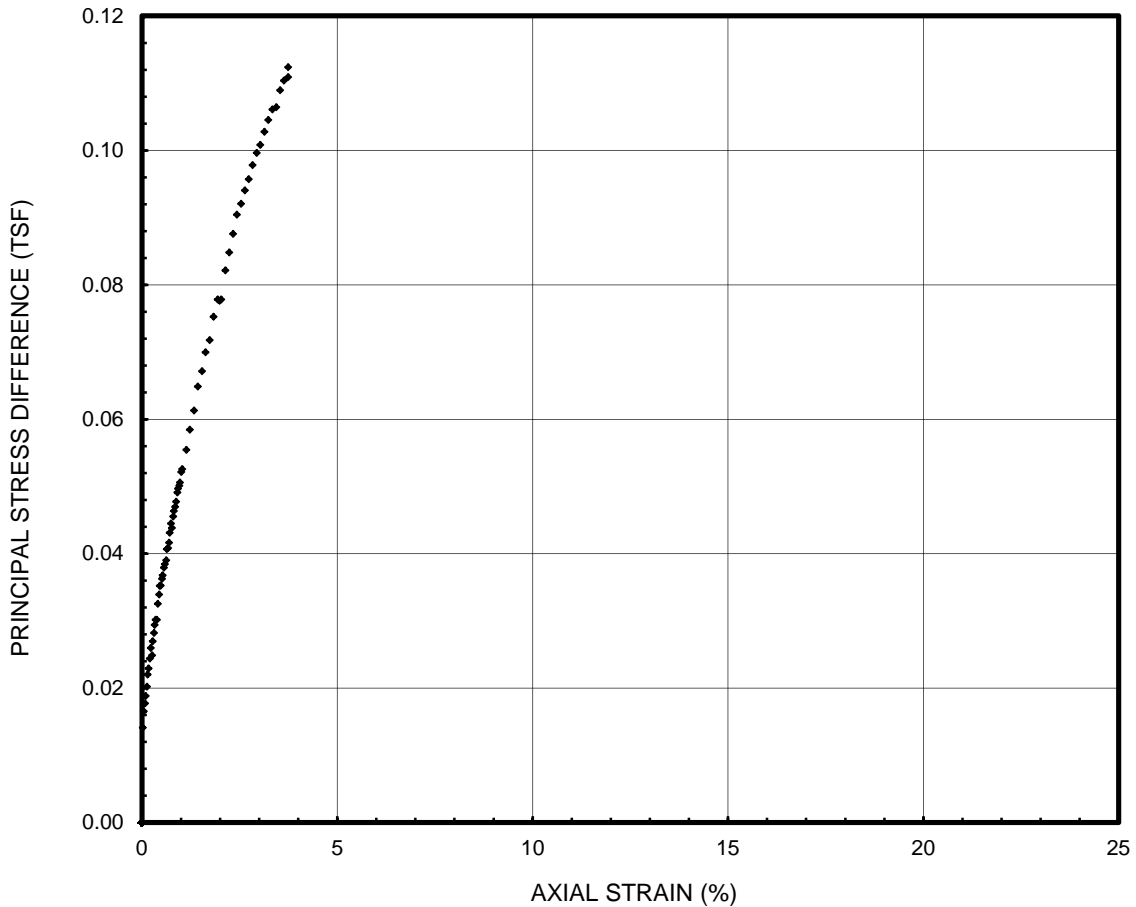


<b>Initial Height</b> 2.807 in	<b>Cell Pressure</b> 16.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 1.368 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 76.4 lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.316 ton/ft <sup>2</sup>
<b>Water Content</b> 48.2 %	<b>Strain at Peak Stress</b> 1.74 %
<b>Saturation</b> 110 %	<b>Failure Type</b> Diagonal Plane


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-08-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-38</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)

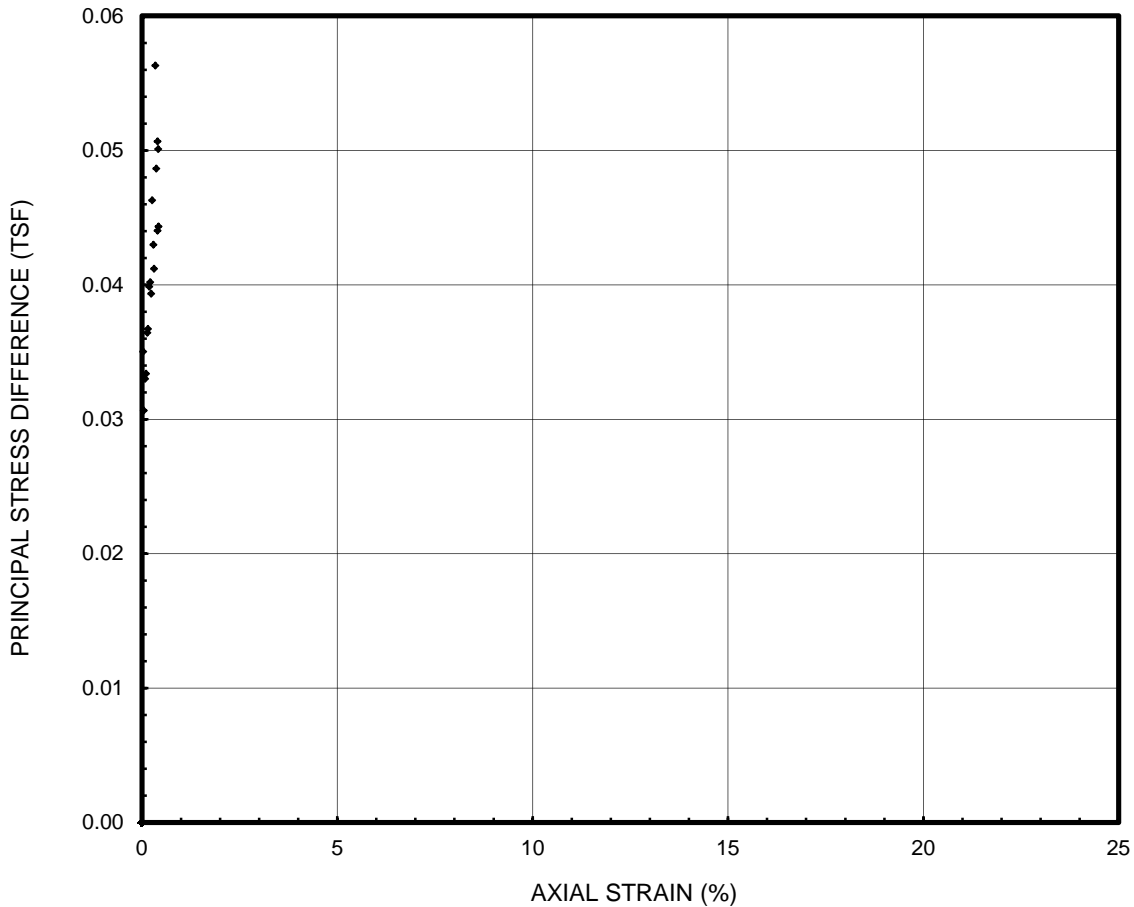


<b>Initial Height</b>	5.808	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.795	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.112	ton/ft <sup>2</sup>
<b>Water Content</b>	86.4	%	<b>Strain at Peak Stress</b>	3.74	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-39</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) with shells

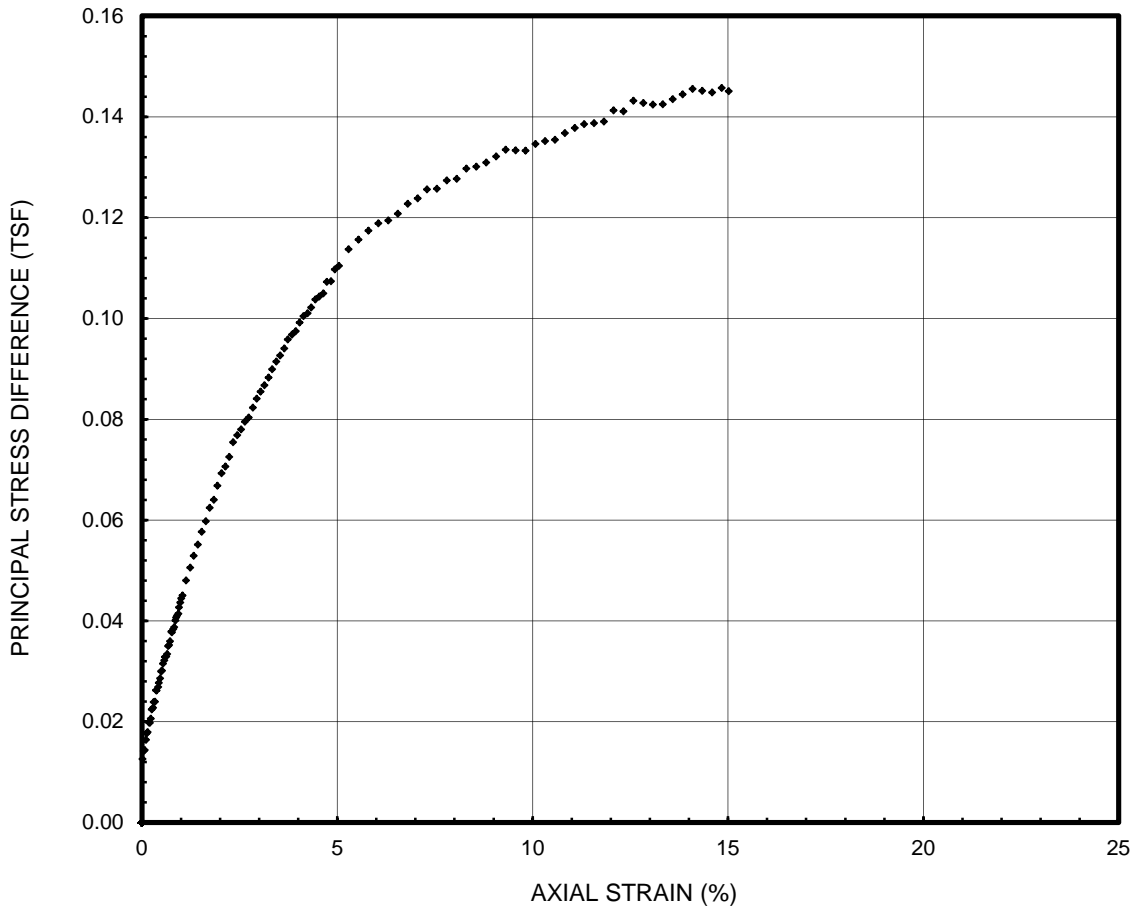


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.339	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	46.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.056	ton/ft <sup>2</sup>
<b>Water Content</b>	98.8	%	<b>Strain at Peak Stress</b>	0.34	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-11-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-40</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) with shells

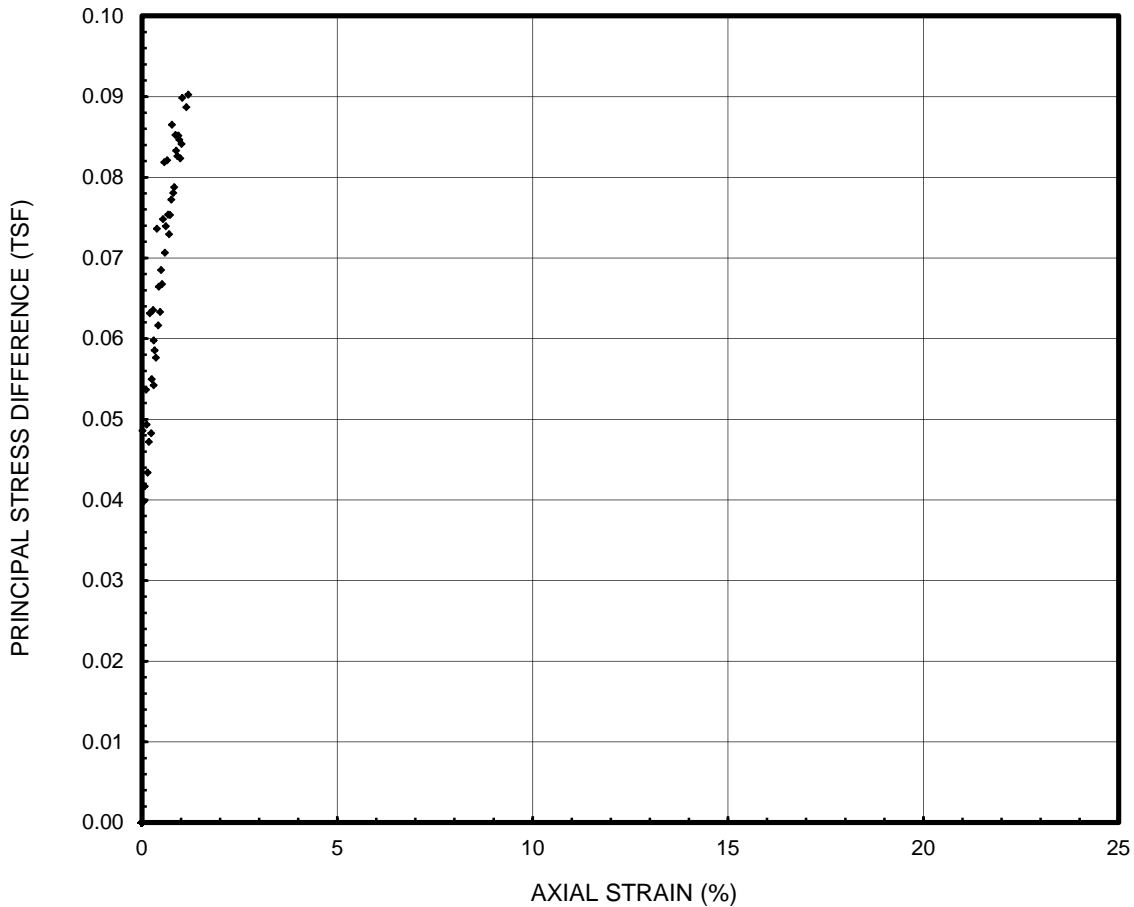


<b>Initial Height</b>	5.760	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.810	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	55.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.146	ton/ft <sup>2</sup>
<b>Water Content</b>	81.6	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-41</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH)

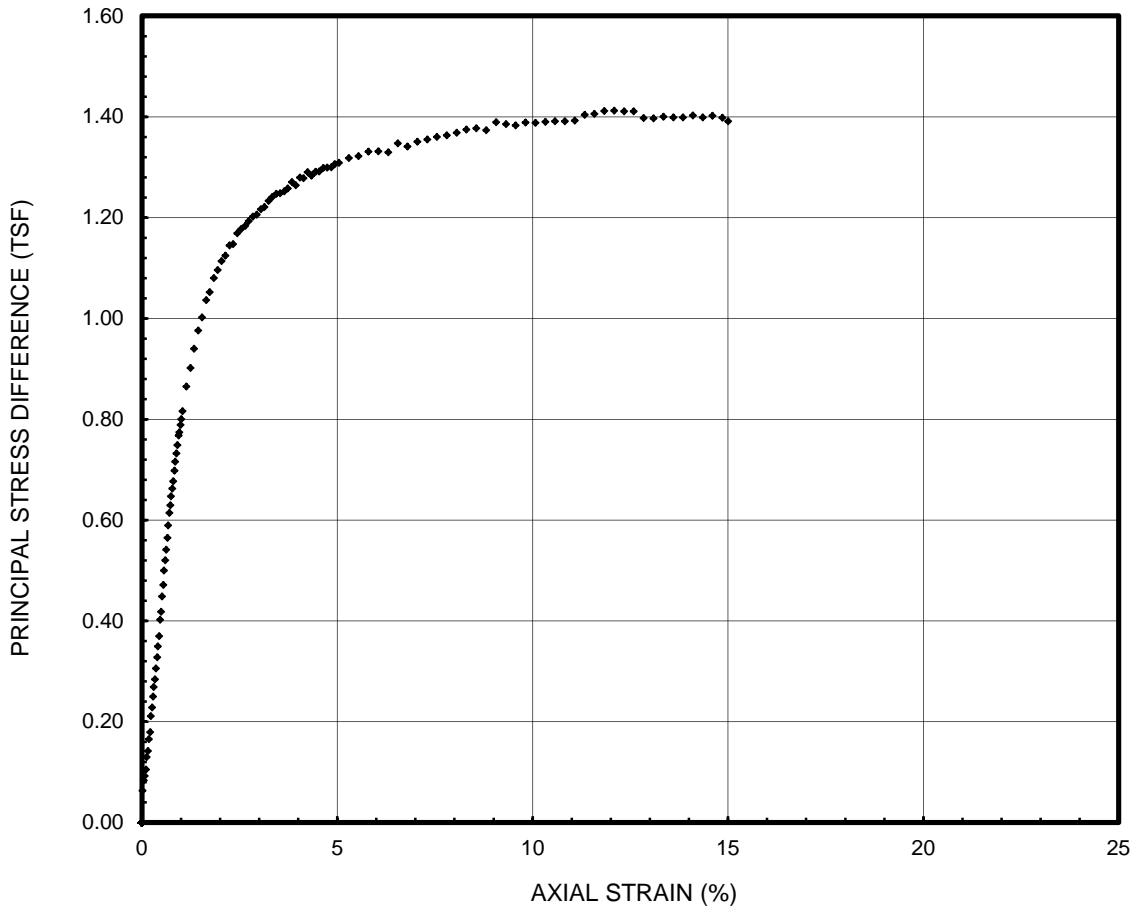


<b>Initial Height</b>	2.797	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.394	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	48.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.090	ton/ft <sup>2</sup>
<b>Water Content</b>	91.7	%	<b>Strain at Peak Stress</b>	1.18	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-42</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 16-18 ft  
**Description** Gray SANDY CLAY (CL)

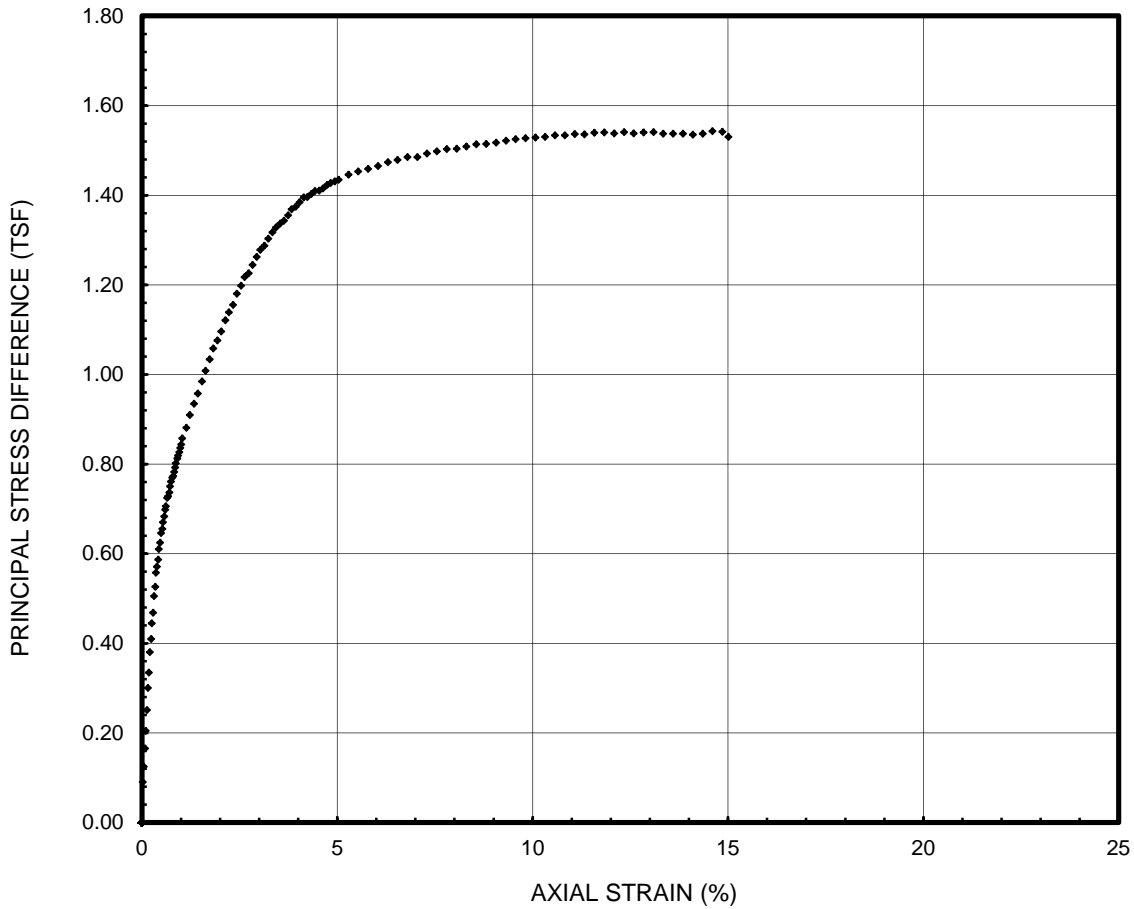


<b>Initial Height</b>	2.802	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.379	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	103.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.412	ton/ft <sup>2</sup>
<b>Water Content</b>	22.9	%	<b>Strain at Peak Stress</b>	12.09	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-11-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-43</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 24-25 ft  
**Description** Gray CLAY (CH) w/ silt layers



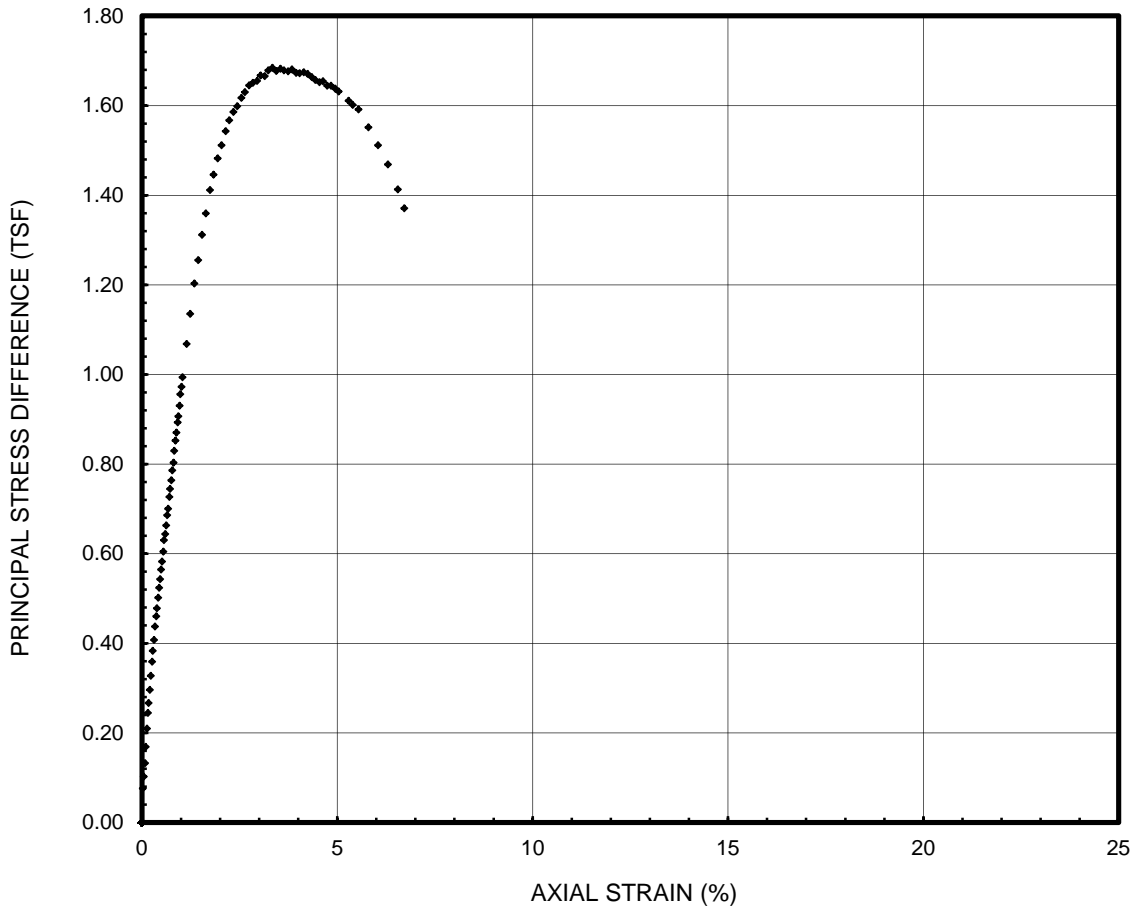
<b>Initial Height</b>	2.799	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.366	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	104.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.543	ton/ft <sup>2</sup>
<b>Water Content</b>	23.0	%	<b>Strain at Peak Stress</b>	14.60	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-11-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-44</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 48-50 ft  
**Description** Gray CLAY (CH) w/ silt layers

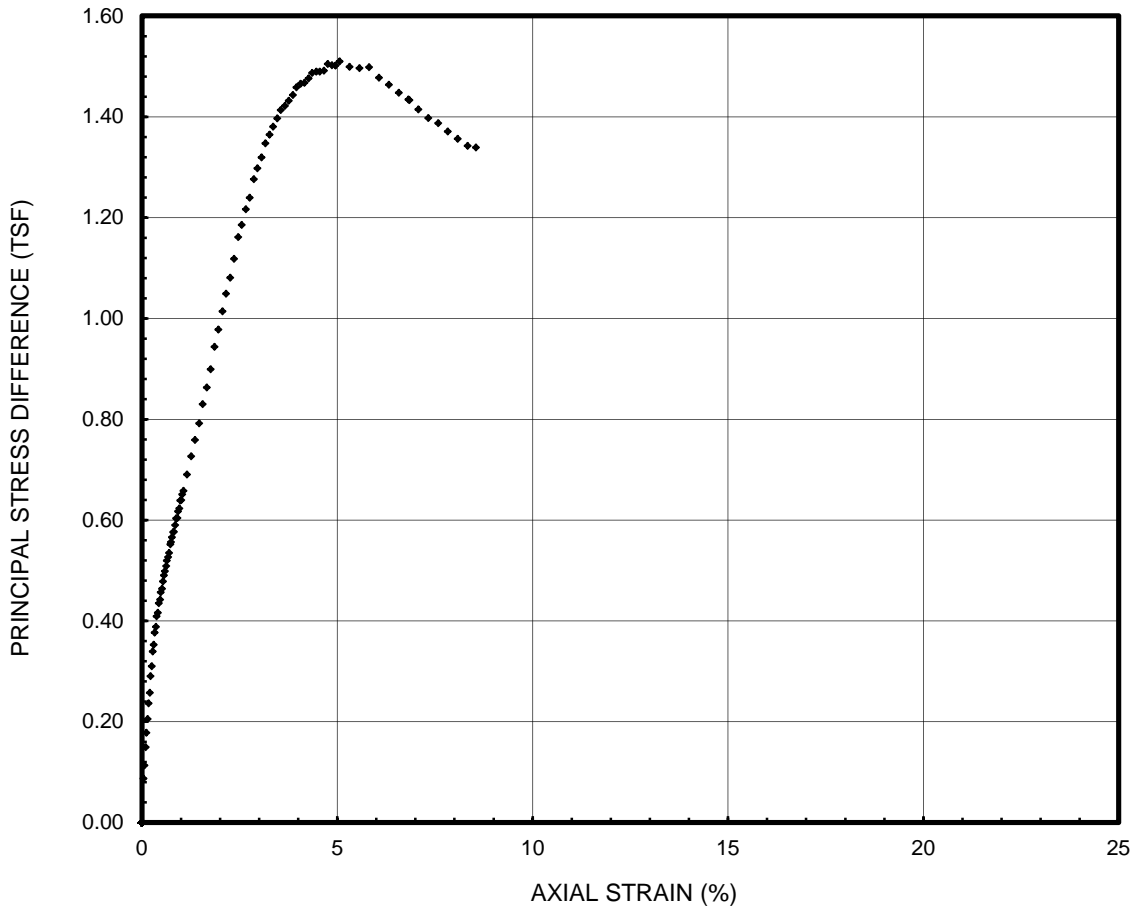


<b>Initial Height</b>	2.817	in	<b>Cell Pressure</b>	20.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.406	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	82.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.684	ton/ft <sup>2</sup>
<b>Water Content</b>	39.4	%	<b>Strain at Peak Stress</b>	3.34	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-11-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-45</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 53-55 ft  
**Description** Gray CLAY (CH) w/ silt layers

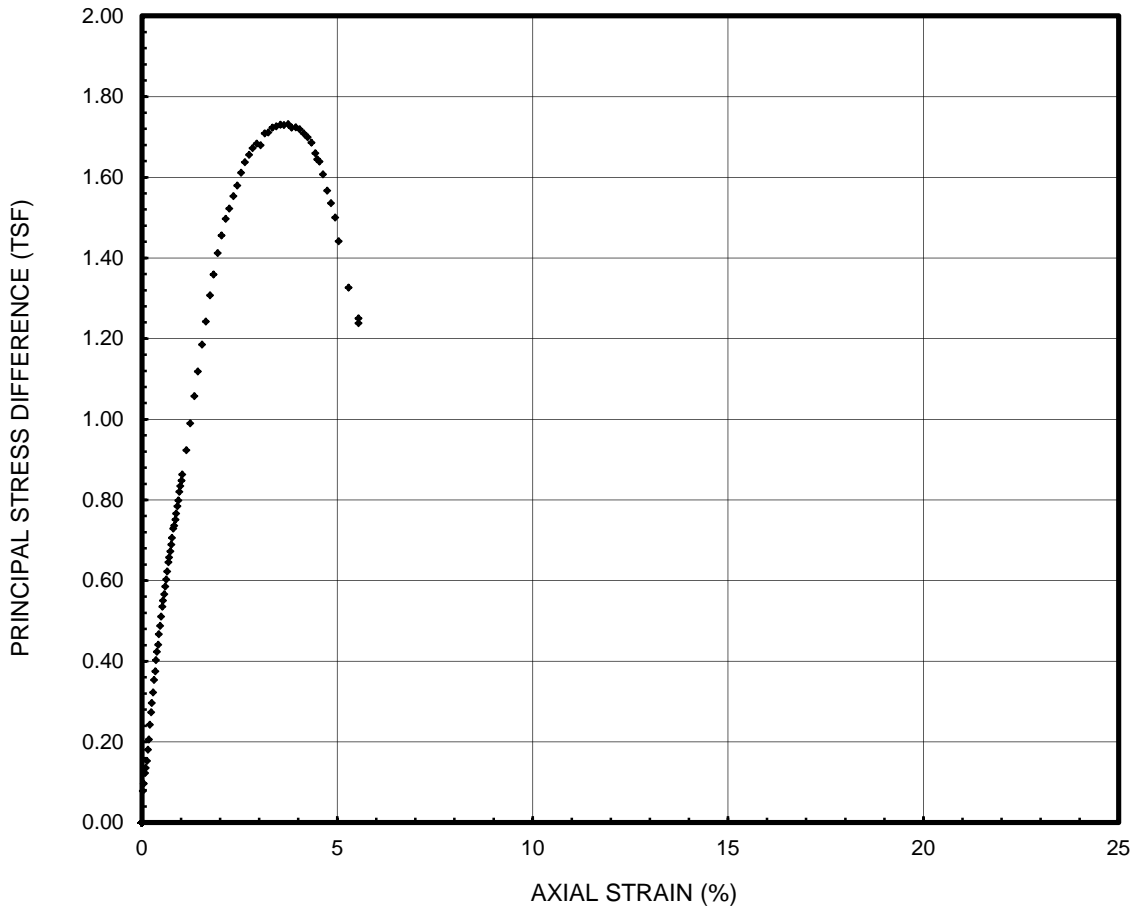


<b>Initial Height</b>	2.799	in	<b>Cell Pressure</b>	22.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.382	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	83.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.510	ton/ft <sup>2</sup>
<b>Water Content</b>	38.5	%	<b>Strain at Peak Stress</b>	5.06	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

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FILE NO.: <b>13-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-46</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-06  
**Depth** 58-60 ft  
**Description** Gray CLAY (CH) w/ silt layers

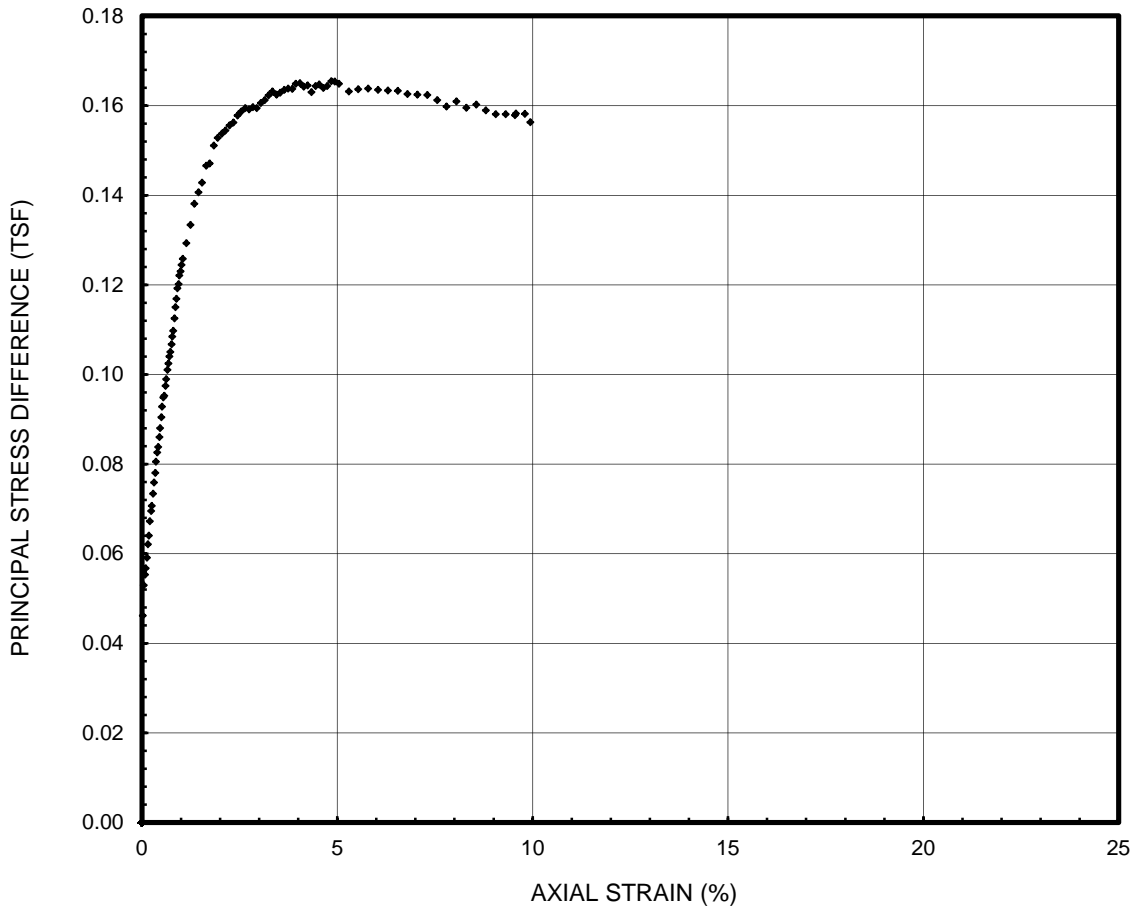


<b>Initial Height</b> 2.792 in	<b>Cell Pressure</b> 24.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 1.389 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 75.8 lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.732 ton/ft <sup>2</sup>
<b>Water Content</b> 45.9 %	<b>Strain at Peak Stress</b> 3.74 %
<b>Saturation</b> 103 %	<b>Failure Type</b> Diagonal Plane


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-47</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL3)  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers

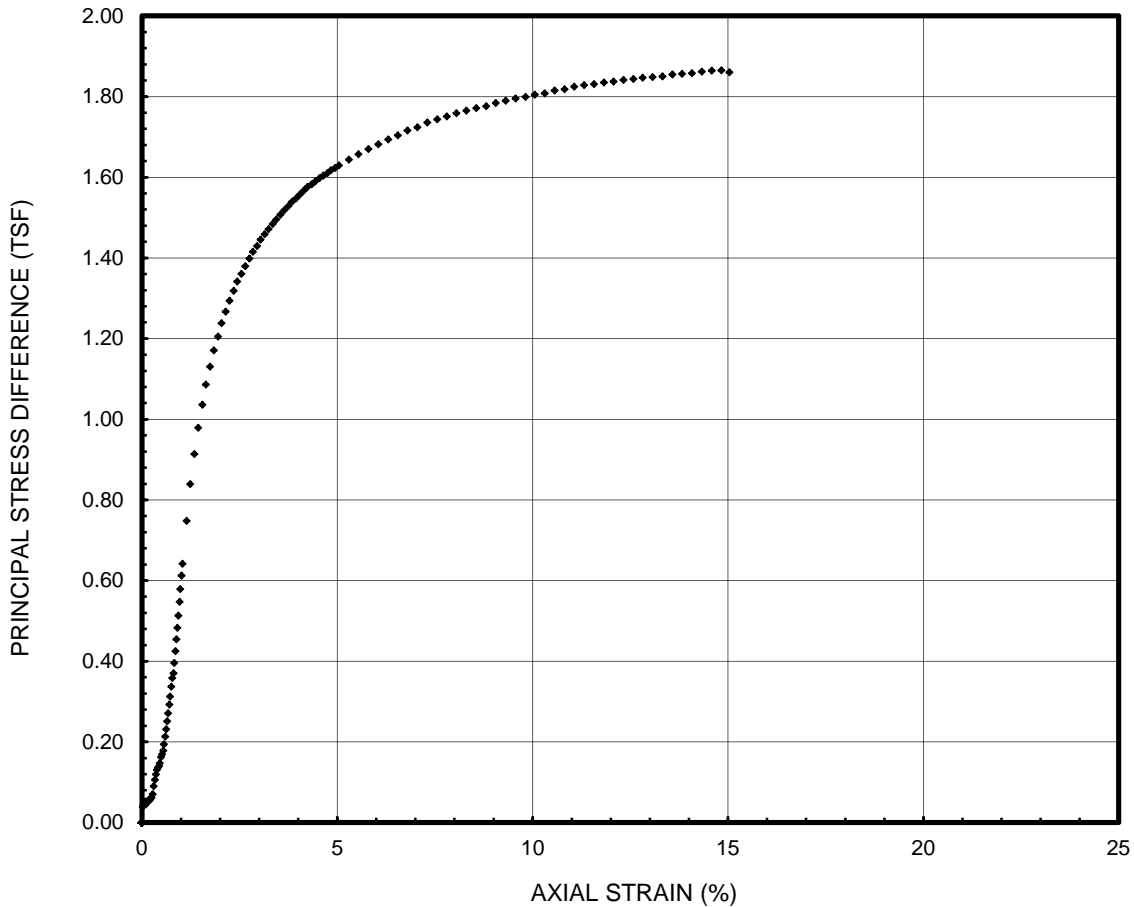


<b>Initial Height</b>	2.771	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.323	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	63.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.165	ton/ft <sup>2</sup>
<b>Water Content</b>	65.6	%	<b>Strain at Peak Stress</b>	4.85	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-48</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07  
**Depth** 23-25 ft  
**Description** Gray SILTY CLAY (CL)

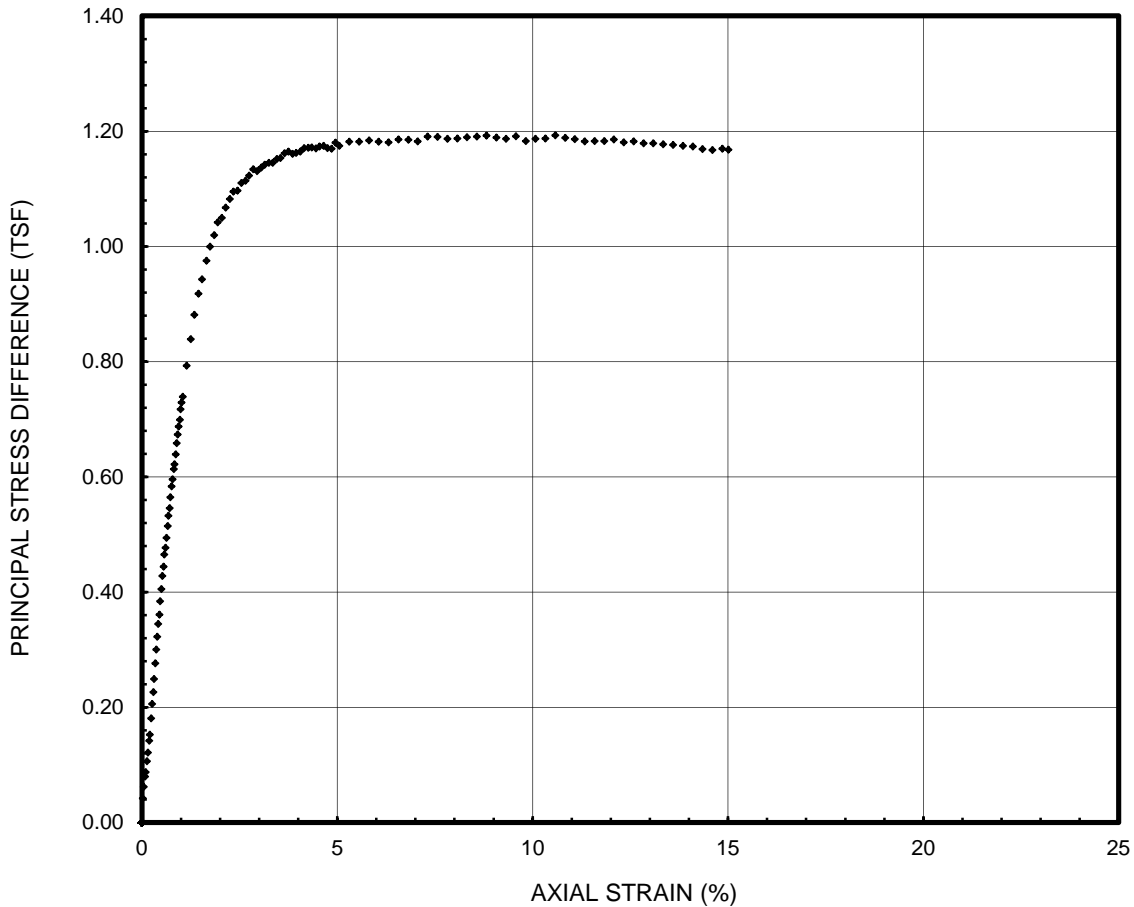


<b>Initial Height</b>	5.749	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.849	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	110.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.865	ton/ft <sup>2</sup>
<b>Water Content</b>	20.1	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-49</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07  
**Depth** 33-35 ft  
**Description** Gray SILTY CLAY (CL)

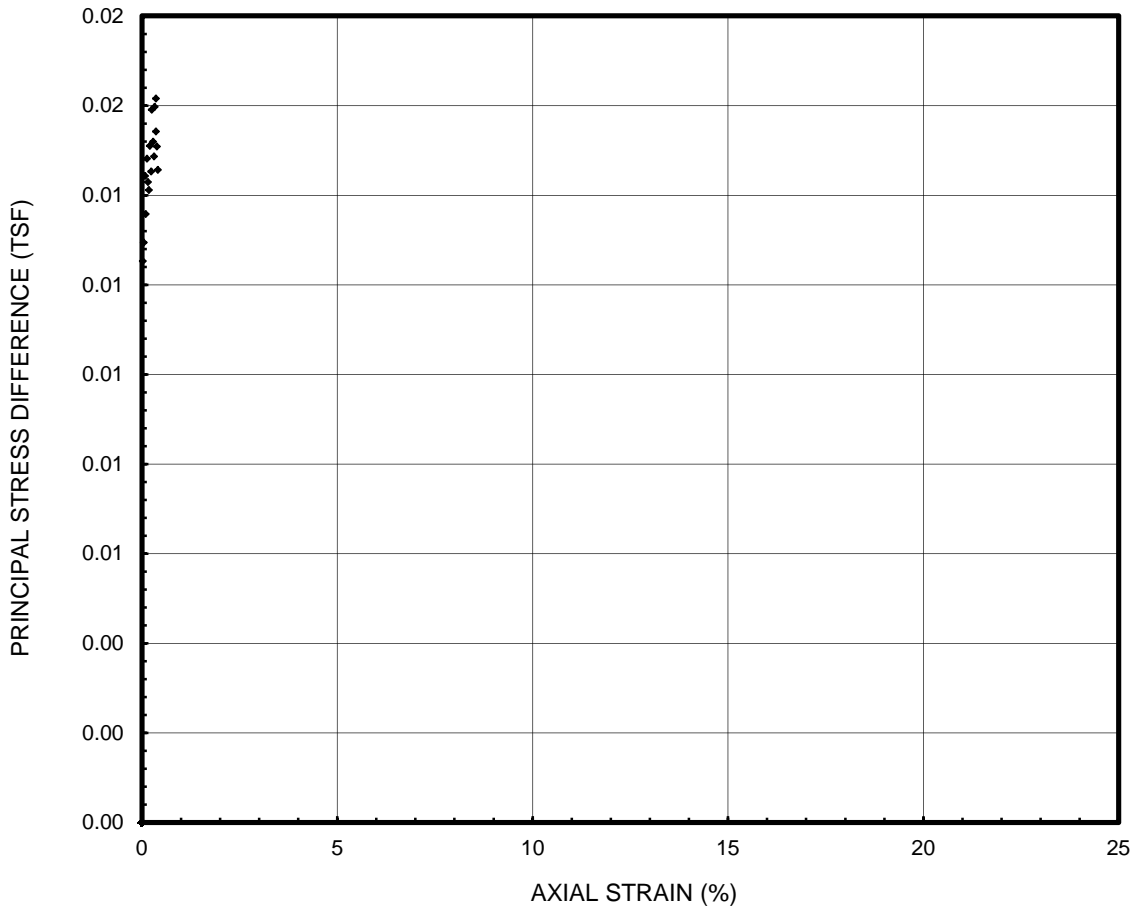


<b>Initial Height</b>	2.800	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.406	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	100.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.193	ton/ft <sup>2</sup>
<b>Water Content</b>	23.1	%	<b>Strain at Peak Stress</b>	10.58	%
<b>Saturation</b>	95	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-50</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-1)  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ silt

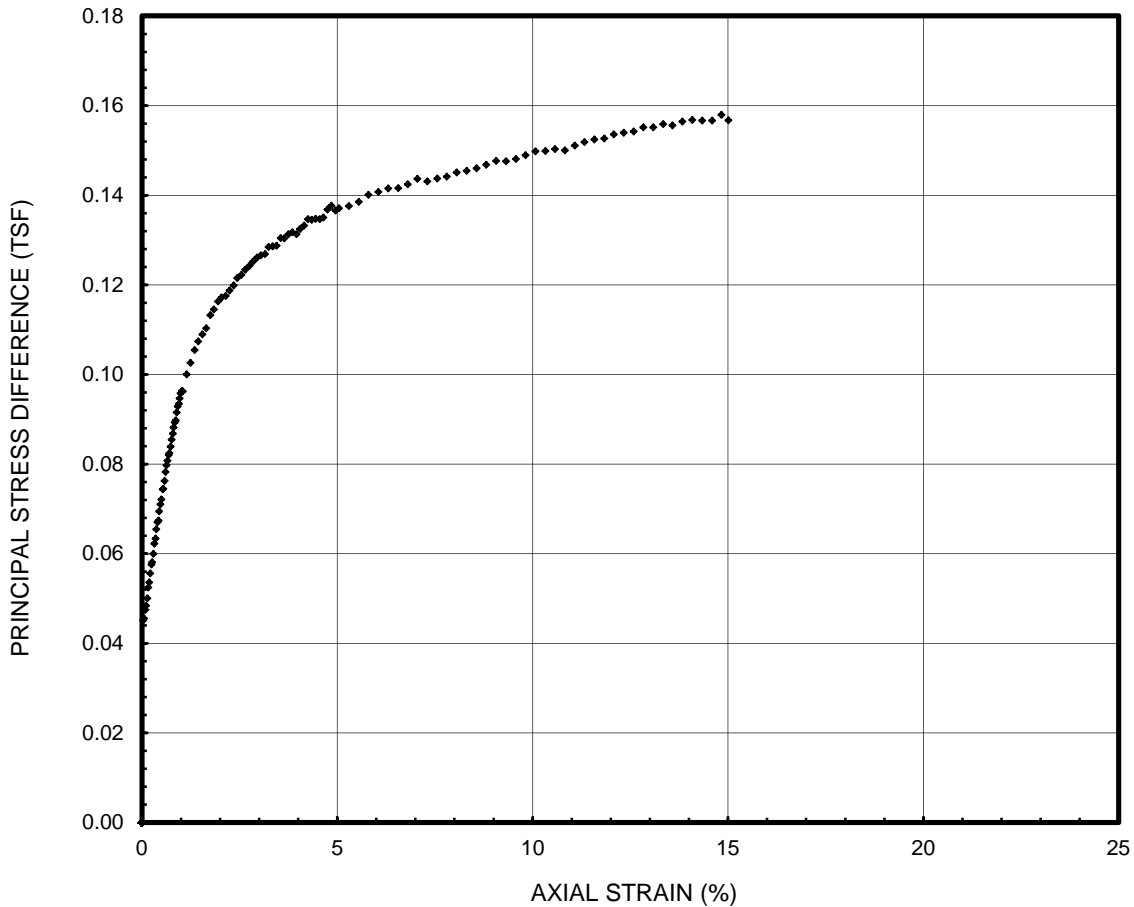


<b>Initial Height</b>	5.567	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.826	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	67.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.016	ton/ft <sup>2</sup>
<b>Water Content</b>	50.9	%	<b>Strain at Peak Stress</b>	0.36	%
<b>Saturation</b>	93	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-51</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-1)  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers



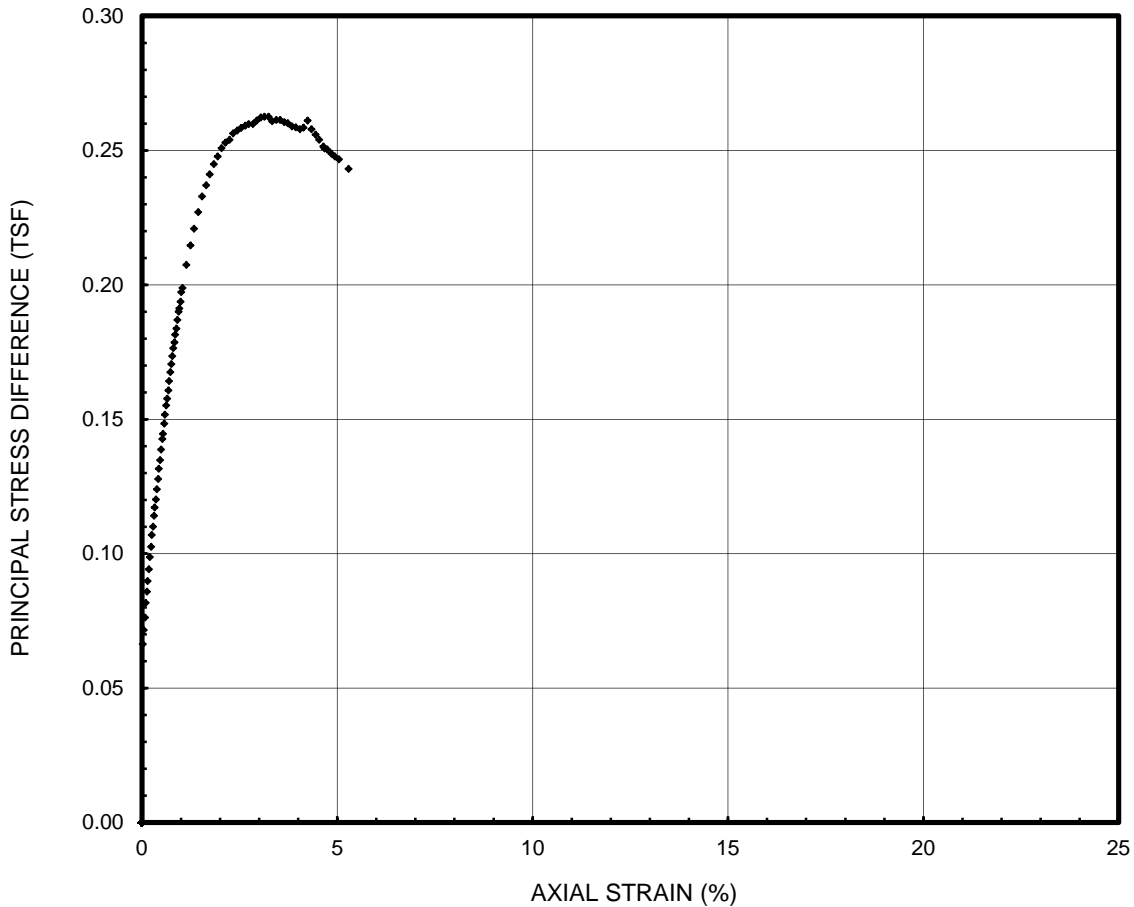
<b>Initial Height</b>	2.773	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.374	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.158	ton/ft <sup>2</sup>
<b>Water Content</b>	85.2	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-52</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-1)  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ silt

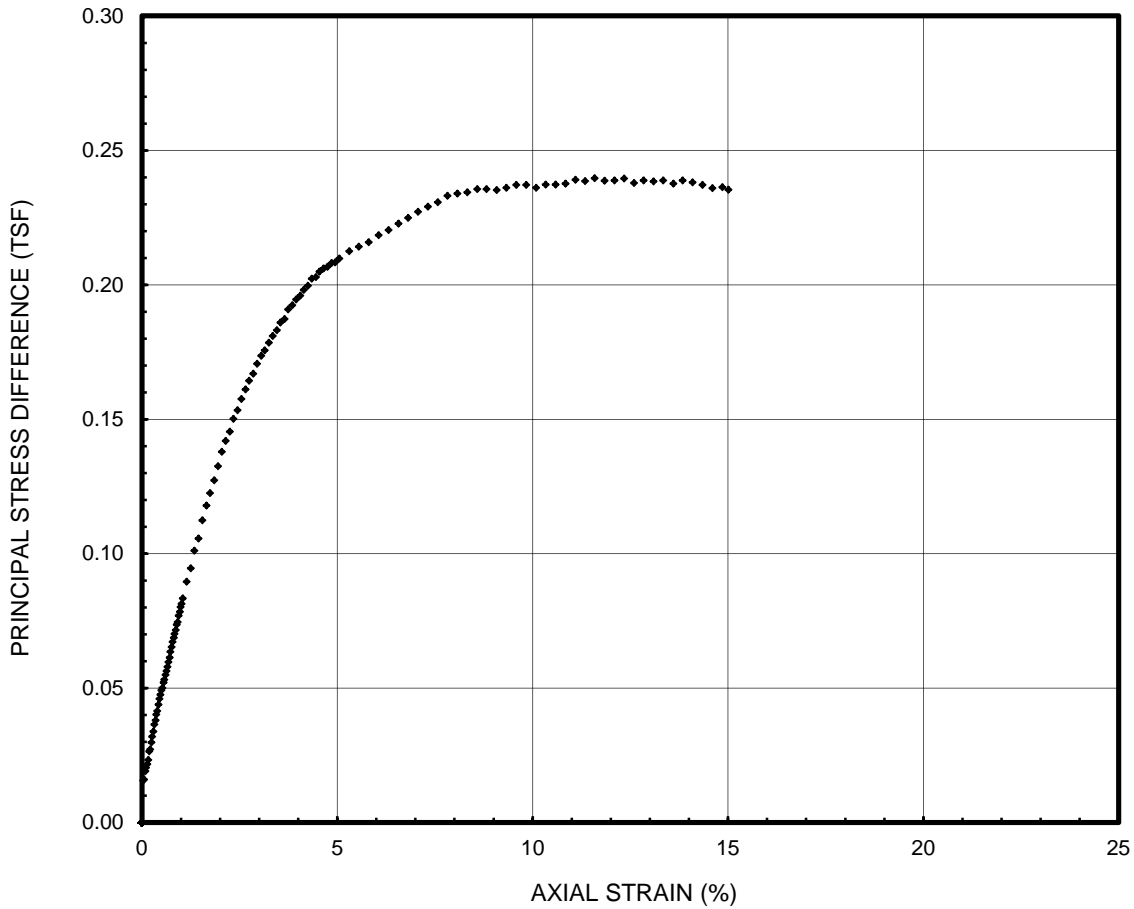


<b>Initial Height</b>	2.780	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.325	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	56.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.263	ton/ft <sup>2</sup>
<b>Water Content</b>	76.0	%	<b>Strain at Peak Stress</b>	3.14	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Diagonal Plane	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-53</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-1)  
**Depth** 16-18 ft  
**Description** Gray CLAY (CH) w/ silt

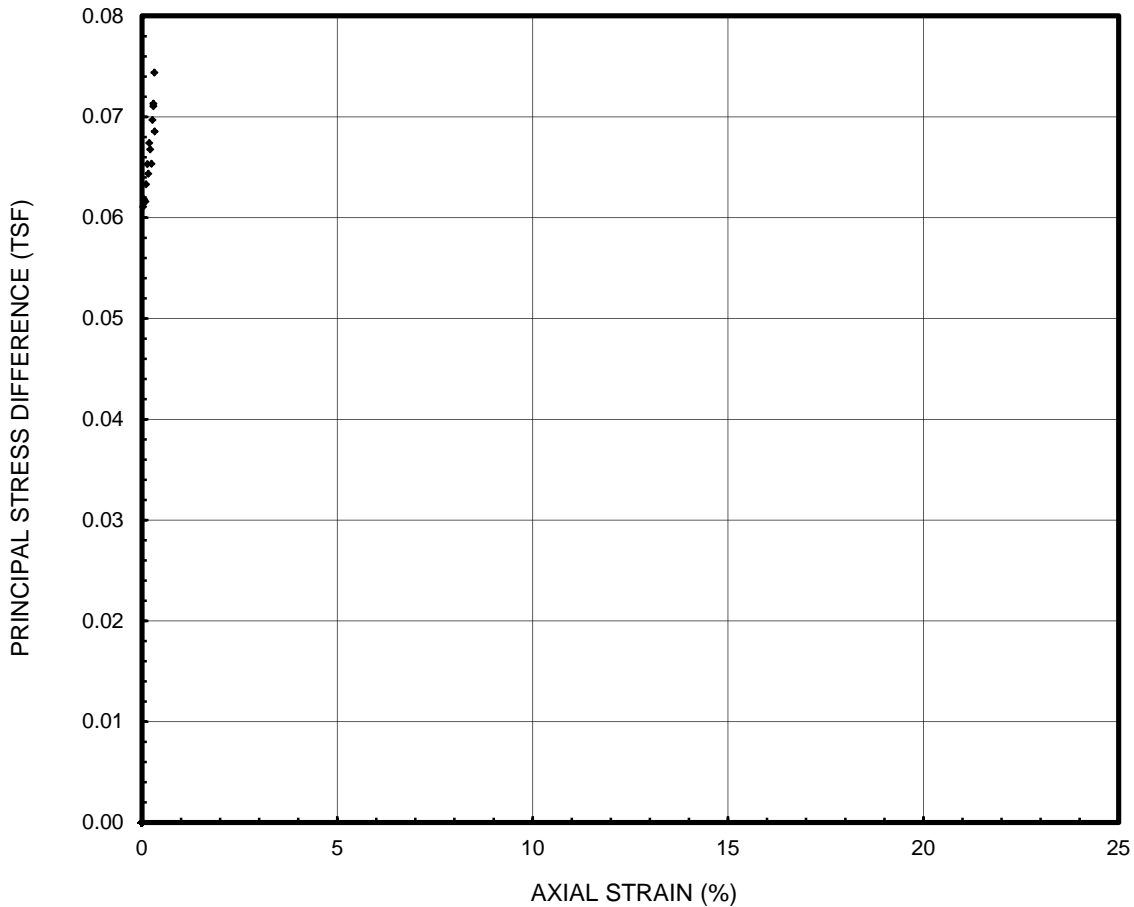


<b>Initial Height</b>	5.740	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.802	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	59.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.24	ton/ft <sup>2</sup>
<b>Water Content</b>	70.5	%	<b>Strain at Peak Stress</b>	11.59	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-54</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-1)  
**Depth** 18-20 ft  
**Description** Gray CLAY (CH) w/ silt

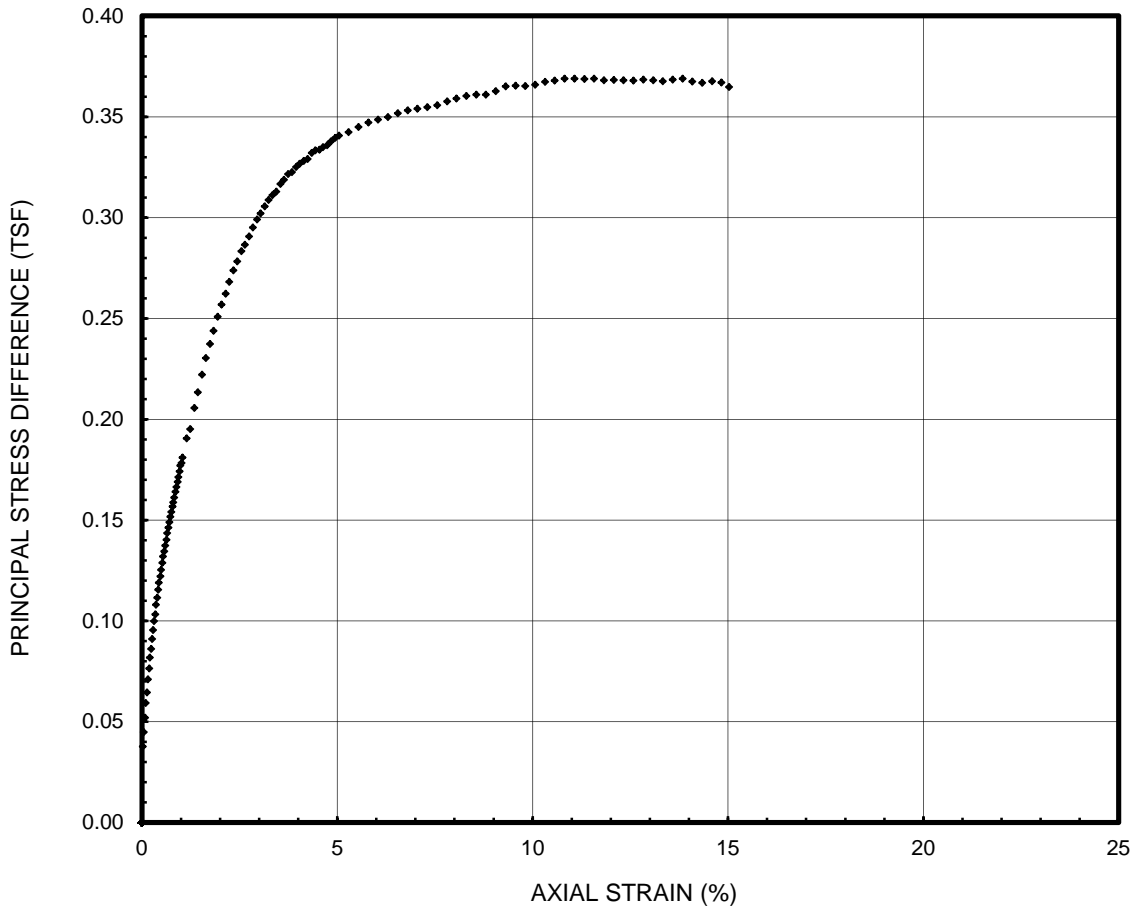


<b>Initial Height</b>	2.796	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.353	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	62.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.074	ton/ft <sup>2</sup>
<b>Water Content</b>	64.5	%	<b>Strain at Peak Stress</b>	0.32	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-55</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-2)  
**Depth** 0-2 ft  
**Description** Gray CLAY (CH) w/ silt

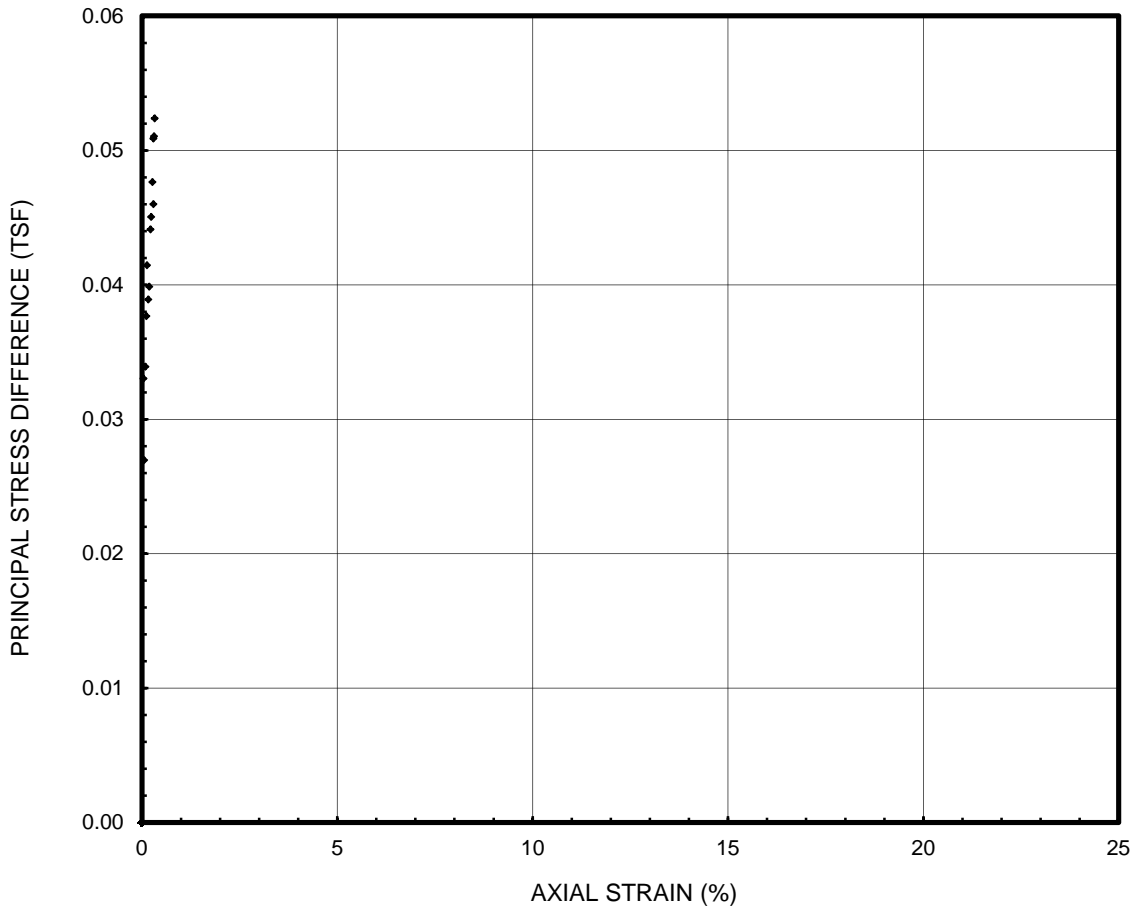


<b>Initial Height</b>	2.794	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.411	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.369	ton/ft <sup>2</sup>
<b>Water Content</b>	79.6	%	<b>Strain at Peak Stress</b>	11.07	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-56</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-2)  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH) w/ silt and shells

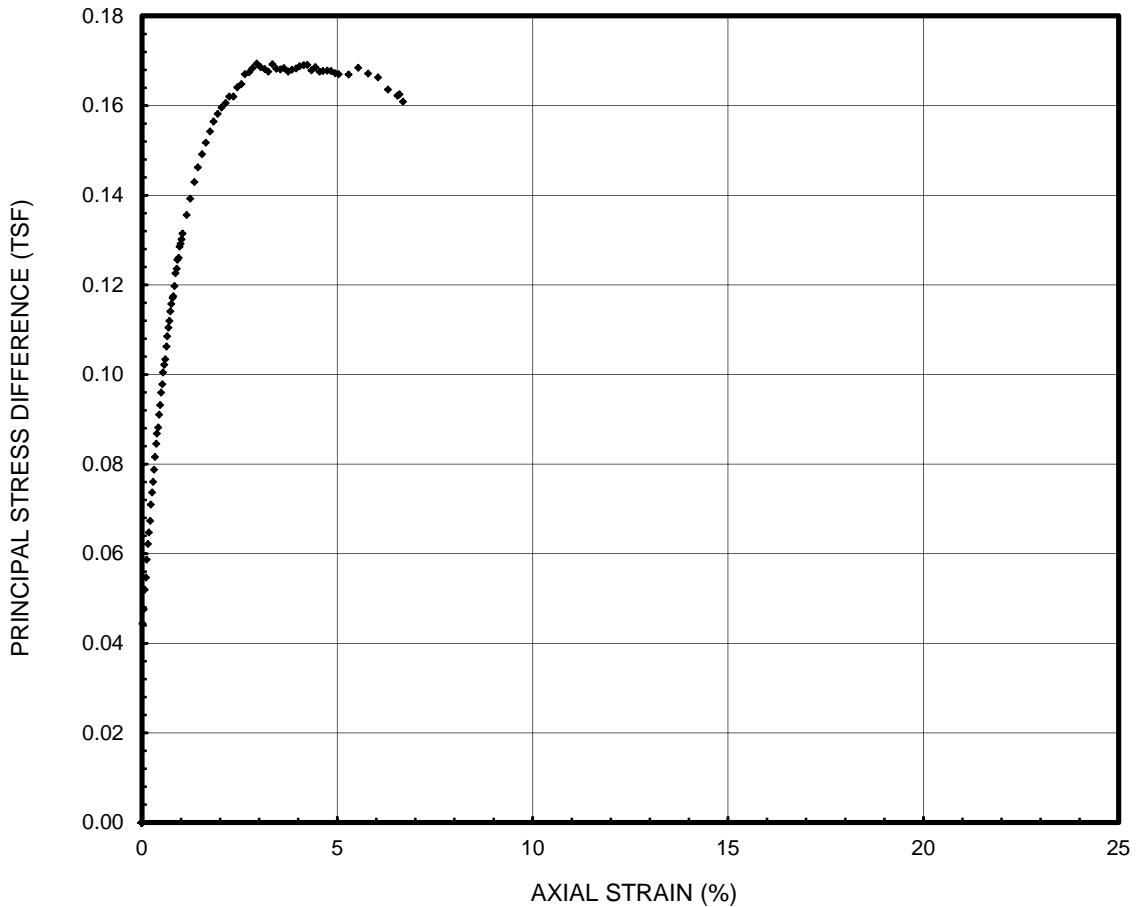


<b>Initial Height</b>	2.777	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.389	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	50.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.052	ton/ft <sup>2</sup>
<b>Water Content</b>	87.7	%	<b>Strain at Peak Stress</b>	0.33	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-57</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-2)  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ silt and shells

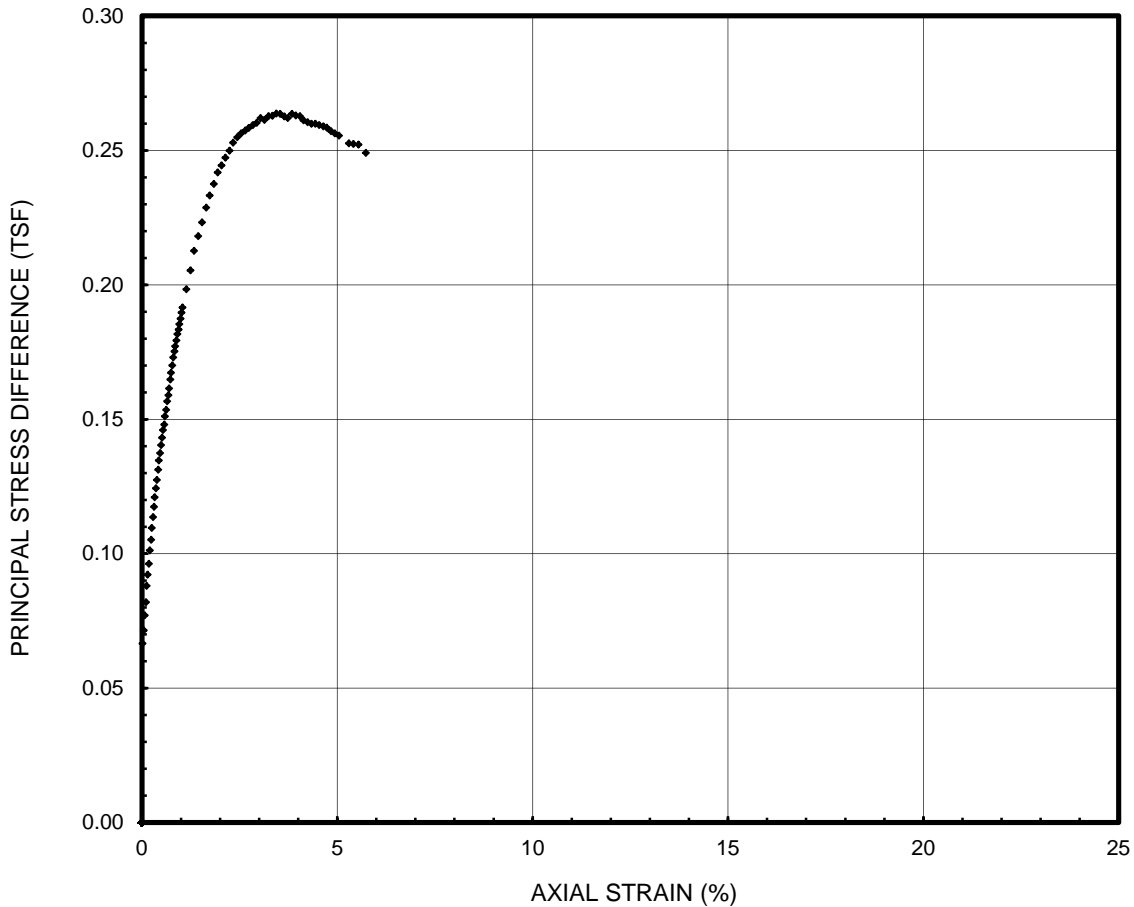


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.326	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	55.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.169	ton/ft <sup>2</sup>
<b>Water Content</b>	77.7	%	<b>Strain at Peak Stress</b>	2.94	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-58</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-2)  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ silt

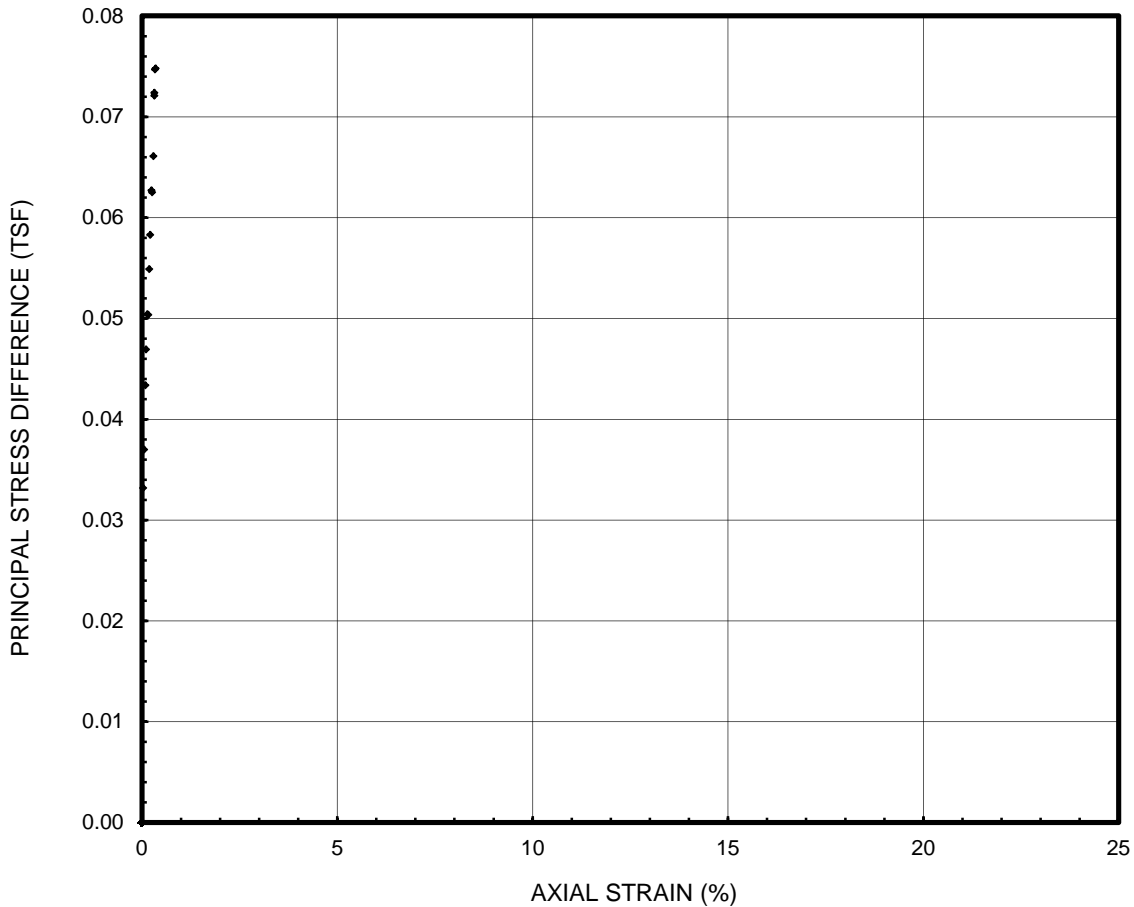


<b>Initial Height</b>	2.806	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.342	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.264	ton/ft <sup>2</sup>
<b>Water Content</b>	76.6	%	<b>Strain at Peak Stress</b>	3.44	%
<b>Saturation</b>	99	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-59</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-3)  
**Depth** 0-2 ft  
**Description** Gray CLAY (CH) w/ silt



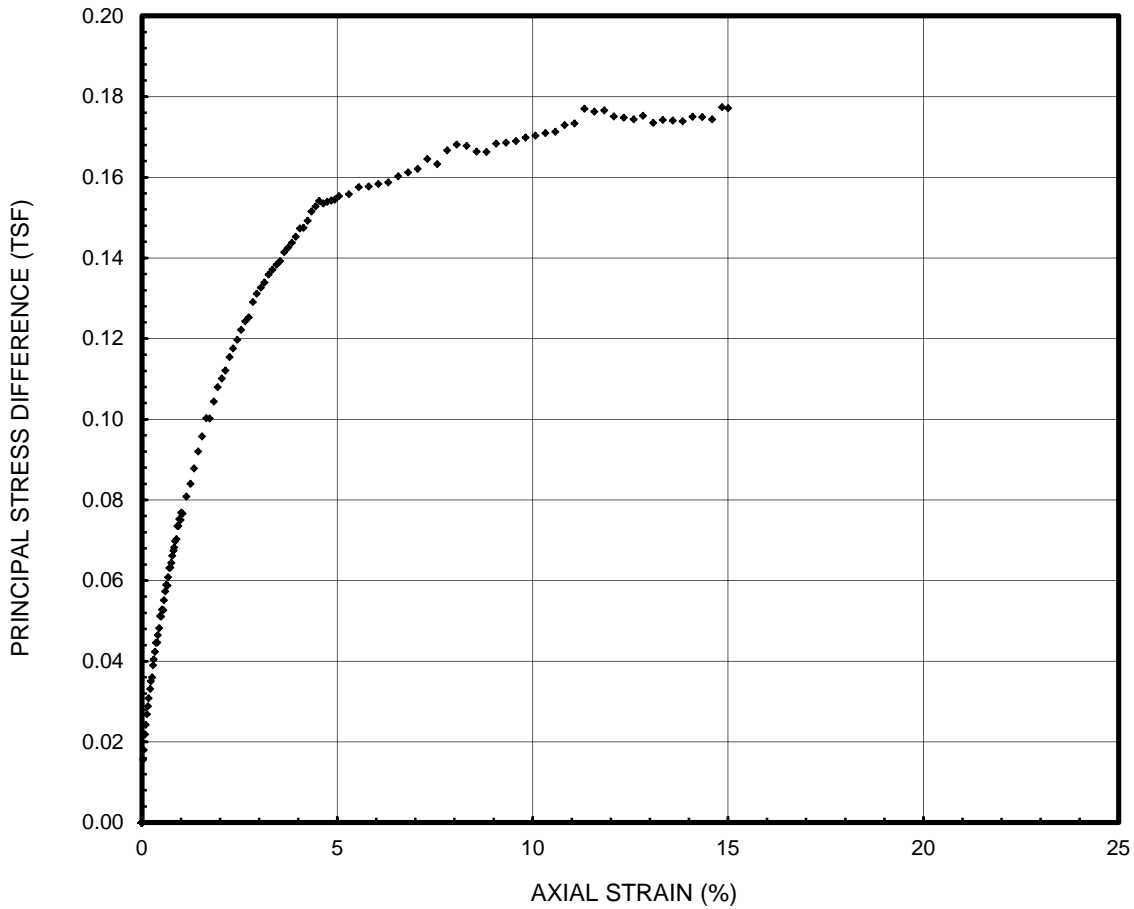
<b>Initial Height</b>	2.792	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.365	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.075	ton/ft <sup>2</sup>
<b>Water Content</b>	82.9	%	<b>Strain at Peak Stress</b>	0.35	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-60</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-3)  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers

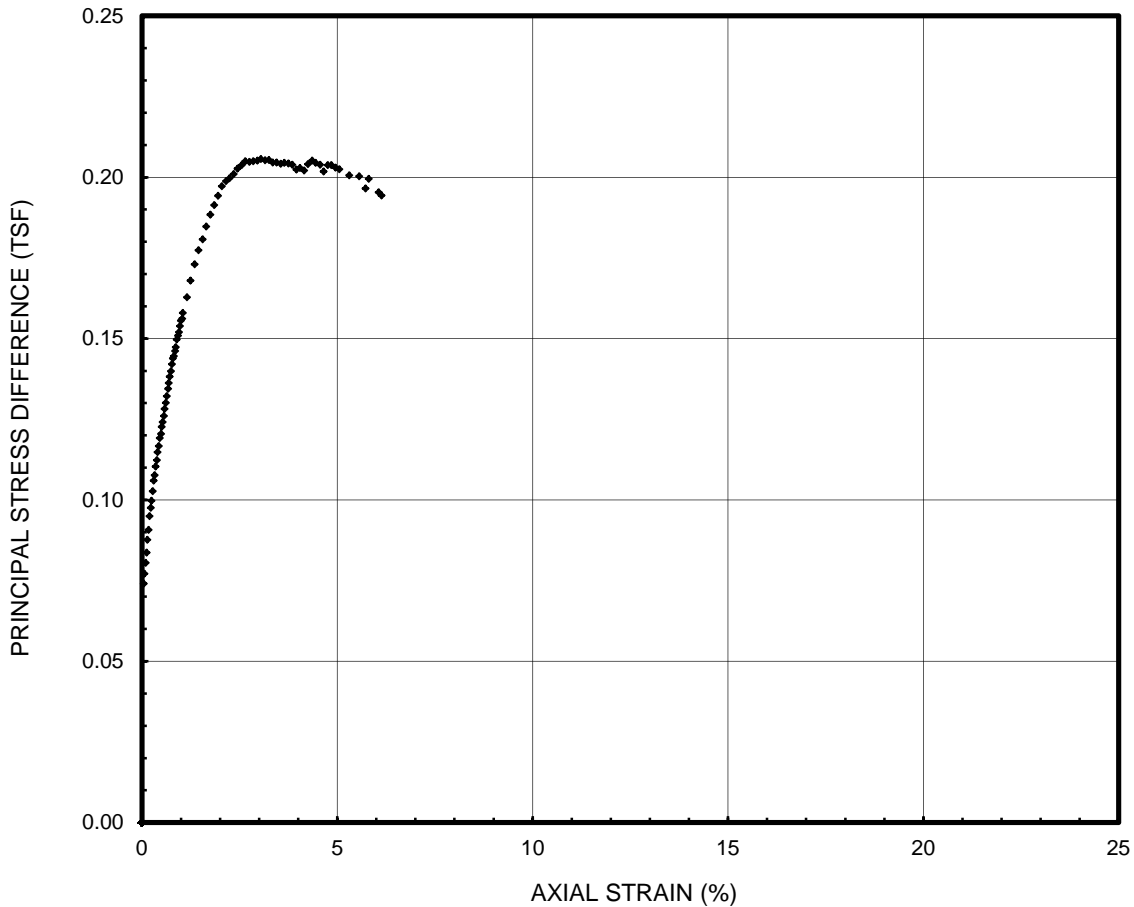


<b>Initial Height</b>	5.728	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.768	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	65.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.177	ton/ft <sup>2</sup>
<b>Water Content</b>	64.0	%	<b>Strain at Peak Stress</b>	14.85	%
<b>Saturation</b>	110	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-61</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-07 (BL-3)  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ silt

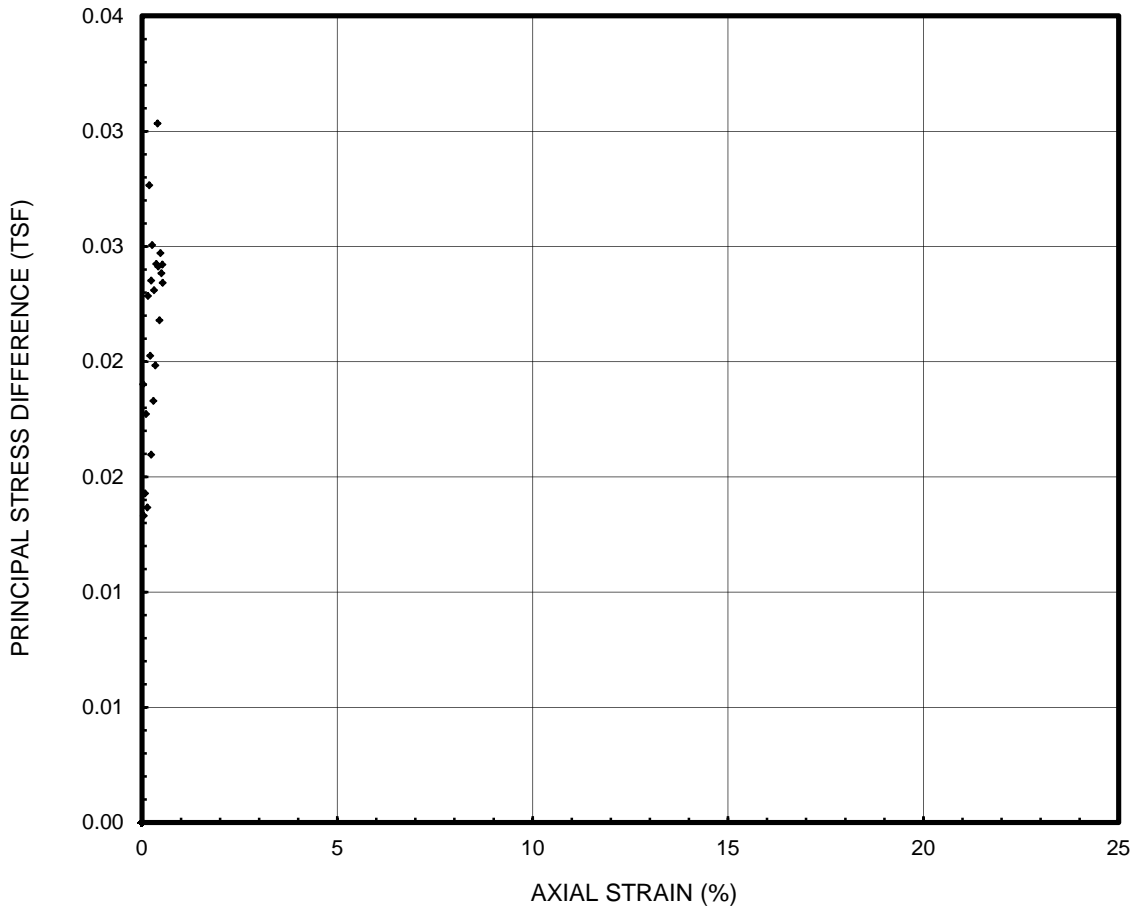


<b>Initial Height</b>	2.800	in	<b>Cell Pressure</b>	28.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.327	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.206	ton/ft <sup>2</sup>
<b>Water Content</b>	87.1	%	<b>Strain at Peak Stress</b>	3.05	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Diagonal Plane	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-62</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ shells and sand

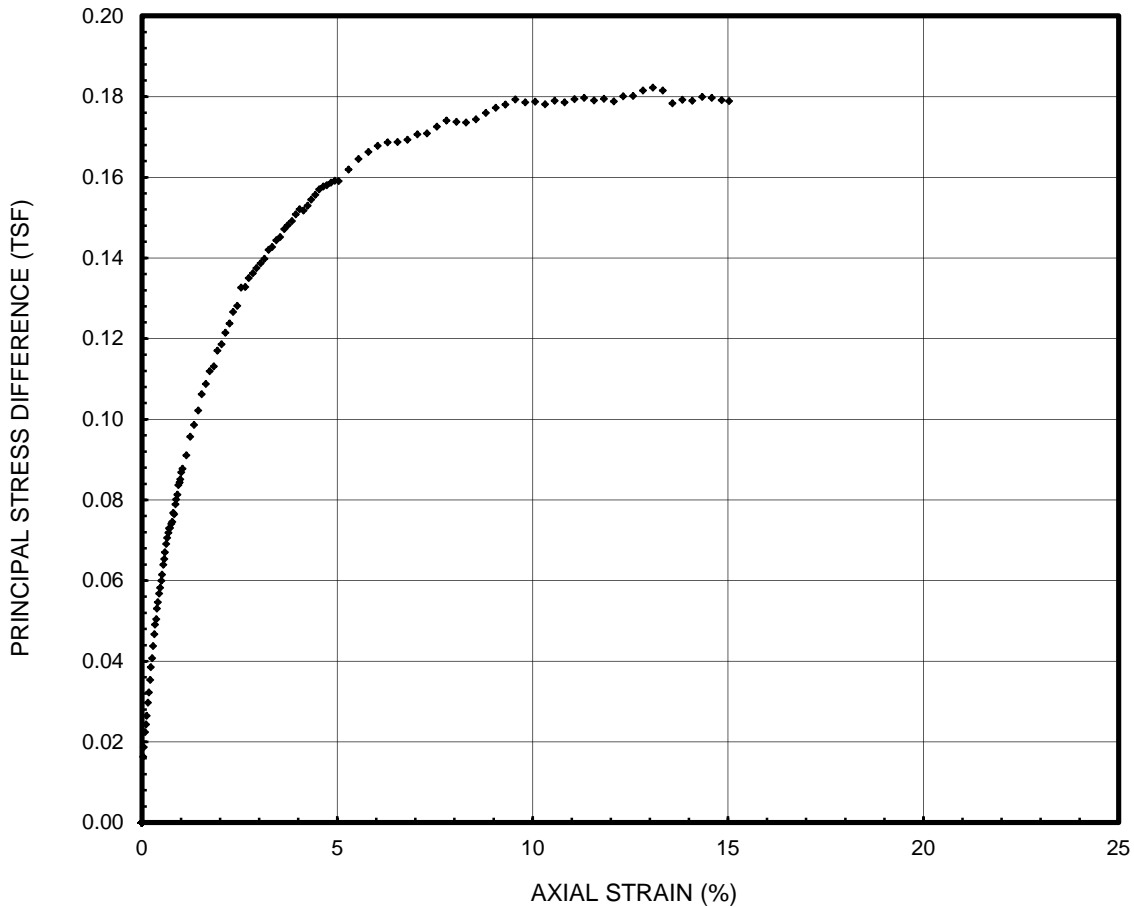


<b>Initial Height</b>	2.812	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.411	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	45.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.030	ton/ft <sup>2</sup>
<b>Water Content</b>	97.0	%	<b>Strain at Peak Stress</b>	0.40	%
<b>Saturation</b>	99	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-63</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH)

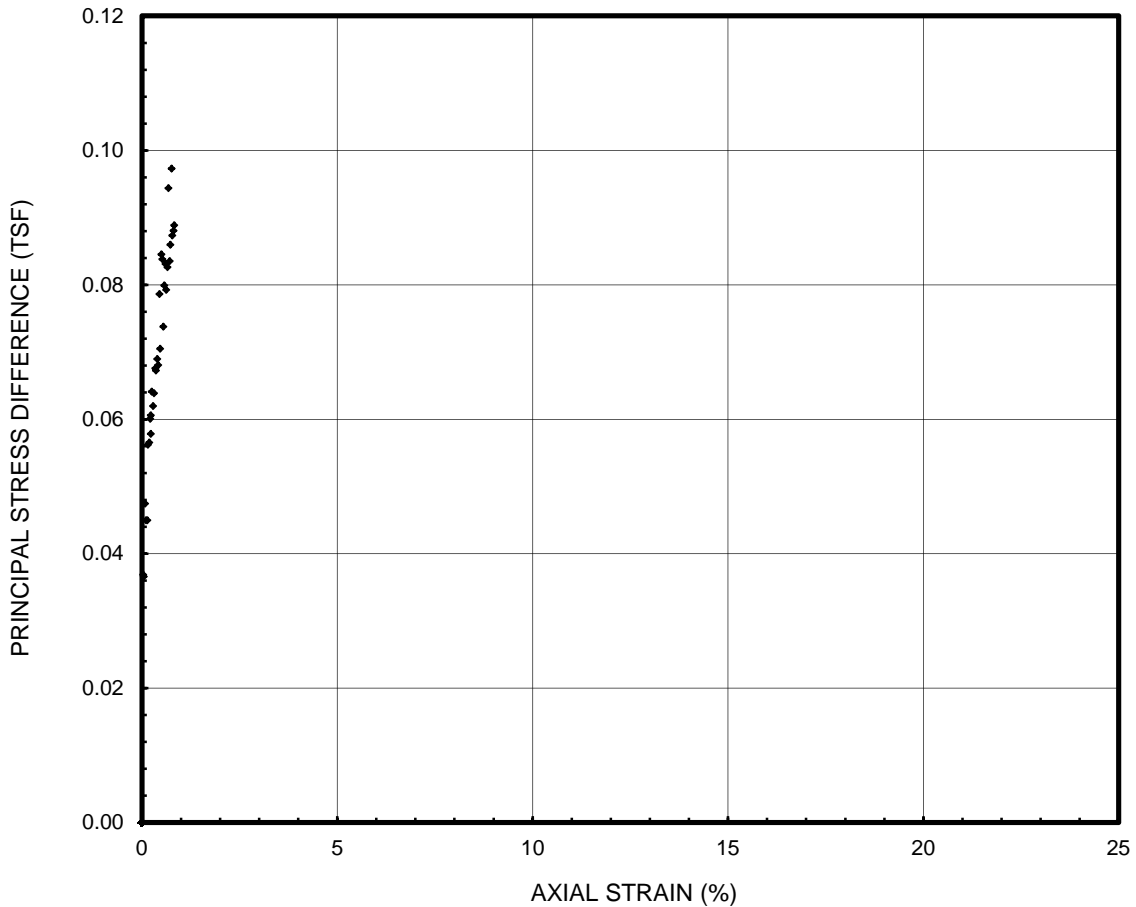


<b>Initial Height</b>	5.756	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.785	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.182	ton/ft <sup>2</sup>
<b>Water Content</b>	76.6	%	<b>Strain at Peak Stress</b>	13.08	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-64</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) with silt pockets

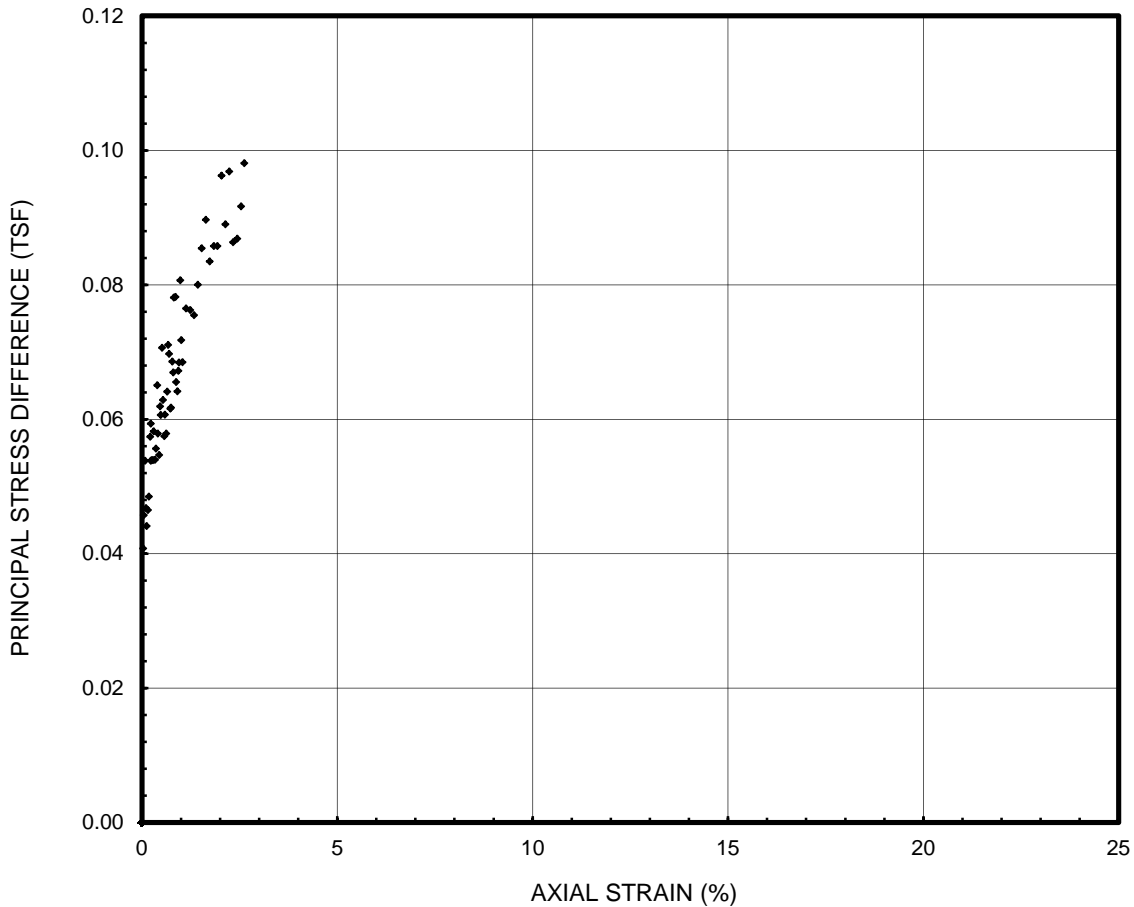


<b>Initial Height</b>	2.788	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.350	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	71.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.097	ton/ft <sup>2</sup>
<b>Water Content</b>	52.4	%	<b>Strain at Peak Stress</b>	0.76	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Other	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-65</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-08  
**Depth**                16-18        ft  
**Description**         Gray CLAY (CH) with shells

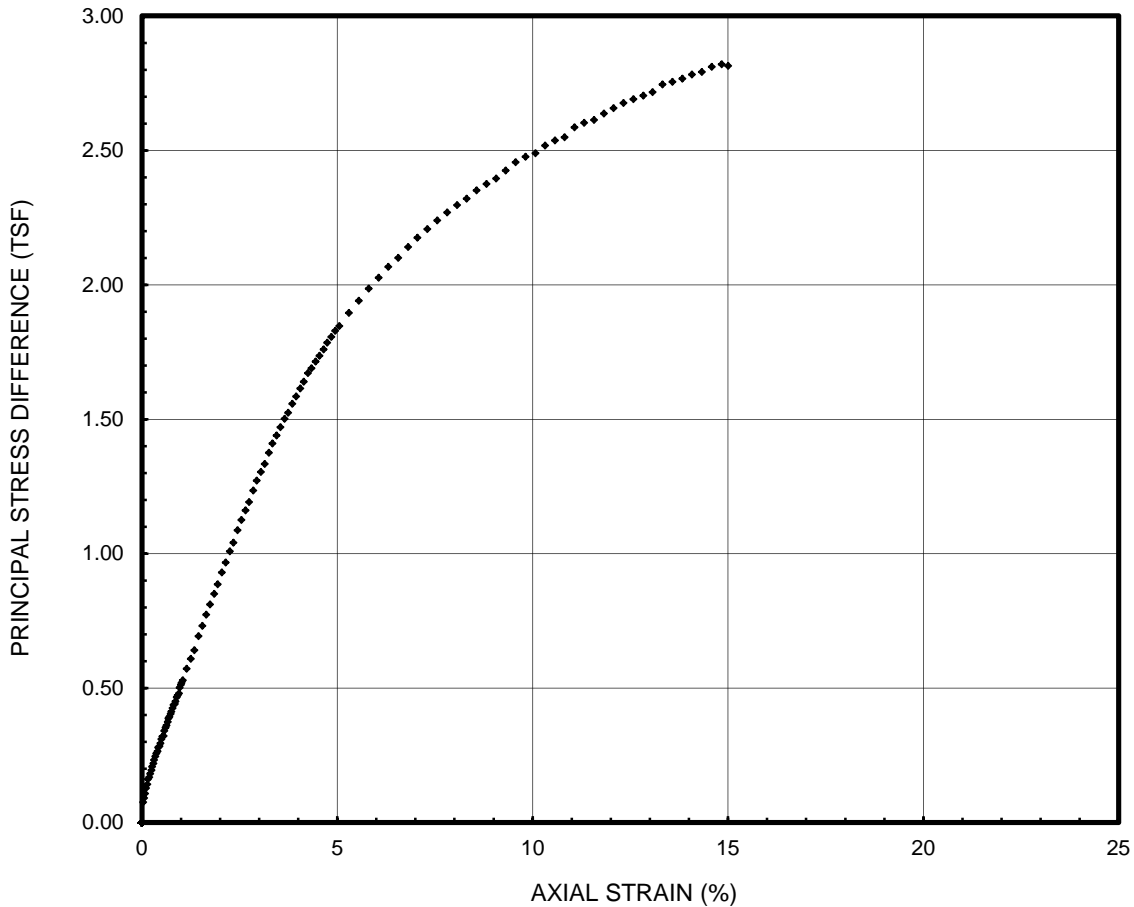


<b>Initial Height</b>	2.802	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.401	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	55.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.098	ton/ft <sup>2</sup>
<b>Water Content</b>	75.8	%	<b>Strain at Peak Stress</b>	2.62	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Diagonal Plane	

<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-66</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08  
**Depth** 38-40 ft  
**Description** Gray CLAYEY SAND (SC)

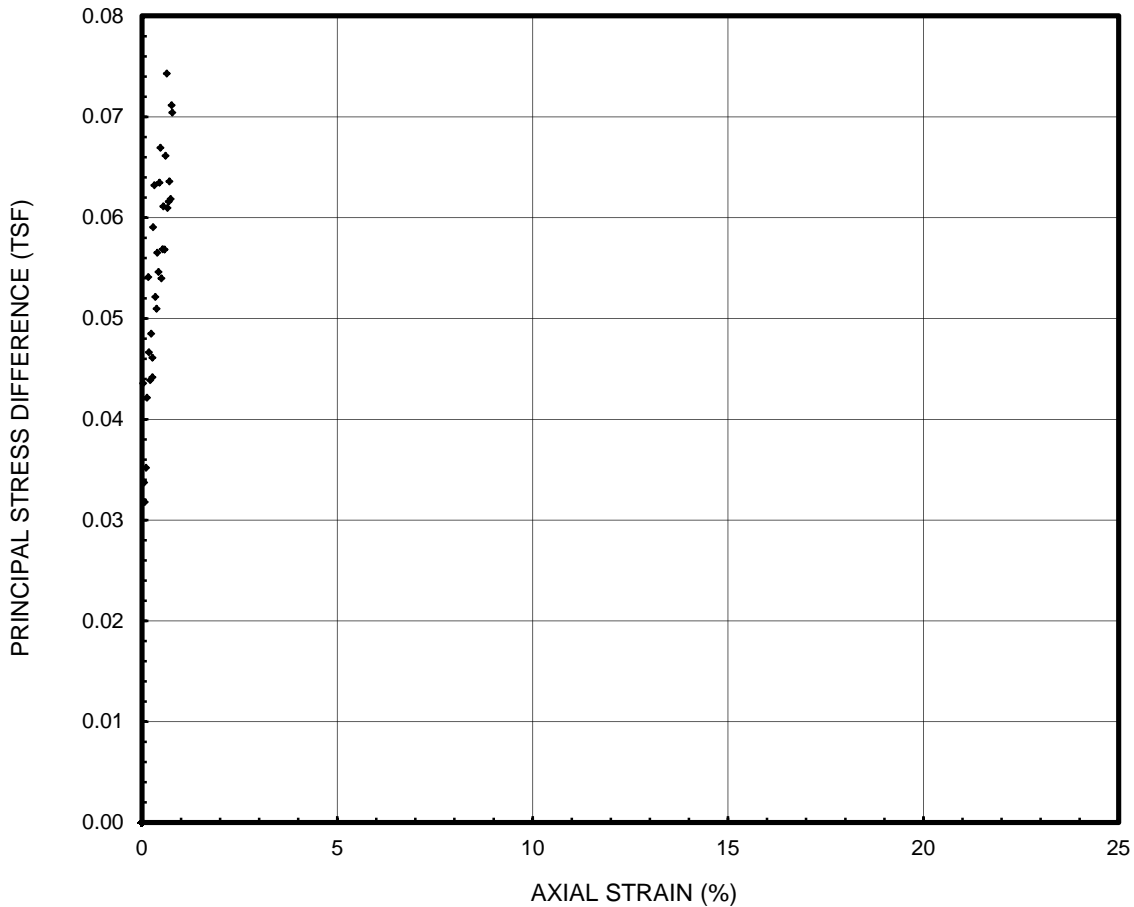


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.405	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	112.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.821	ton/ft <sup>2</sup>
<b>Water Content</b>	18.9	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-67</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08 (BL-1)  
**Depth** 18-20 ft  
**Description** Gray CLAY (CH) with shells



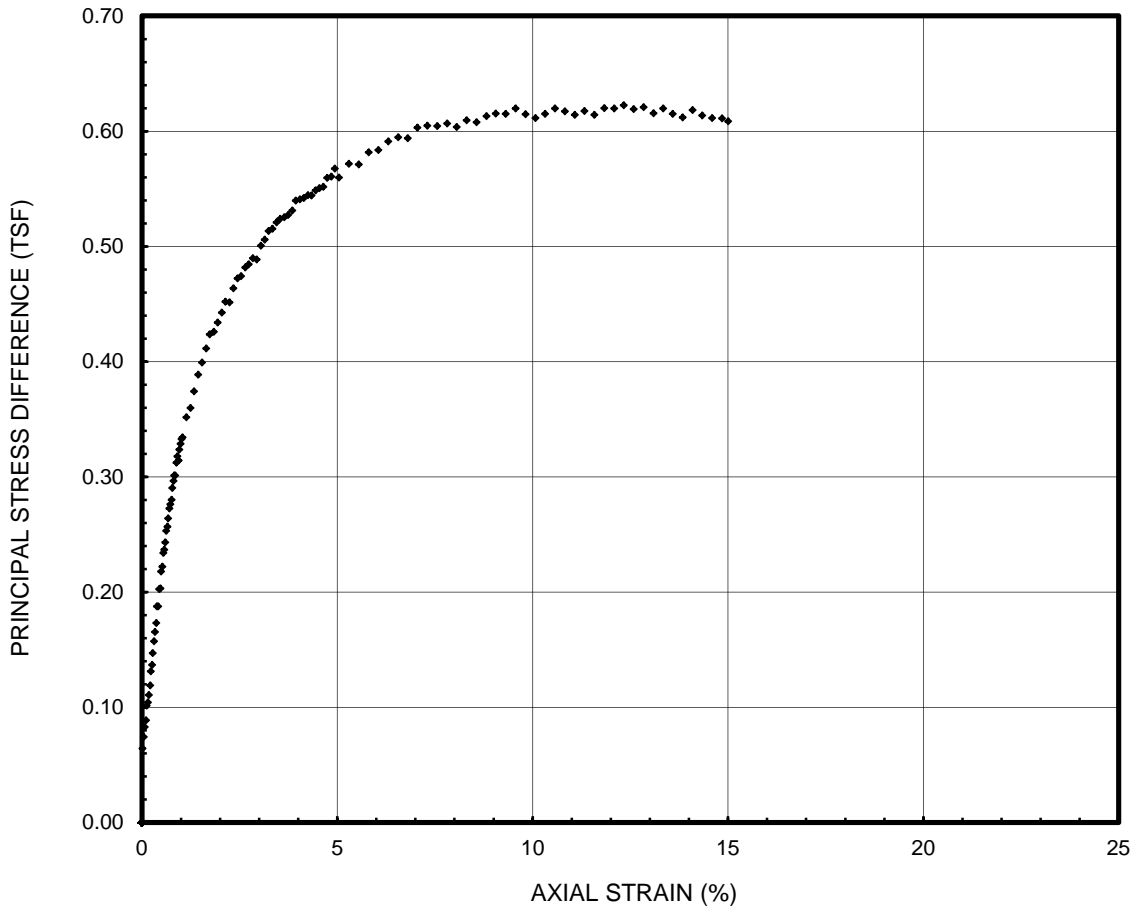
<b>Initial Height</b>	2.808	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.379	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.074	ton/ft <sup>2</sup>
<b>Water Content</b>	81.6	%	<b>Strain at Peak Stress</b>	0.63	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-68</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08 (BL-1)  
**Depth** 28-30 ft  
**Description** Gray and tan SILTY CLAY (CL)

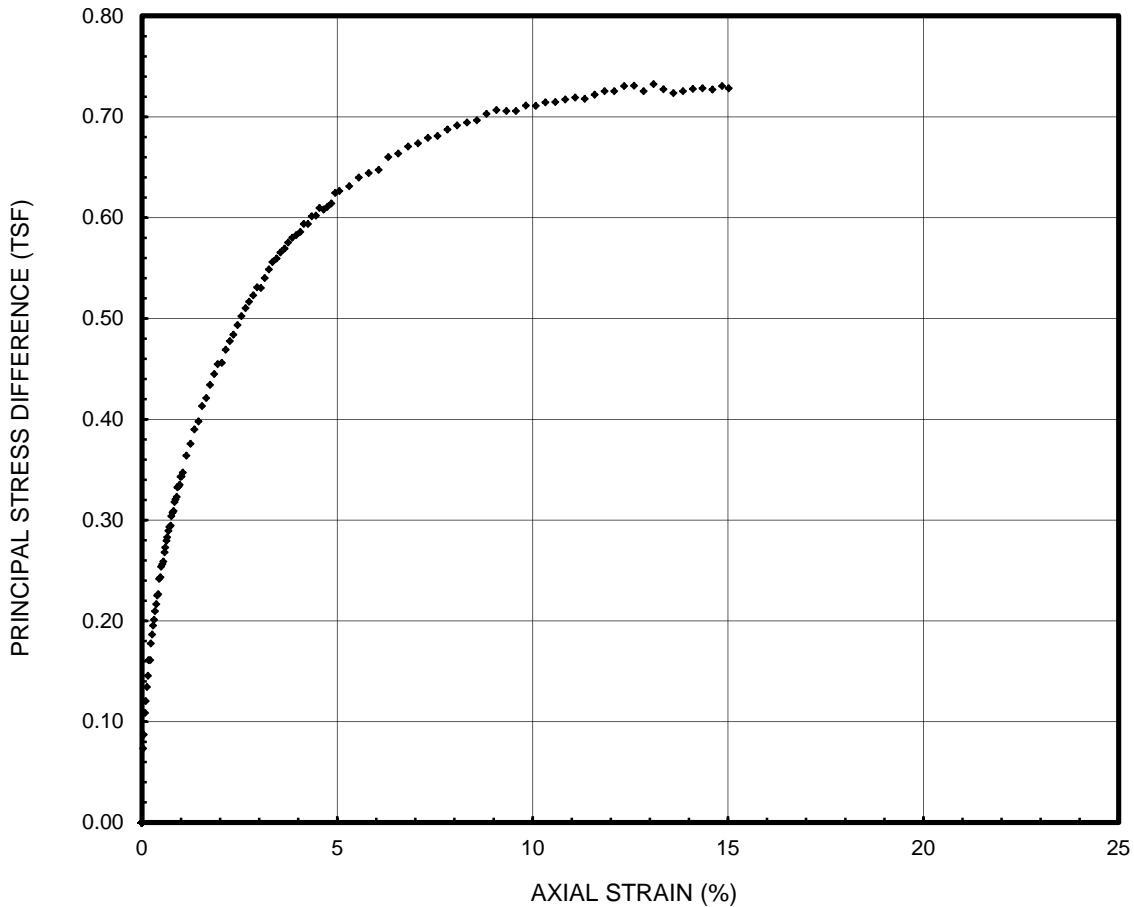


<b>Initial Height</b>	2.789	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.380	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	102.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.623	ton/ft <sup>2</sup>
<b>Water Content</b>	24.9	%	<b>Strain at Peak Stress</b>	12.34	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-69</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-08 (BL-2)  
**Depth** 23-25 ft  
**Description** Gray and tan SILTY CLAY (CL)

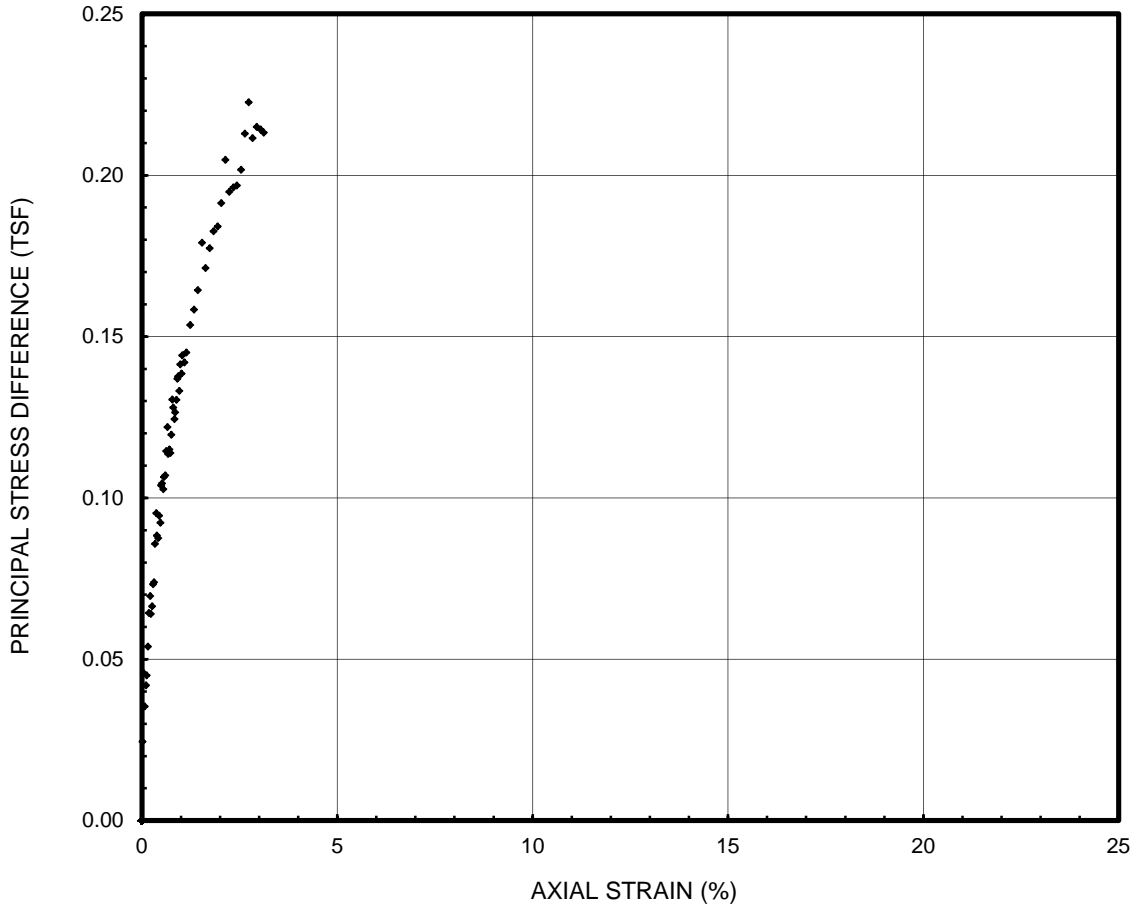


<b>Initial Height</b>	2.795	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.377	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	98.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.732	ton/ft <sup>2</sup>
<b>Water Content</b>	27.2	%	<b>Strain at Peak Stress</b>	13.09	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Bulging	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>13-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-70</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 0-2 ft  
**Description** Gray CLAY (CH) w/ silt

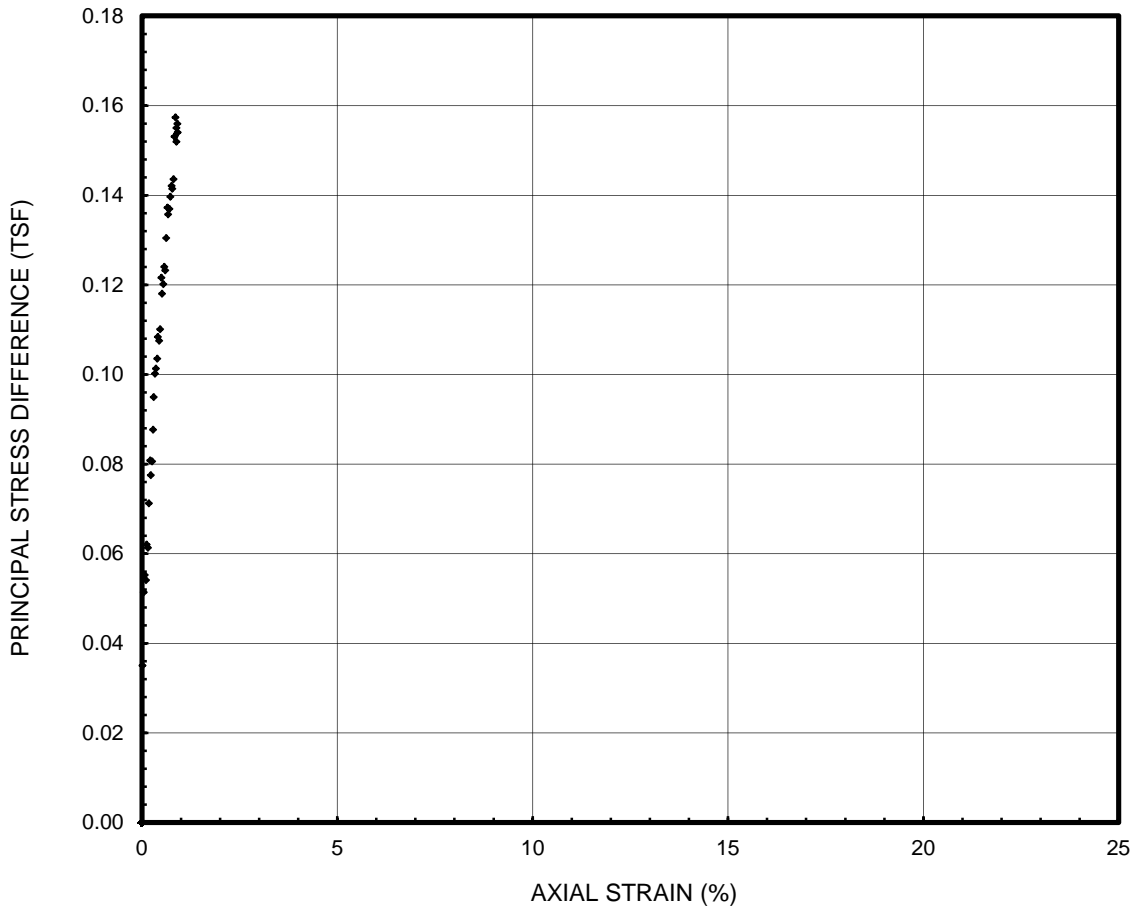


<b>Initial Height</b>	2.798	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.401	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	60.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.223	ton/ft <sup>2</sup>
<b>Water Content</b>	65.4	%	<b>Strain at Peak Stress</b>	2.74	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Combination	


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-71</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH) w/ silt

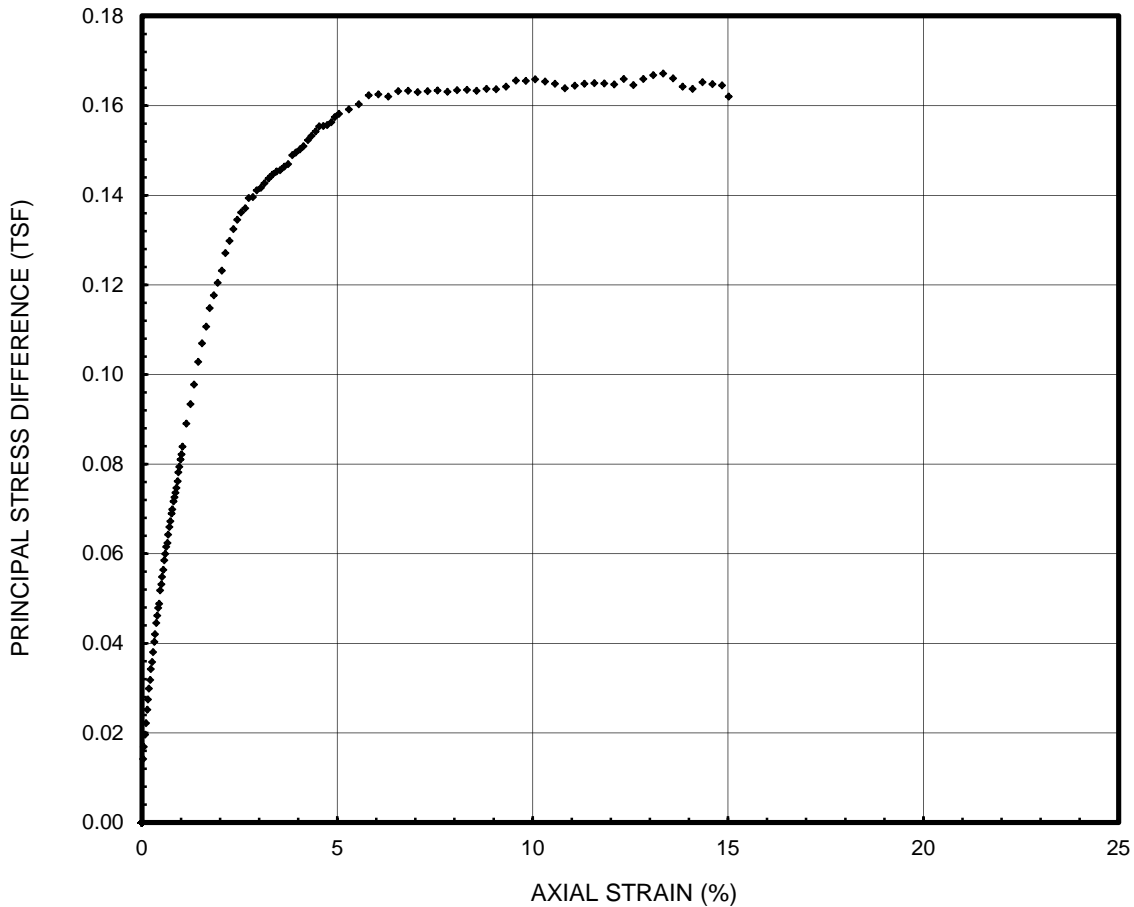


<b>Initial Height</b>	2.793	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.350	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.157	ton/ft <sup>2</sup>
<b>Water Content</b>	87.3	%	<b>Strain at Peak Stress</b>	0.86	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-72</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ silt and shells

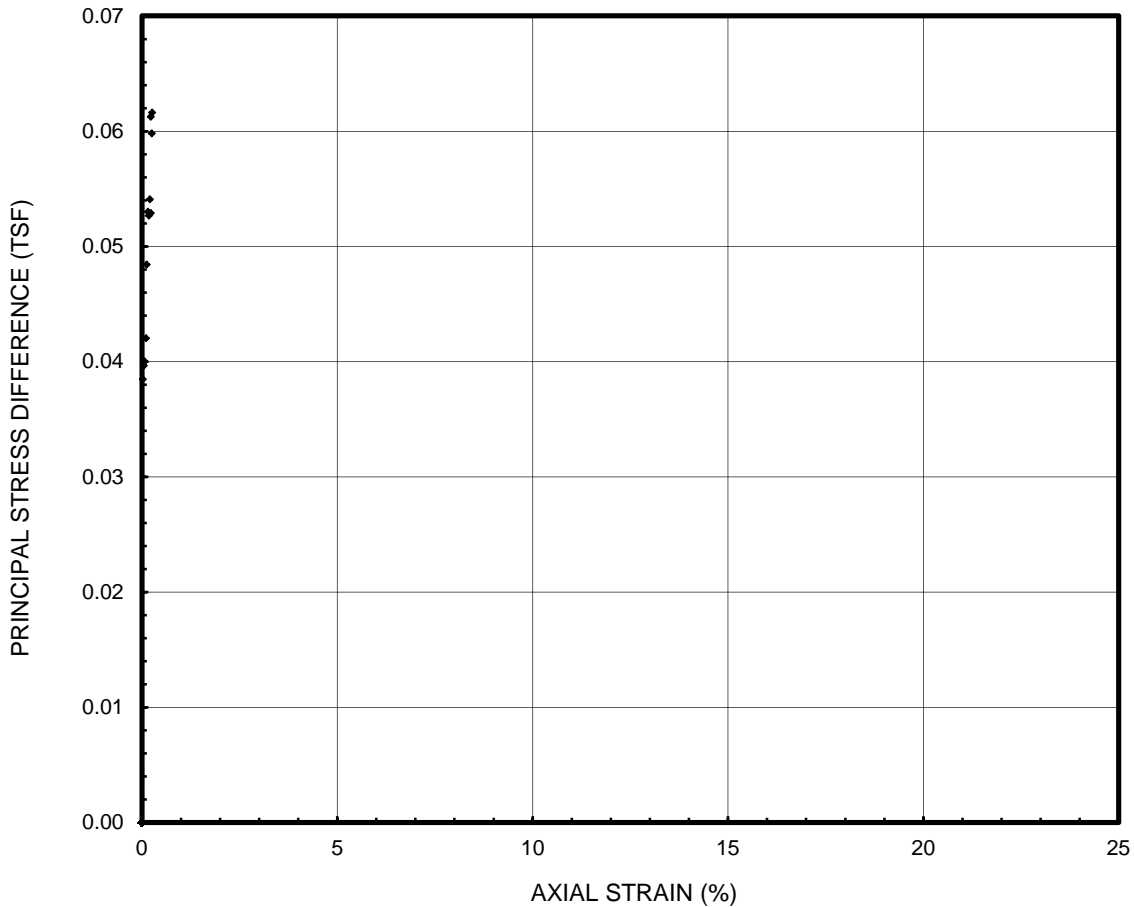


<b>Initial Height</b>	5.808	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.809	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	55.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.167	ton/ft <sup>2</sup>
<b>Water Content</b>	76.9	%	<b>Strain at Peak Stress</b>	13.34	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Other	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-73</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH) w/ silt and shells

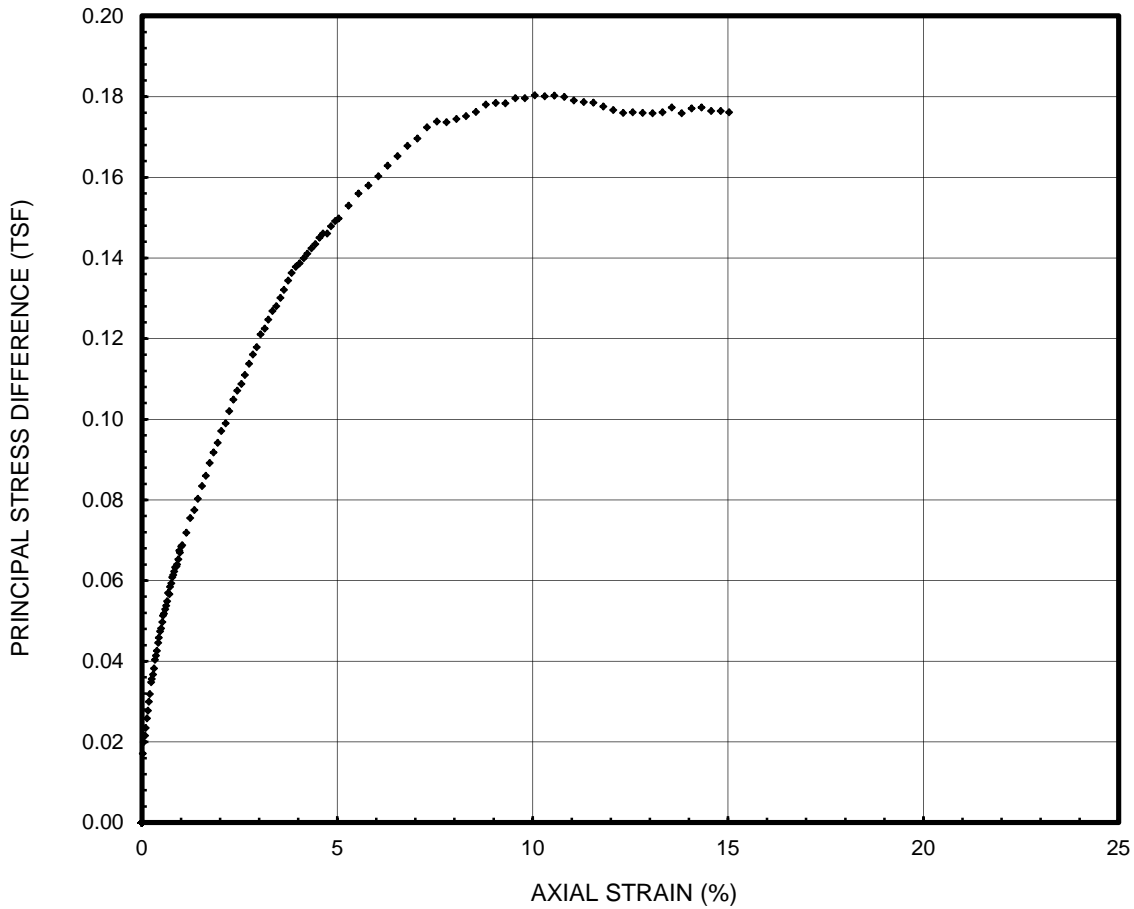


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.351	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.062	ton/ft <sup>2</sup>
<b>Water Content</b>	80.1	%	<b>Strain at Peak Stress</b>	0.26	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>03-18-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-74</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH) w/ silt

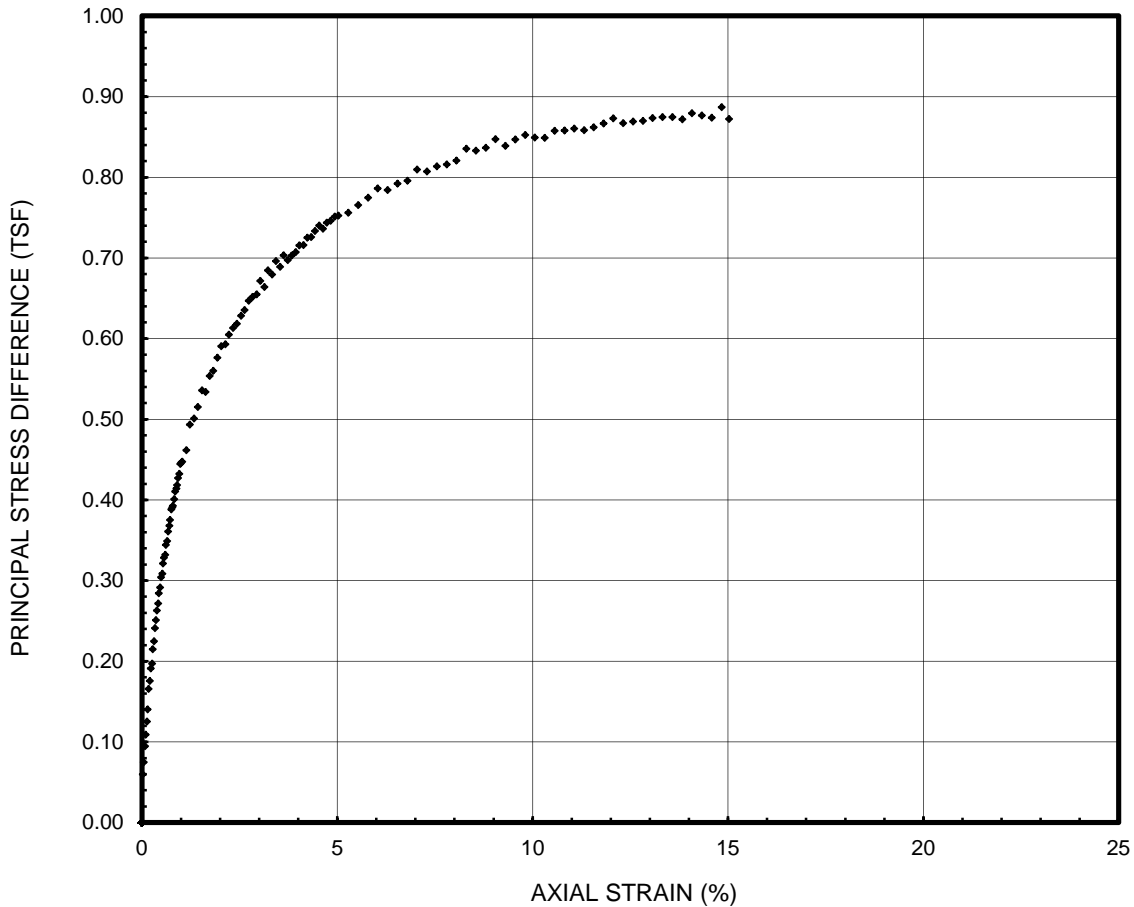


<b>Initial Height</b>	5.804	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.802	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.180	ton/ft <sup>2</sup>
<b>Water Content</b>	82.1	%	<b>Strain at Peak Stress</b>	10.05	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: 12-80-3741	APPROVED BY: MGB	FIGURE: D-75

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL) w/ sand



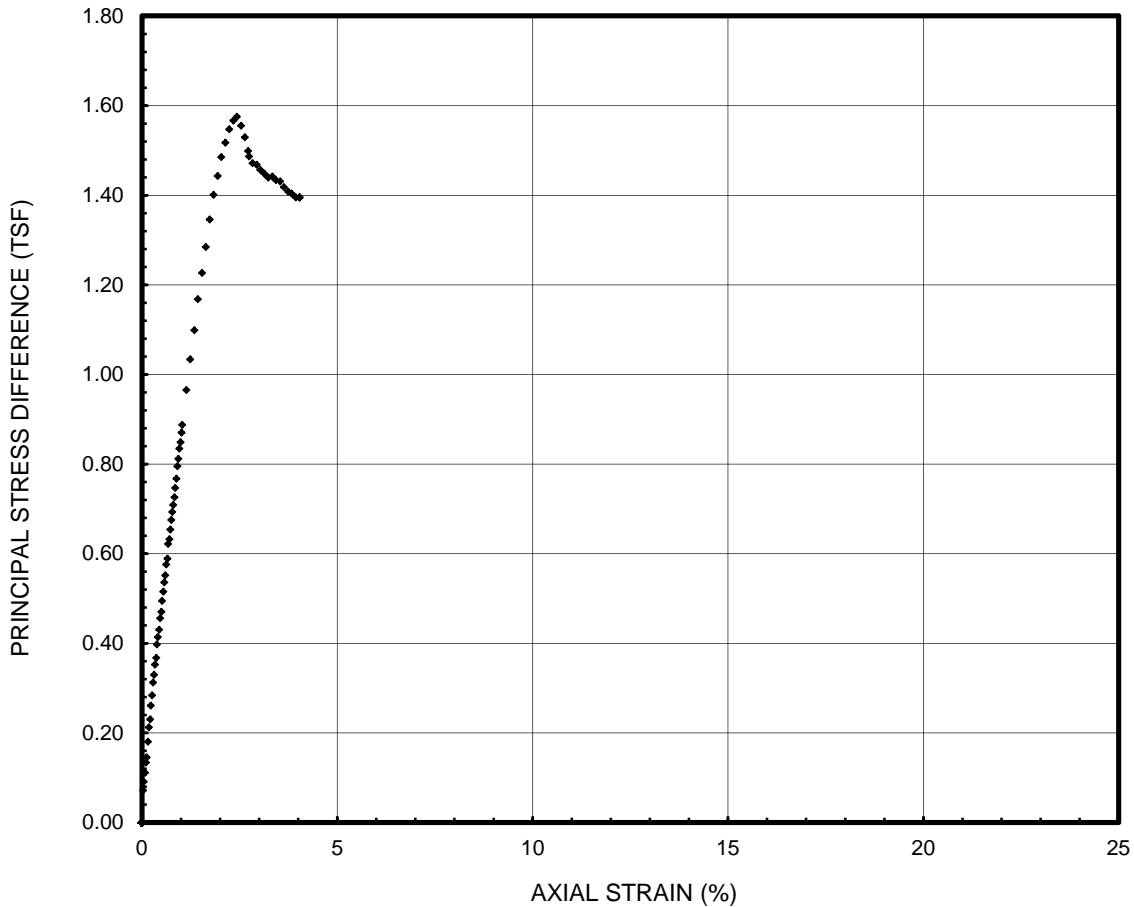
<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.403	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	103.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.887	ton/ft <sup>2</sup>
<b>Water Content</b>	22.9	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-76</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09 (BL-1)  
**Depth** 33-35 ft  
**Description** Tan and gray SILTY CLAY (CL)

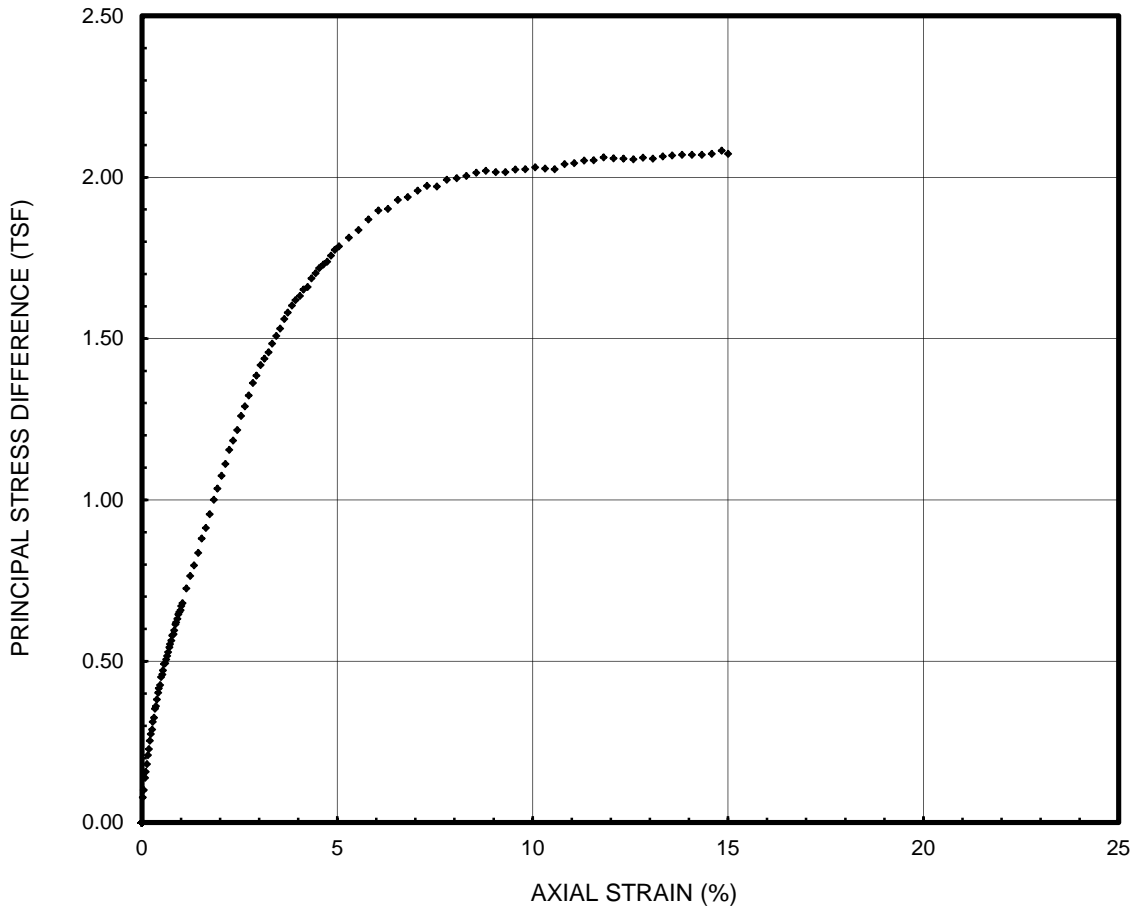


<b>Initial Height</b>	2.807	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.408	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	85.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.575	ton/ft <sup>2</sup>
<b>Water Content</b>	35.6	%	<b>Strain at Peak Stress</b>	2.43	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-77</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-09 (BL-2)  
**Depth** 23-25 ft  
**Description** Tan and gray SILTY CLAY (CL)

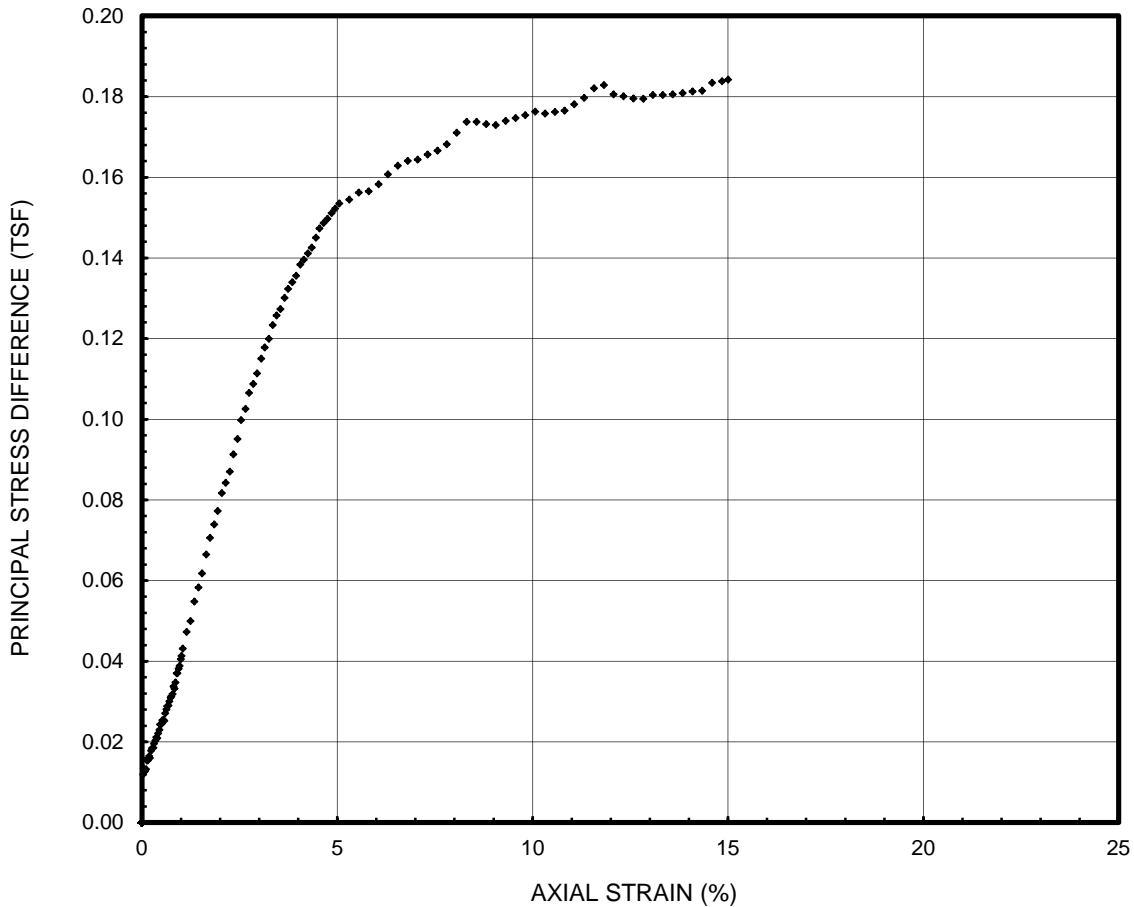


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.373	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	109.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.083	ton/ft <sup>2</sup>
<b>Water Content</b>	20.0	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-78</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)

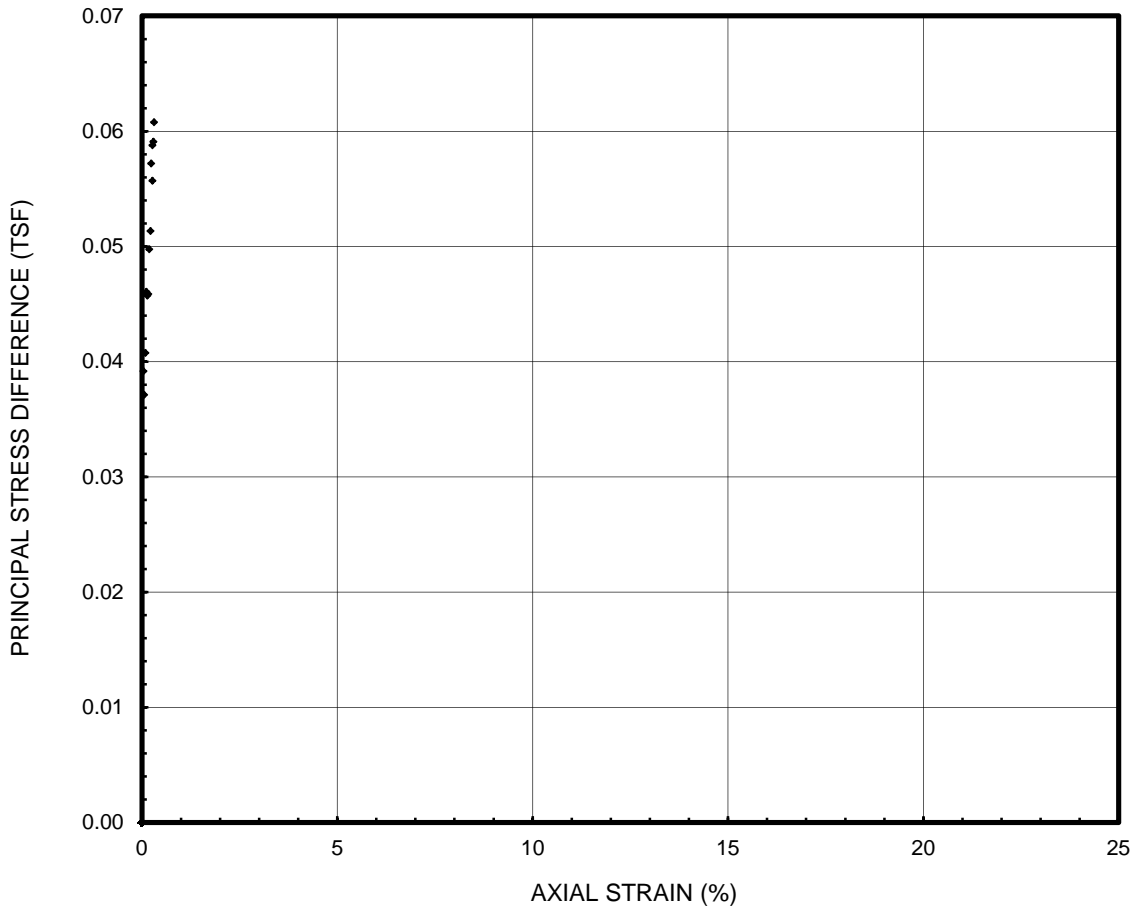


<b>Initial Height</b>	5.710	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.806	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.184	ton/ft <sup>2</sup>
<b>Water Content</b>	84.7	%	<b>Strain at Peak Stress</b>	15.00	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-79</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ shells

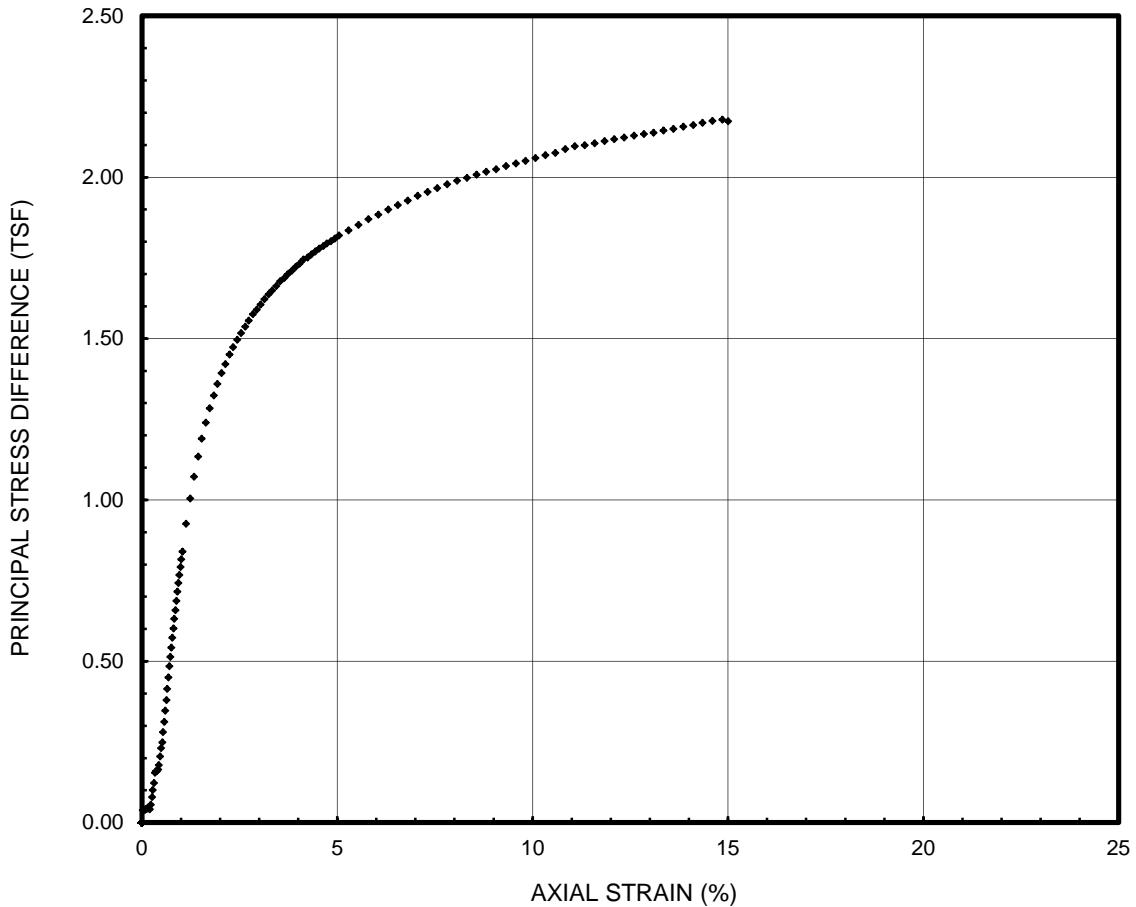


<b>Initial Height</b>	2.803	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.356	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	56.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.061	ton/ft <sup>2</sup>
<b>Water Content</b>	74.6	%	<b>Strain at Peak Stress</b>	0.31	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-80</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10  
**Depth** 33-35 ft  
**Description** Tan and gray CLAY (CH) w/ sand

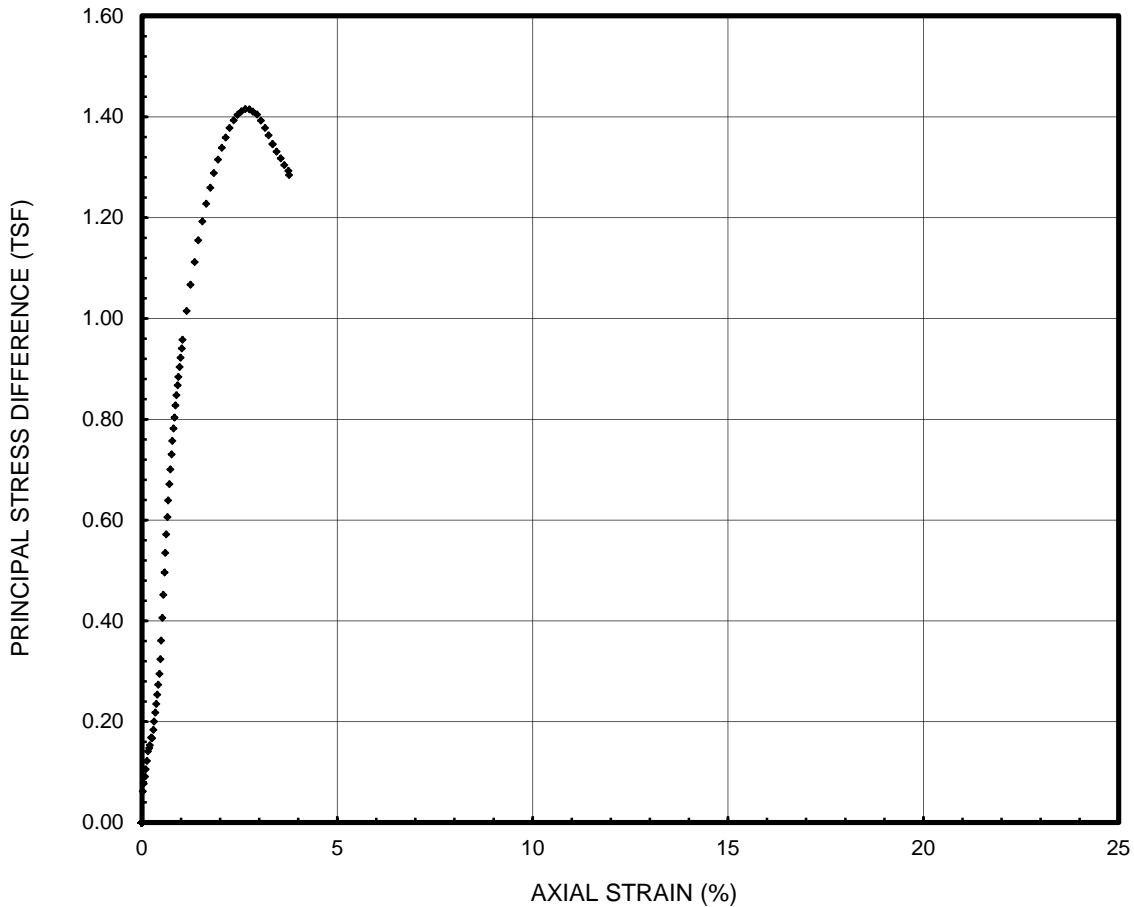


<b>Initial Height</b>	5.746	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.857	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	106.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.178	ton/ft <sup>2</sup>
<b>Water Content</b>	21.4	%	<b>Strain at Peak Stress</b>	14.86	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-81</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10  
**Depth** 53-55 ft  
**Description** Brown and gray CLAY (CH) w/ silt layers

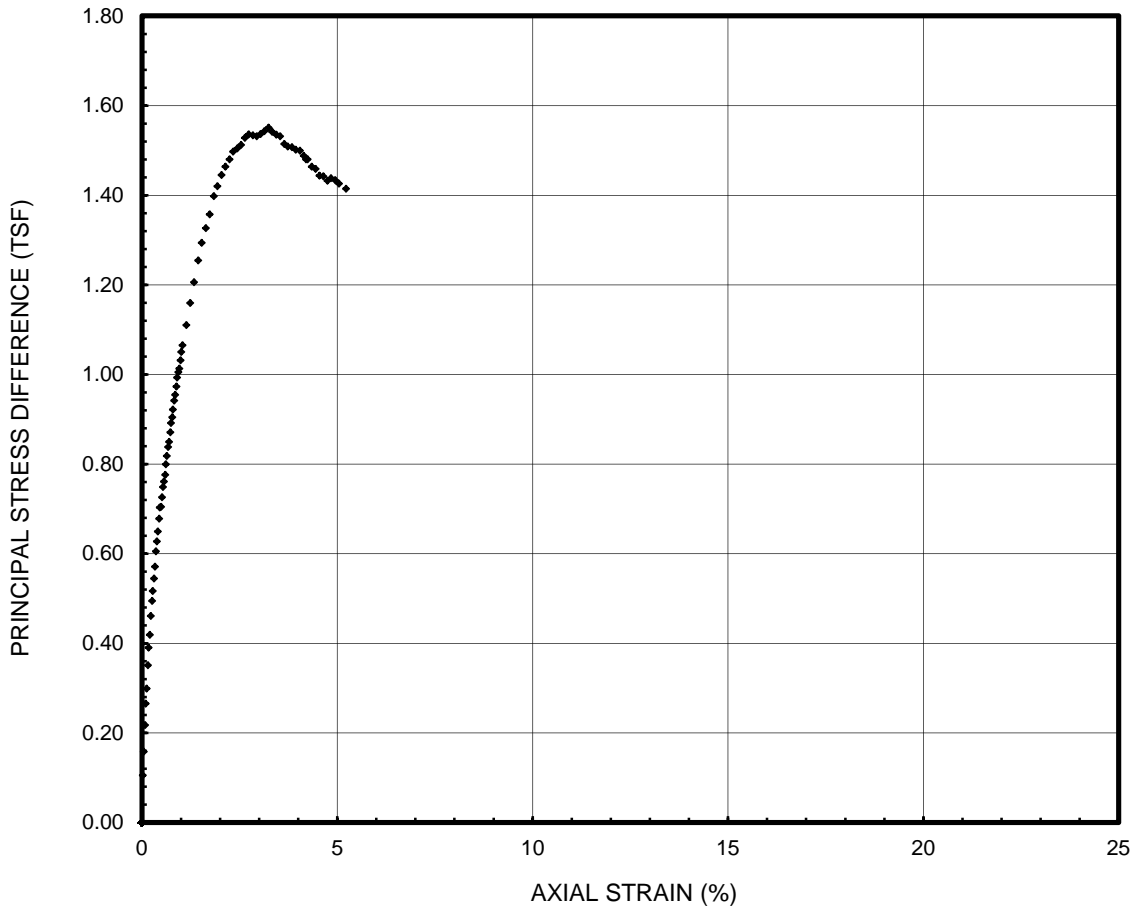


<b>Initial Height</b> 5.772 in	<b>Cell Pressure</b> 22.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 2.847 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 71.1 lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.415 ton/ft <sup>2</sup>
<b>Water Content</b> 49.7 %	<b>Strain at Peak Stress</b> 2.64 %
<b>Saturation</b> 99 %	<b>Failure Type</b> Diagonal Plane

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-82</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10  
**Depth** 58-60 ft  
**Description** Brown and gray CLAY (CH) w/ silt layers

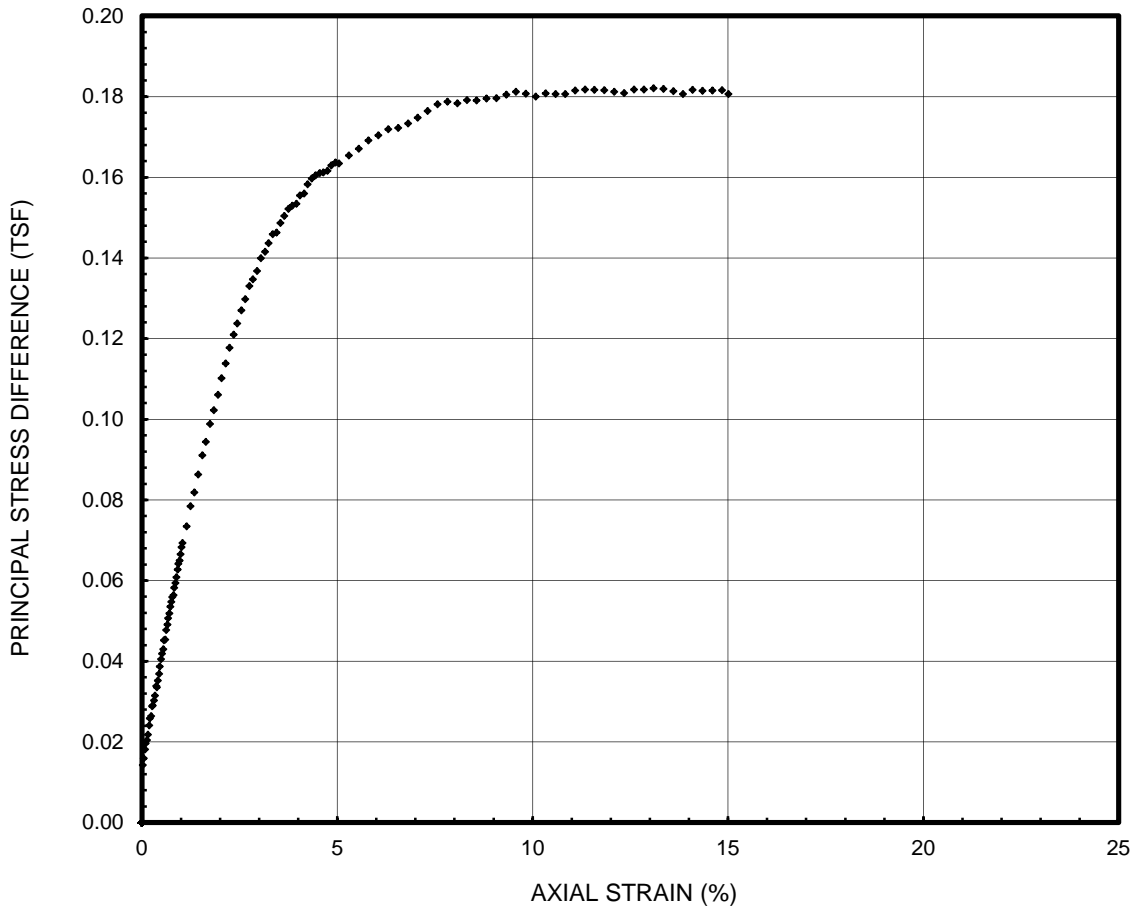


<b>Initial Height</b>	2.816	in	<b>Cell Pressure</b>	24.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.379	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	83.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.551	ton/ft <sup>2</sup>
<b>Water Content</b>	36.4	%	<b>Strain at Peak Stress</b>	3.24	%
<b>Saturation</b>	98	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-83</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10 (BL-1)  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH)



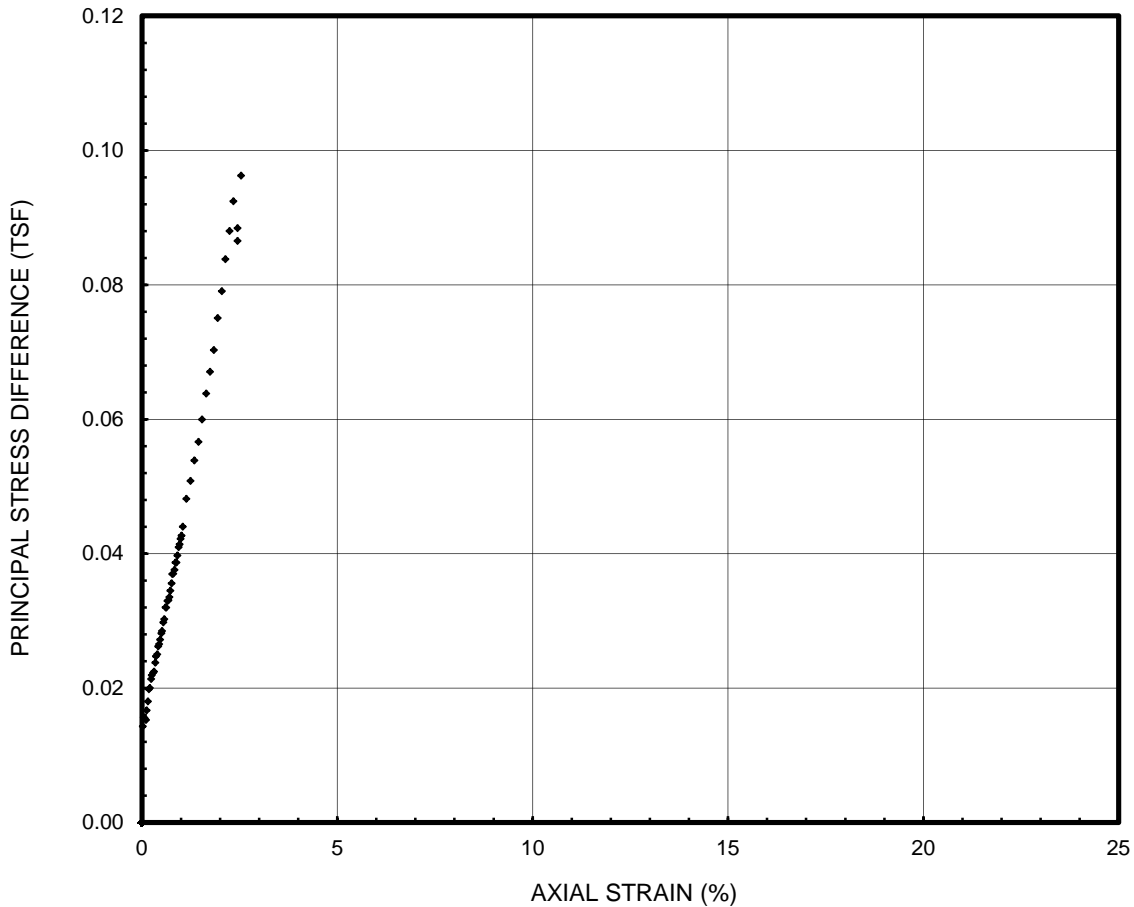
<b>Initial Height</b>	5.740	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.807	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.182	ton/ft <sup>2</sup>
<b>Water Content</b>	86.4	%	<b>Strain at Peak Stress</b>	13.10	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-84</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10 (BL-1)  
**Depth** 16-18 ft  
**Description** Gray CLAY (CH) w/ silt

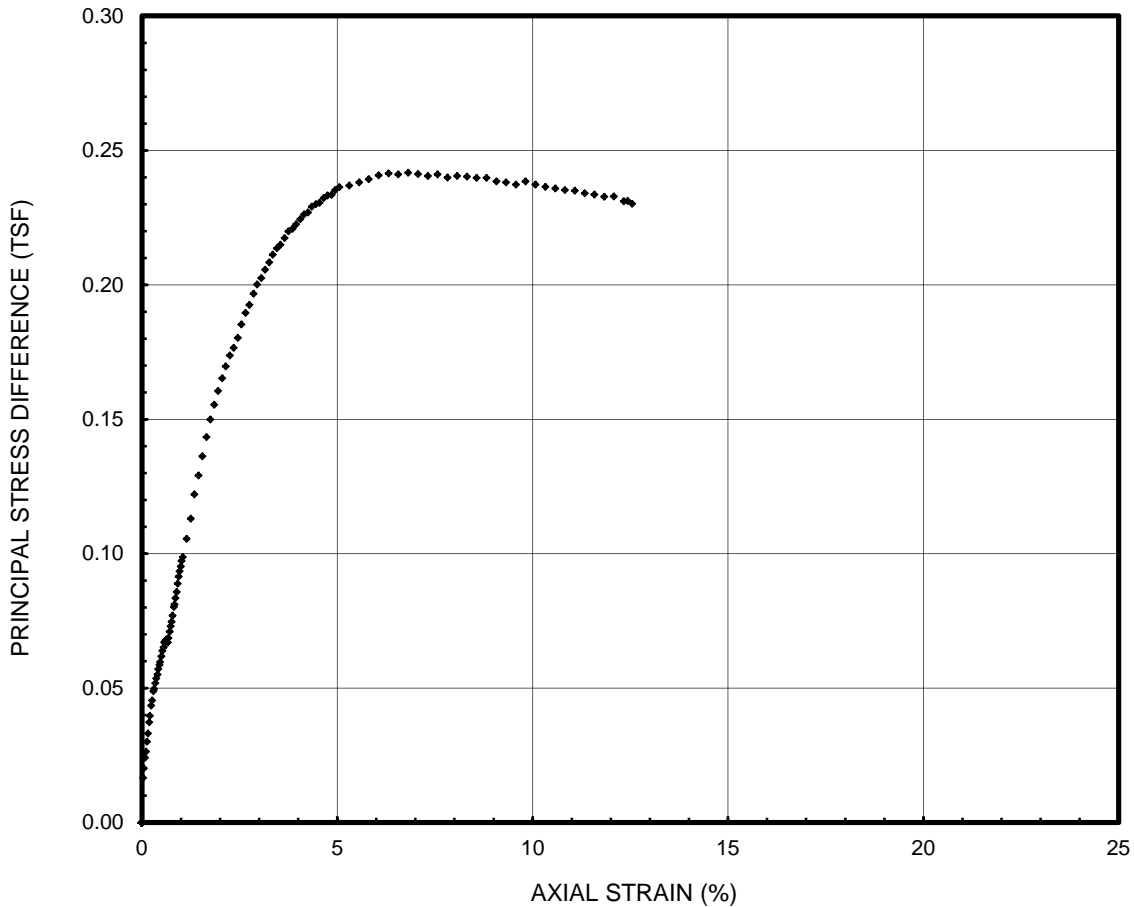


<b>Initial Height</b>	5.693	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.778	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	100.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.096	ton/ft <sup>2</sup>
<b>Water Content</b>	27.1	%	<b>Strain at Peak Stress</b>	2.54	%
<b>Saturation</b>	110	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-85</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10 (BL-2)  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH)

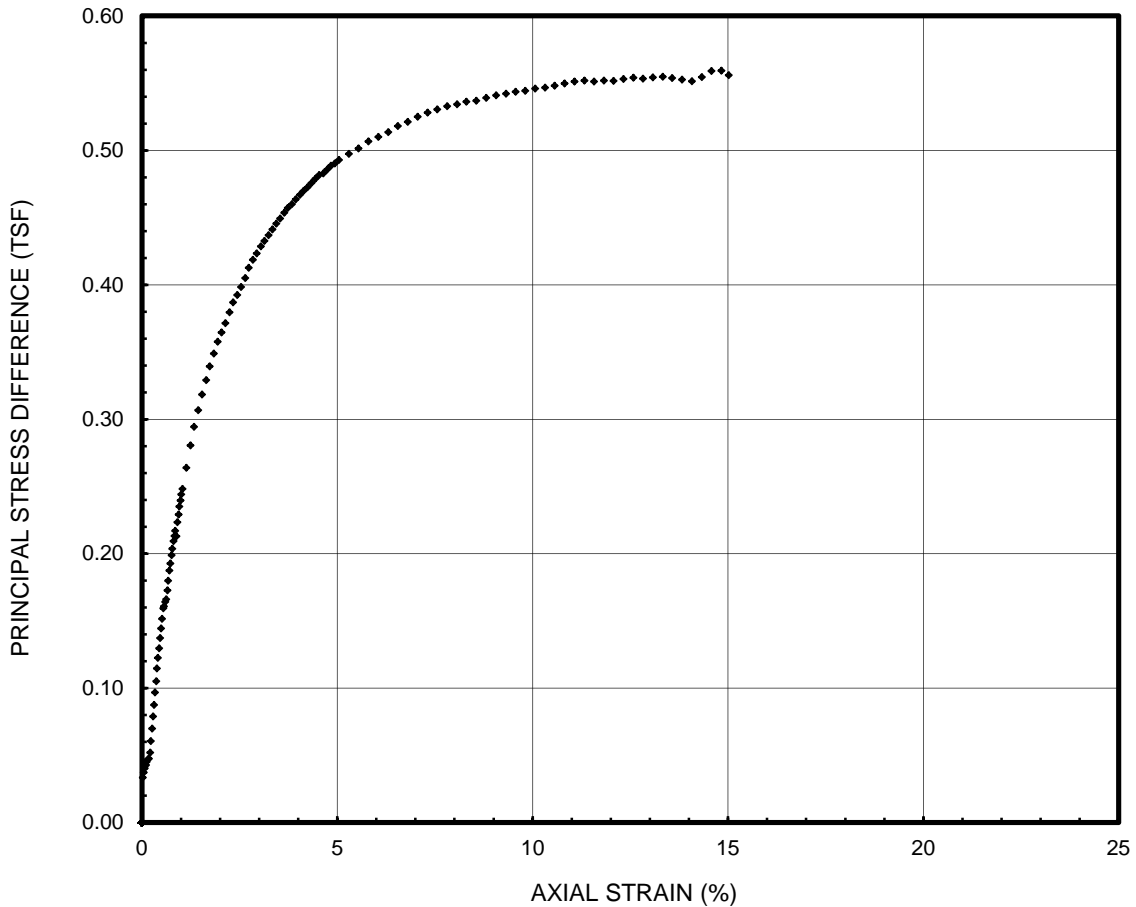


<b>Initial Height</b>	5.734	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.794	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.242	ton/ft <sup>2</sup>
<b>Water Content</b>	89.0	%	<b>Strain at Peak Stress</b>	6.81	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-86</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-10 (BL-2)  
**Depth** 23-25 ft  
**Description** Gray SILTY CLAY (CL)

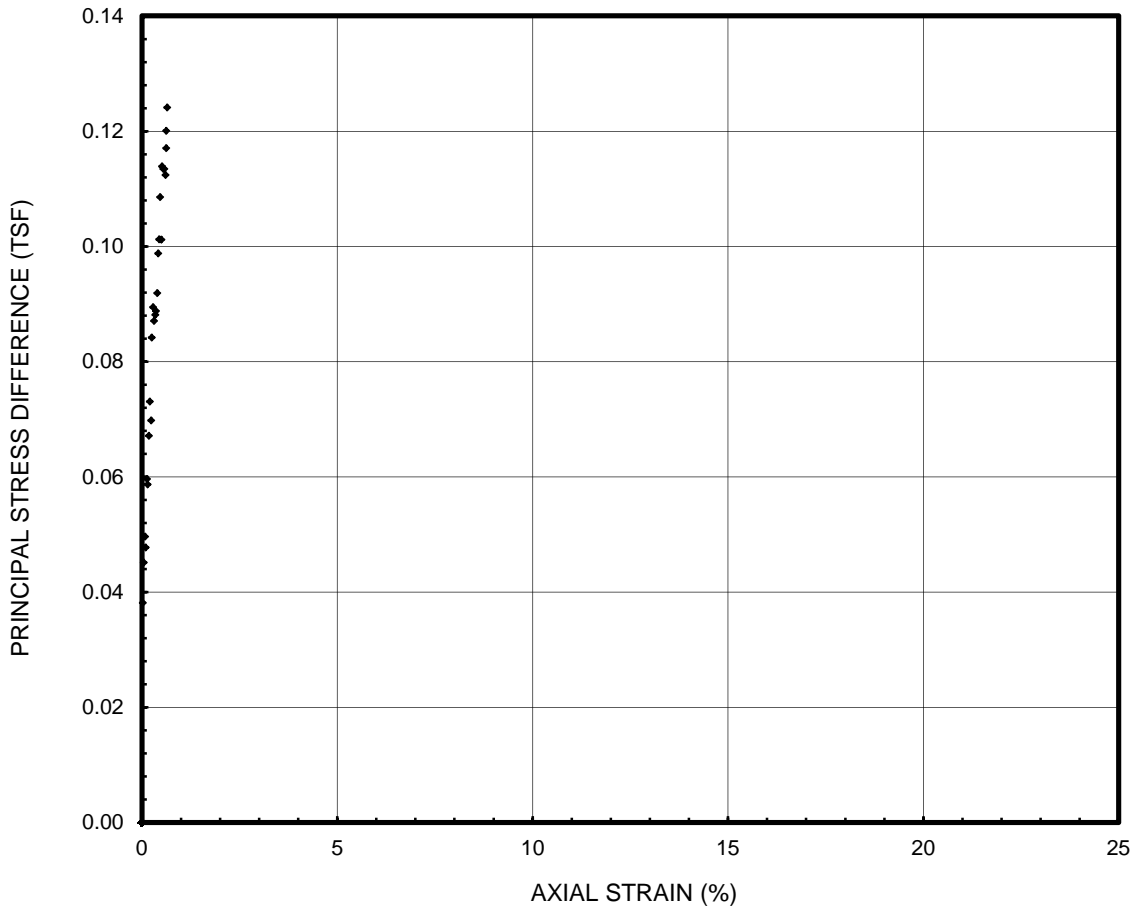


<b>Initial Height</b>	5.732	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.829	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	96.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.559	ton/ft <sup>2</sup>
<b>Water Content</b>	29.2	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-87</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-11  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers

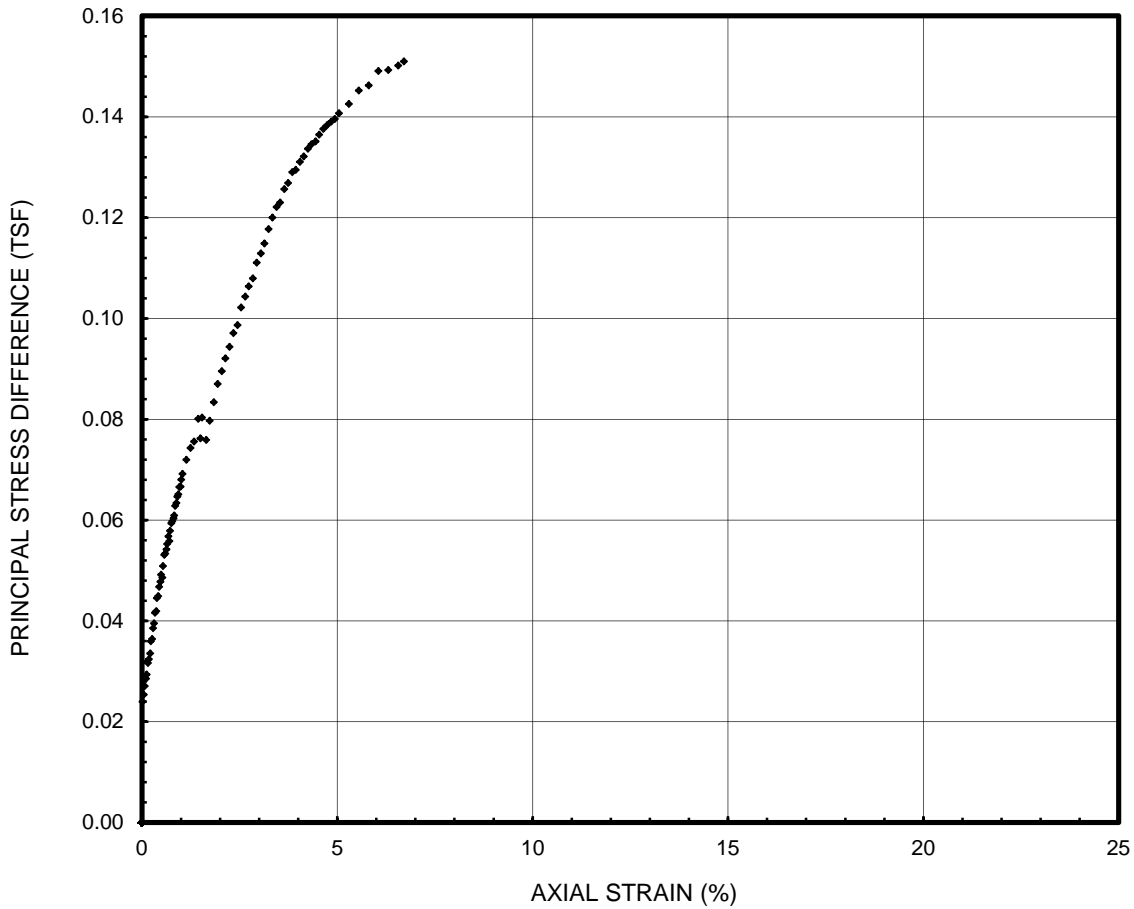


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.342	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	50.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.124	ton/ft <sup>2</sup>
<b>Water Content</b>	87.3	%	<b>Strain at Peak Stress</b>	0.64	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-88</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 13-80-3741  
**Sample Name** B-11  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers

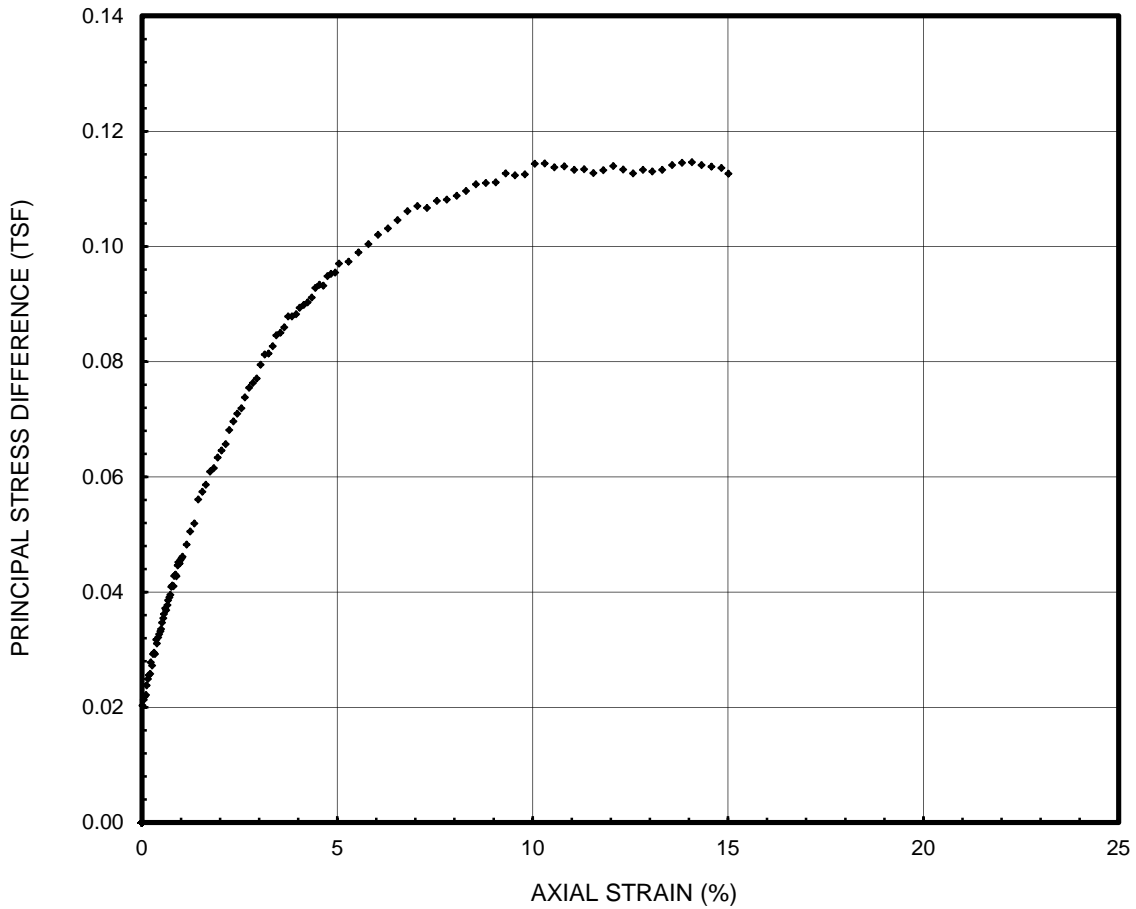


<b>Initial Height</b> 5.790 in	<b>Cell Pressure</b> 5.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 2.811 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 53.6 lb/ft <sup>3</sup>	<b>Peak Stress</b> 0.151 ton/ft <sup>2</sup>
<b>Water Content</b> 82.1 %	<b>Strain at Peak Strain</b> 6.70 %
<b>Saturation</b> 104 %	<b>Failure Type</b> Diagonal Plane


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-89</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-11  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH) w/ silt and sand layers

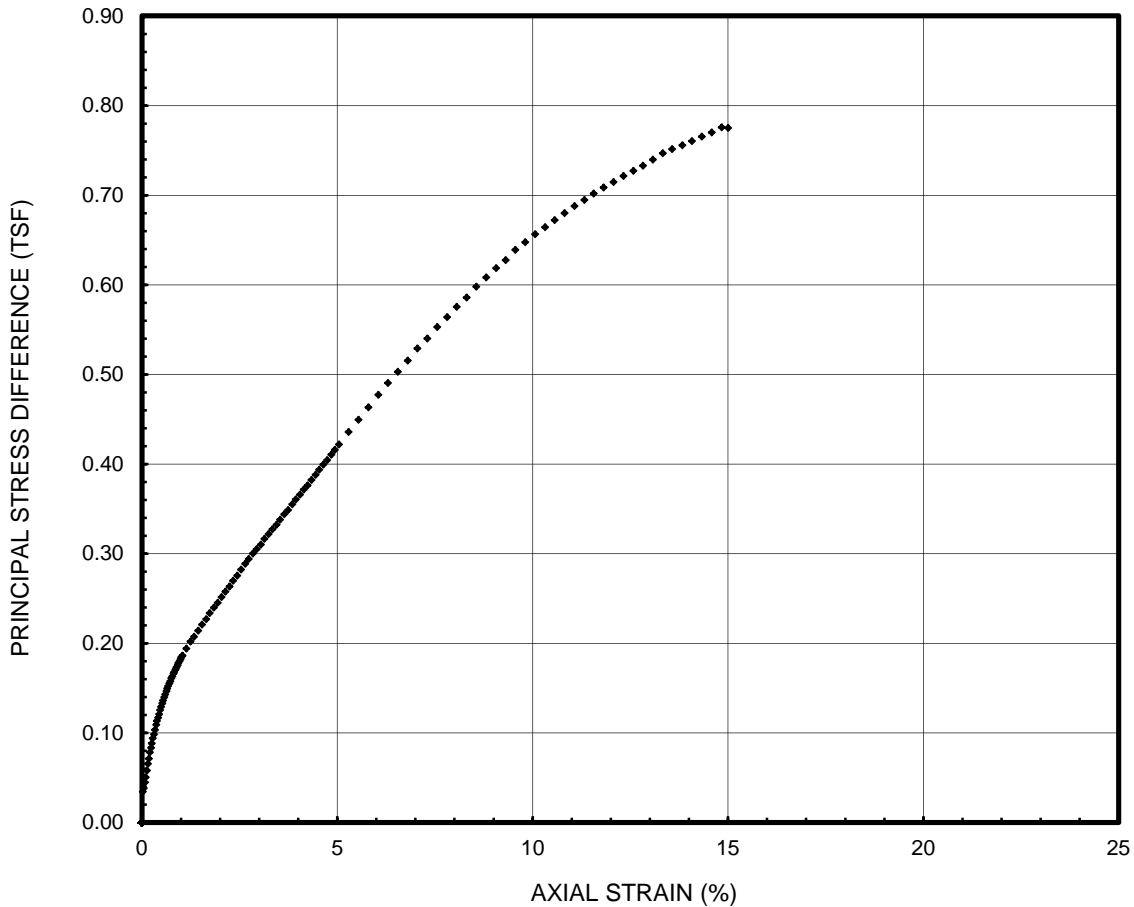


<b>Initial Height</b>	5.778	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.775	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	60.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.115	ton/ft <sup>2</sup>
<b>Water Content</b>	71.4	%	<b>Strain at Peak Stress</b>	14.07	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-90</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-11  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL) w/ sand

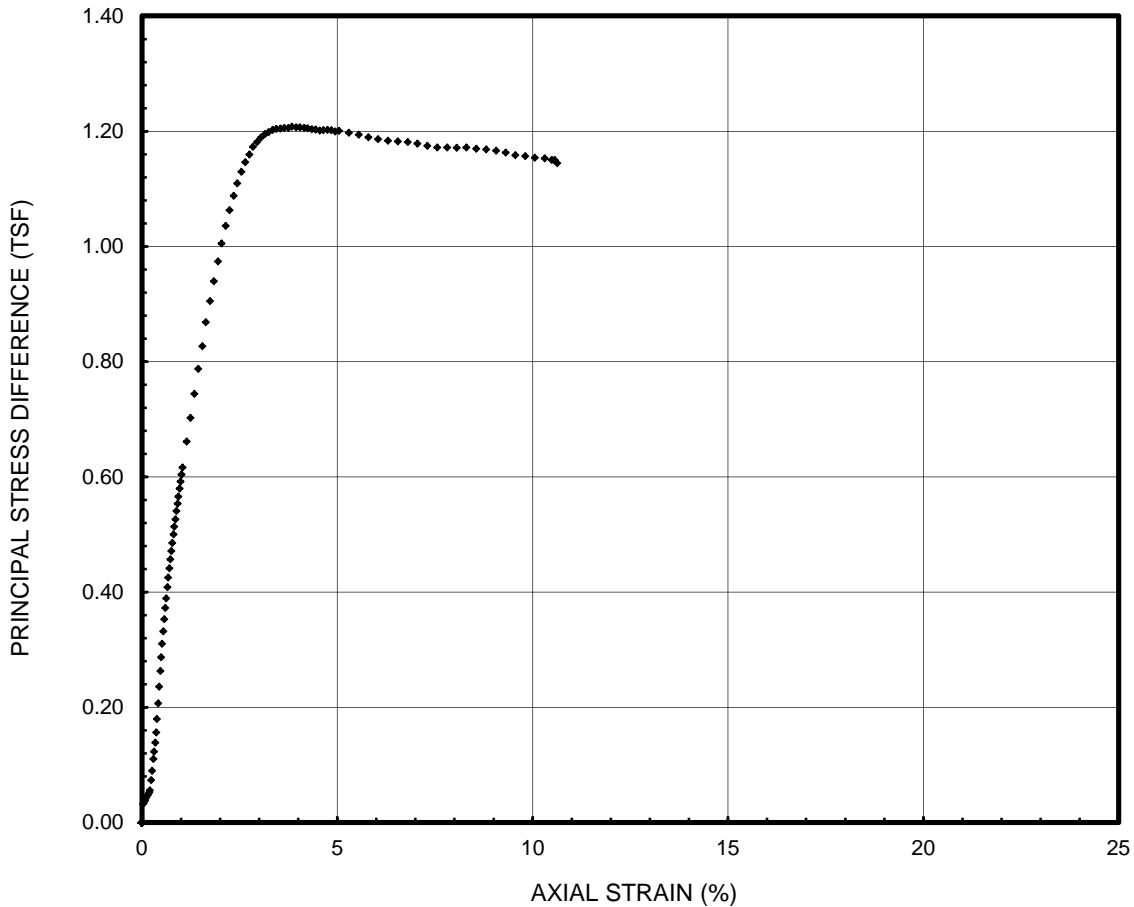


<b>Initial Height</b>	5.809	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.798	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	107.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.776	ton/ft <sup>2</sup>
<b>Water Content</b>	22.5	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-91</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-11  
**Depth**                38-40        ft  
**Description**         Gray SILTY CLAY (CL)



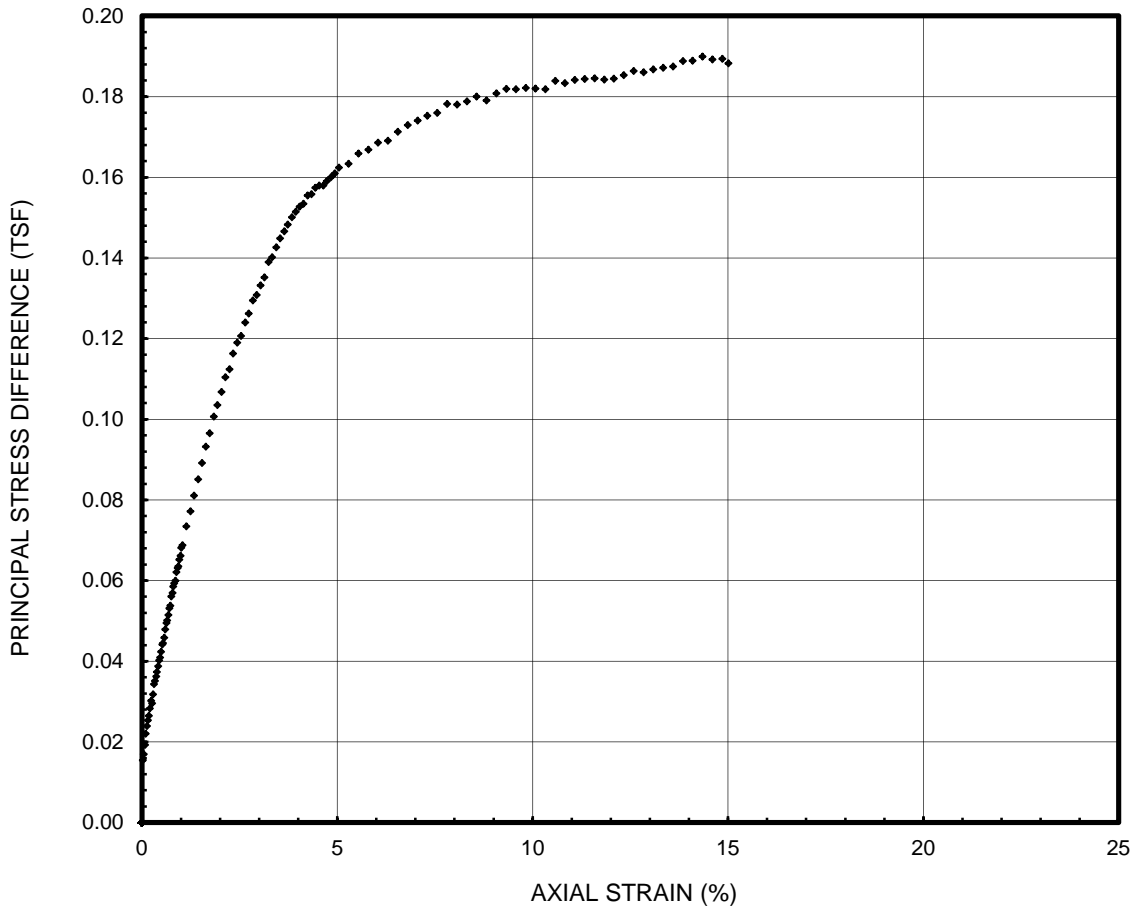
<b>Initial Height</b>	5.809	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.852	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	84.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.208	ton/ft <sup>2</sup>
<b>Water Content</b>	38.3	%	<b>Strain at Peak Stress</b>	3.84	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	

<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-92</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)

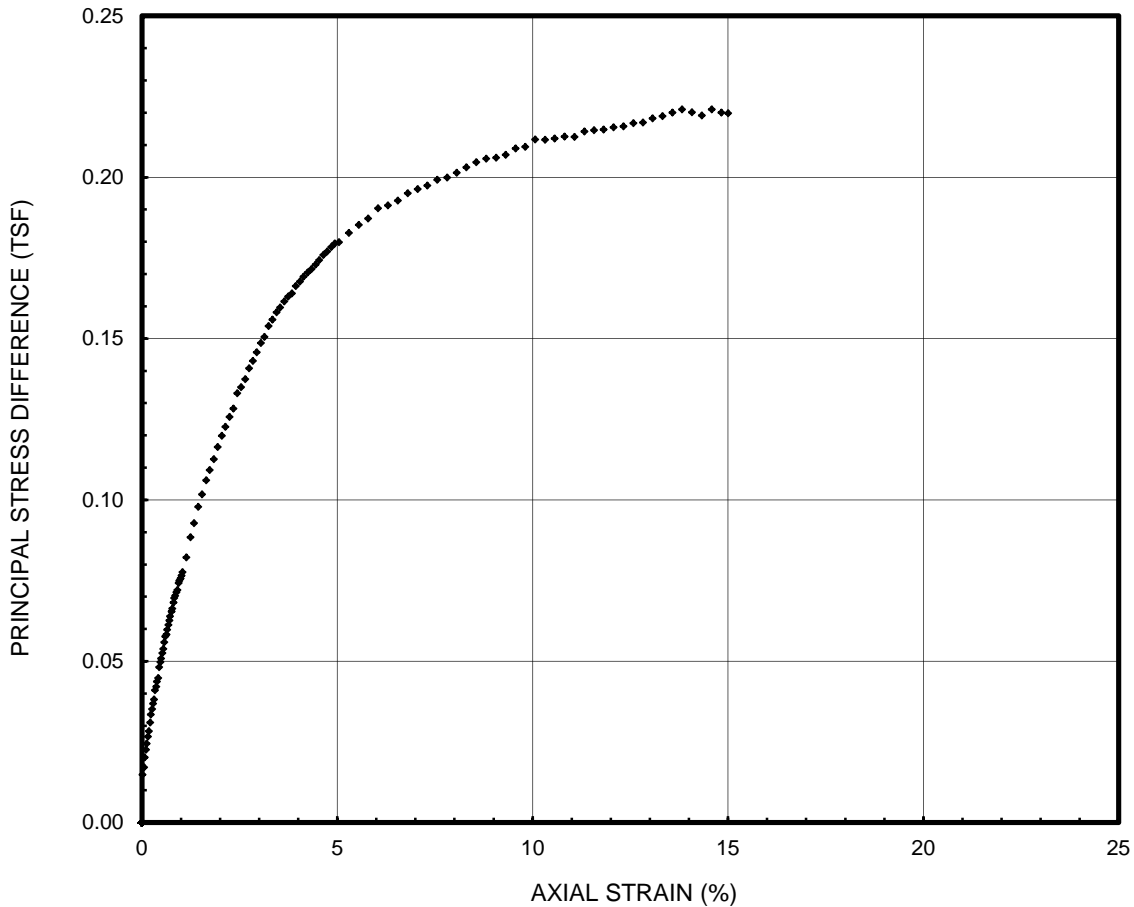


<b>Initial Height</b>	5.789	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.786	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.190	ton/ft <sup>2</sup>
<b>Water Content</b>	85.0	%	<b>Strain at Peak Stress</b>	14.35	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-93</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH)

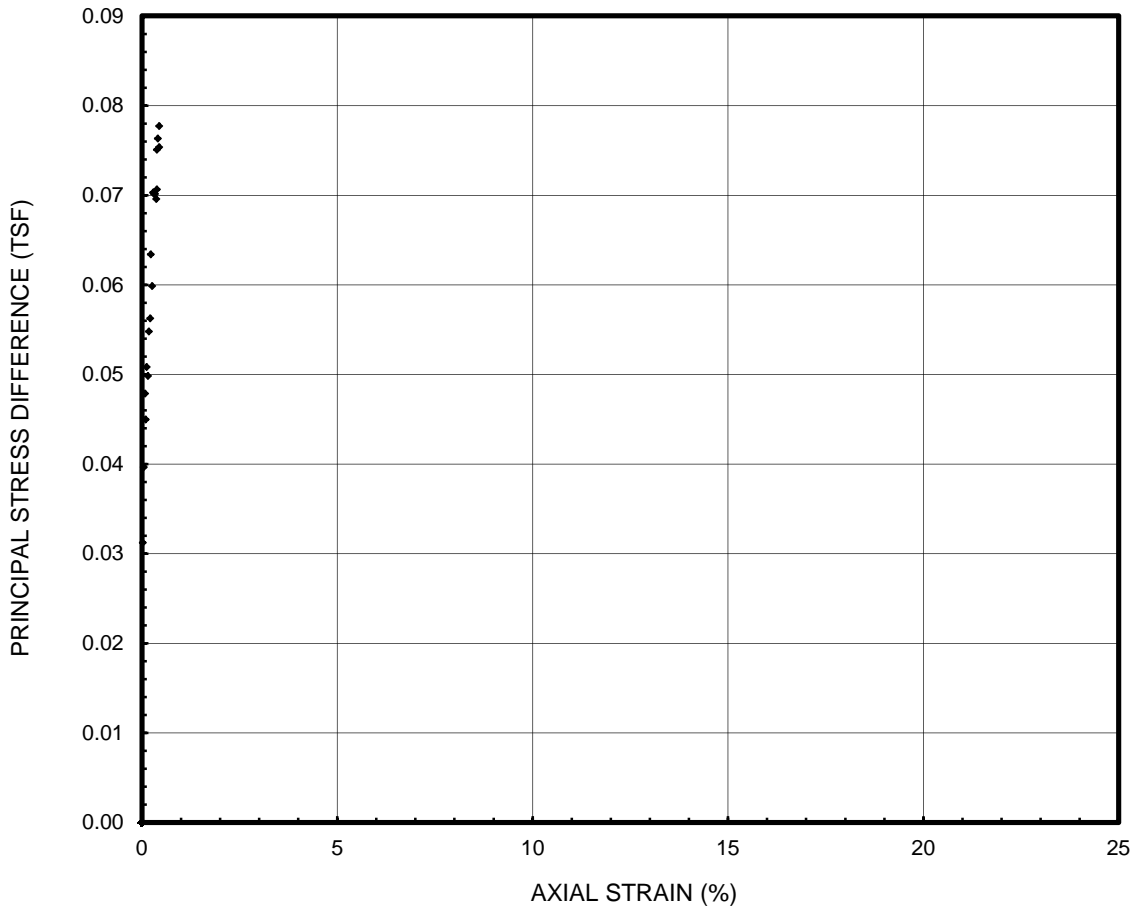


<b>Initial Height</b>	5.802	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.792	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.221	ton/ft <sup>2</sup>
<b>Water Content</b>	74.9	%	<b>Strain at Peak Stress</b>	13.83	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-94</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH)

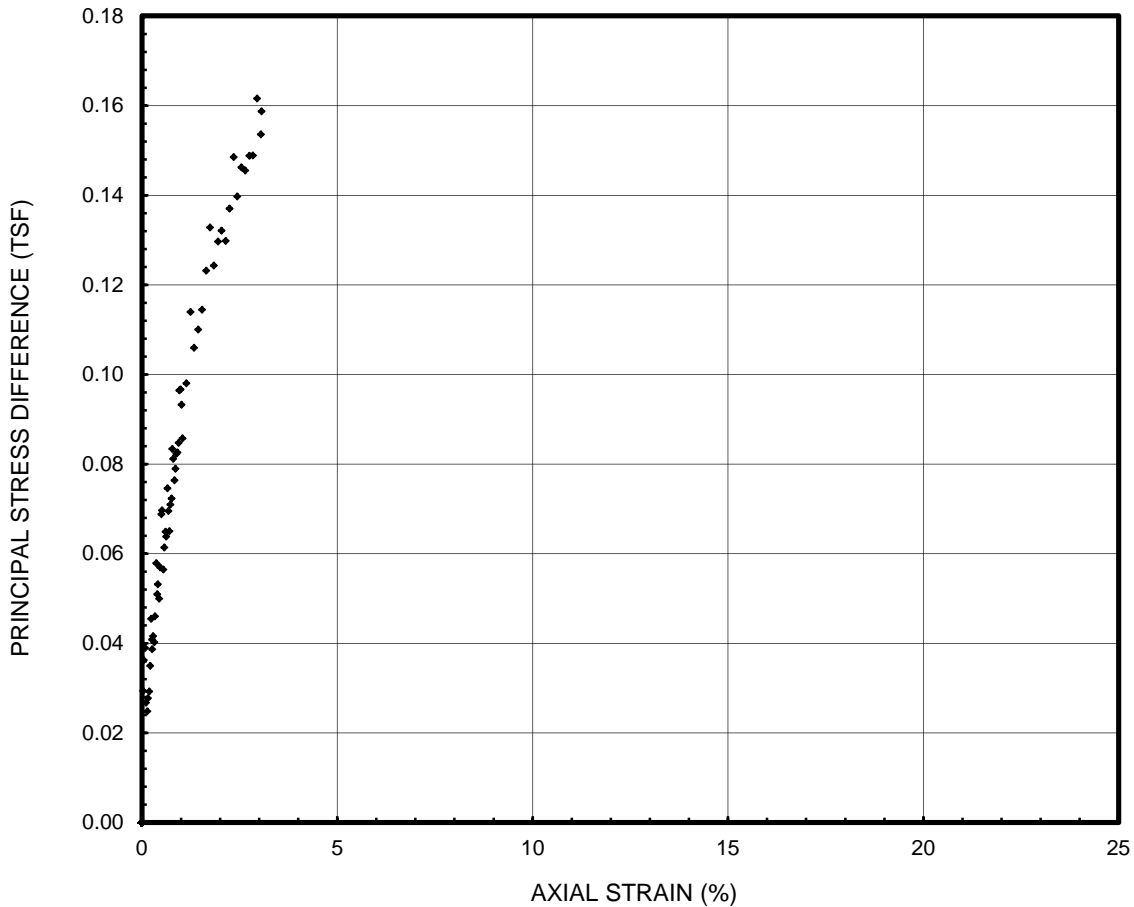


<b>Initial Height</b>	2.795	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.344	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	50.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.078	ton/ft <sup>2</sup>
<b>Water Content</b>	85.3	%	<b>Strain at Peak Stress</b>	0.44	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Bulging	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-95</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ sand layers

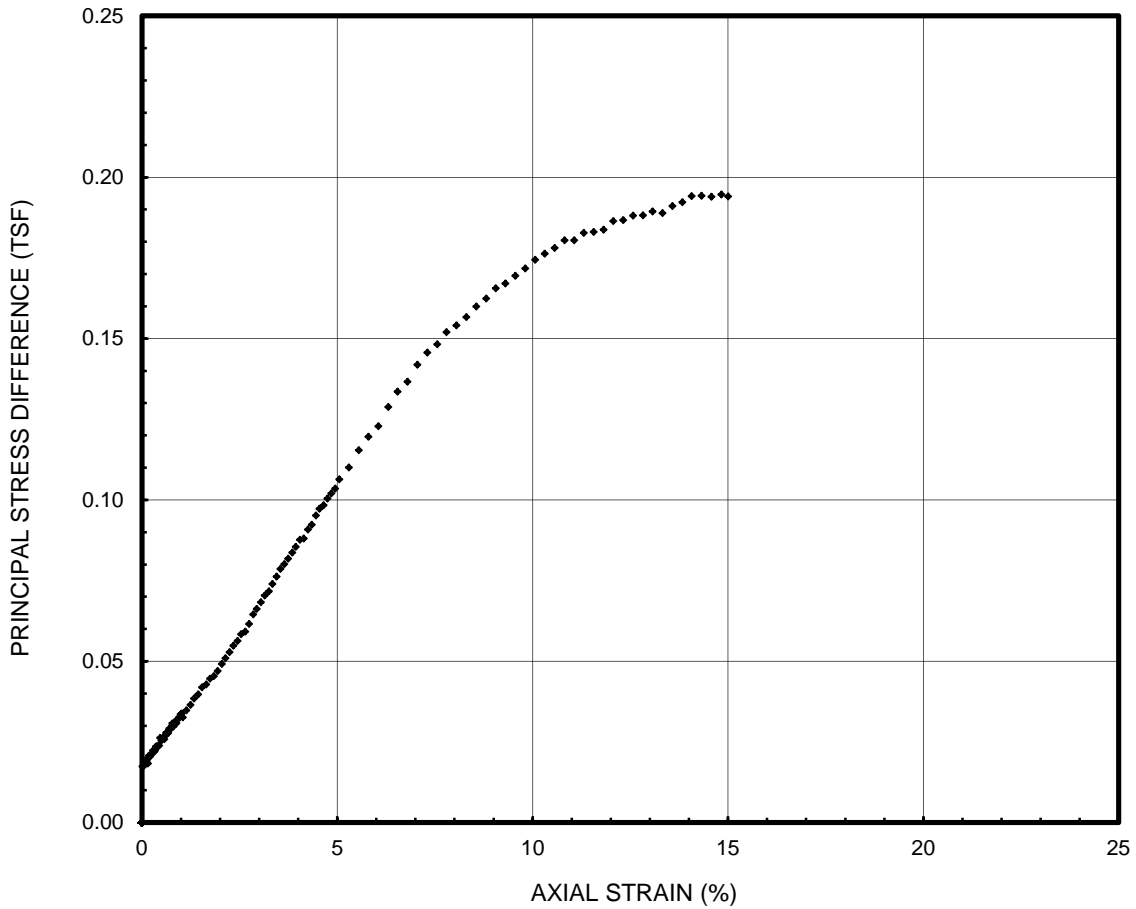


<b>Initial Height</b>	2.806	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.348	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.162	ton/ft <sup>2</sup>
<b>Water Content</b>	74.9	%	<b>Strain at Peak Stress</b>	2.95	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Other	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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RER	DATE:	03-20-13
FILE NO.:	12-80-3741	APPROVED BY:
MGB	FIGURE:	D-96

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 14-16 ft  
**Description** Tan and gray SILTY CLAY (CL)

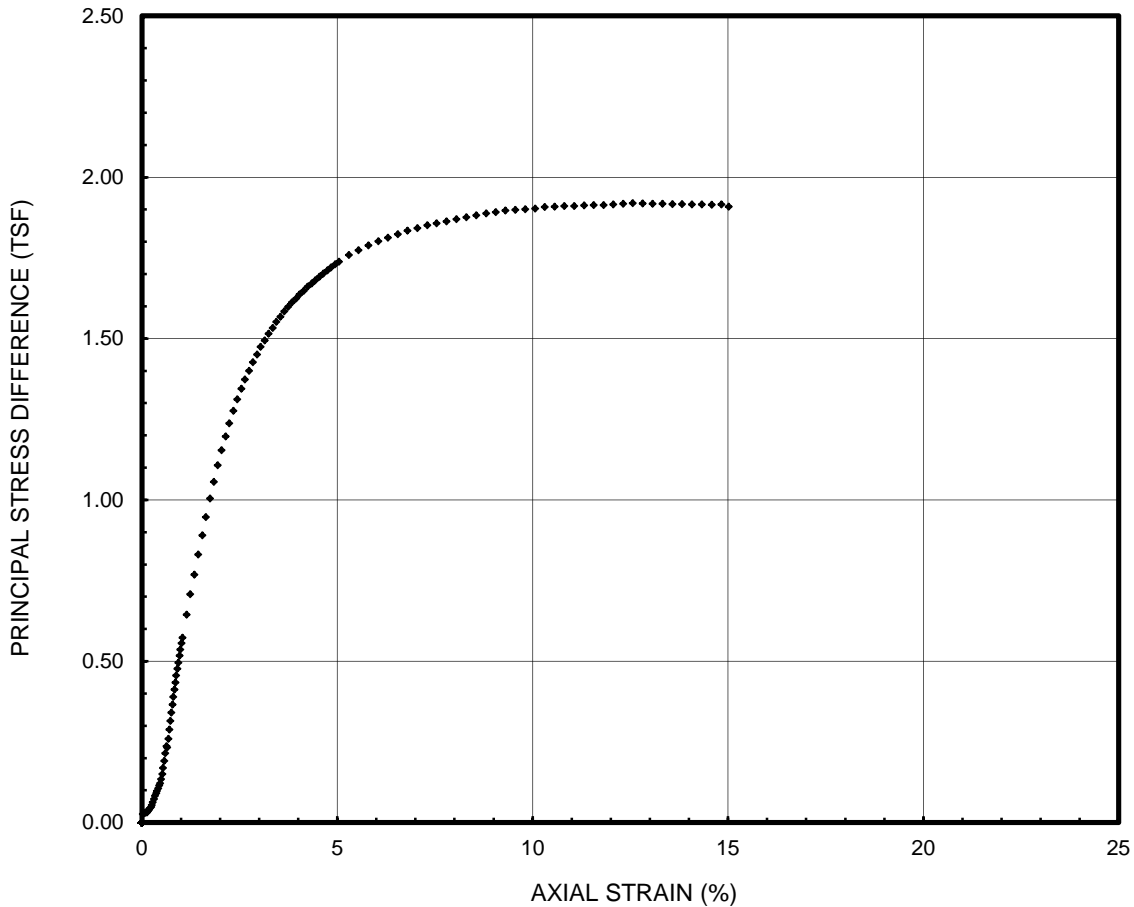


<b>Initial Height</b>	5.704	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.804	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	88.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.195	ton/ft <sup>2</sup>
<b>Water Content</b>	35.9	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	110	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-97</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12  
**Depth** 18-20 ft  
**Description** Tan and gray CLAY (CH) w/ silty sand layers

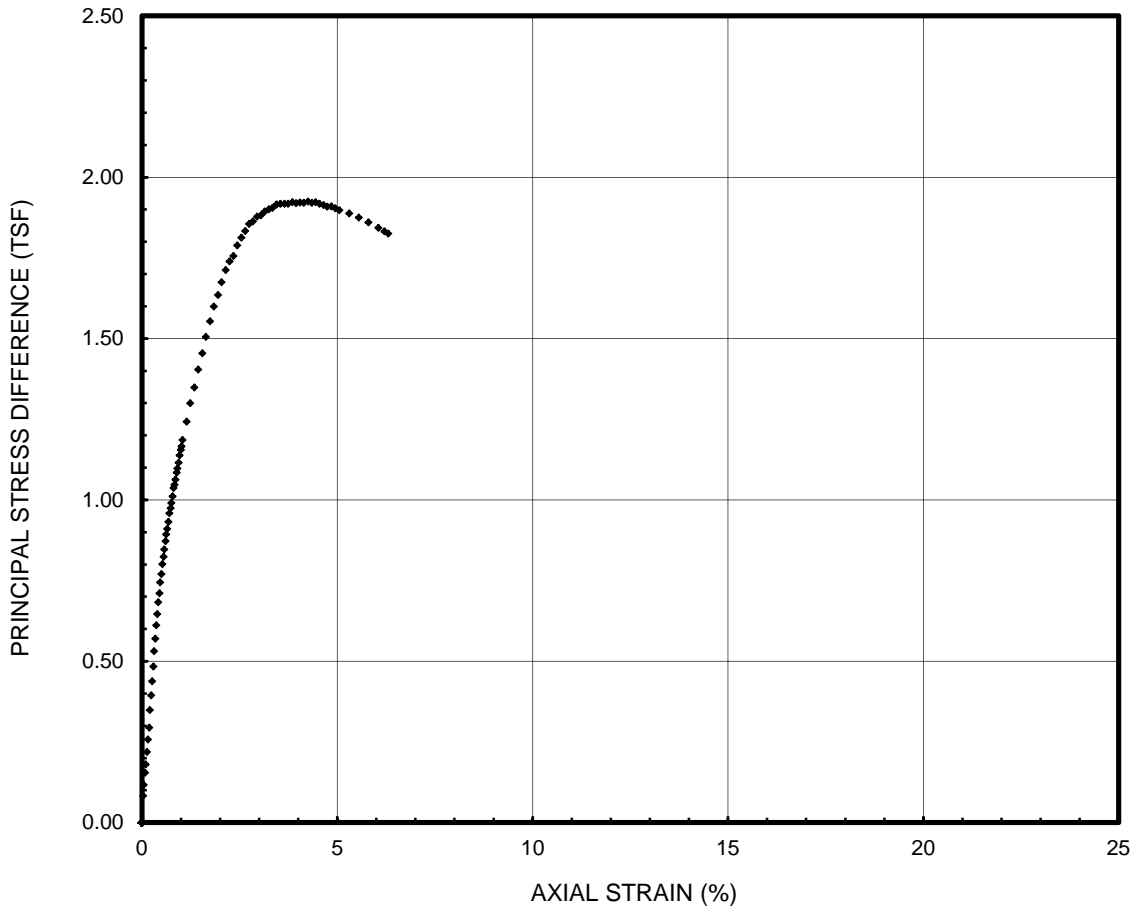


<b>Initial Height</b>	5.624	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.855	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	106.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.920	ton/ft <sup>2</sup>
<b>Water Content</b>	21.7	%	<b>Strain at Peak Stress</b>	12.57	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-98</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12 (BL-1)  
**Depth** 43-45 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

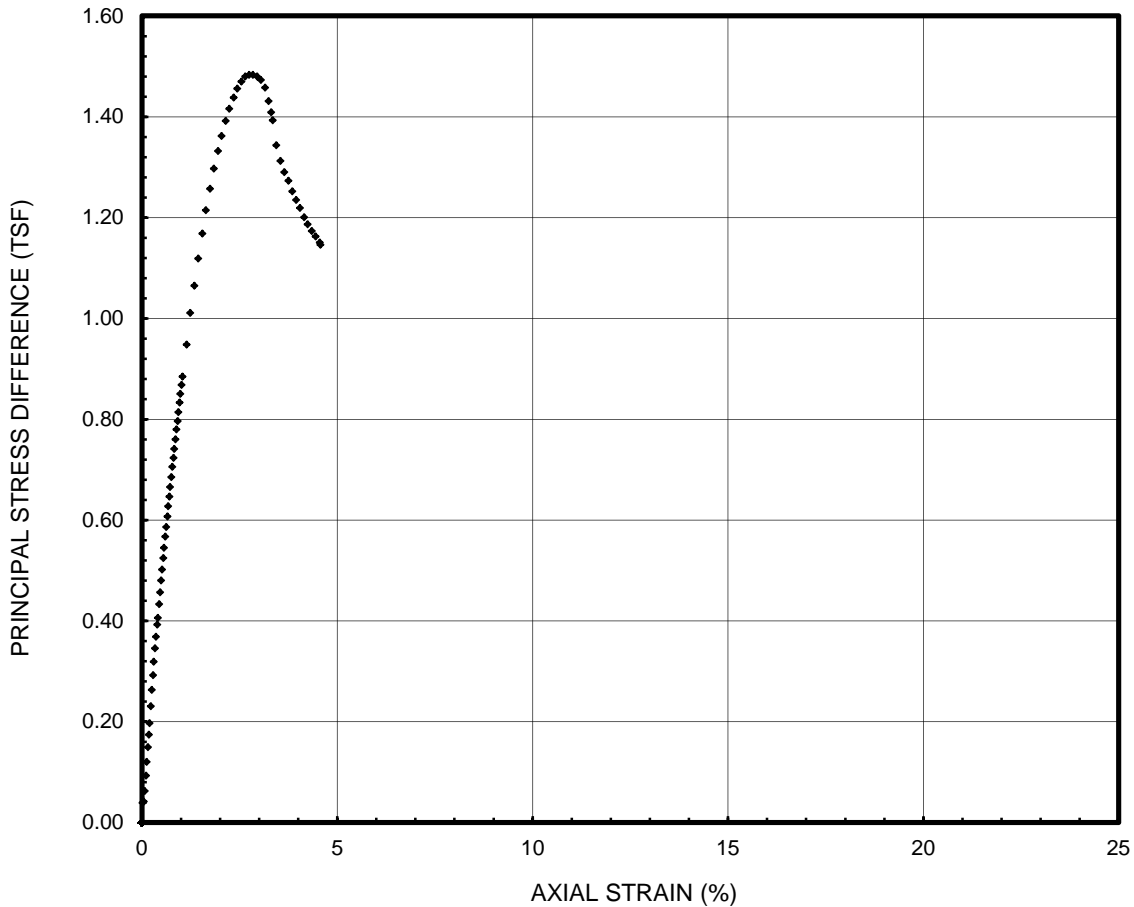


<b>Initial Height</b>	2.804	in	<b>Cell Pressure</b>	18.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.401	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	89.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.924	ton/ft <sup>2</sup>
<b>Water Content</b>	32.5	%	<b>Strain at Peak Stress</b>	4.25	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-99</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12 (BL-1)  
**Depth** 48-50 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers



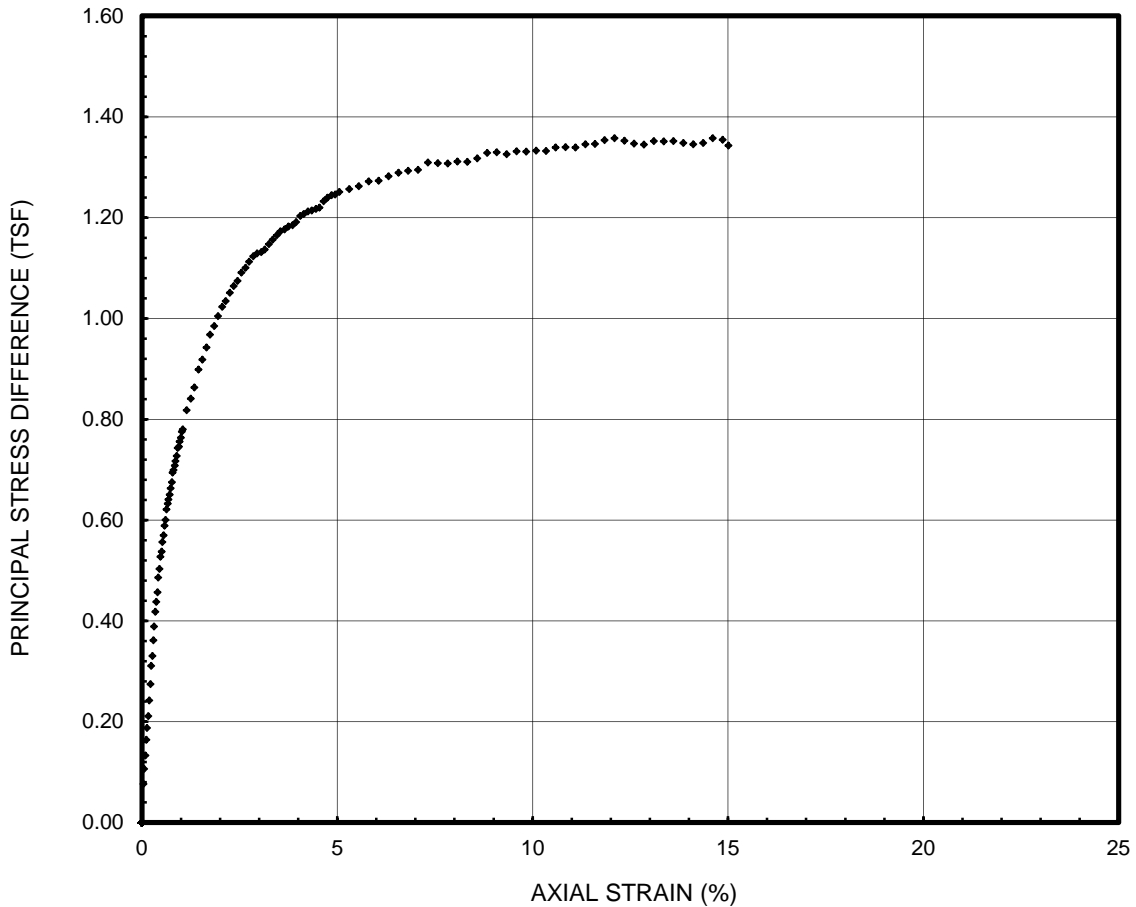
<b>Initial Height</b>	5.603	in	<b>Cell Pressure</b>	20.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.854	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	77.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.483	ton/ft <sup>2</sup>
<b>Water Content</b>	45.1	%	<b>Strain at Peak Stress</b>	2.75	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Diagonal Plane	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-100</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12 (BL-2)  
**Depth** 28-30 ft  
**Description** Tan and gray SILTY CLAY (CL)

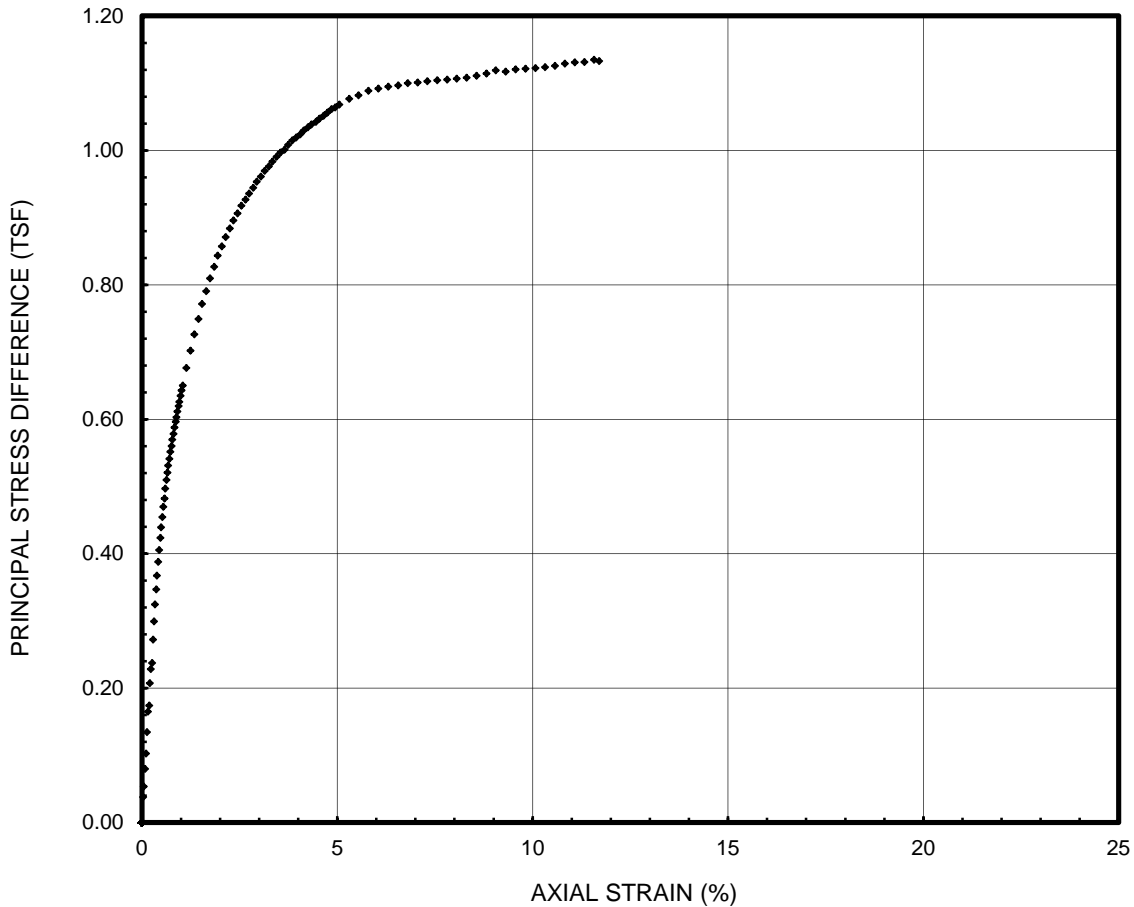


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.369	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	100.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.358	ton/ft <sup>2</sup>
<b>Water Content</b>	25.7	%	<b>Strain at Peak Stress</b>	12.09	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Bulging	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-101</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-12 (BL-2)  
**Depth** 38-40 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

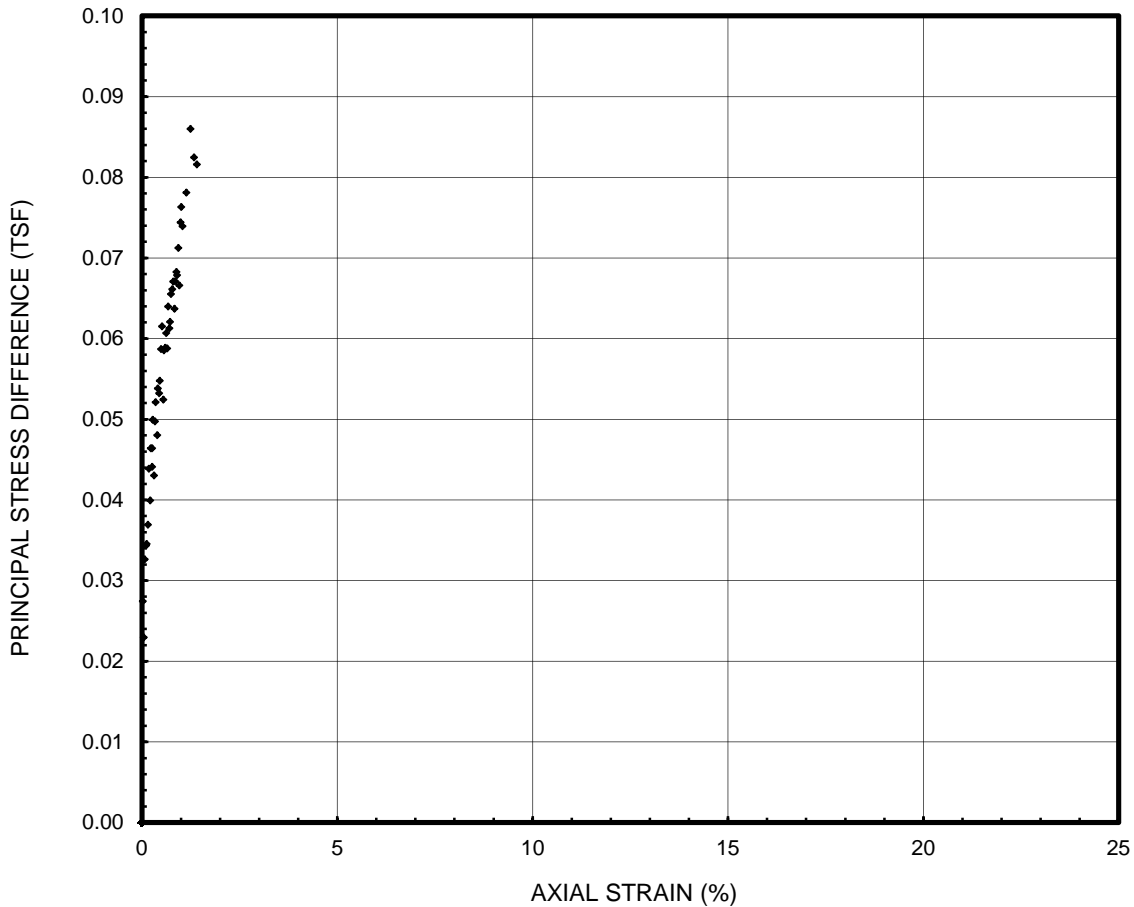


<b>Initial Height</b>	5.619	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.864	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	80.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.135	ton/ft <sup>2</sup>
<b>Water Content</b>	39.9	%	<b>Strain at Peak Stress</b>	11.57	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: 12-80-3741	APPROVED BY: MGB	FIGURE: D-102

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)

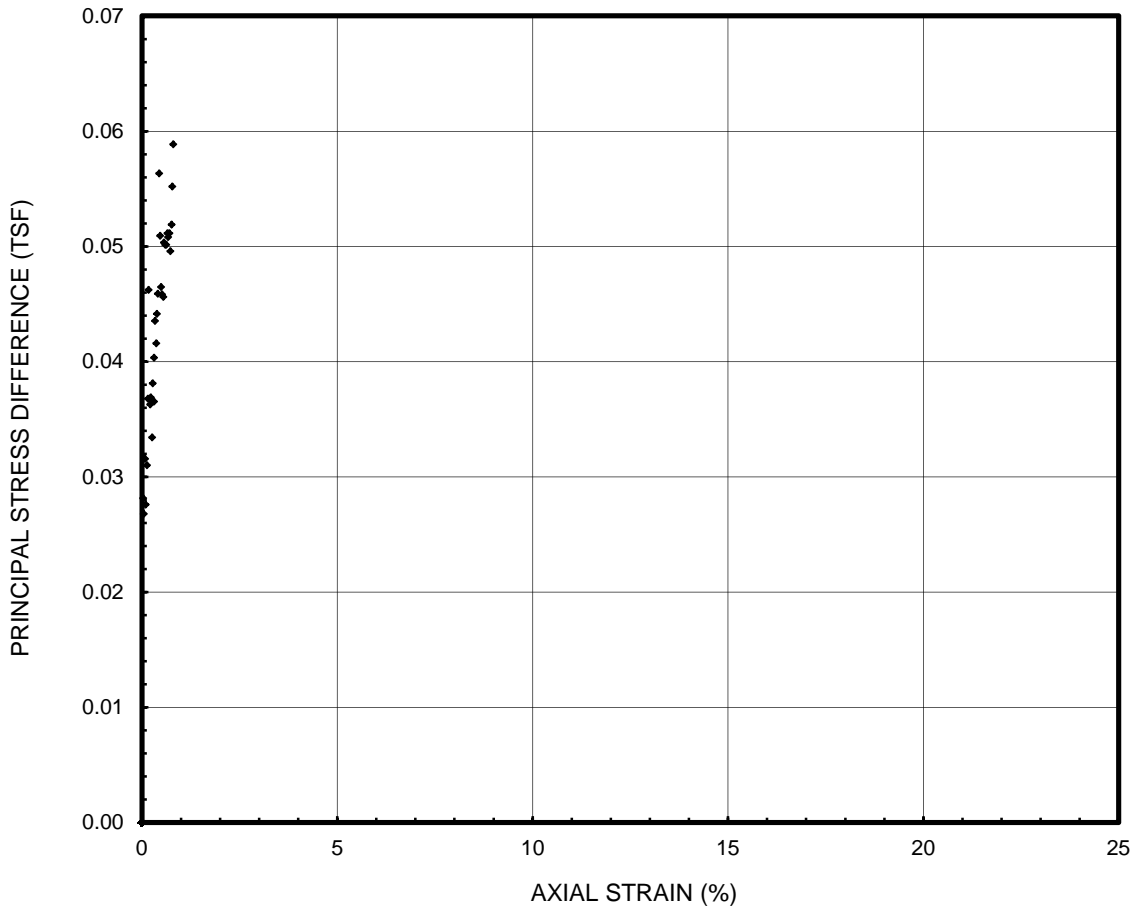


<b>Initial Height</b>	2.794	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.367	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.086	ton/ft <sup>2</sup>
<b>Water Content</b>	82.7	%	<b>Strain at Peak Stress</b>	1.24	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-103</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ shells

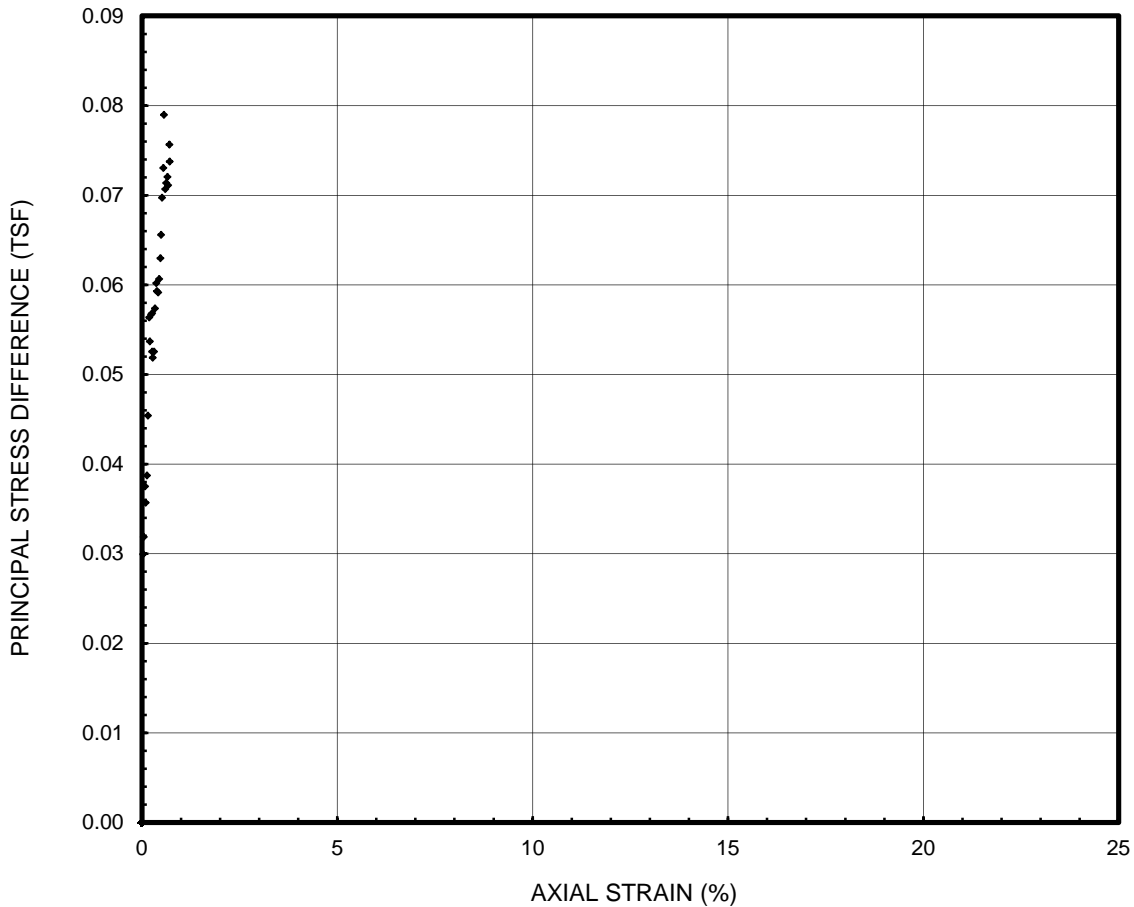


<b>Initial Height</b>	2.793	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.374	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	47.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.059	ton/ft <sup>2</sup>
<b>Water Content</b>	95.6	%	<b>Strain at Peak Stress</b>	0.80	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Bulging	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-104</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH)

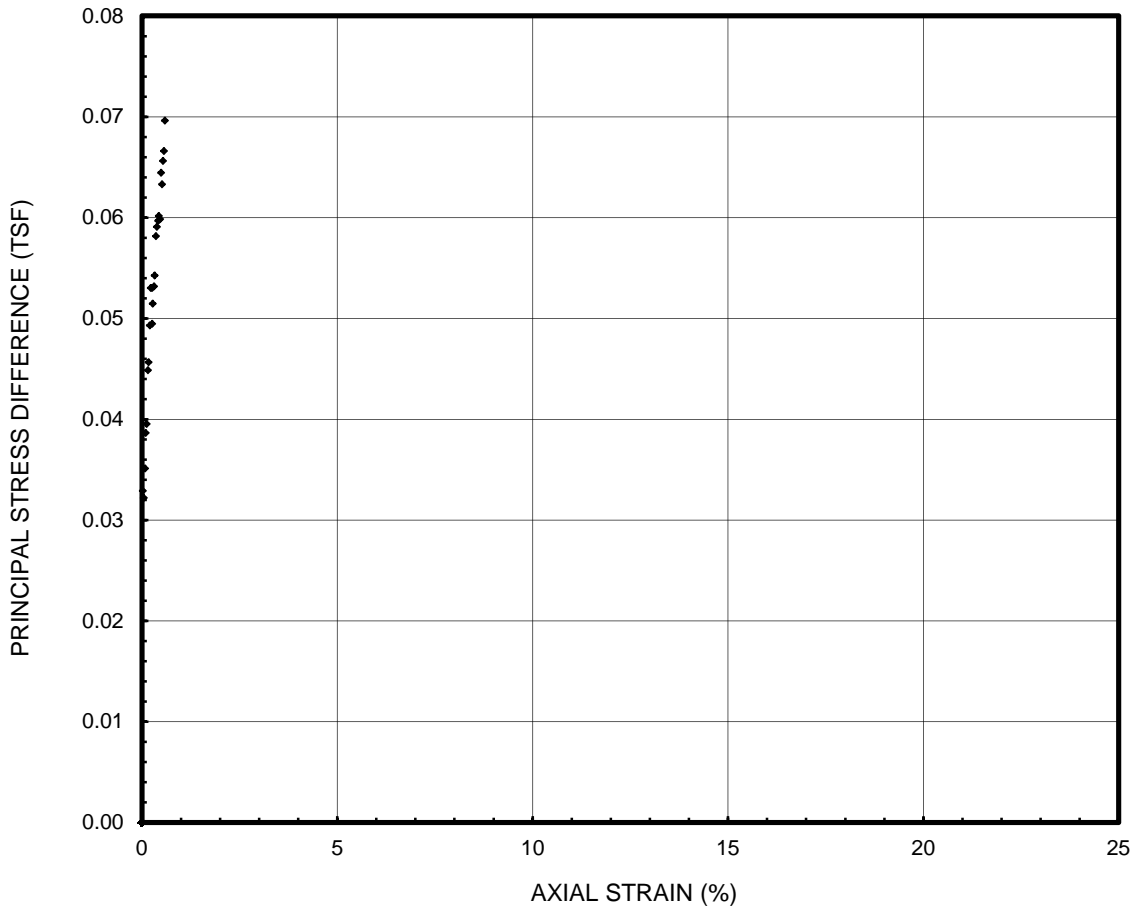


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.388	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.079	ton/ft <sup>2</sup>
<b>Water Content</b>	78.0	%	<b>Strain at Peak Stress</b>	0.57	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-105</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH)

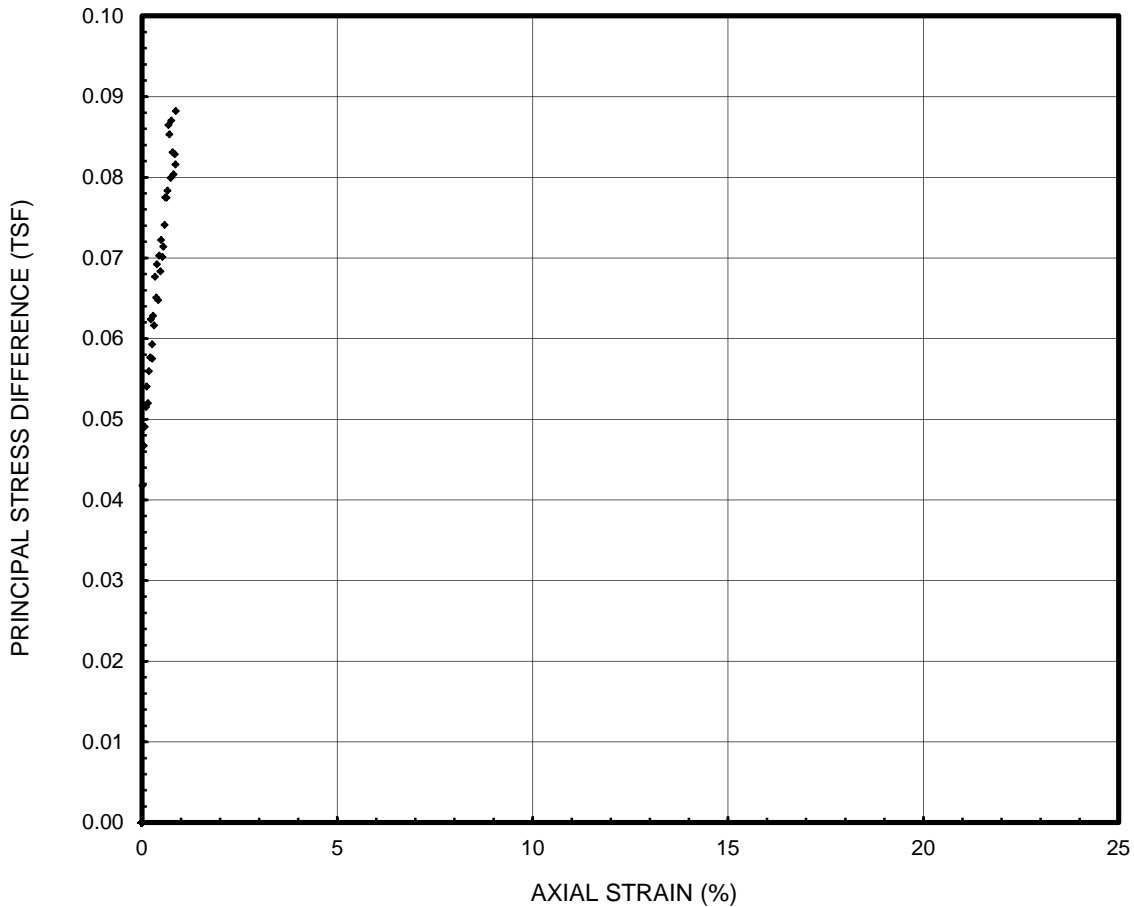


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.392	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	49.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.070	ton/ft <sup>2</sup>
<b>Water Content</b>	89.1	%	<b>Strain at Peak Stress</b>	0.59	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: 12-80-3741	APPROVED BY: MGB	FIGURE: D-106

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 18-20 ft  
**Description** Gray CLAY (CH) w/ shells

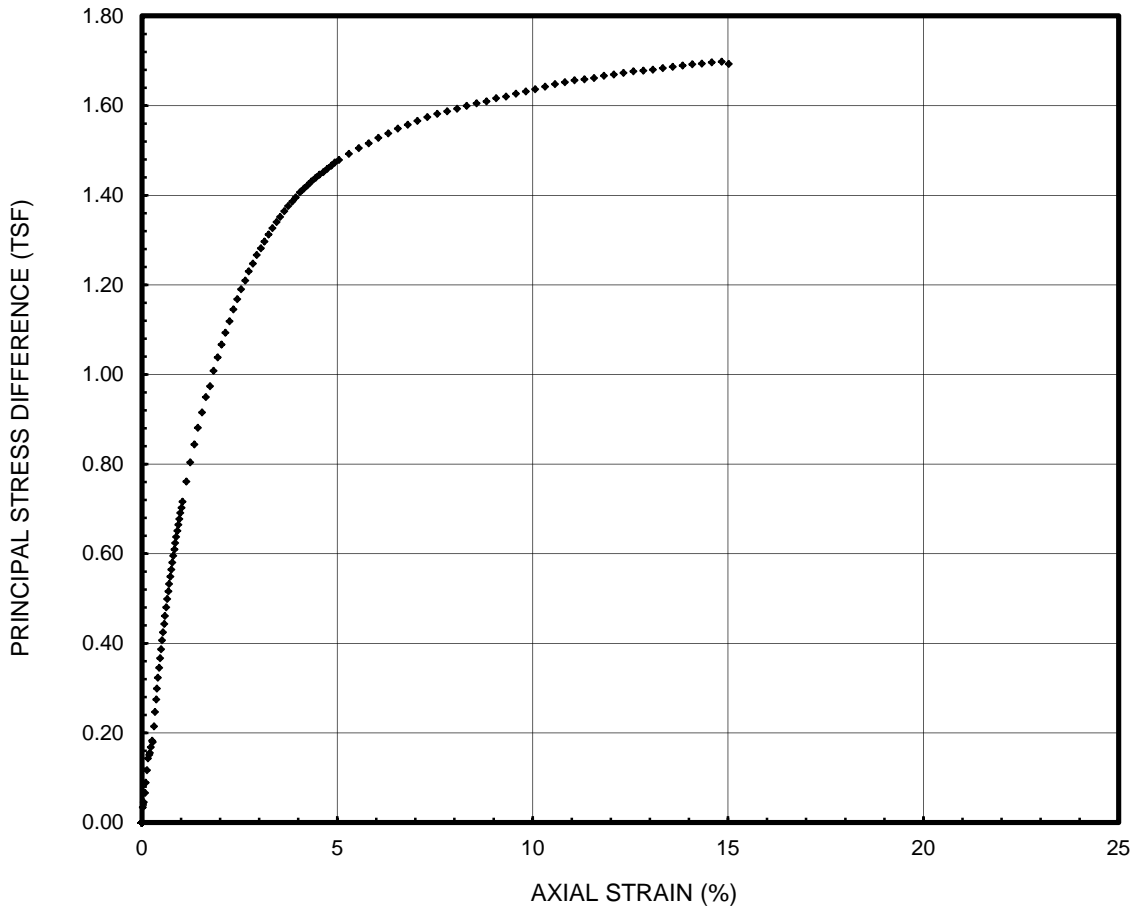


<b>Initial Height</b>	2.813	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.392	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	77.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.088	ton/ft <sup>2</sup>
<b>Water Content</b>	43.7	%	<b>Strain at Peak Stress</b>	0.87	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-107</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-13  
**Depth**                23-25        ft  
**Description**         Tan and gray CLAY (CH) w/ silt layers and sand



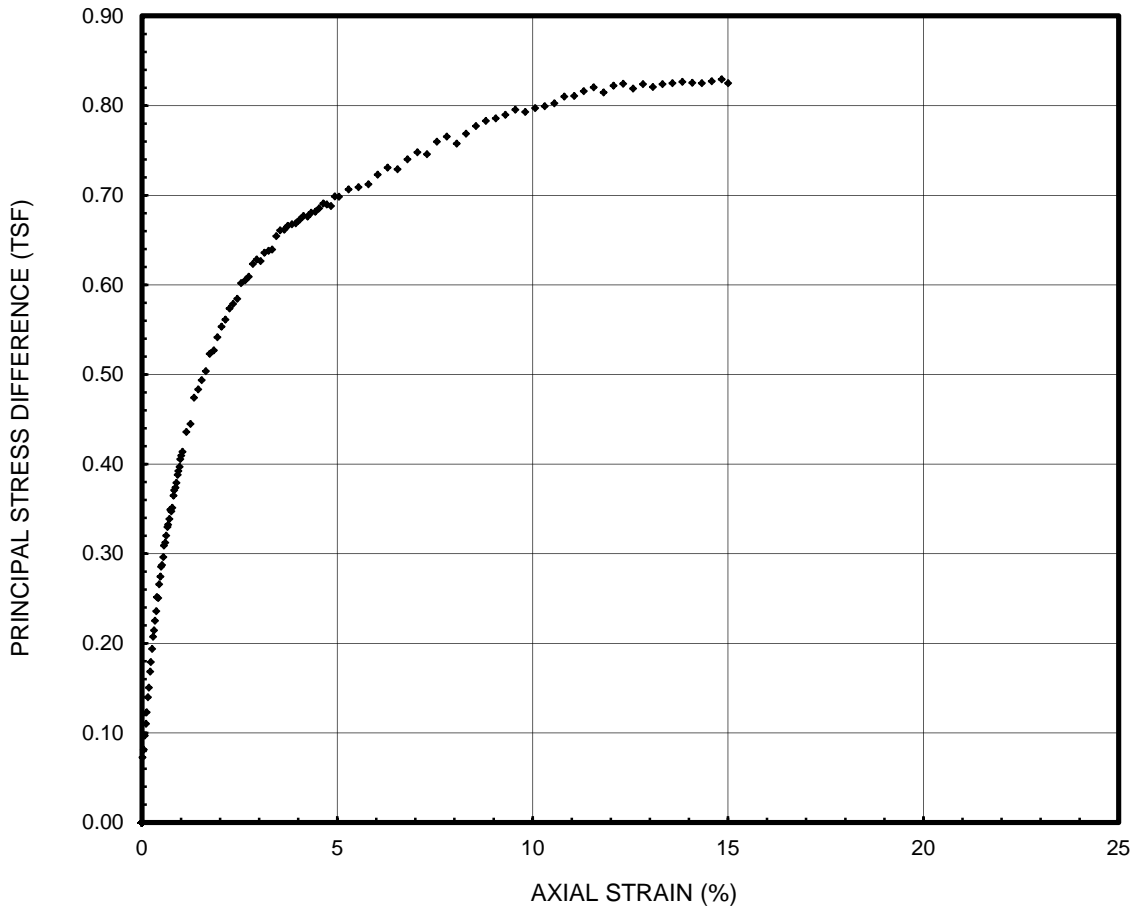
<b>Initial Height</b>	5.767	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.868	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	103.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.698	ton/ft <sup>2</sup>
<b>Water Content</b>	21.3	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	96	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-108</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13  
**Depth** 28-30 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers and sand

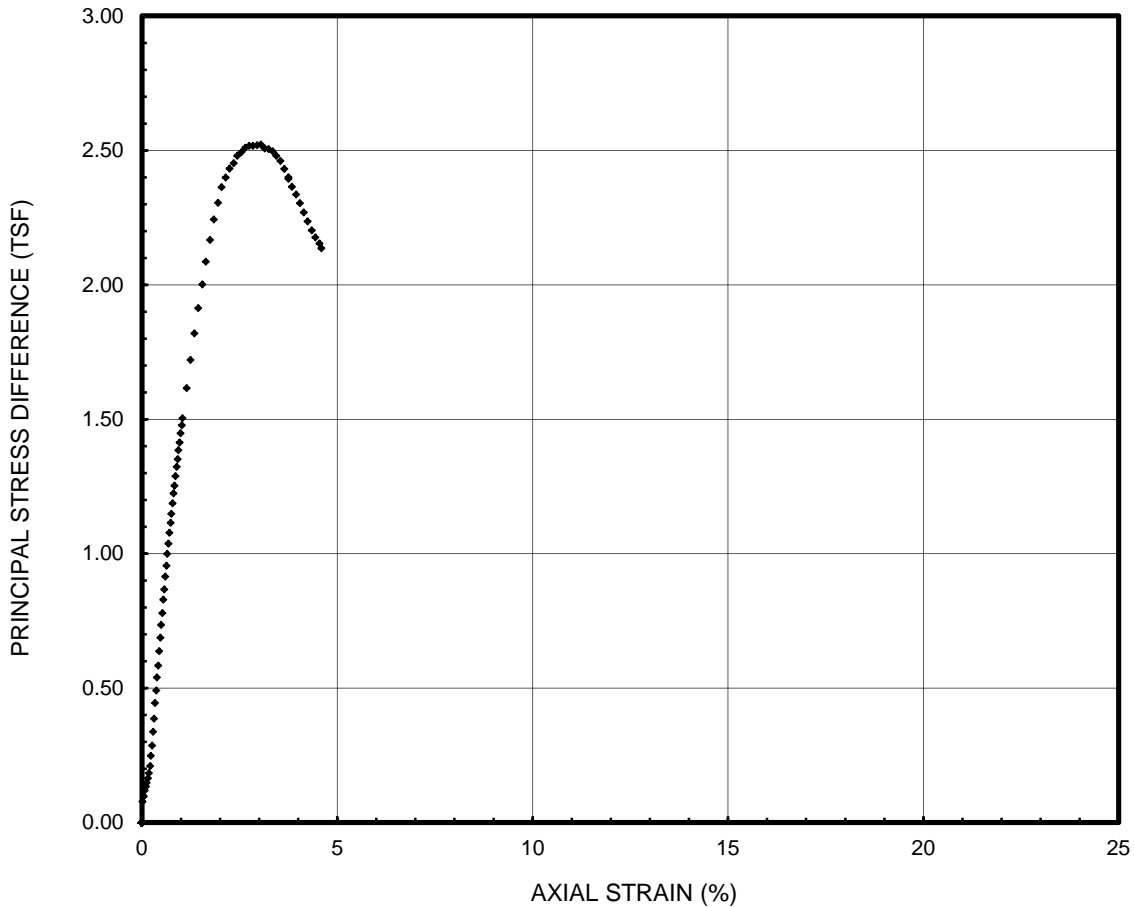


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.400	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	90.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.829	ton/ft <sup>2</sup>
<b>Water Content</b>	30.6	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	99	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-109</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-13 (BL-2)  
**Depth** 38-40 ft  
**Description** Tan and gray CLAY (CH)

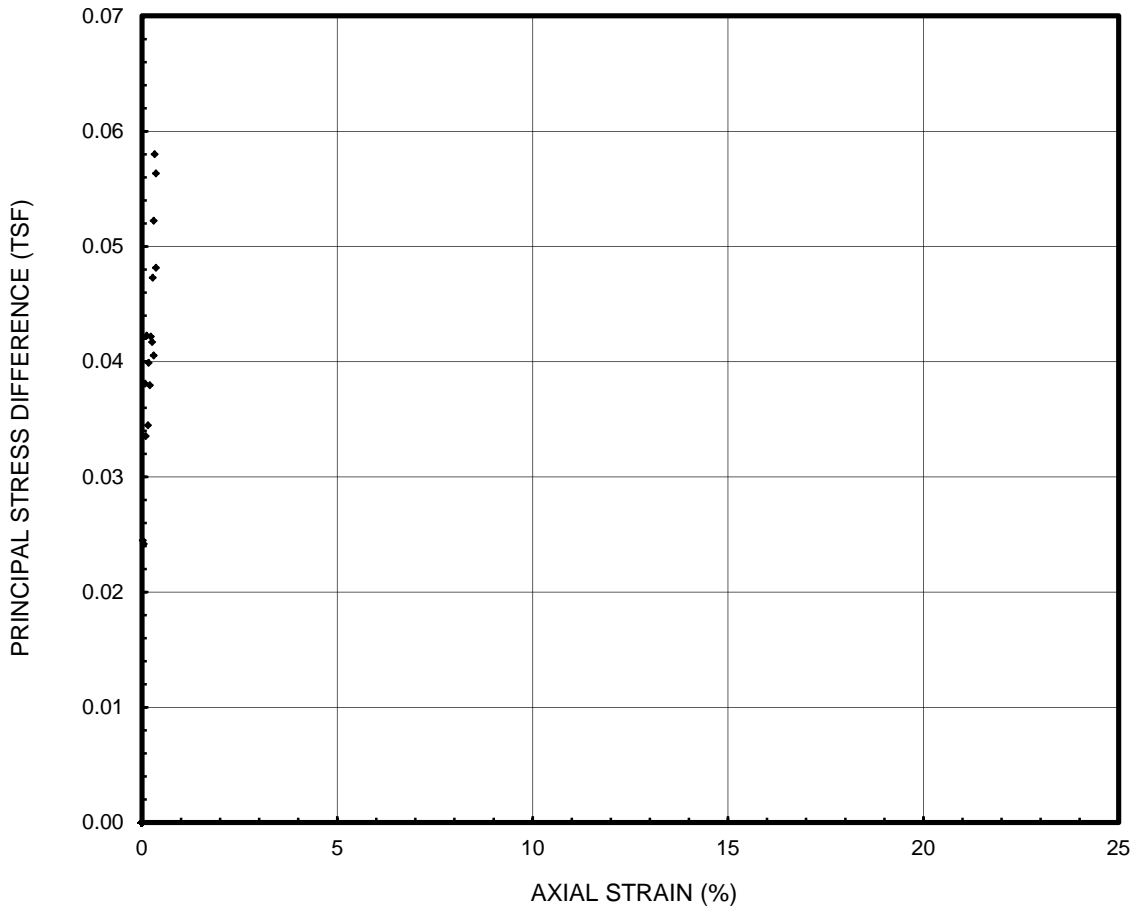


<b>Initial Height</b>	2.672	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.423	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	87.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.521	ton/ft <sup>2</sup>
<b>Water Content</b>	33.3	%	<b>Strain at Peak Stress</b>	3.04	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Diagonal Plane	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-110</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)

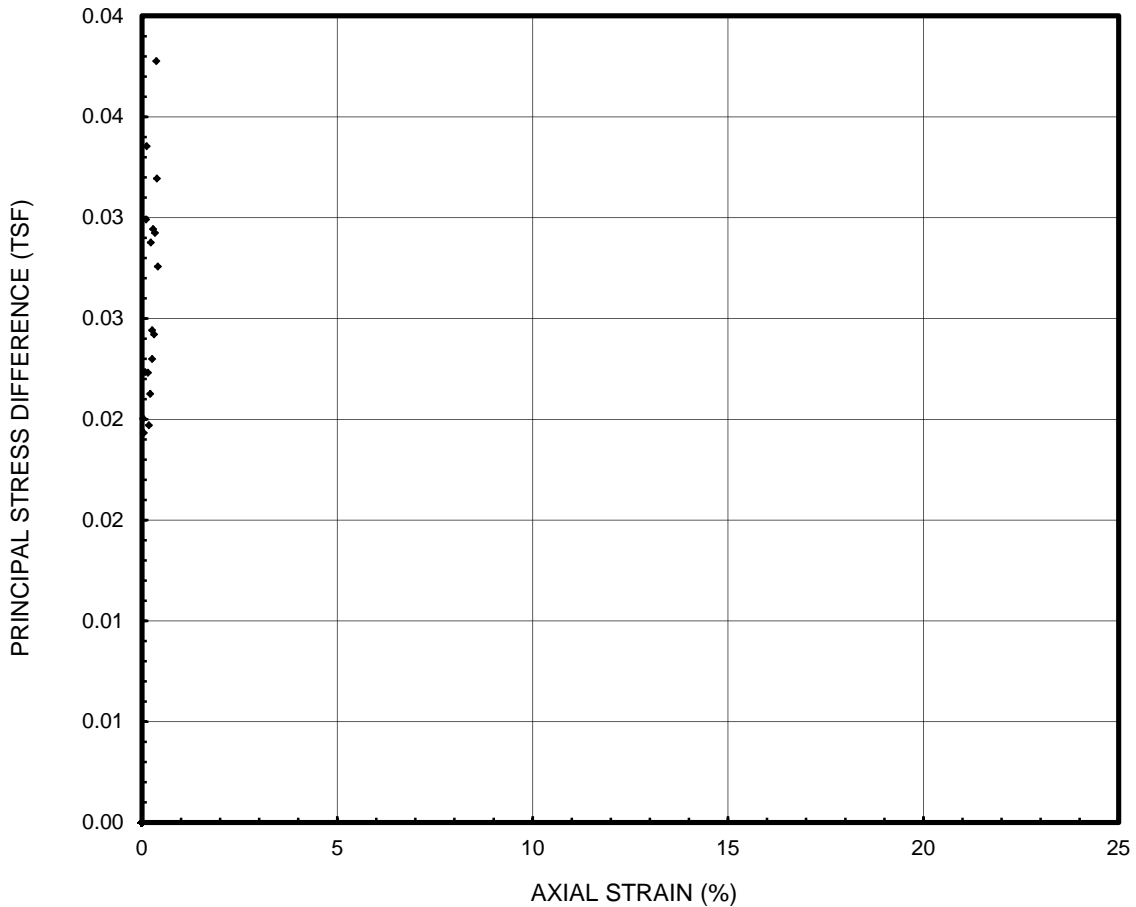


<b>Initial Height</b>	2.837	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.387	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.058	ton/ft <sup>2</sup>
<b>Water Content</b>	70.6	%	<b>Strain at Peak Stress</b>	0.32	%
<b>Saturation</b>	99	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-111</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH)

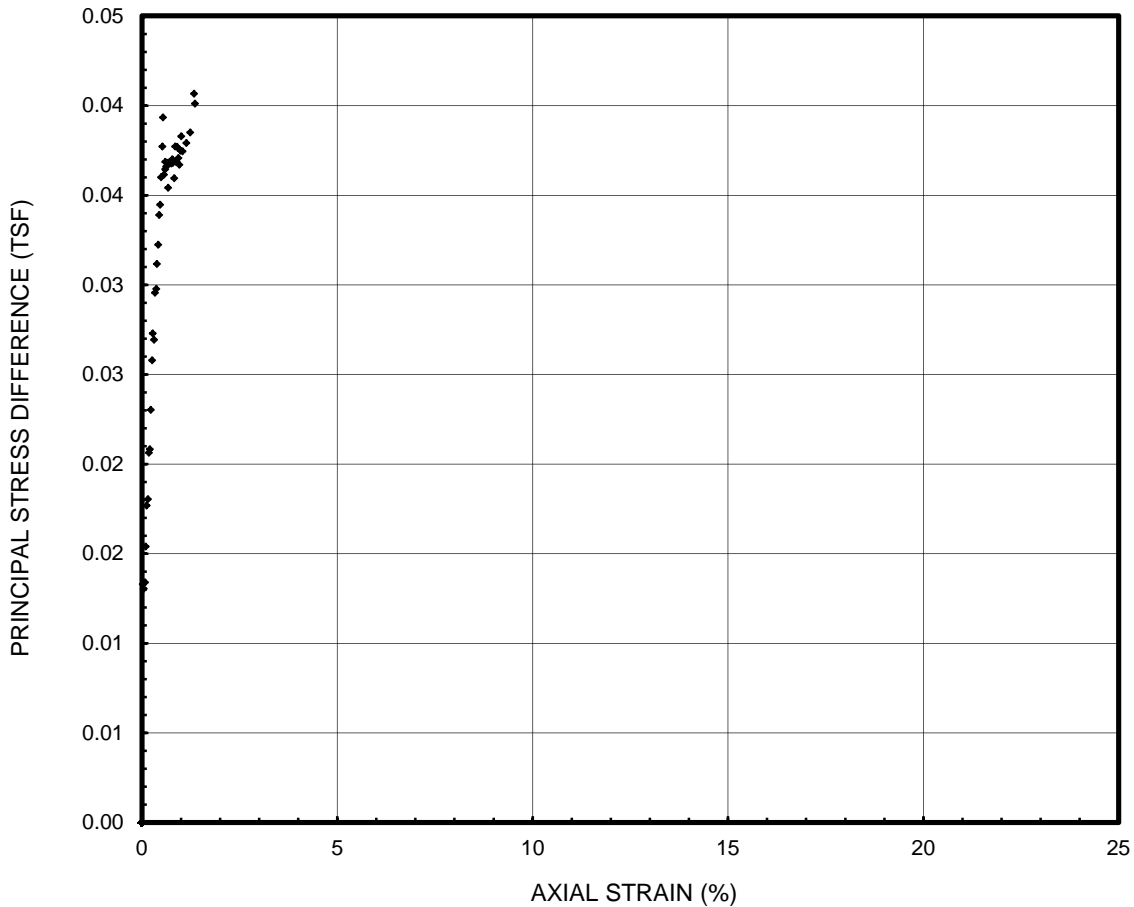


<b>Initial Height</b>	2.787	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.392	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	49.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.038	ton/ft <sup>2</sup>
<b>Water Content</b>	86.3	%	<b>Strain at Peak Stress</b>	0.37	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Combination	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-112</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-14  
**Depth**                8-10            ft  
**Description**         Gray CLAY (CH)

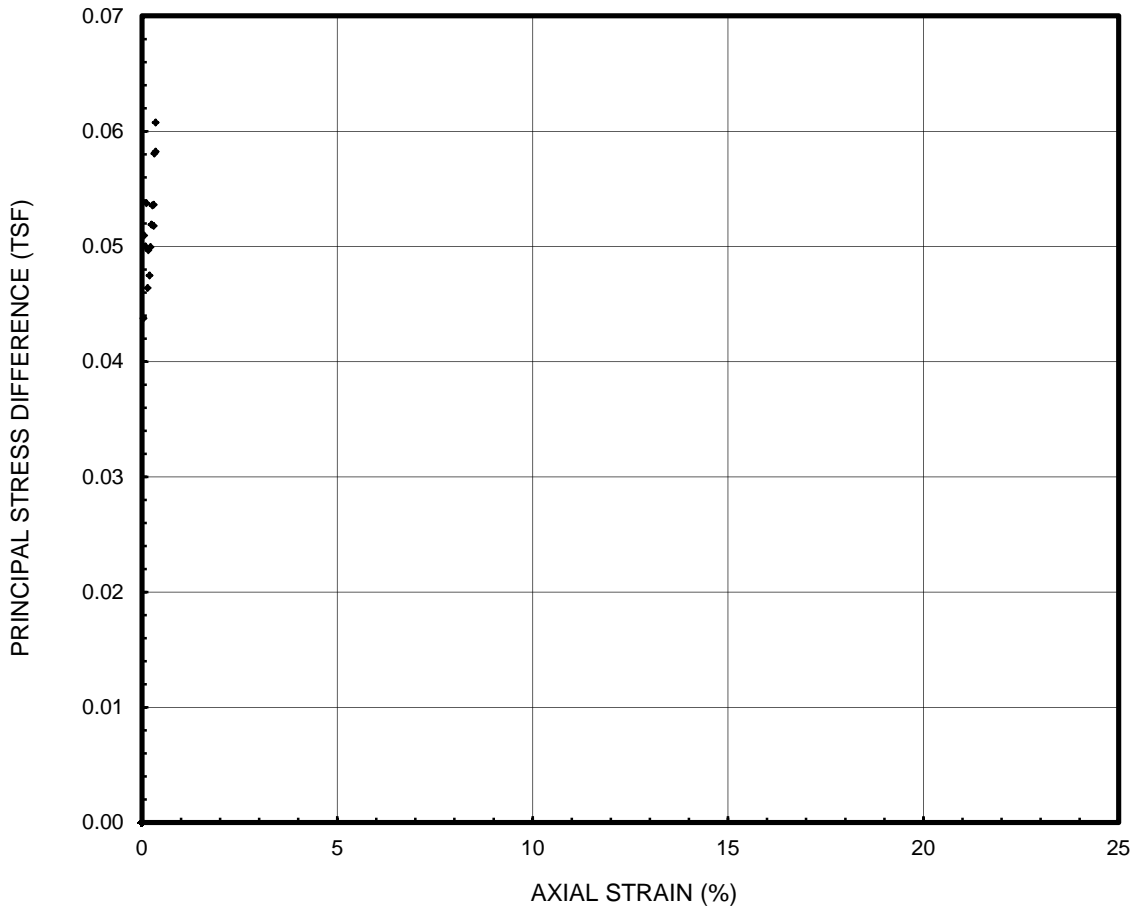


<b>Initial Height</b>	5.799	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.799	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	57.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.041	ton/ft <sup>2</sup>
<b>Water Content</b>	76.1	%	<b>Strain at Peak Stress</b>	1.33	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Combination	


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-113</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH)

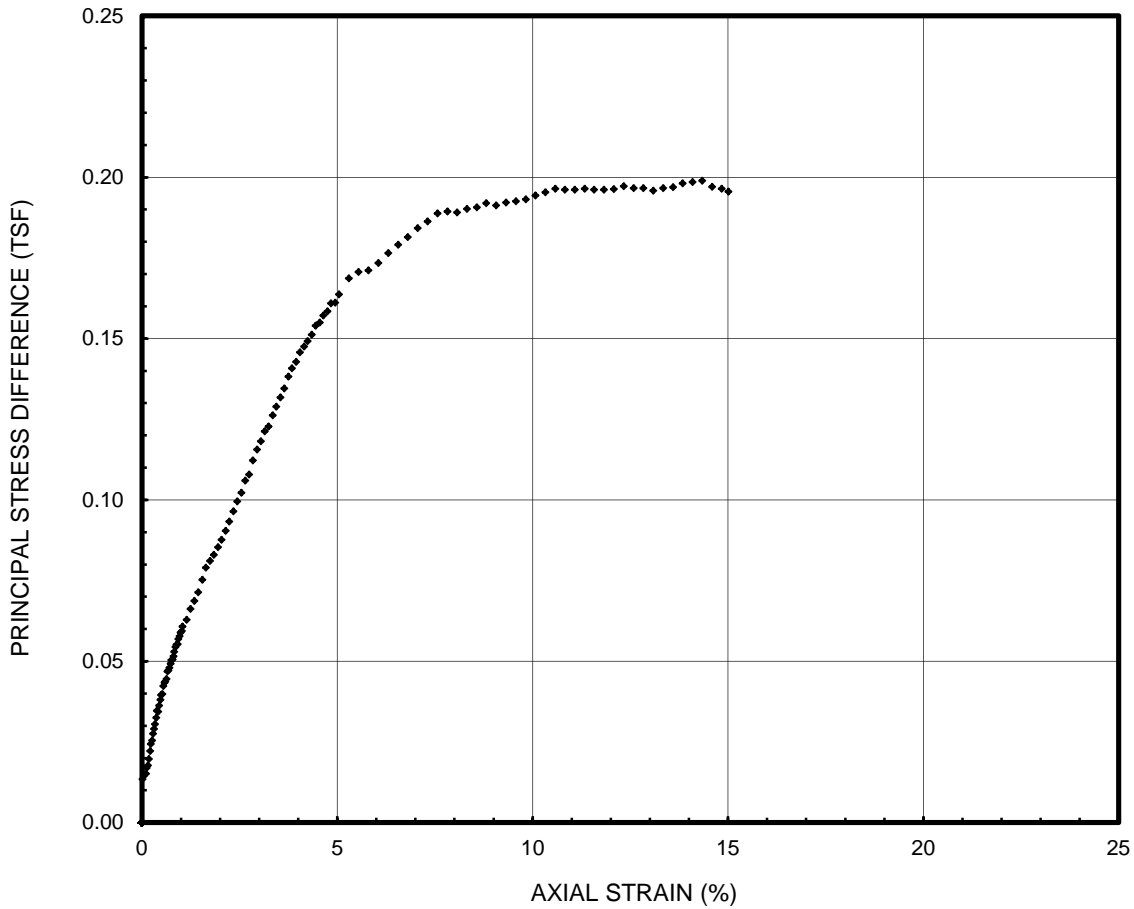


<b>Initial Height</b>	2.797	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.375	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.061	ton/ft <sup>2</sup>
<b>Water Content</b>	82.8	%	<b>Strain at Peak Stress</b>	0.35	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Other	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-114</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 16-18 ft  
**Description** Gray CLAY (CH)

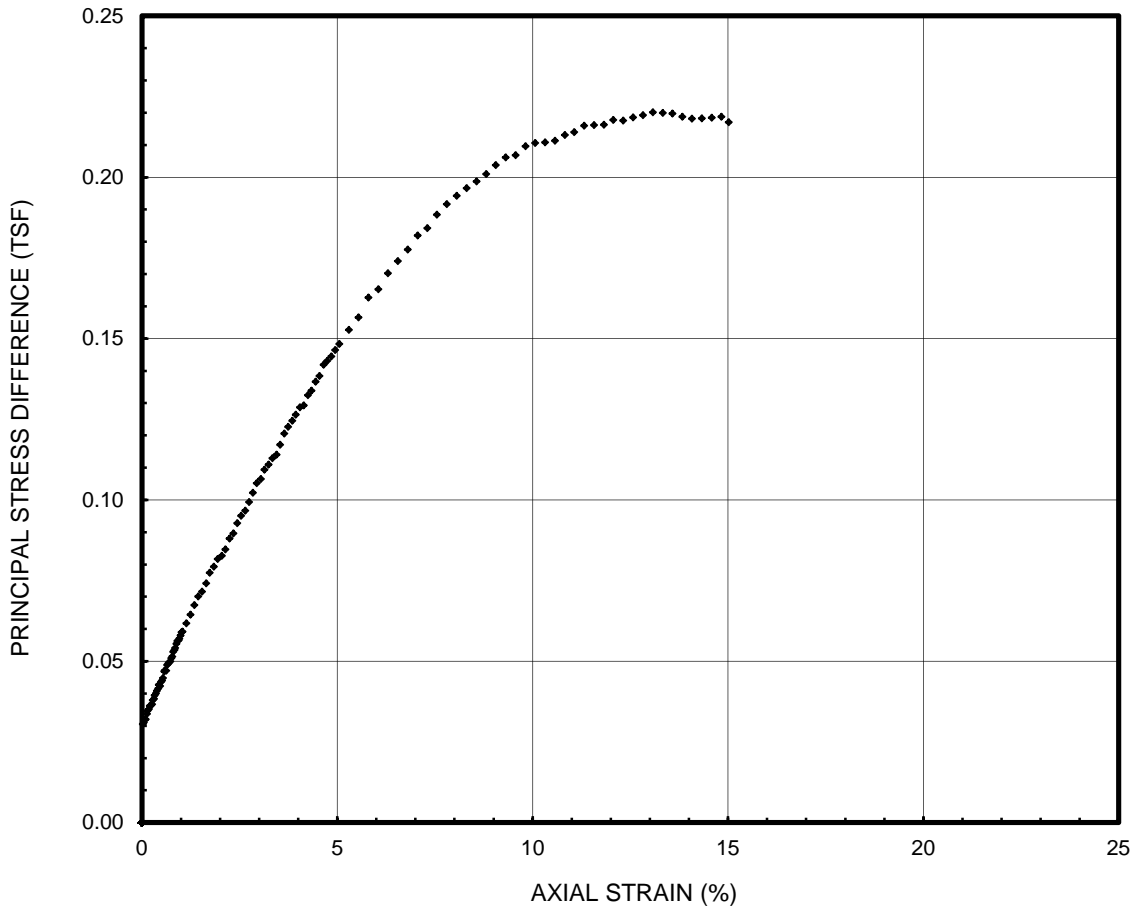


<b>Initial Height</b>	5.838	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.767	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	59.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.199	ton/ft <sup>2</sup>
<b>Water Content</b>	74.6	%	<b>Strain at Peak Stress</b>	14.34	%
<b>Saturation</b>	110	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-115</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 18-20 ft  
**Description** Gray SILTY CLAY (CL) w/ trace sand



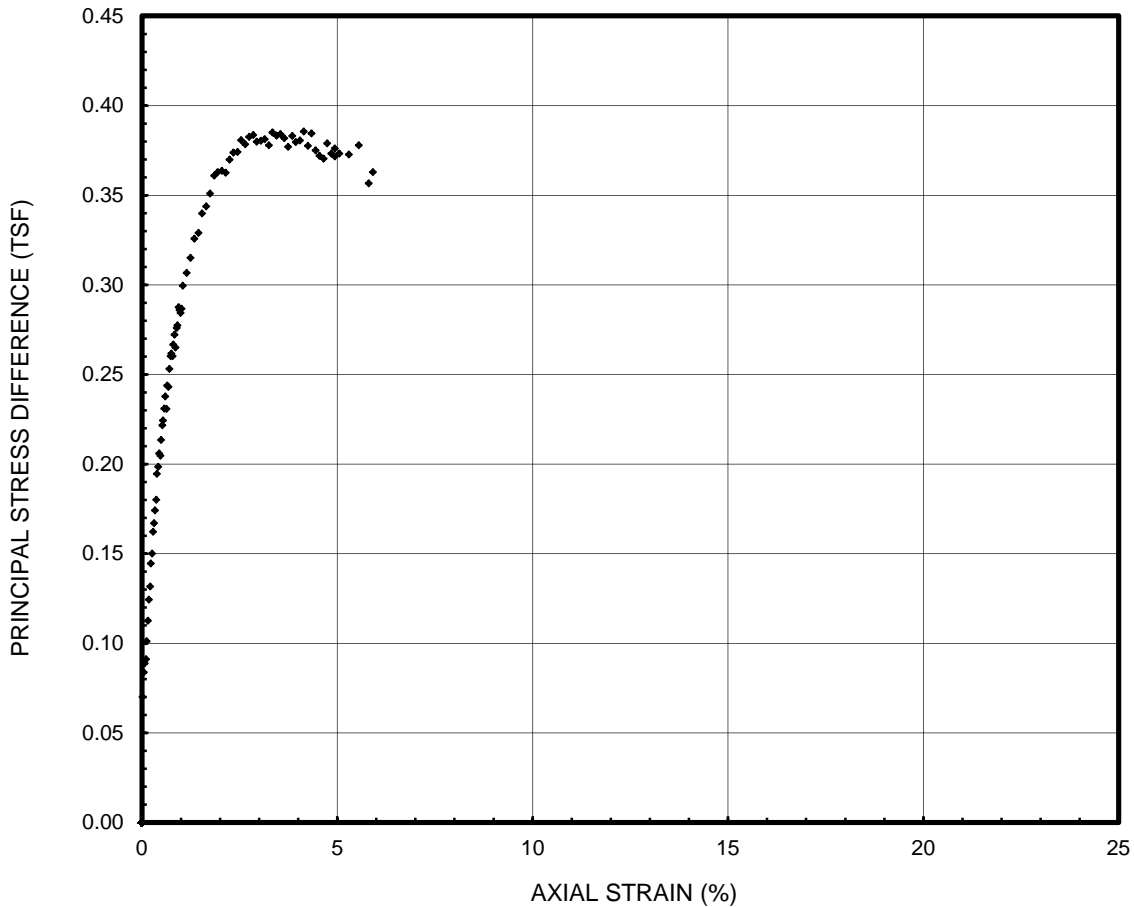
<b>Initial Height</b>	5.801	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.769	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	84.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.220	ton/ft <sup>2</sup>
<b>Water Content</b>	39.8	%	<b>Strain at Peak Stress</b>	13.08	%
<b>Saturation</b>	111	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-116</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14  
**Depth** 23-25 ft  
**Description** Gray CLAY (CH)

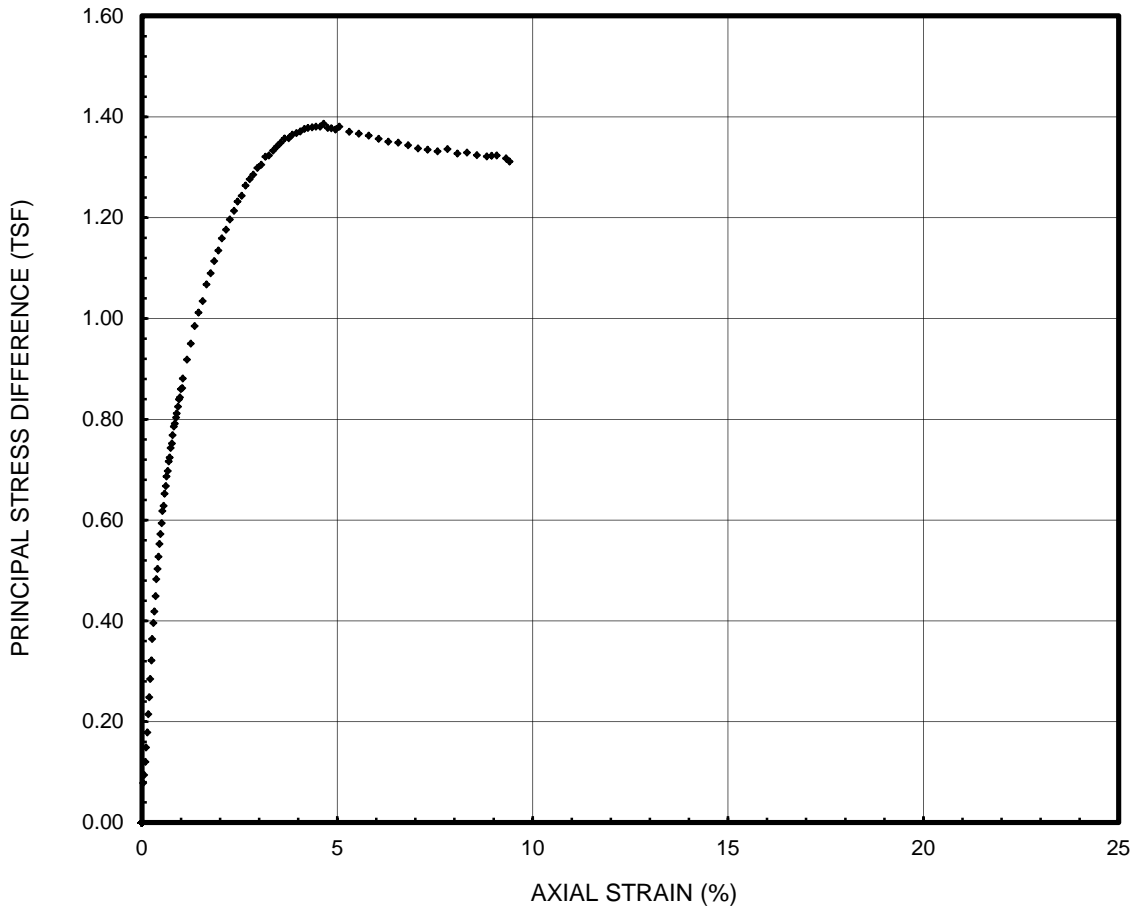


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.393	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	58.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.386	ton/ft <sup>2</sup>
<b>Water Content</b>	67.3	%	<b>Strain at Peak Stress</b>	4.14	%
<b>Saturation</b>	96	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-117</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14 (BL-1)  
**Depth** 38-40 ft  
**Description** Brown and gray CLAY (CH) w/ silt layers

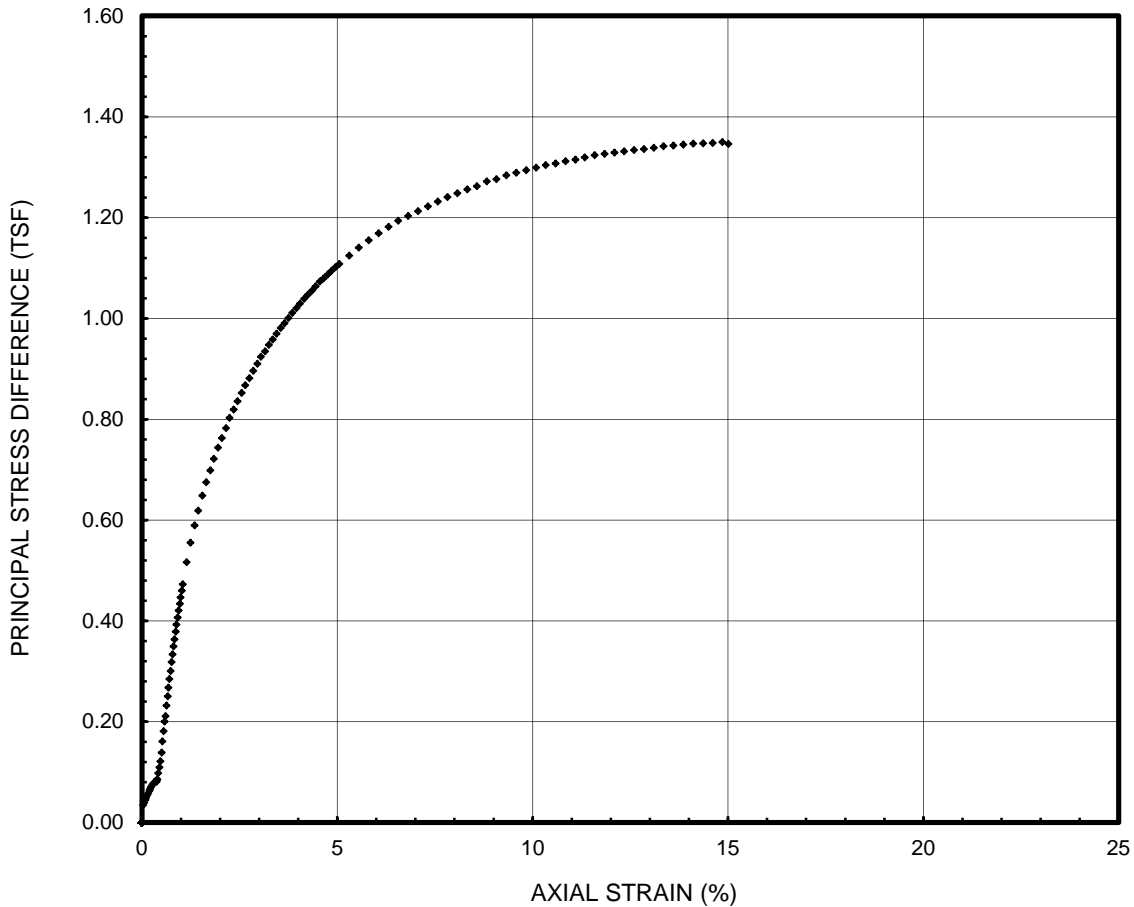


<b>Initial Height</b>	2.803	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.393	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	86.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.386	ton/ft <sup>2</sup>
<b>Water Content</b>	36.0	%	<b>Strain at Peak Stress</b>	4.65	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-118</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-14 (BL-2)  
**Depth** 33-35 ft  
**Description** Gray SILTY CLAY (CL) w/ trace sand

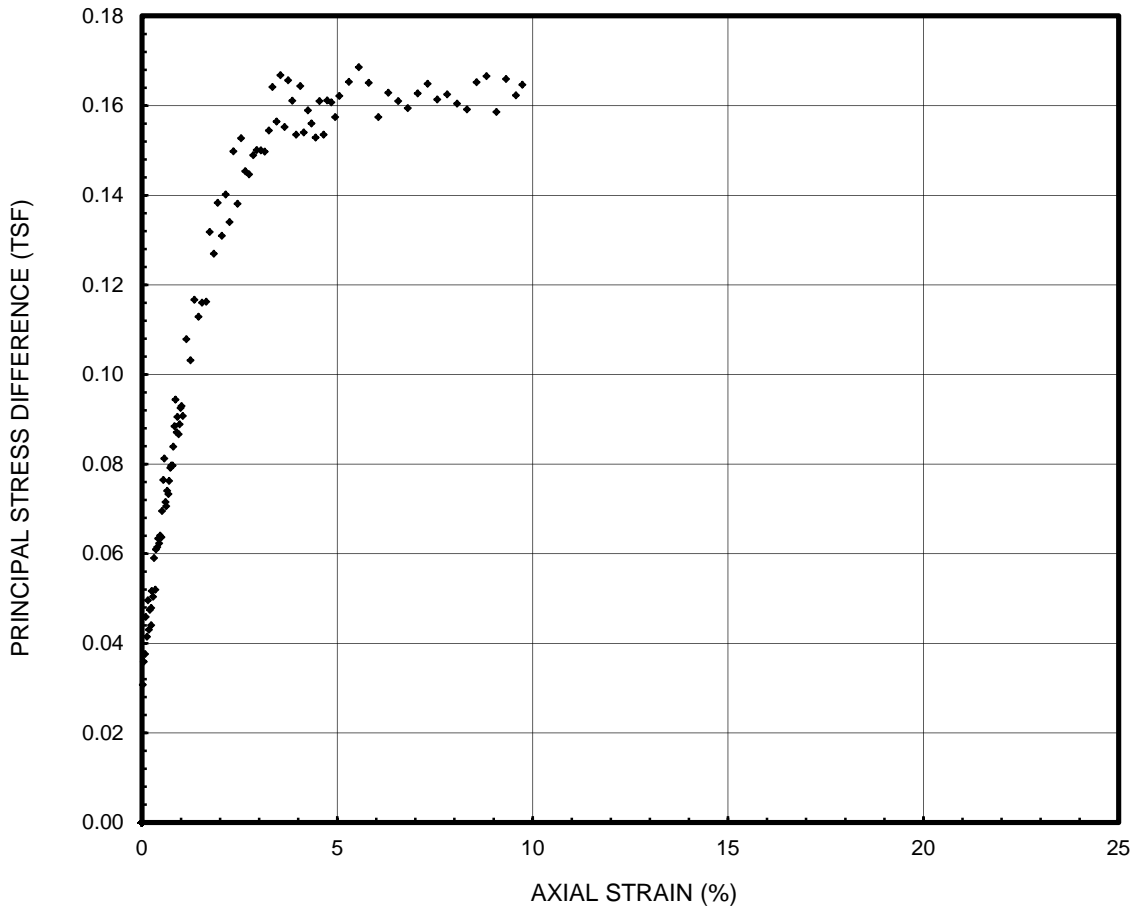


<b>Initial Height</b>	5.600	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.839	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	97.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.350	ton/ft <sup>2</sup>
<b>Water Content</b>	28.7	%	<b>Strain at Peak Stress</b>	14.85	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-119</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 0-2 ft  
**Description** Gray CLAY (CH) w/ organics

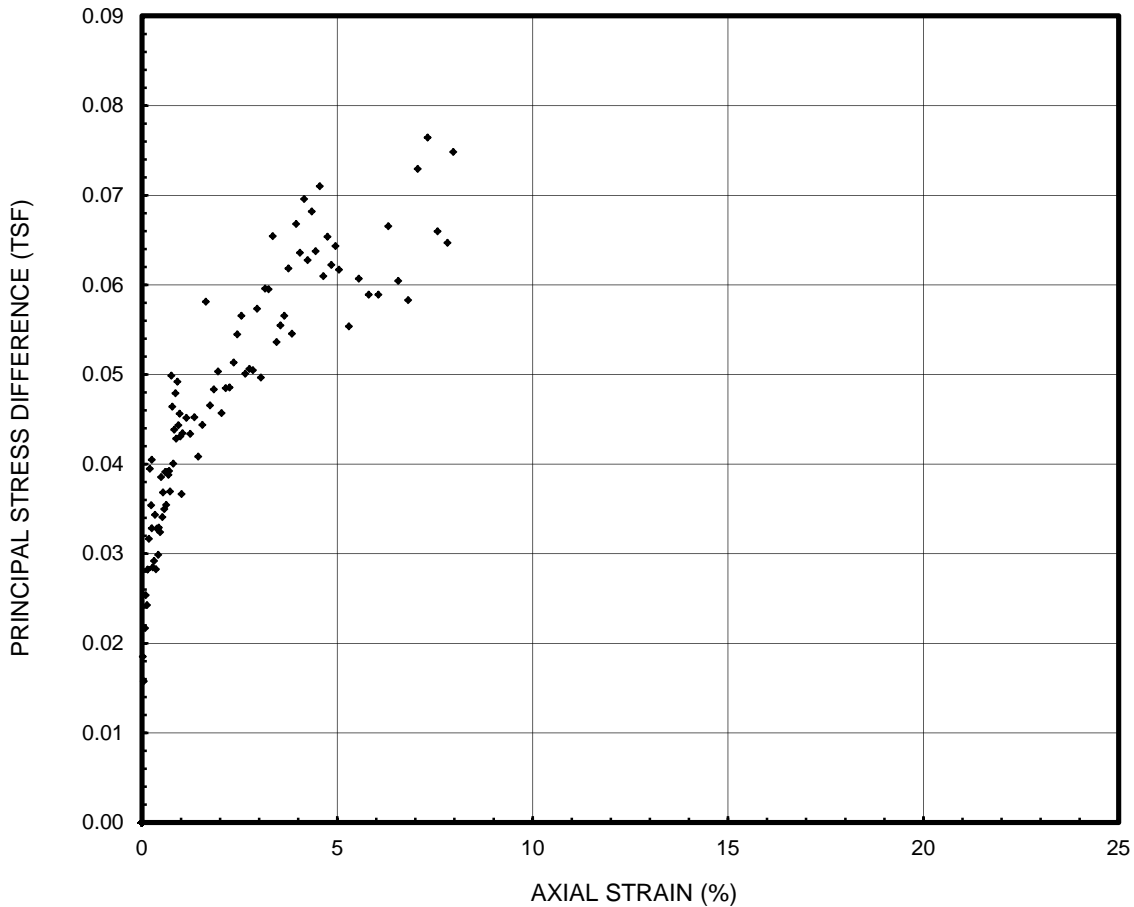


<b>Initial Height</b>	2.785	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.400	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.169	ton/ft <sup>2</sup>
<b>Water Content</b>	78.1	%	<b>Strain at Peak Stress</b>	5.55	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-120</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ organics

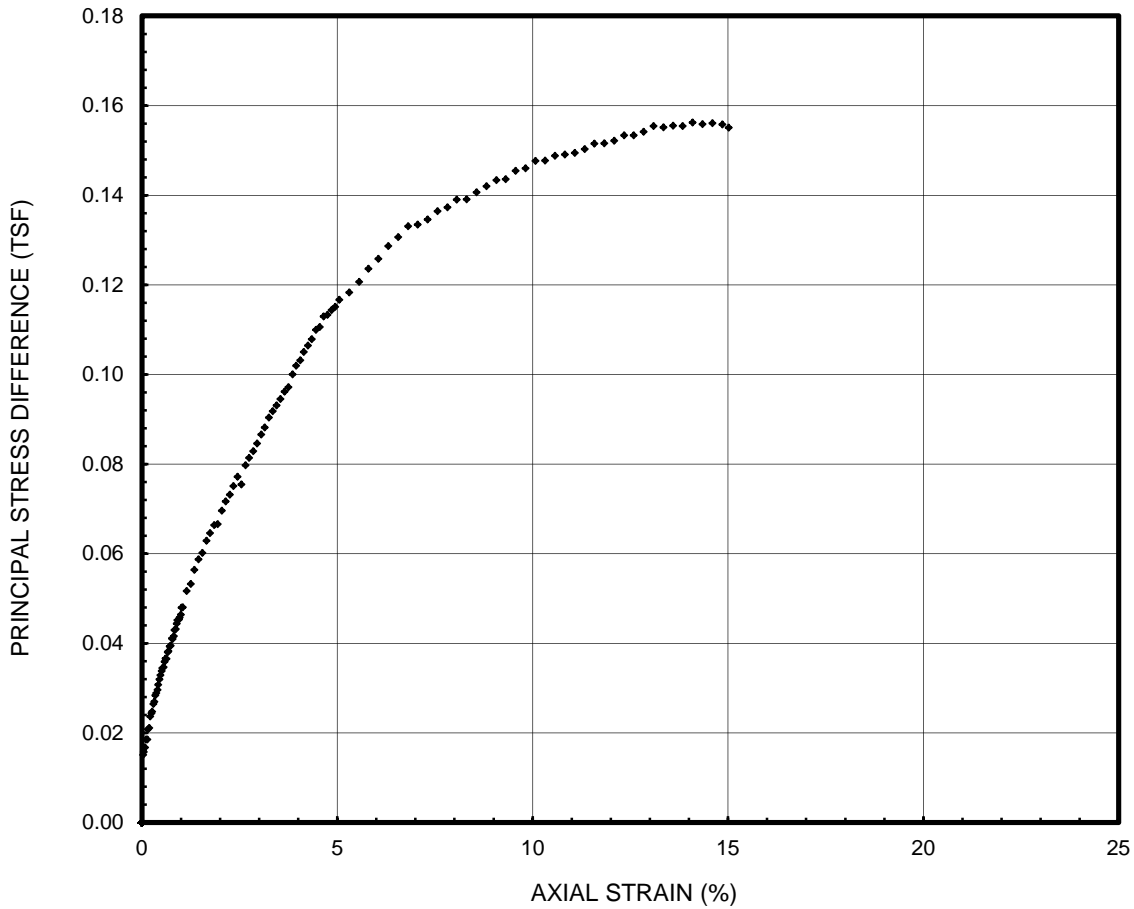


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.388	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	47.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.076	ton/ft <sup>2</sup>
<b>Water Content</b>	92.6	%	<b>Strain at Peak Stress</b>	7.31	%
<b>Saturation</b>	98	%	<b>Failure Type</b>	Combination	


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-121</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH) w/ organics

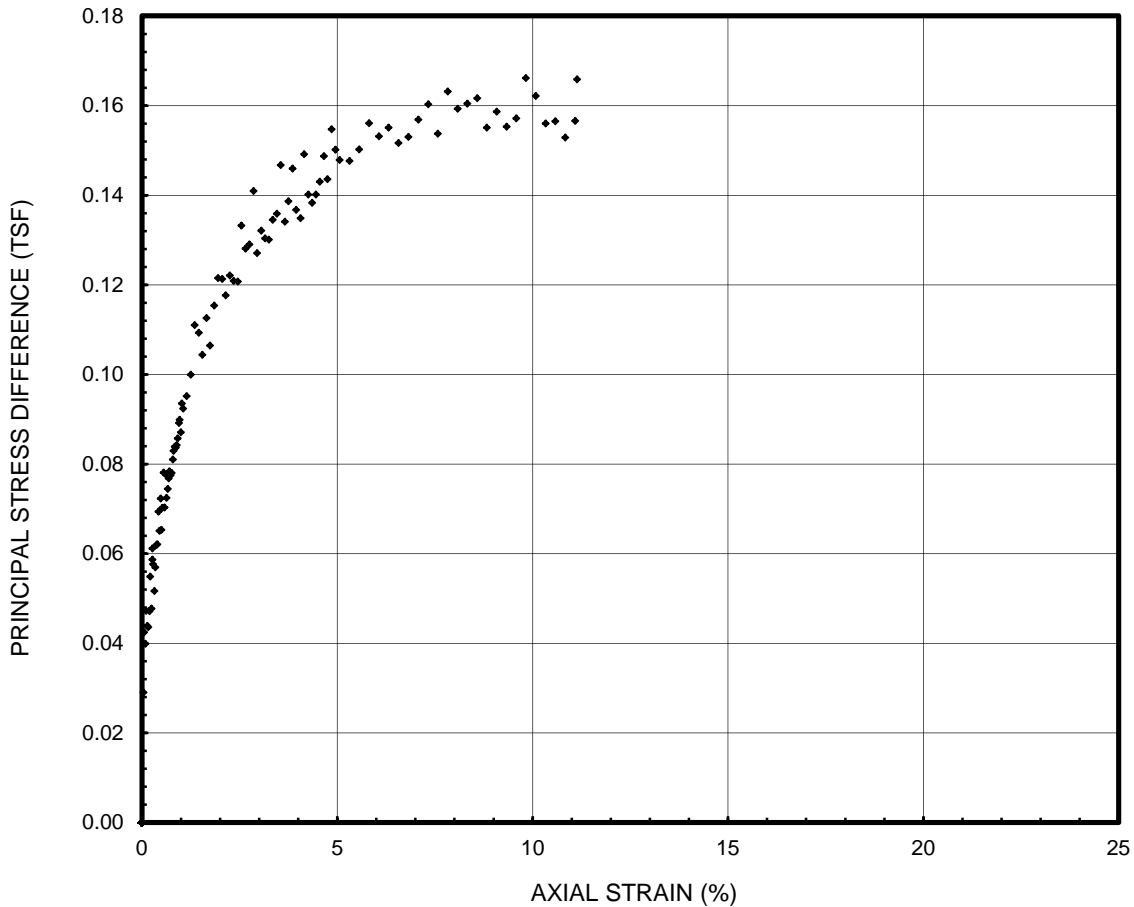


<b>Initial Height</b>	5.763	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.820	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	63.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.156	ton/ft <sup>2</sup>
<b>Water Content</b>	65.6	%	<b>Strain at Peak Stress</b>	14.10	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-122</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ organics

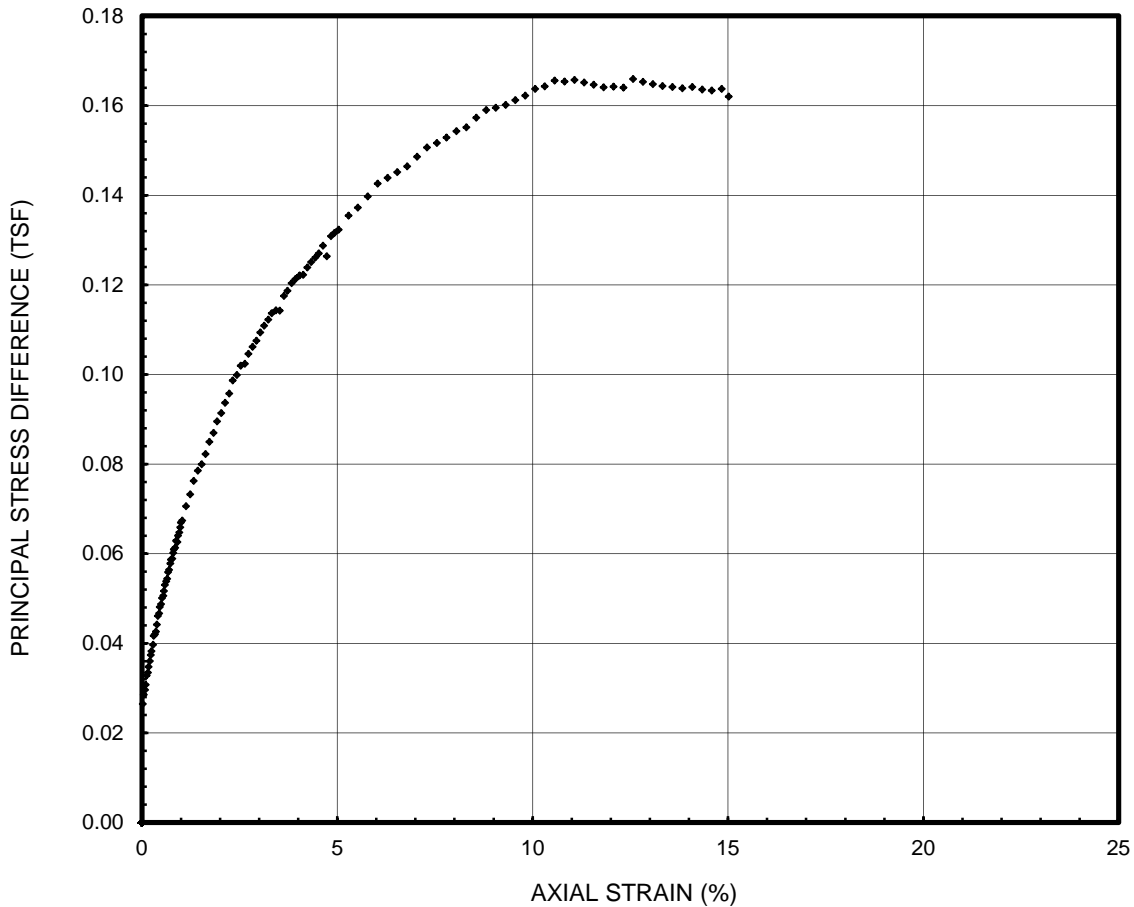


<b>Initial Height</b>	2.815	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.371	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.166	ton/ft <sup>2</sup>
<b>Water Content</b>	78.5	%	<b>Strain at Peak Stress</b>	9.83	%
<b>Saturation</b>	100	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-123</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ organics



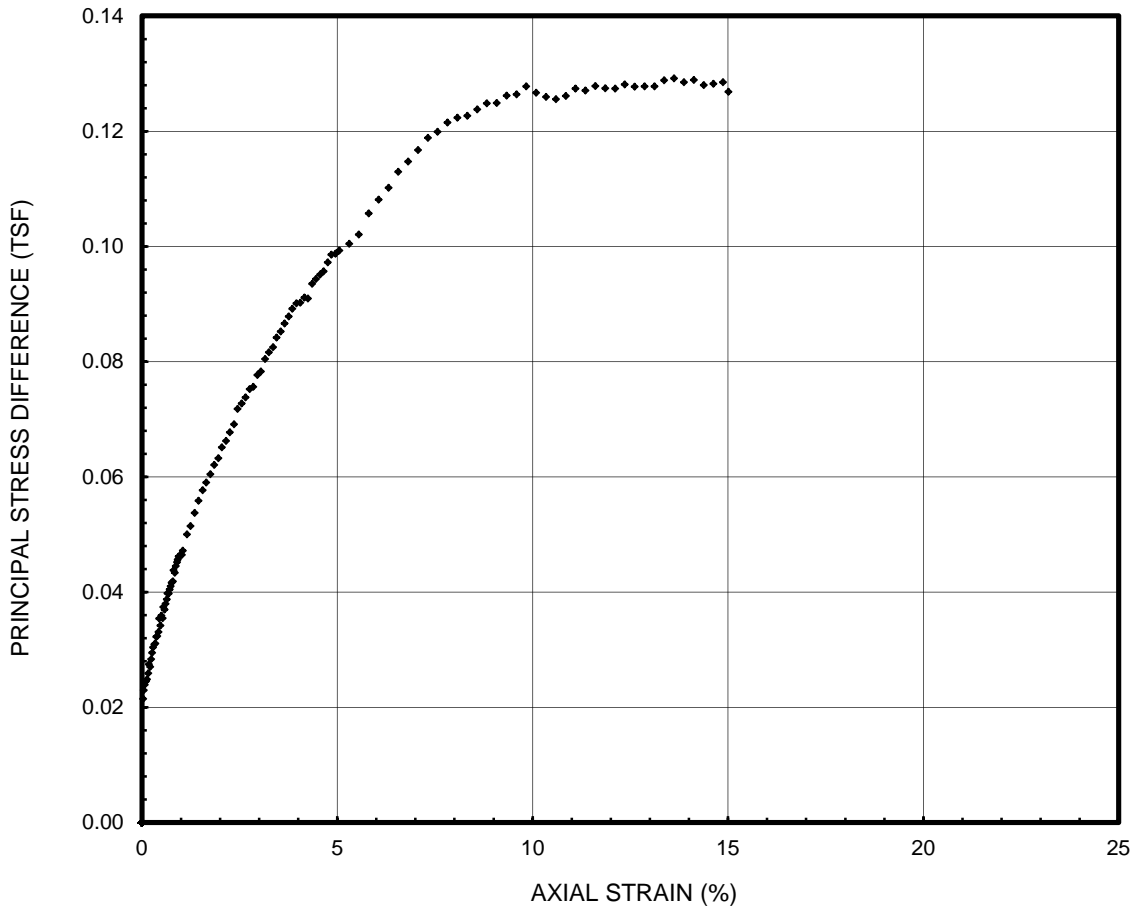
<b>Initial Height</b>	5.785	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.809	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	50.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.166	ton/ft <sup>2</sup>
<b>Water Content</b>	91.8	%	<b>Strain at Peak Stress</b>	12.57	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-124</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH) w/ organics

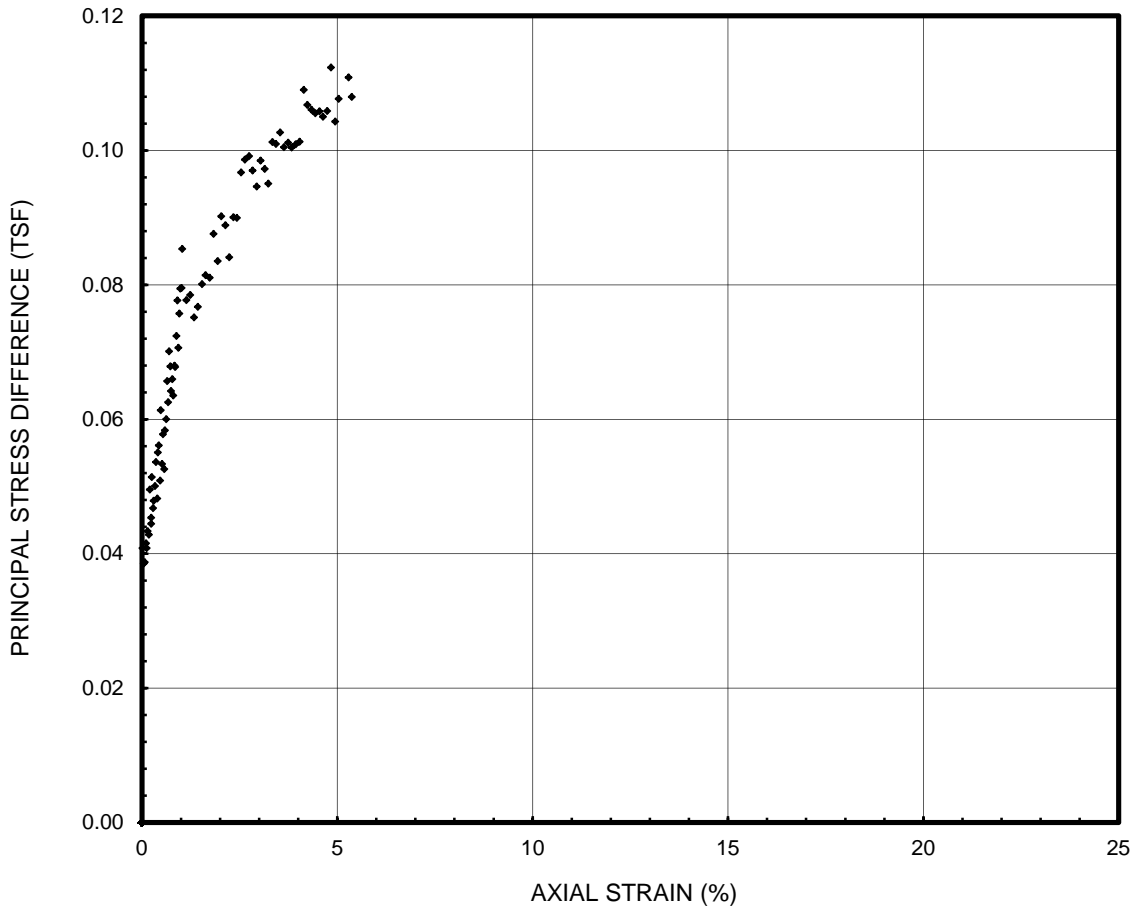


<b>Initial Height</b>	5.802	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.872	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.129	ton/ft <sup>2</sup>
<b>Water Content</b>	81.9	%	<b>Strain at Peak Stress</b>	13.62	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-125</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-15  
**Depth**                18-20        ft  
**Description**         Gray CLAY (CH) w/ organics and sand

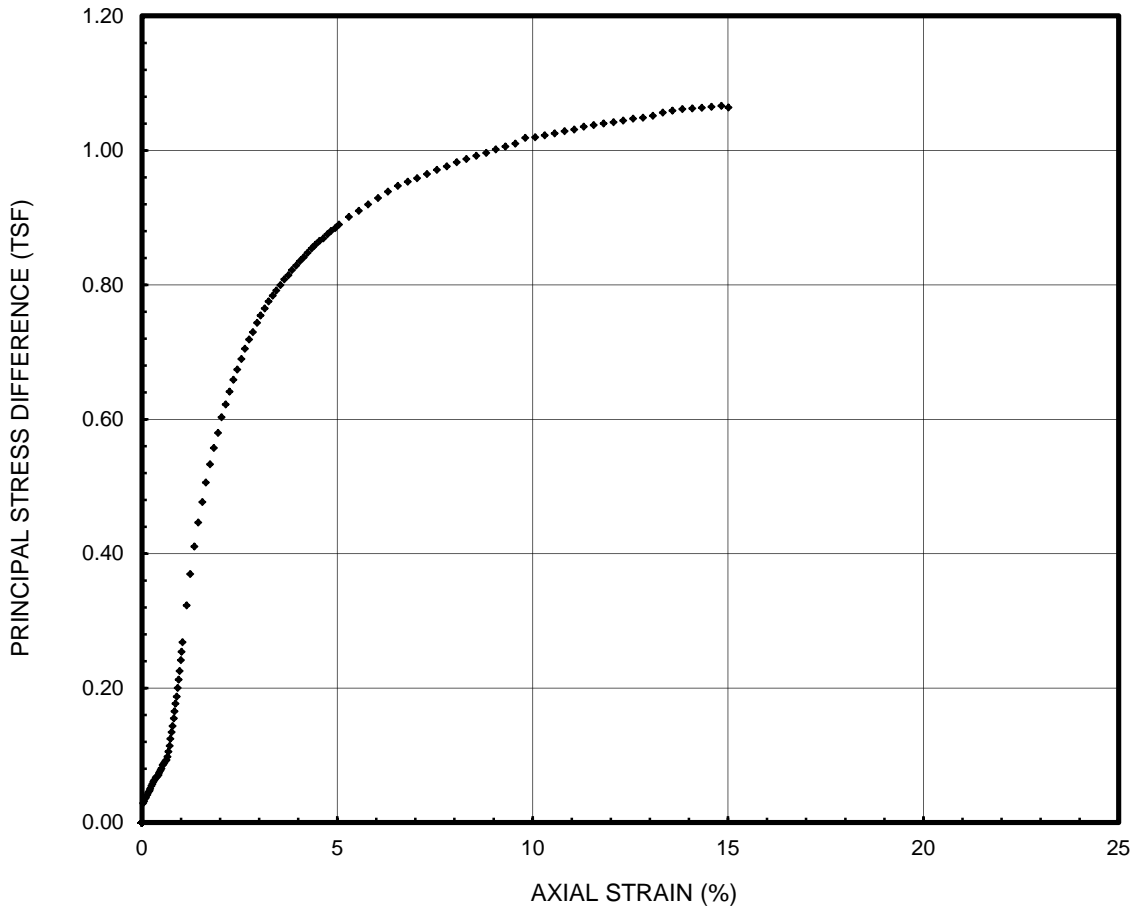


<b>Initial Height</b>	2.789	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.388	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	79.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.112	ton/ft <sup>2</sup>
<b>Water Content</b>	38.9	%	<b>Strain at Peak Stress</b>	4.84	%
<b>Saturation</b>	95	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-126</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 23-25 ft  
**Description** Gray CLAY (CH) w/ sand

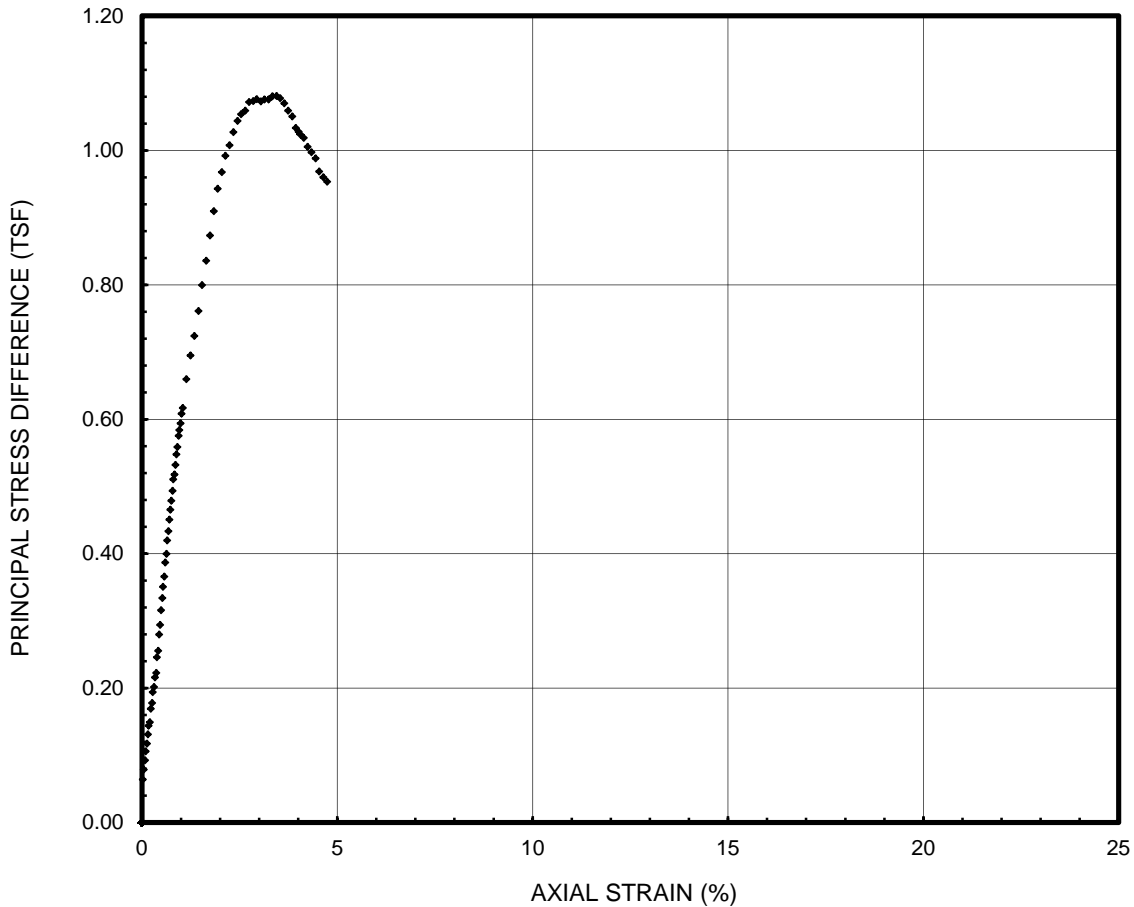


<b>Initial Height</b>	5.595	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.845	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	102.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.066	ton/ft <sup>2</sup>
<b>Water Content</b>	24.0	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Bulging	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-127</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 33-35 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

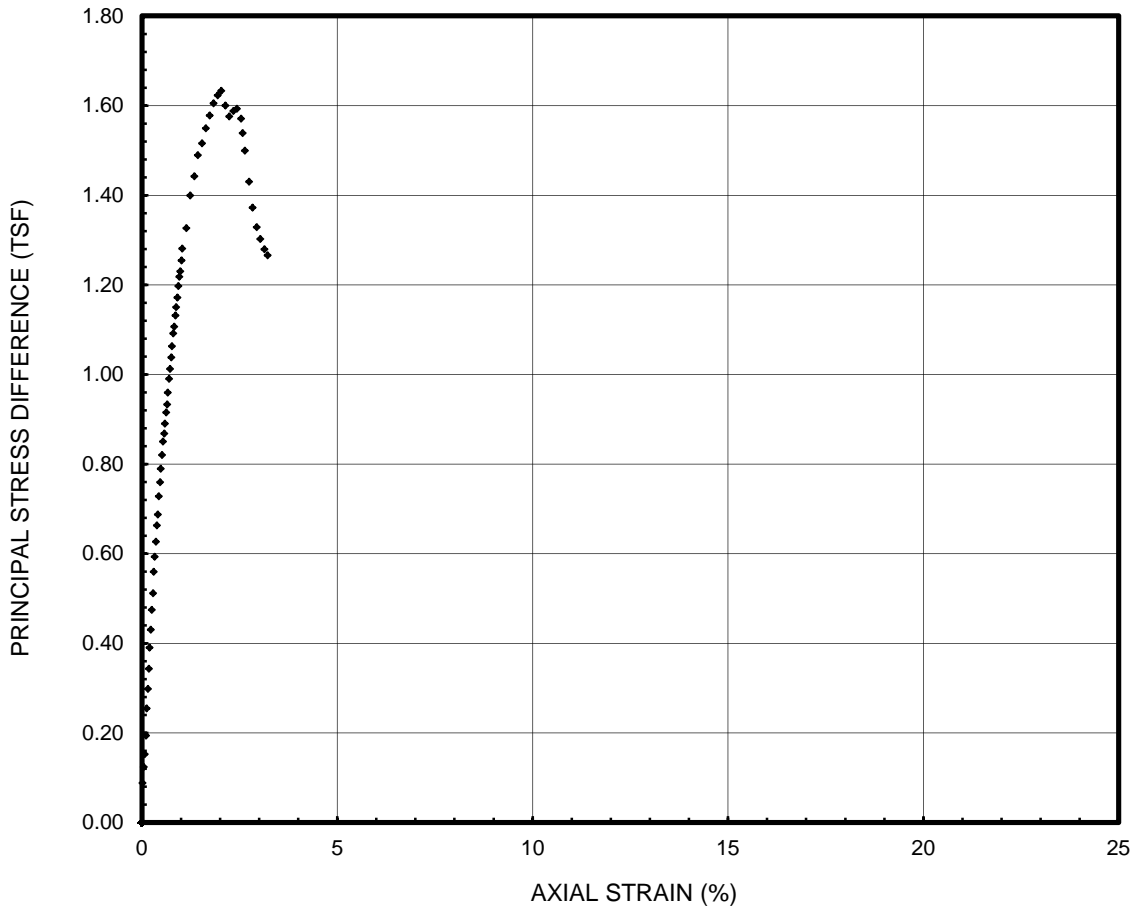


<b>Initial Height</b> 2.656 in	<b>Cell Pressure</b> 14.00 lb/in <sup>2</sup>
<b>Initial Diameter</b> 1.406 in	<b>Strain Rate</b> 1.0 %/min
<b>Dry Density</b> 88.6 lb/ft <sup>3</sup>	<b>Peak Stress</b> 1.081 ton/ft <sup>2</sup>
<b>Water Content</b> 31.4 %	<b>Strain at Peak Stress</b> 3.45 %
<b>Saturation</b> 96 %	<b>Failure Type</b> Diagonal Plane


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-128</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 43-45 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

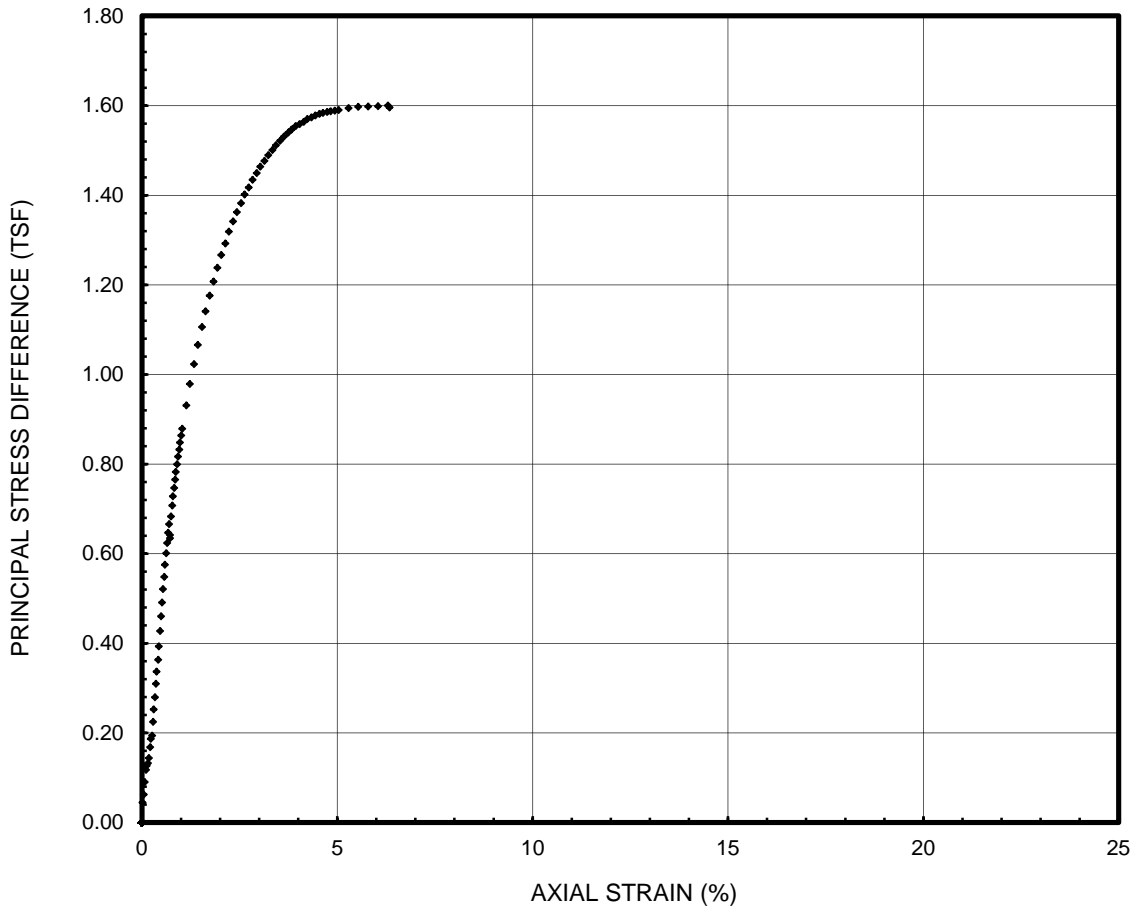


<b>Initial Height</b>	2.803	in	<b>Cell Pressure</b>	18.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.415	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	84.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.633	ton/ft <sup>2</sup>
<b>Water Content</b>	37.0	%	<b>Strain at Peak Stress</b>	2.03	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-129</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-15  
**Depth** 53-55 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

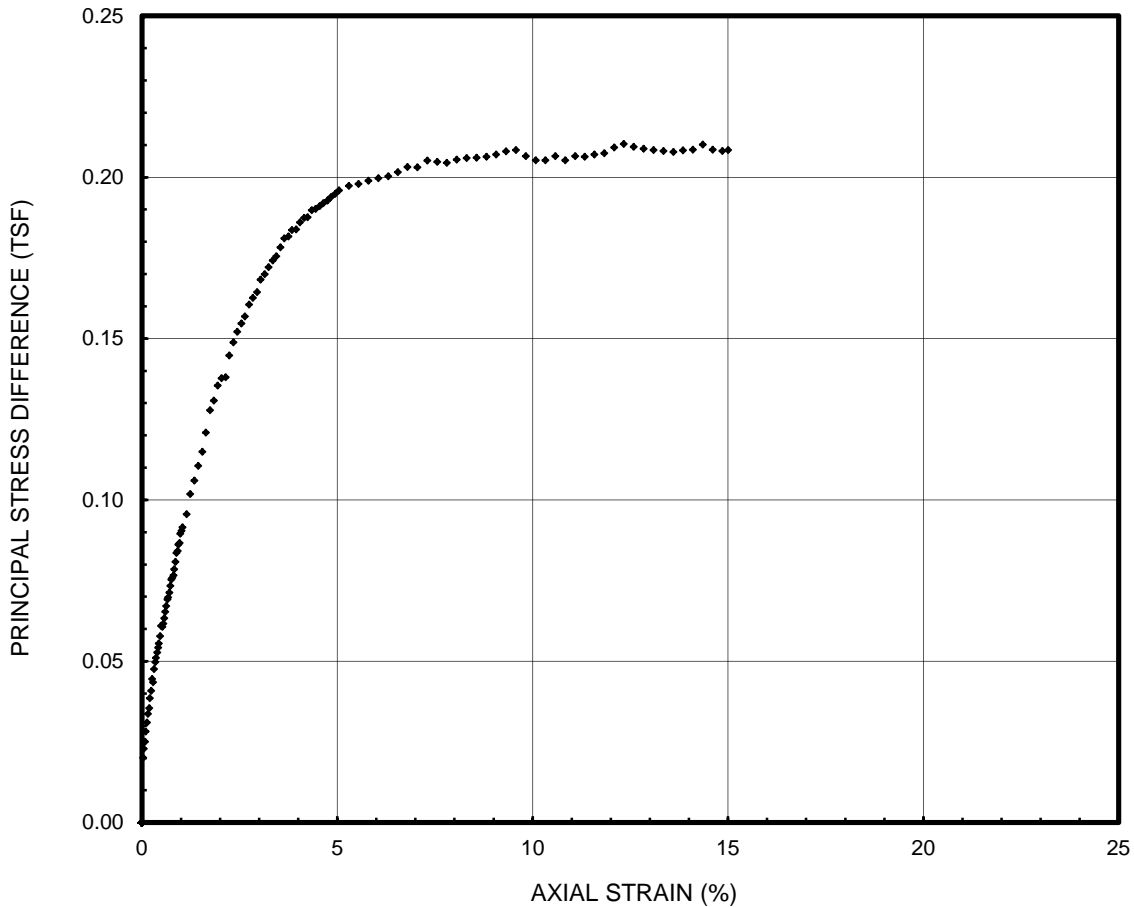


<b>Initial Height</b>	5.761	in	<b>Cell Pressure</b>	22.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.860	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	85.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.600	ton/ft <sup>2</sup>
<b>Water Content</b>	36.3	%	<b>Strain at Peak Stress</b>	6.29	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Bulging	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-130</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH) w/ trace organics

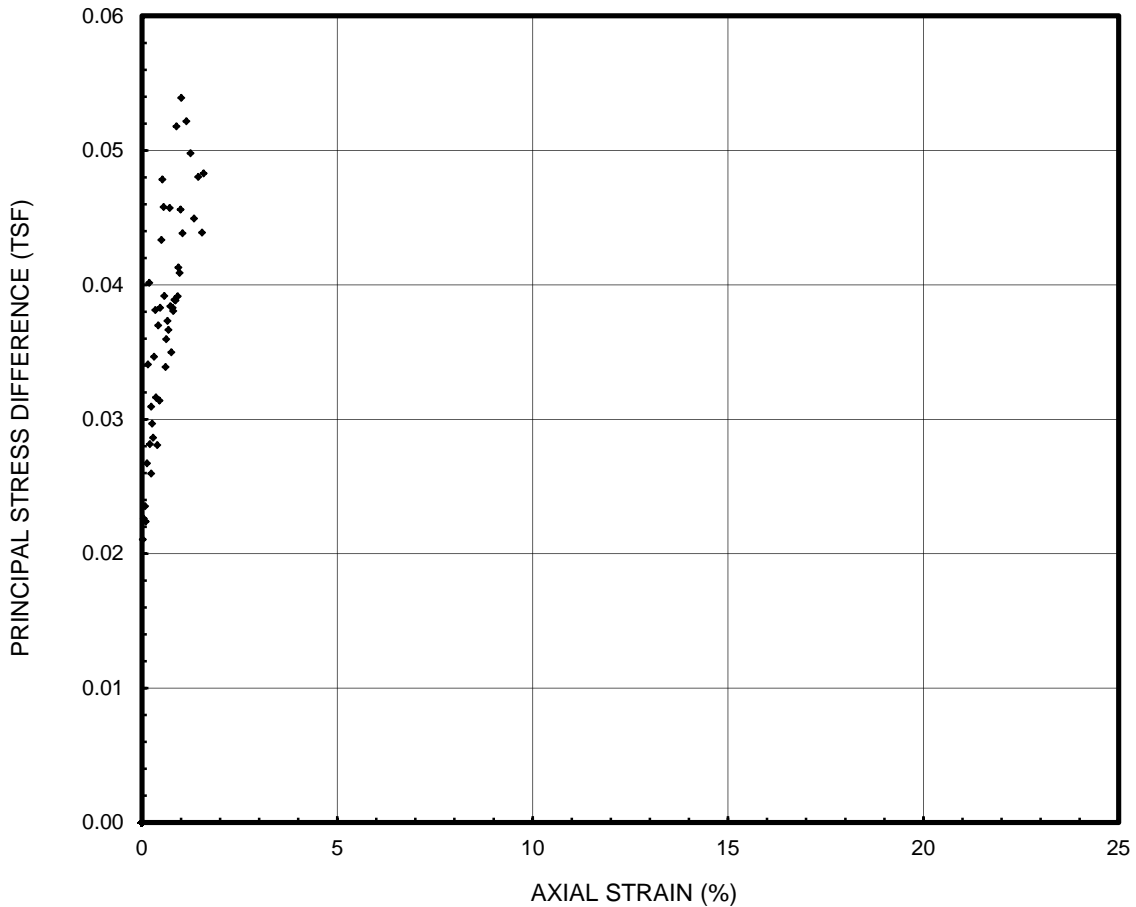


<b>Initial Height</b>	5.809	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.808	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	49.1	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.210	ton/ft <sup>2</sup>
<b>Water Content</b>	90.3	%	<b>Strain at Peak Stress</b>	12.34	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Bulging	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-131</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 4-6 ft  
**Description** Gray CLAY (CH) w/ trace organics and shells



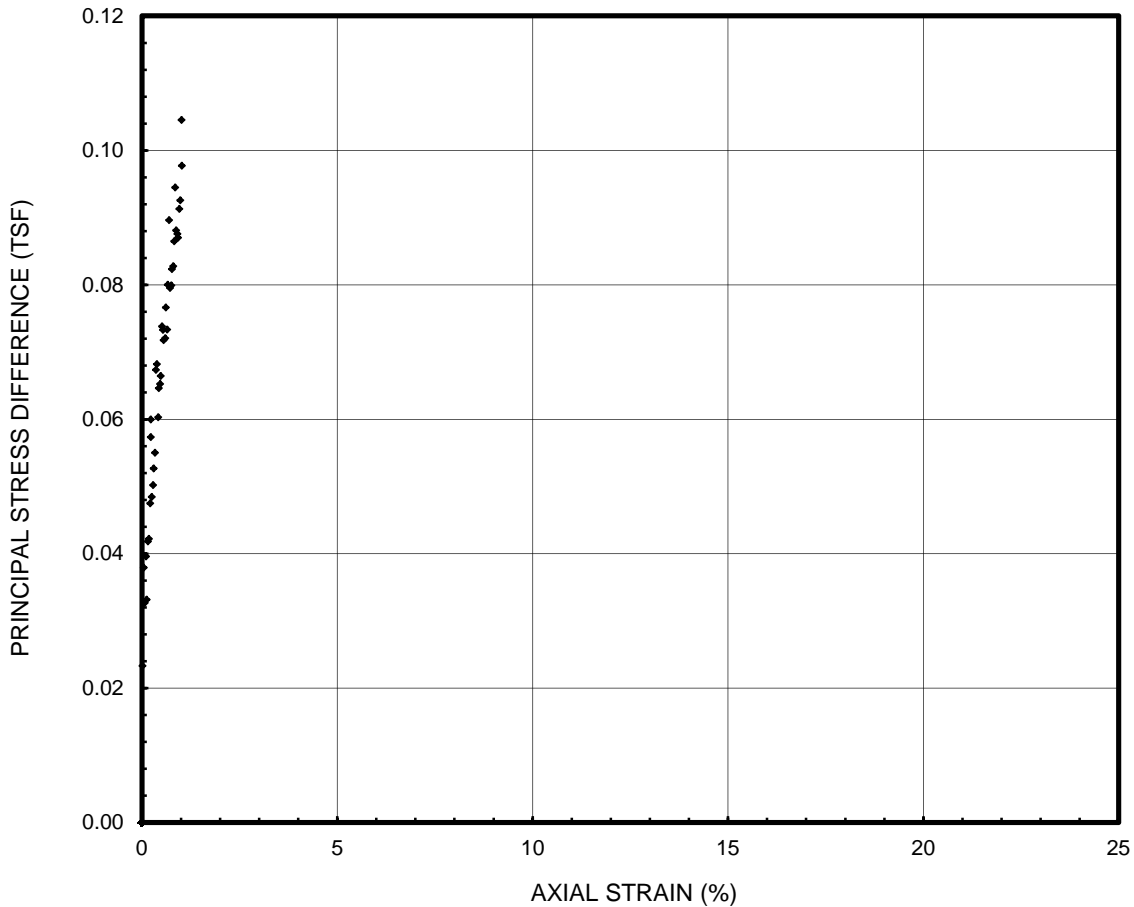
<b>Initial Height</b>	2.794	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.374	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	41.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.054	ton/ft <sup>2</sup>
<b>Water Content</b>	117.5	%	<b>Strain at Peak Stress</b>	1.01	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-132</b>



# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 8-10 ft  
**Description** Gray CLAY (CH) w/ trace organics and sand pockets

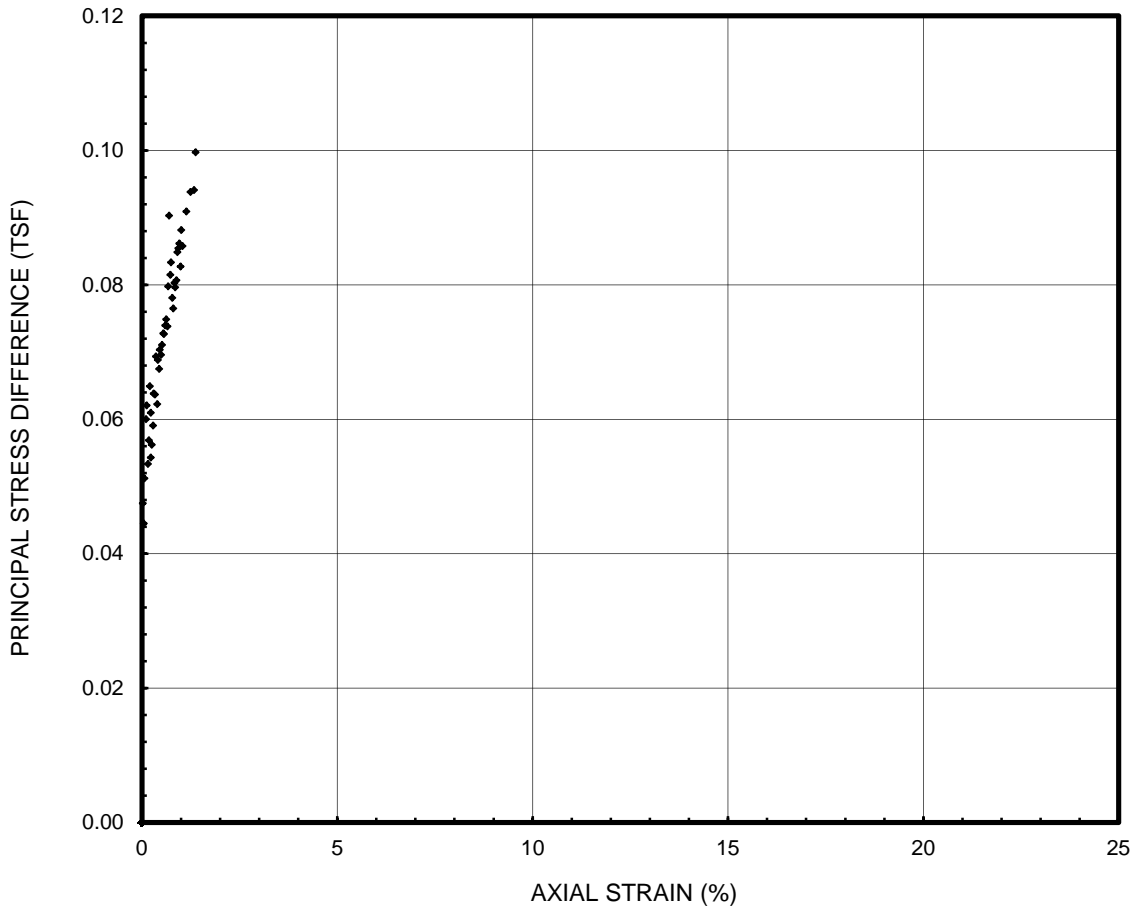


<b>Initial Height</b>	2.793	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.377	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	51.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.105	ton/ft <sup>2</sup>
<b>Water Content</b>	85.2	%	<b>Strain at Peak Stress</b>	1.01	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-133</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 12-14 ft  
**Description** Gray CLAY (CH) w/ trace organics

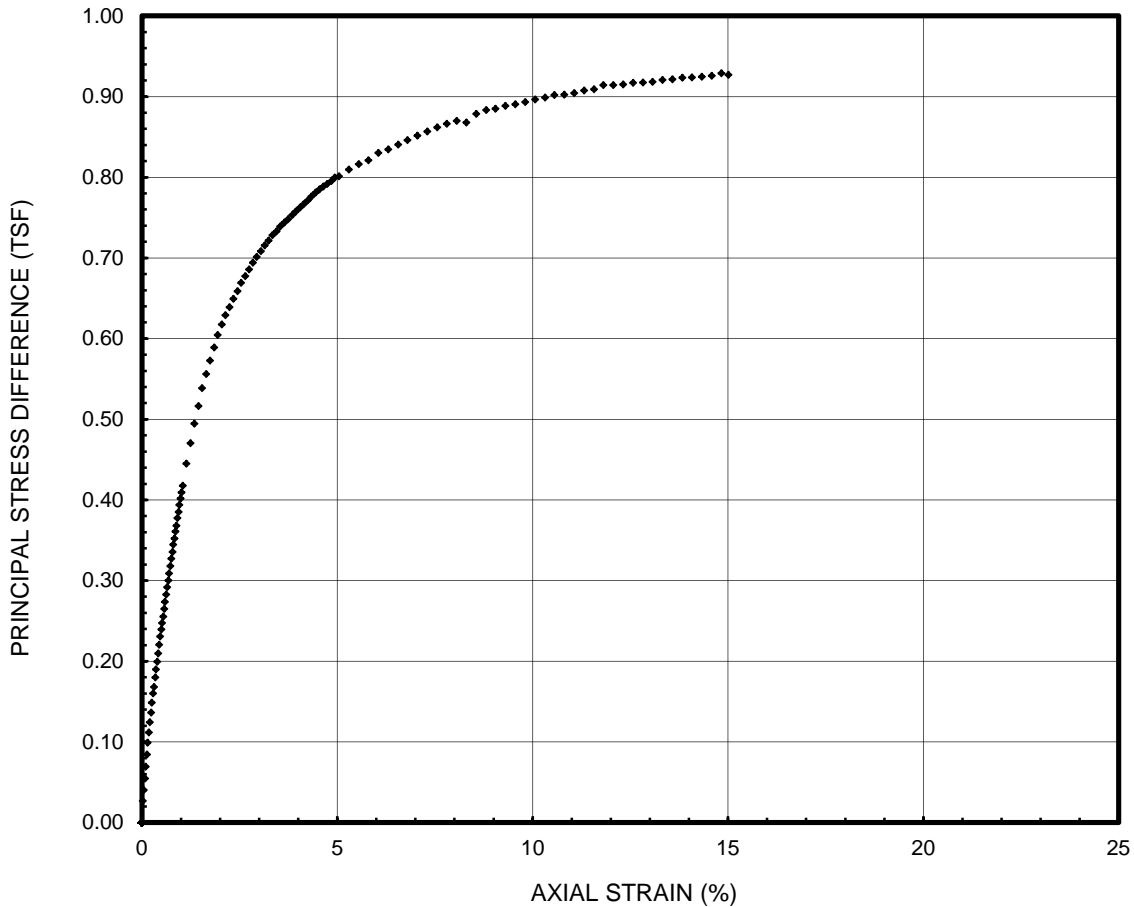


<b>Initial Height</b>	2.794	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.373	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	55.9	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.100	ton/ft <sup>2</sup>
<b>Water Content</b>	76.9	%	<b>Strain at Peak Stress</b>	1.38	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-134</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 16-18 ft  
**Description** Gray SILTY CLAY (CL)

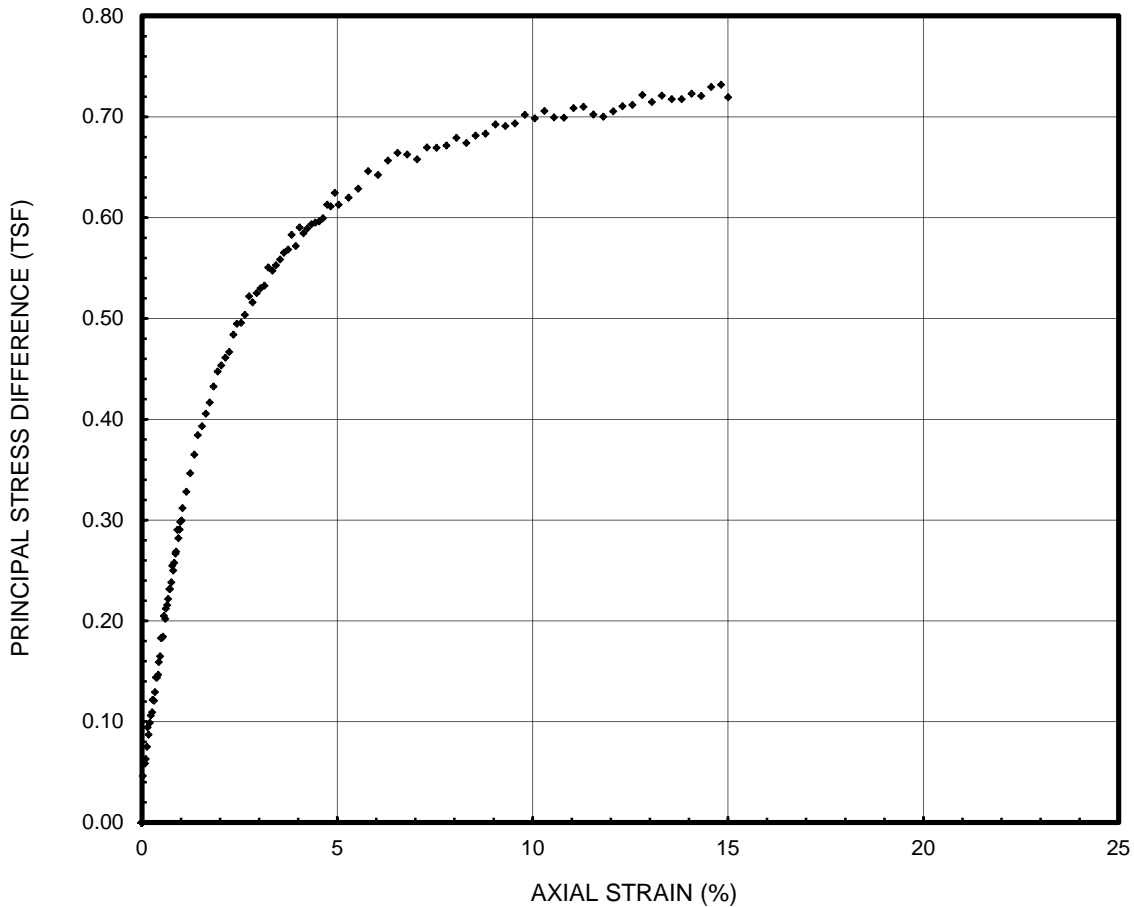


<b>Initial Height</b>	5.825	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.850	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	94.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.929	ton/ft <sup>2</sup>
<b>Water Content</b>	31.1	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Bulging	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-135</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-16  
**Depth**                18-20        ft  
**Description**         Gray CLAY (CH) w/ silt

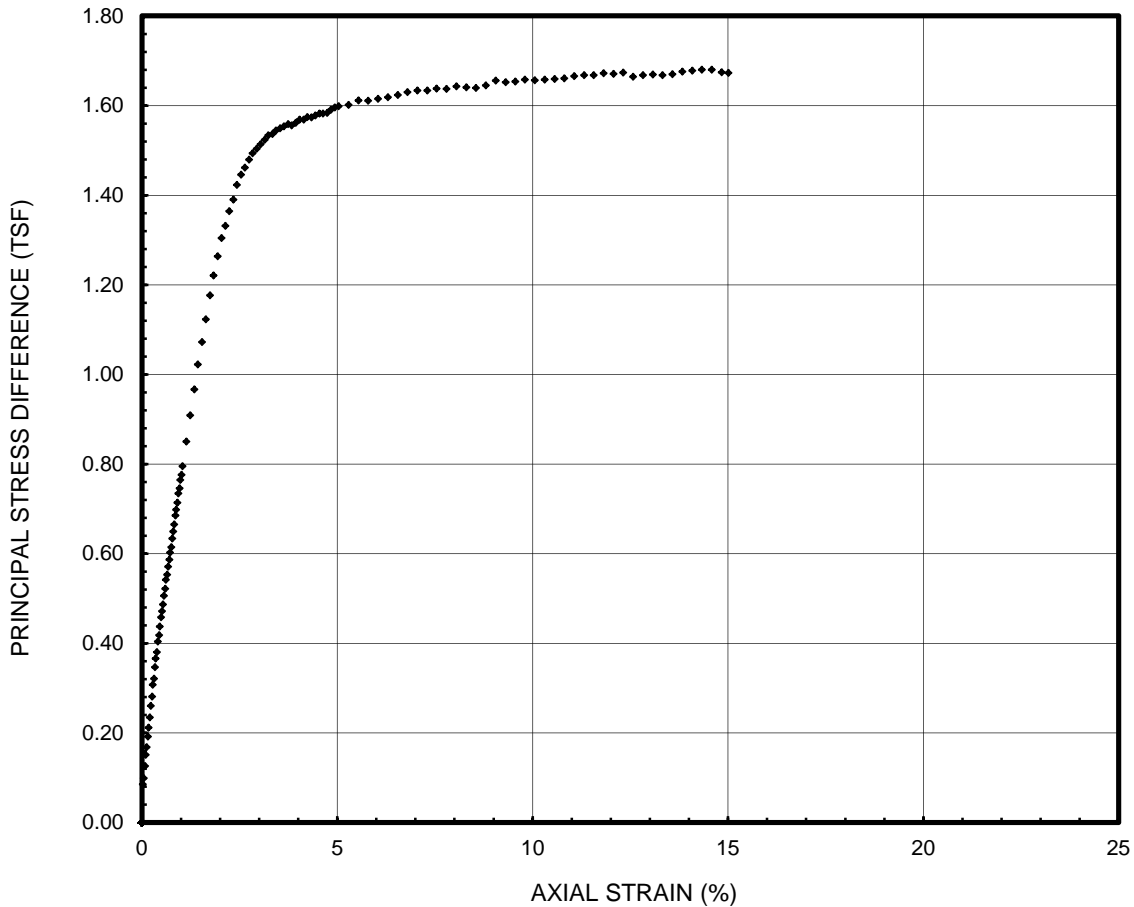


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.392	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	91.3	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.732	ton/ft <sup>2</sup>
<b>Water Content</b>	31.0	%	<b>Strain at Peak Stress</b>	14.82	%
<b>Saturation</b>	101	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-136</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 23-25 ft  
**Description** Gray SILTY CLAY (CL) w/ sand layers

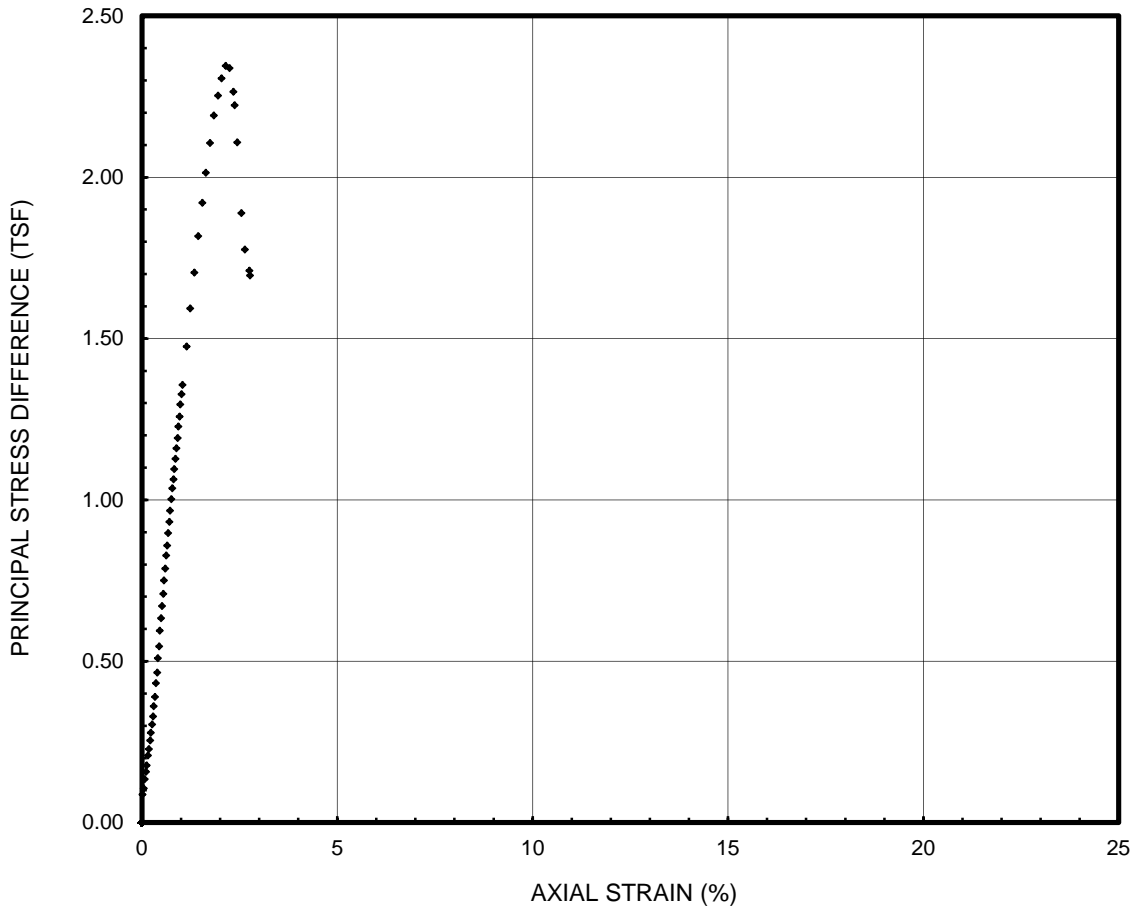


<b>Initial Height</b>	2.726	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.410	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	99.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.680	ton/ft <sup>2</sup>
<b>Water Content</b>	23.7	%	<b>Strain at Peak Stress</b>	14.58	%
<b>Saturation</b>	95	%	<b>Failure Type</b>	Combination	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-137</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-16  
**Depth** 33-35 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

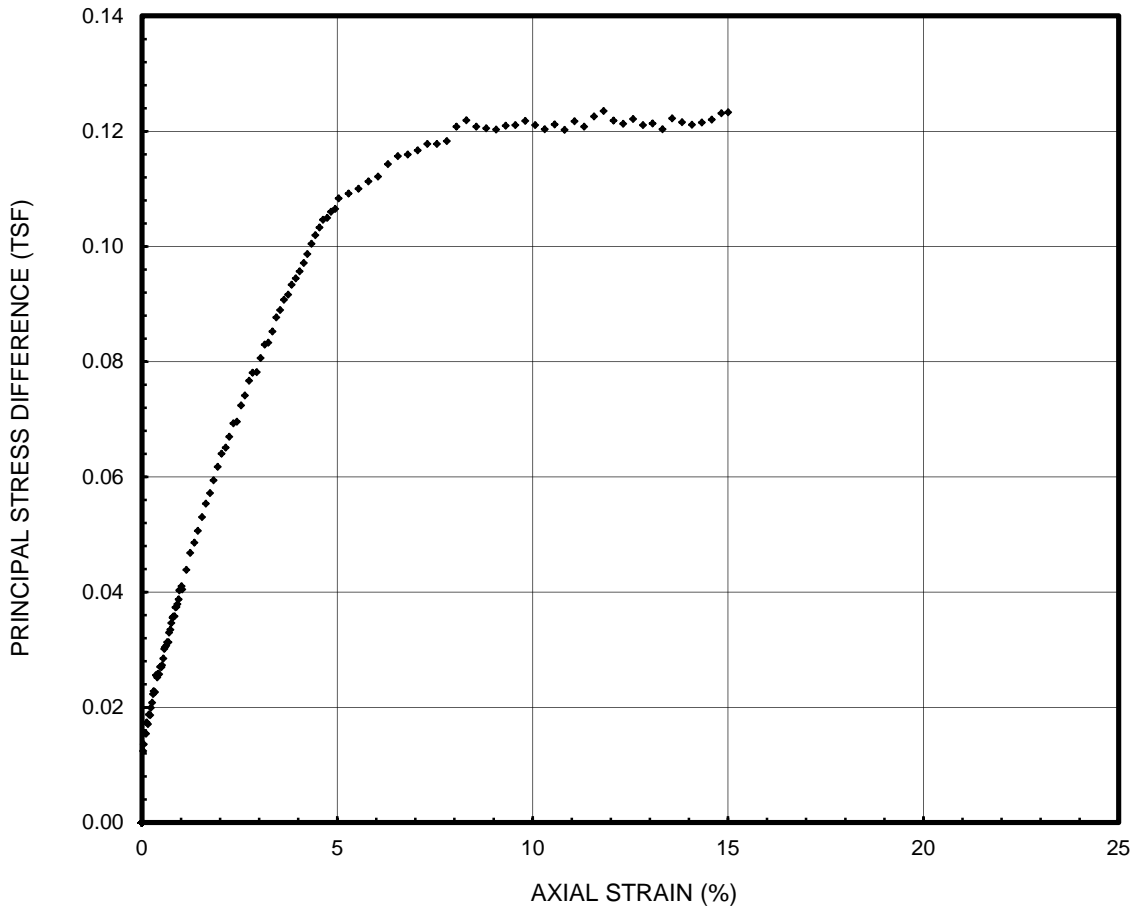


<b>Initial Height</b>	2.801	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.401	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	90.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.346	ton/ft <sup>2</sup>
<b>Water Content</b>	32.3	%	<b>Strain at Peak Stress</b>	2.15	%
<b>Saturation</b>	104	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-138</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-17  
**Depth**                0-2                ft  
**Description**         Gray CLAY (CH)

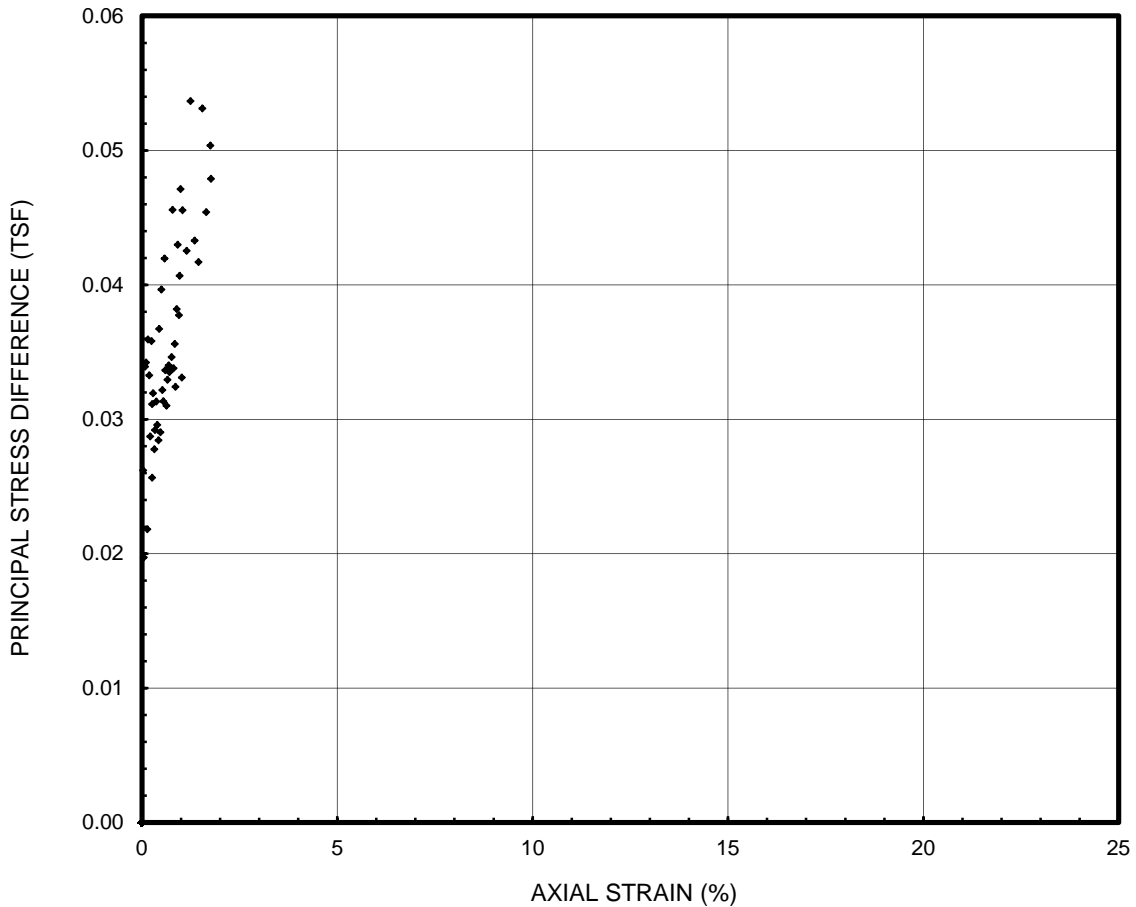


<b>Initial Height</b>	5.764	in	<b>Cell Pressure</b>	1.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.731	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	44.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.124	ton/ft <sup>2</sup>
<b>Water Content</b>	114.0	%	<b>Strain at Peak Stress</b>	11.81	%
<b>Saturation</b>	111	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-139</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 2-4 ft  
**Description** Gray CLAY (CH)



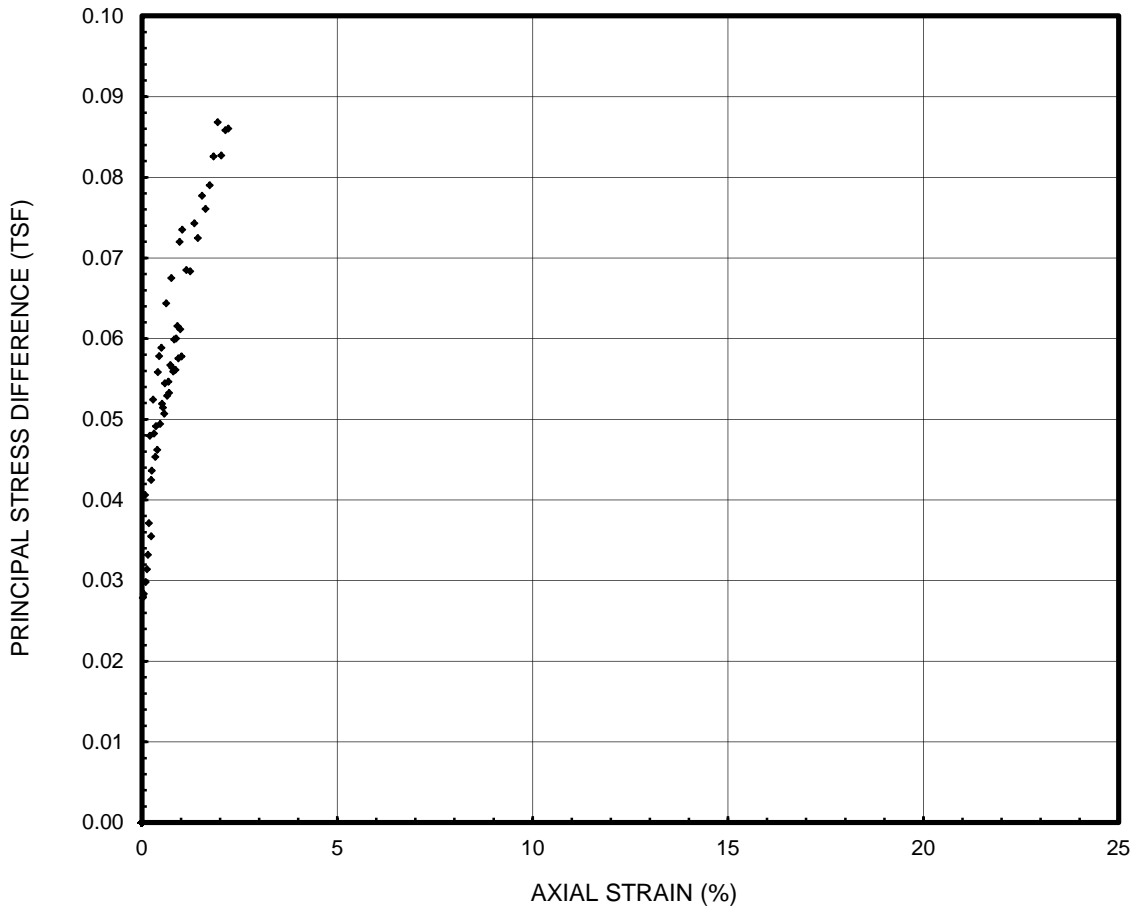
<b>Initial Height</b>	2.781	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.388	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	36.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.054	ton/ft <sup>2</sup>
<b>Water Content</b>	135.6	%	<b>Strain at Peak Stress</b>	1.24	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-140</b>




# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 6-8 ft  
**Description** Gray CLAY (CH)

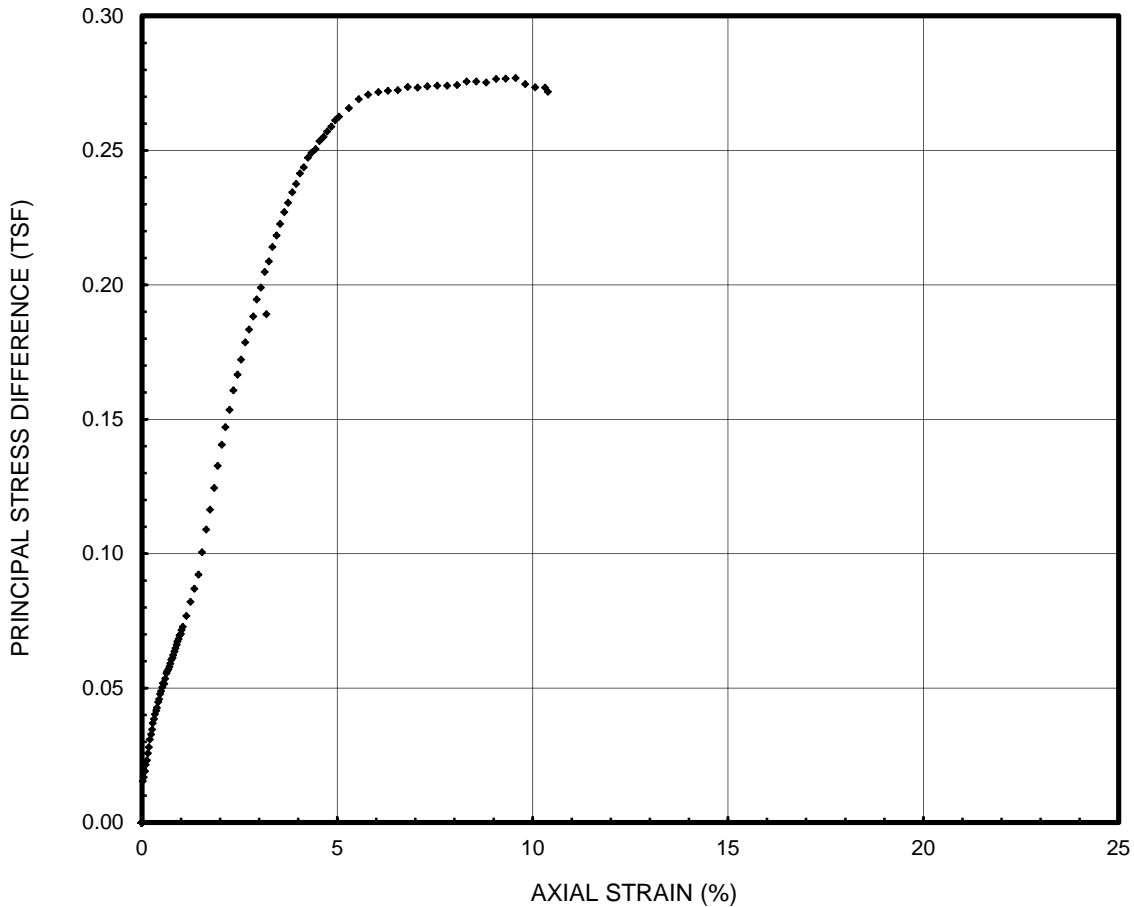


<b>Initial Height</b>	2.800	in	<b>Cell Pressure</b>	3.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.361	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	54.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.087	ton/ft <sup>2</sup>
<b>Water Content</b>	80.5	%	<b>Strain at Peak Stress</b>	1.94	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Other	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-141</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH)

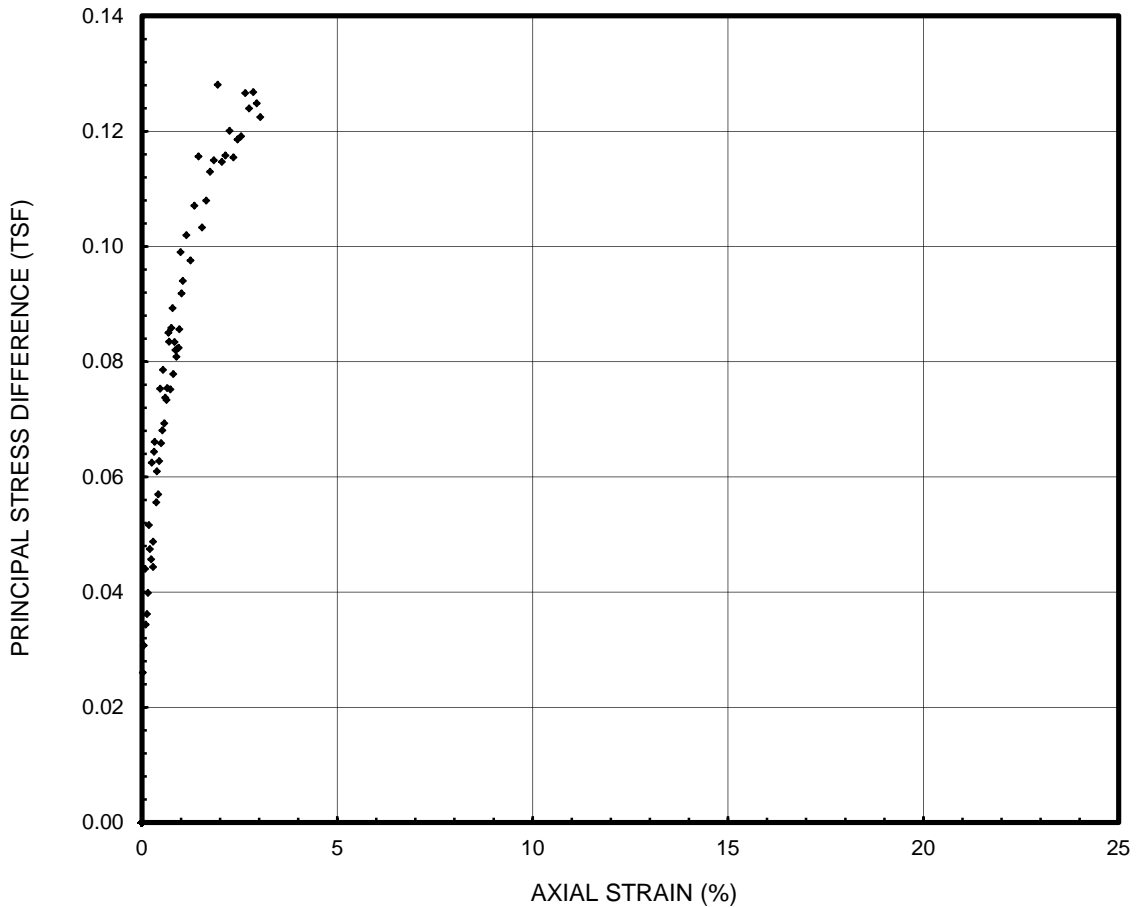


<b>Initial Height</b>	5.777	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.798	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	52.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.277	ton/ft <sup>2</sup>
<b>Water Content</b>	87.1	%	<b>Strain at Peak Stress</b>	9.57	%
<b>Saturation</b>	106	%	<b>Failure Type</b>	Combination	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-142</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 14-16 ft  
**Description** Gray CLAY (CH)

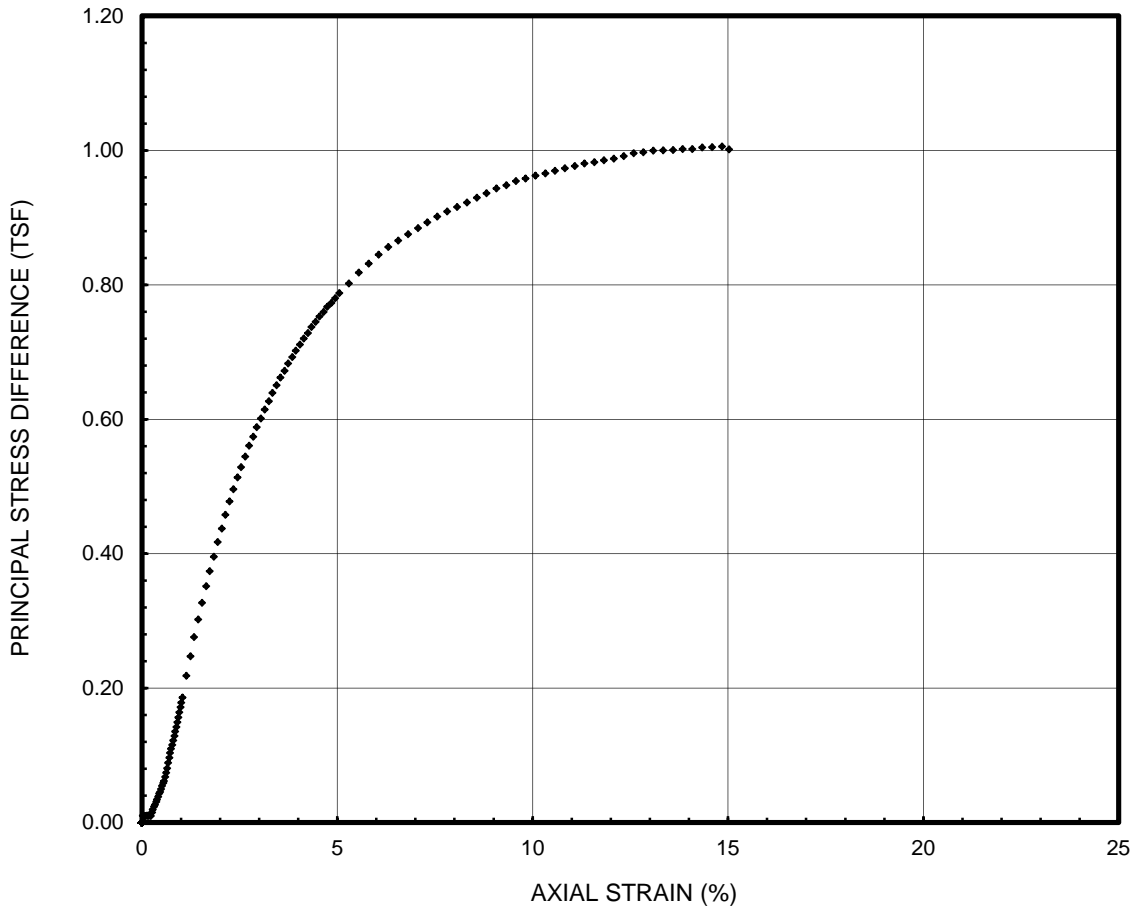


<b>Initial Height</b>	2.797	in	<b>Cell Pressure</b>	6.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.383	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	50.7	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.128	ton/ft <sup>2</sup>
<b>Water Content</b>	87.0	%	<b>Strain at Peak Stress</b>	1.94	%
<b>Saturation</b>	102	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-143</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 16-18 ft  
**Description** Gray SILTY CLAY (CL)

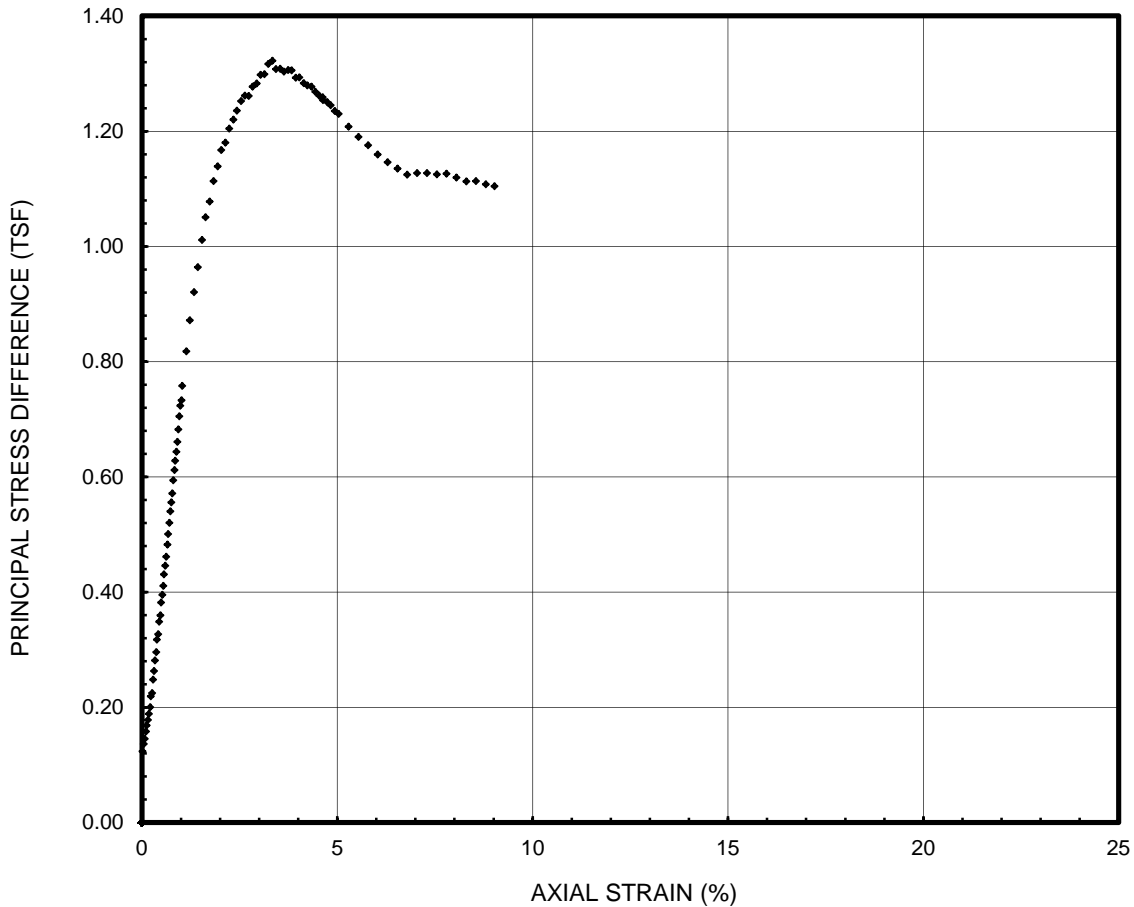


<b>Initial Height</b>	5.820	in	<b>Cell Pressure</b>	7.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.814	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	101.2	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.006	ton/ft <sup>2</sup>
<b>Water Content</b>	26.7	%	<b>Strain at Peak Stress</b>	14.84	%
<b>Saturation</b>	111	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-144</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 38-40 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

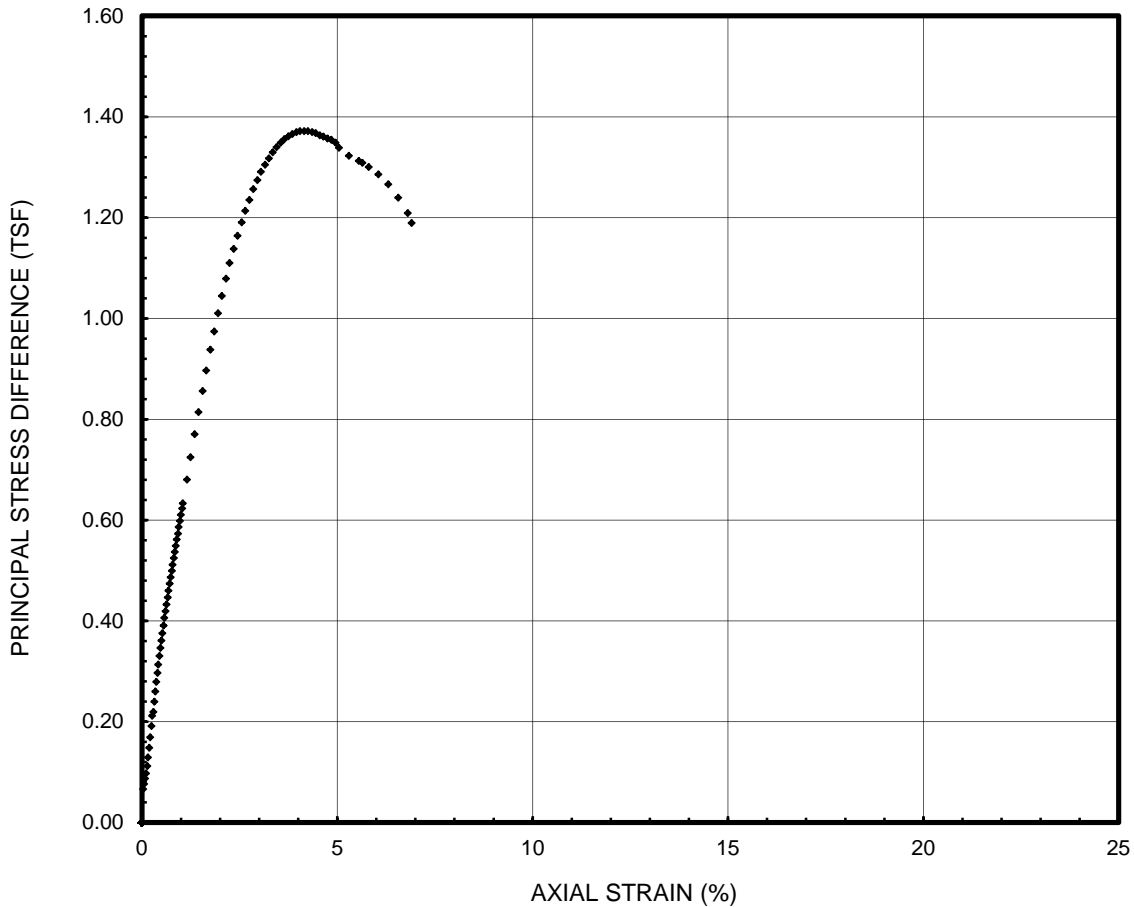


<b>Initial Height</b>	2.805	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.393	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	85.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.322	ton/ft <sup>2</sup>
<b>Water Content</b>	37.2	%	<b>Strain at Peak Stress</b>	3.34	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Diagonal Plane	

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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-145</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-17  
**Depth** 48-50 ft  
**Description** Tan and gray CLAY (CH) w/ silt layers

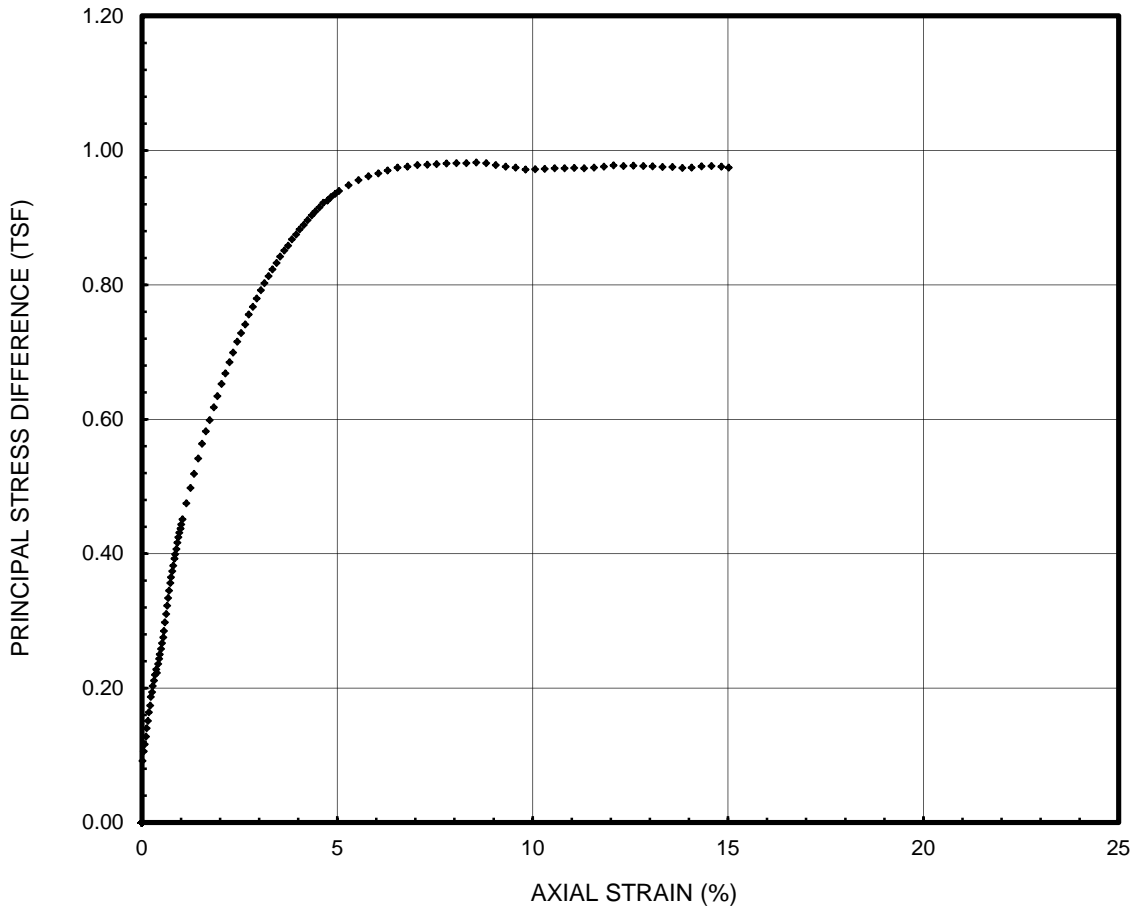


<b>Initial Height</b>	4.569	in	<b>Cell Pressure</b>	20.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.826	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	82.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.372	ton/ft <sup>2</sup>
<b>Water Content</b>	40.6	%	<b>Strain at Peak Stress</b>	4.05	%
<b>Saturation</b>	107	%	<b>Failure Type</b>	Diagonal Plane	


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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-146</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name**      Oyster Bayou  
**Project Number**    12-80-3741  
**Sample Name**        B-17  
**Depth**                58-60        ft  
**Description**         Tan and gray CLAY (CH) w/ silt layers

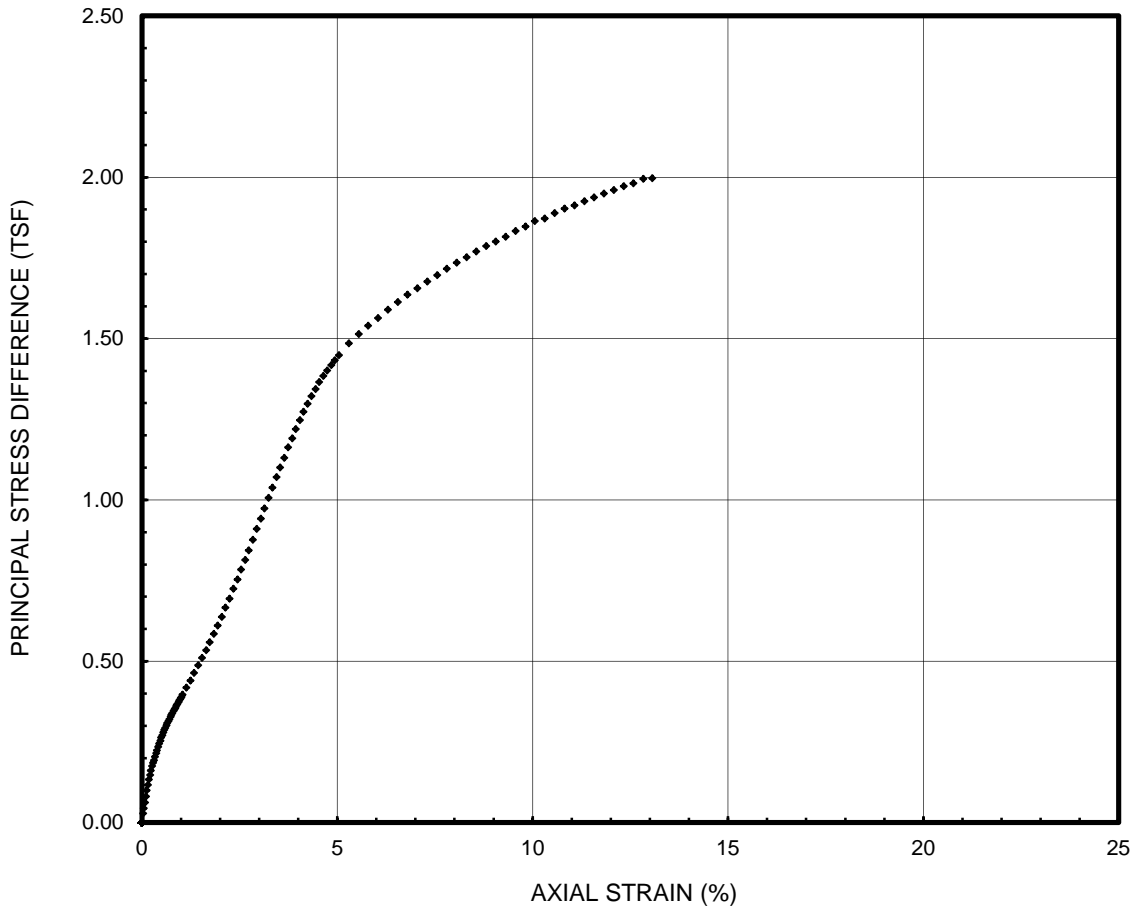


<b>Initial Height</b>	5.603	in	<b>Cell Pressure</b>	24.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.822	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	80.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.982	ton/ft <sup>2</sup>
<b>Water Content</b>	43.3	%	<b>Strain at Peak Stress</b>	8.55	%
<b>Saturation</b>	109	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-147</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-18  
**Depth** 23-25 ft  
**Description** Brown and gray CLAYEY SAND (SC) w/ silt



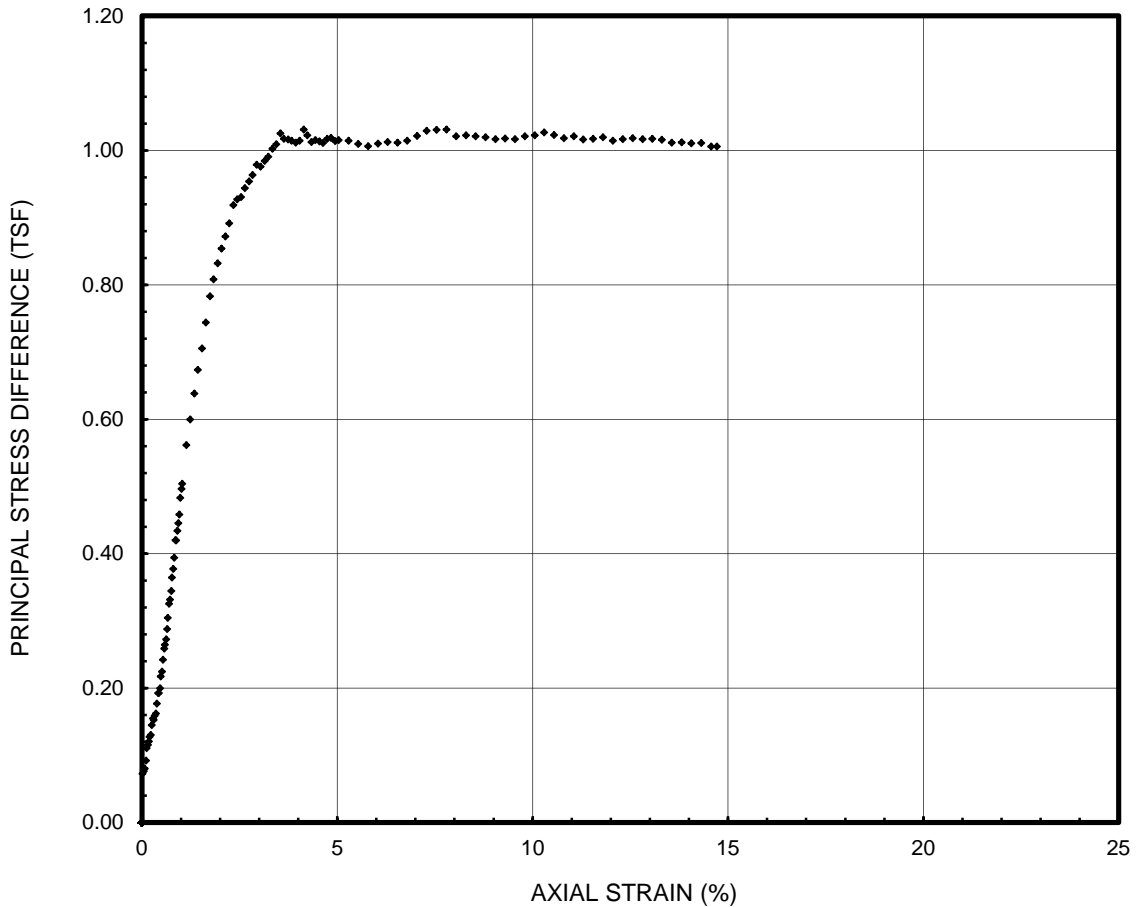
<b>Initial Height</b>	5.601	in	<b>Cell Pressure</b>	10.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.831	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	109.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.997	ton/ft <sup>2</sup>
<b>Water Content</b>	21.0	%	<b>Strain at Peak Stress</b>	13.06	%
<b>Saturation</b>	108	%	<b>Failure Type</b>	Combination	

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Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>04-15-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-148</b>



# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-18  
**Depth** 33-35 ft  
**Description** Gray SILTY CLAY (CL) w/ sand layers

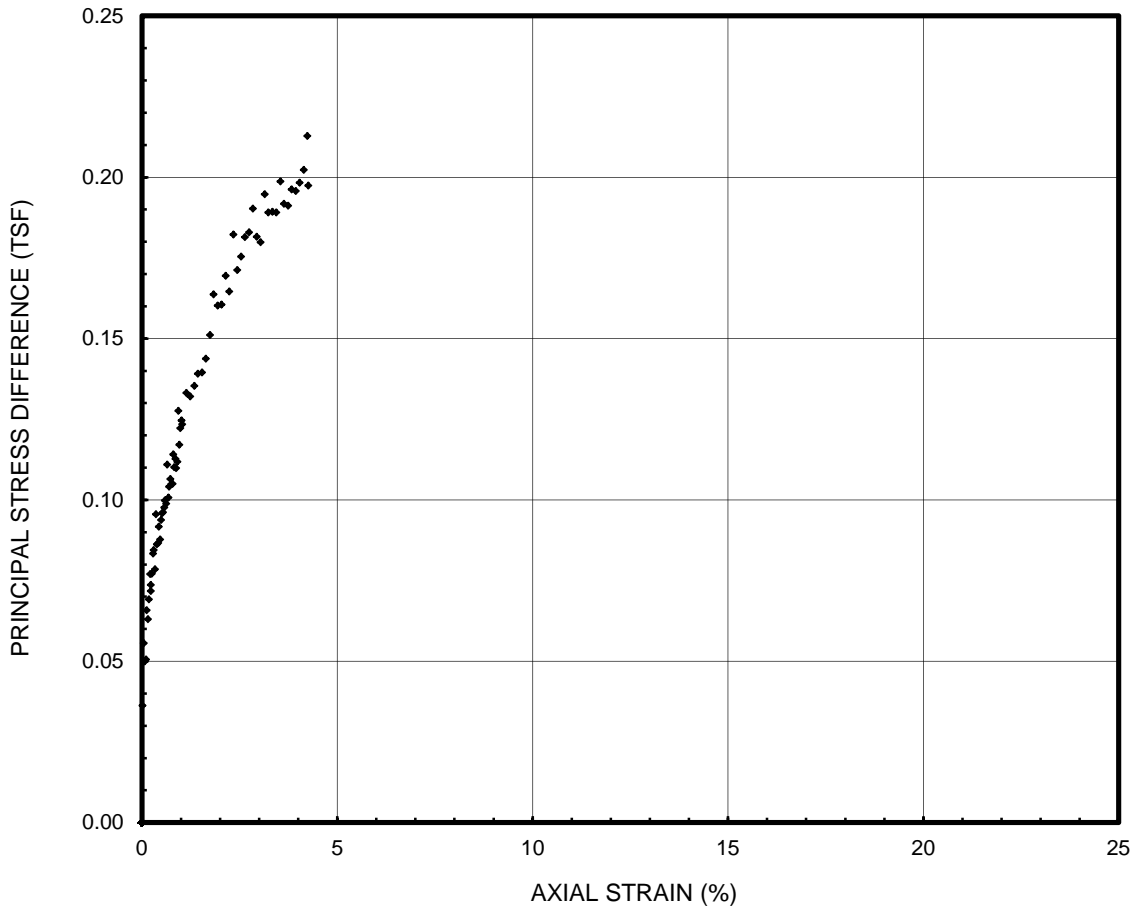


<b>Initial Height</b>	2.789	in	<b>Cell Pressure</b>	14.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.427	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	89.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.031	ton/ft <sup>2</sup>
<b>Water Content</b>	30.0	%	<b>Strain at Peak Stress</b>	7.79	%
<b>Saturation</b>	94	%	<b>Failure Type</b>	Diagonal Plane	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-149</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 4-6 ft  
**Description** Gray SANDY CLAY (CL) w/ silt

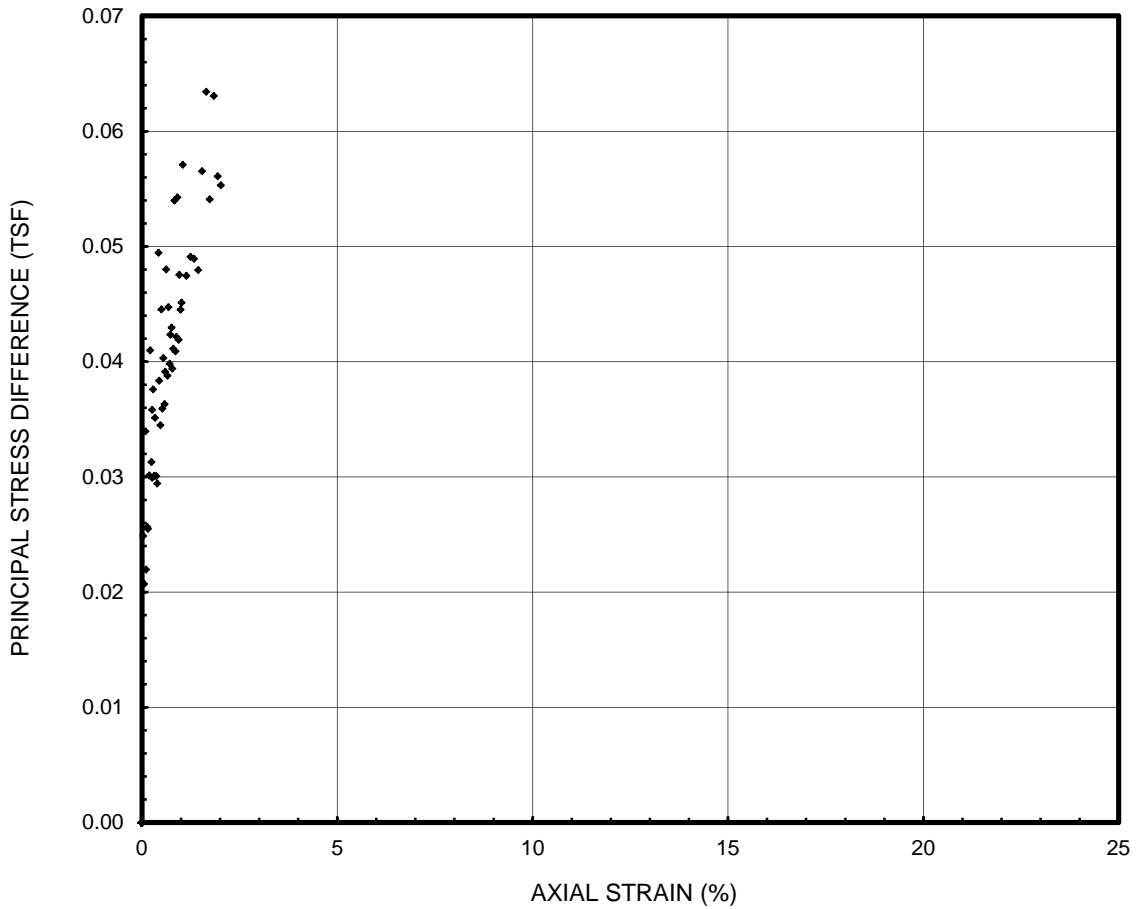


<b>Initial Height</b>	2.791	in	<b>Cell Pressure</b>	2.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.369	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	89.5	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.213	ton/ft <sup>2</sup>
<b>Water Content</b>	30.8	%	<b>Strain at Peak Stress</b>	4.24	%
<b>Saturation</b>	96	%	<b>Failure Type</b>	Combination	


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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-150</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 8-10 ft  
**Description** Gray SANDY CLAY (CL) w/ silt

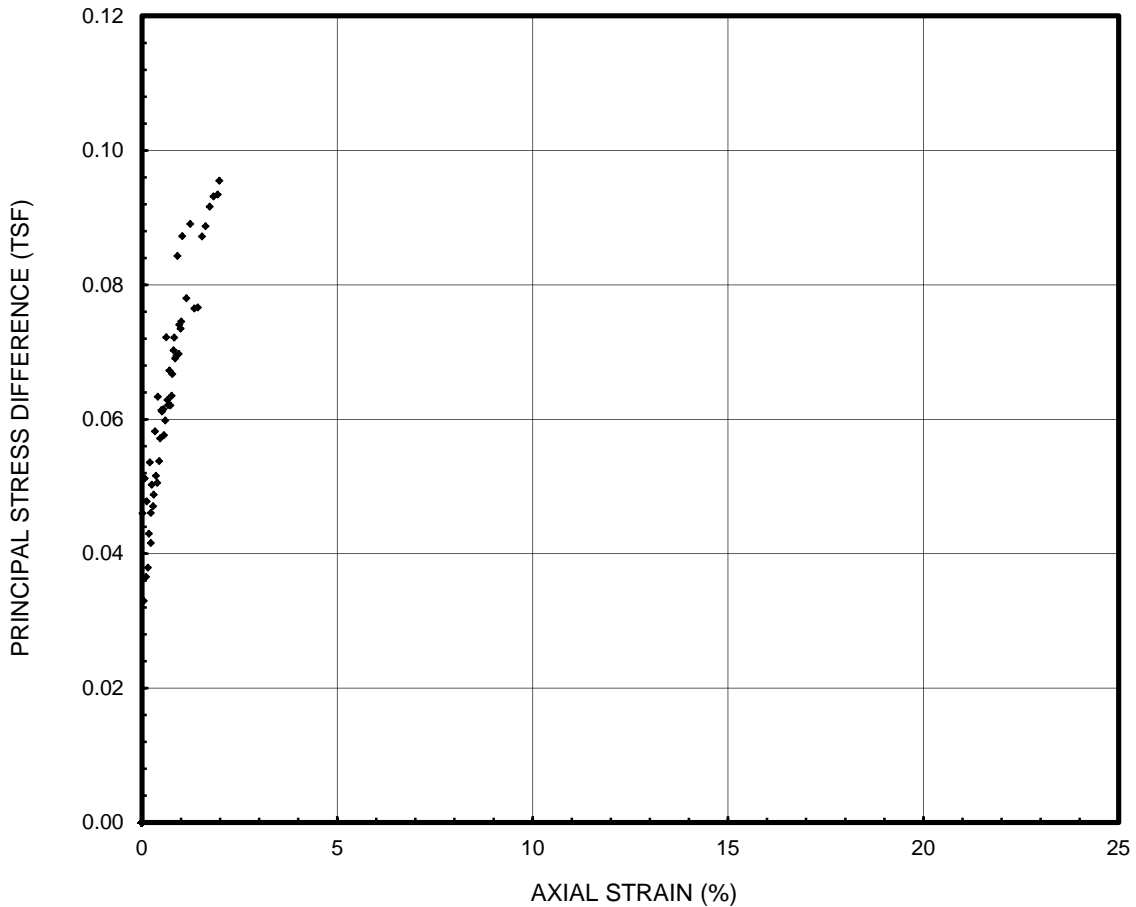


<b>Initial Height</b>	2.786	in	<b>Cell Pressure</b>	4.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.363	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	63.4	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.063	ton/ft <sup>2</sup>
<b>Water Content</b>	62.6	%	<b>Strain at Peak Stress</b>	1.64	%
<b>Saturation</b>	103	%	<b>Failure Type</b>	Combination	

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Oyster Bayou Marsh Restoration CPRA		
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FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-151</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 10-12 ft  
**Description** Gray CLAY (CH)

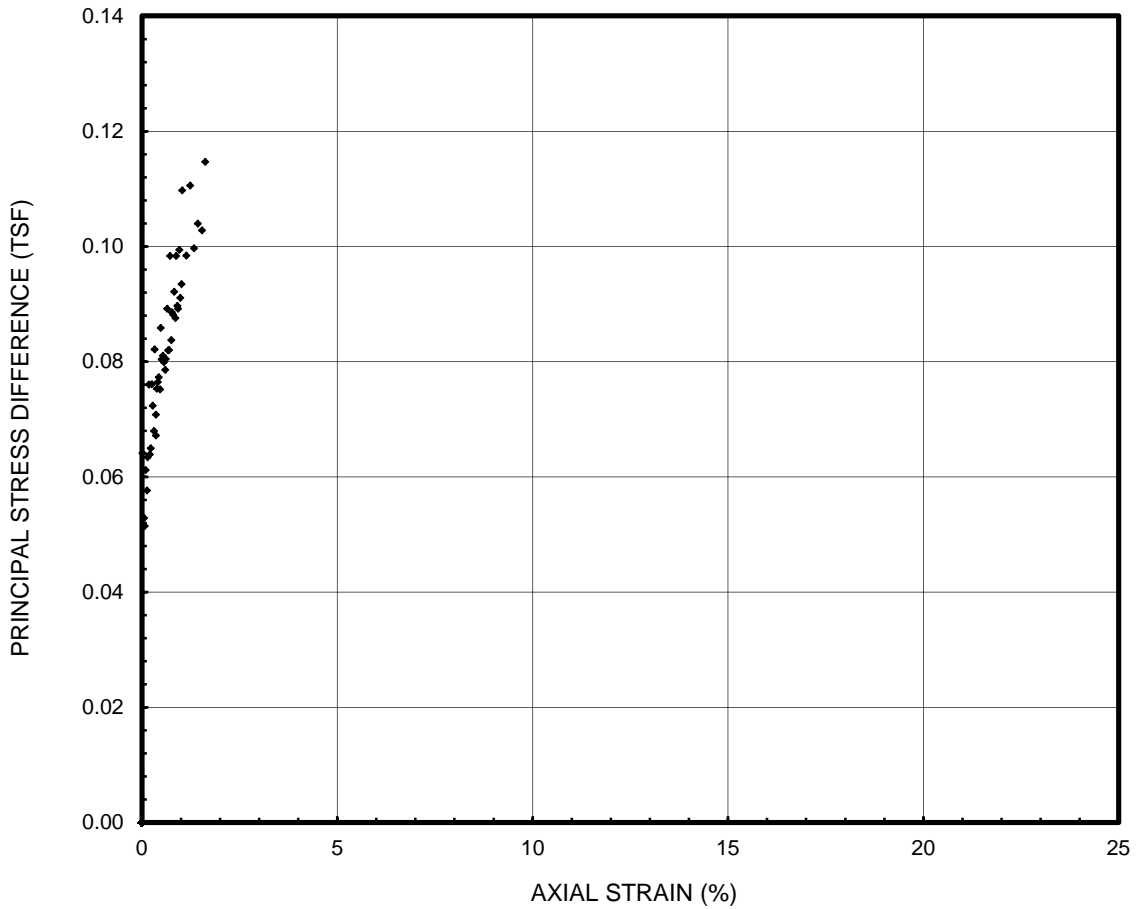


<b>Initial Height</b>	2.804	in	<b>Cell Pressure</b>	5.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.357	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	61.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.095	ton/ft <sup>2</sup>
<b>Water Content</b>	66.5	%	<b>Strain at Peak Stress</b>	1.98	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	


<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>04-15-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-152</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 18-20 ft  
**Description** Gray CLAY (CH)

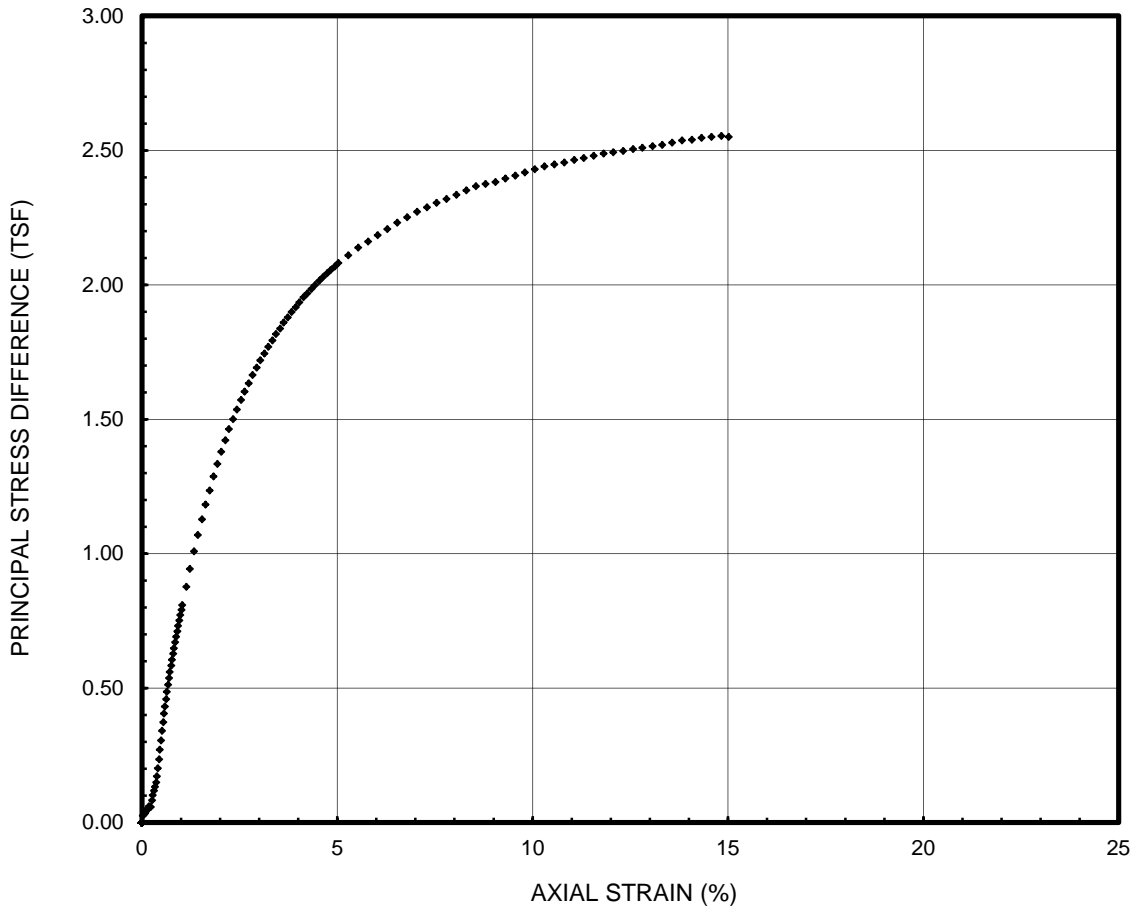


<b>Initial Height</b>	2.792	in	<b>Cell Pressure</b>	8.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.373	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	53.0	lb/ft <sup>3</sup>	<b>Peak Stress</b>	0.115	ton/ft <sup>2</sup>
<b>Water Content</b>	77.9	%	<b>Strain at Peak Stress</b>	1.62	%
<b>Saturation</b>	97	%	<b>Failure Type</b>	Other	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>04-15-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-153</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 28-30 ft  
**Description** Tan and gray SILTY CLAY (CL) w/ trace sand layers

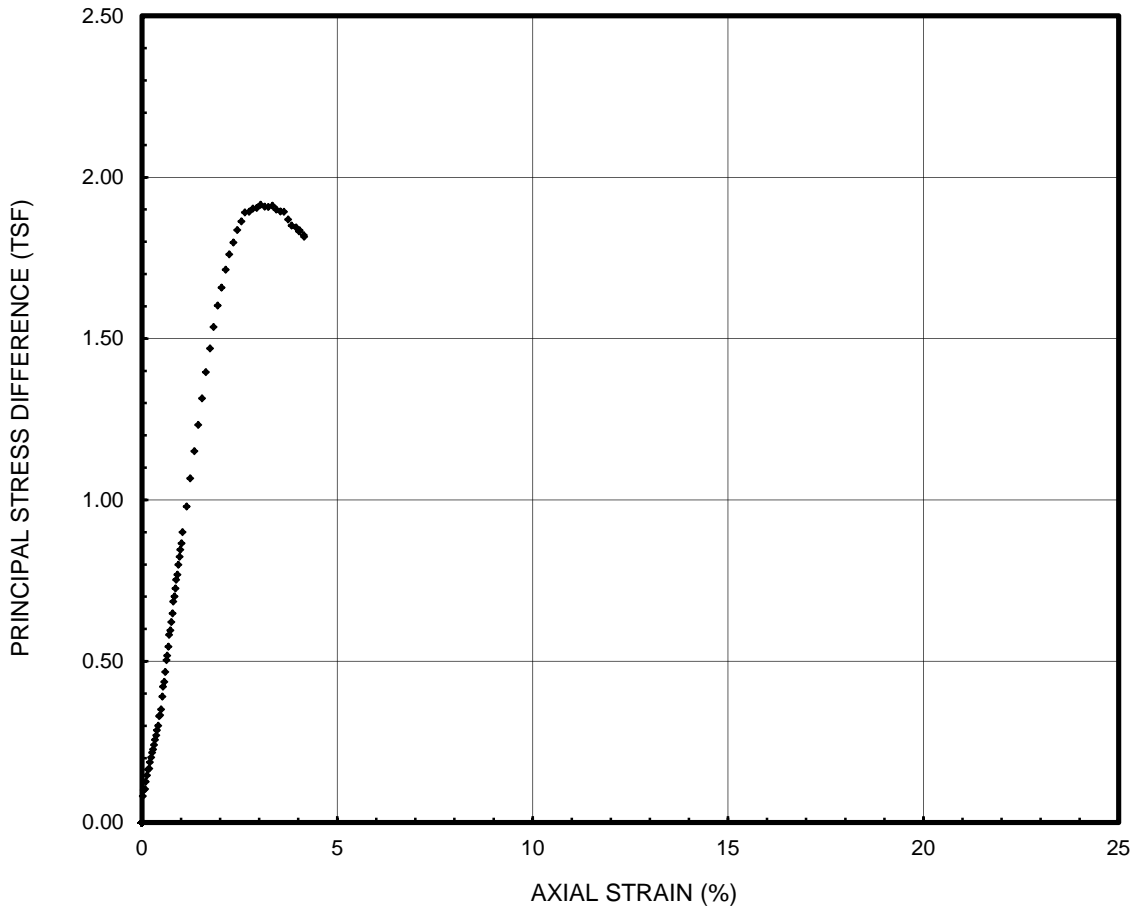


<b>Initial Height</b>	5.598	in	<b>Cell Pressure</b>	12.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	2.842	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	107.8	lb/ft <sup>3</sup>	<b>Peak Stress</b>	2.554	ton/ft <sup>2</sup>
<b>Water Content</b>	21.3	%	<b>Strain at Peak Stress</b>	14.83	%
<b>Saturation</b>	105	%	<b>Failure Type</b>	Combination	


 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>04-15-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-154</b>

# Unconsolidated Undrained Triaxial Compression Test

**Project Name** Oyster Bayou  
**Project Number** 12-80-3741  
**Sample Name** B-19  
**Depth** 38-40 ft  
**Description** Tan and gray SILTY CLAY (CL) w/ trace sand layers



<b>Initial Height</b>	2.806	in	<b>Cell Pressure</b>	16.00	lb/in <sup>2</sup>
<b>Initial Diameter</b>	1.389	in	<b>Strain Rate</b>	1.0	%/min
<b>Dry Density</b>	90.6	lb/ft <sup>3</sup>	<b>Peak Stress</b>	1.915	ton/ft <sup>2</sup>
<b>Water Content</b>	29.1	%	<b>Strain at Peak Stress</b>	3.04	%
<b>Saturation</b>	94	%	<b>Failure Type</b>	Other	

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
Oyster Bayou Marsh Restoration CPRA		
DRAWN BY: <b>NMA</b>	CHECKED BY: <b>RER</b>	DATE: <b>04-15-13</b>
FILE NO.: <b>12-80-3741</b>	APPROVED BY: <b>MGB</b>	FIGURE: <b>D-155</b>

## **APPENDIX E. CONSOLIDATED-UNDRAINED SHEAR STRENGTH TEST RESULTS**

This Appendix contains the following:

- Consolidated Undrained Shear Strength Test – Plots and Results

12-80-3741

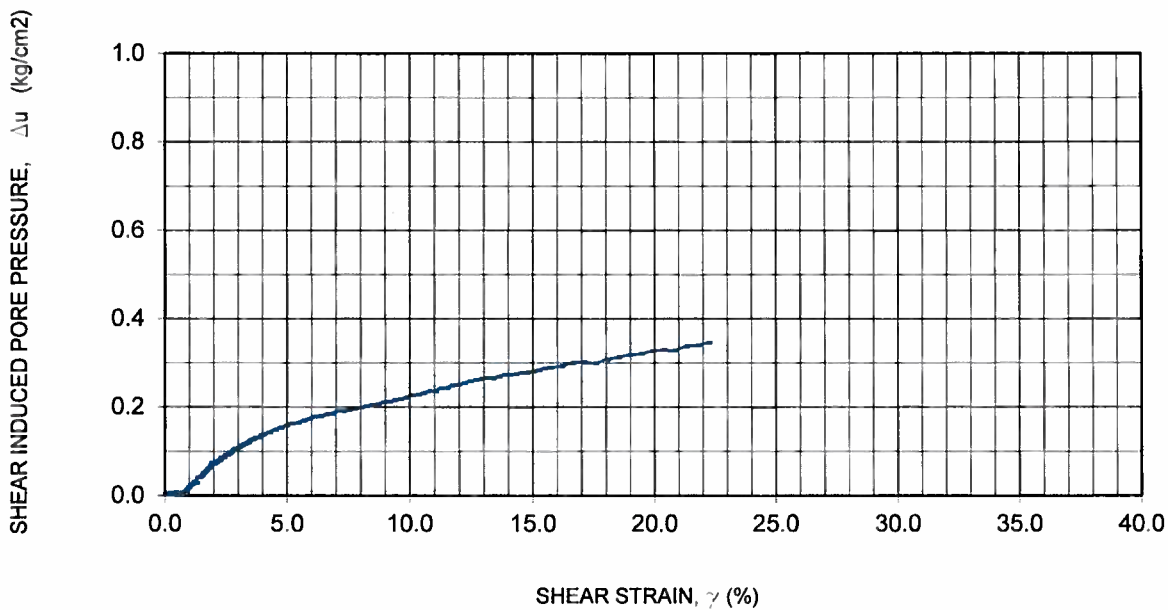
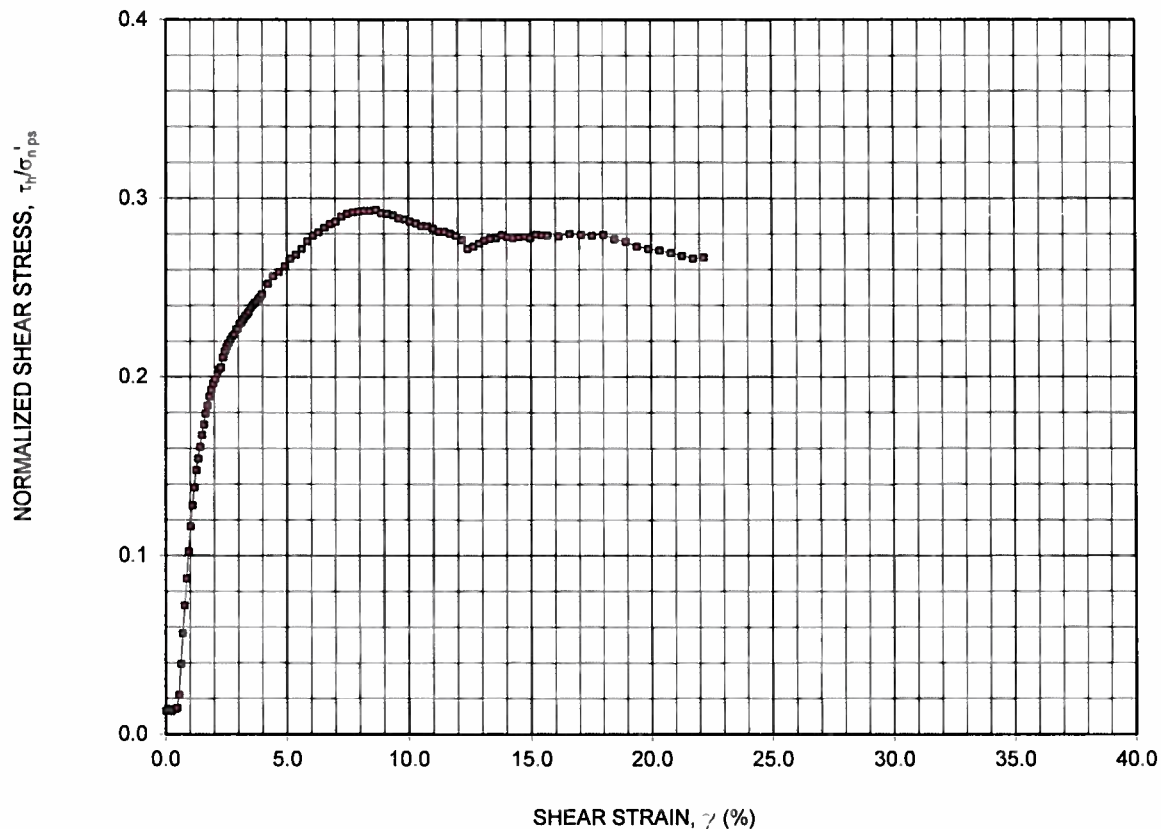
Oyster Bayou Marsh Restoration Project (CS-59)  
Final Data Report of Field and Laboratory Data Collection  
**Confidential Information: Privileged & Confidential Work Product**




Ardaman & Associates, Inc.



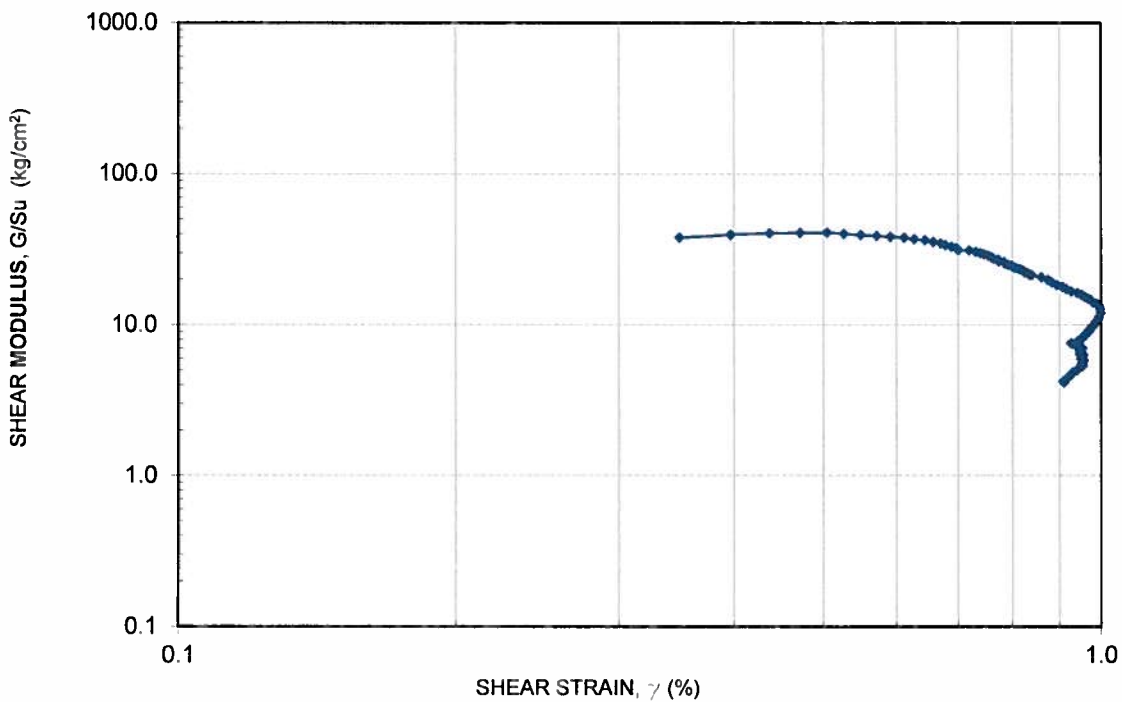
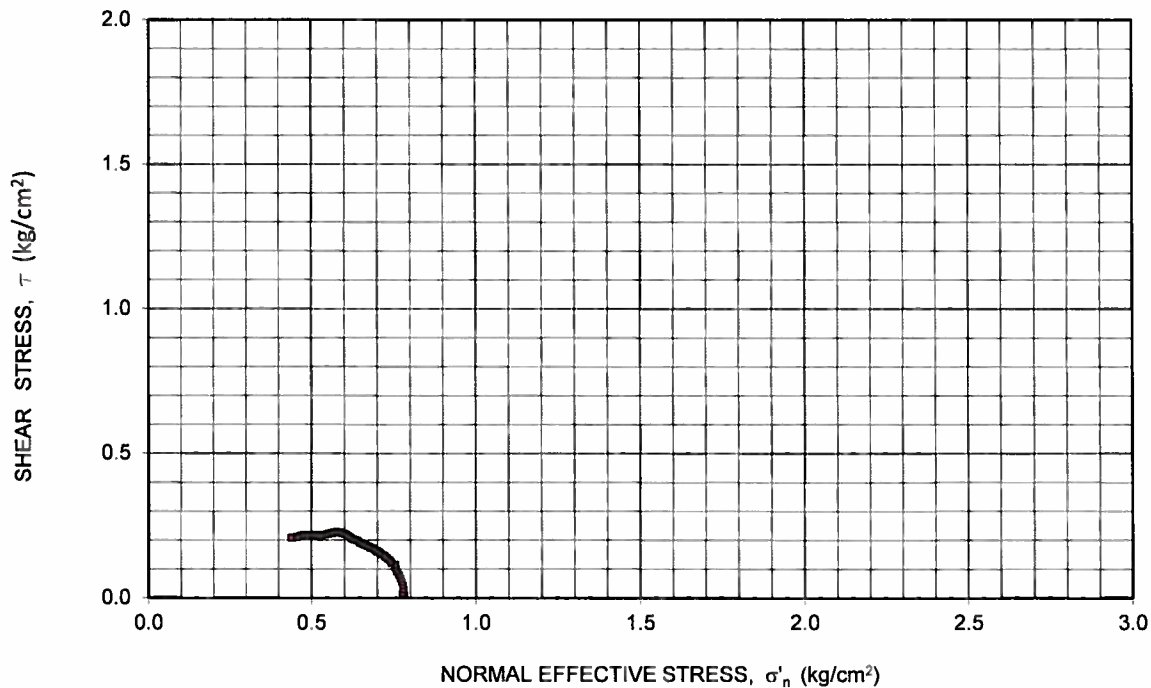
# DIRECT SIMPLE SHEAR



Boring: B-06  
Depth: 12-14

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU</b> <b>CPRA</b>		
DRAWN BY: RJB	CHECKED BY: <i>me</i>	DATE: 08-07-13
FILE NO.: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: E-1

# DIRECT SIMPLE SHEAR



Boring: B-06  
Depth: 12-14

<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU CPRA</b>		
DRAWN BY: RJB	CHECKED BY: <i>TMB</i>	DATE: 08-07-13
FILE NO.: 12-60-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: E-2



**ARDAMAN & ASSOCIATES**  
Direct Simple Shear Test

**File Number** 12-80-3741  
**Project Name**  
**Sample Name** B-06 12-14

**Sample Area** 34.78 cm<sup>2</sup>  
**Height (preshear)** 1.63 cm  
**Normal Load** 27.2 Kg  
**Normal Stress** 0.78 Kg/cm<sup>2</sup>  
**Displacement Rate** 0.00019 in/min

**Calibration Factors**

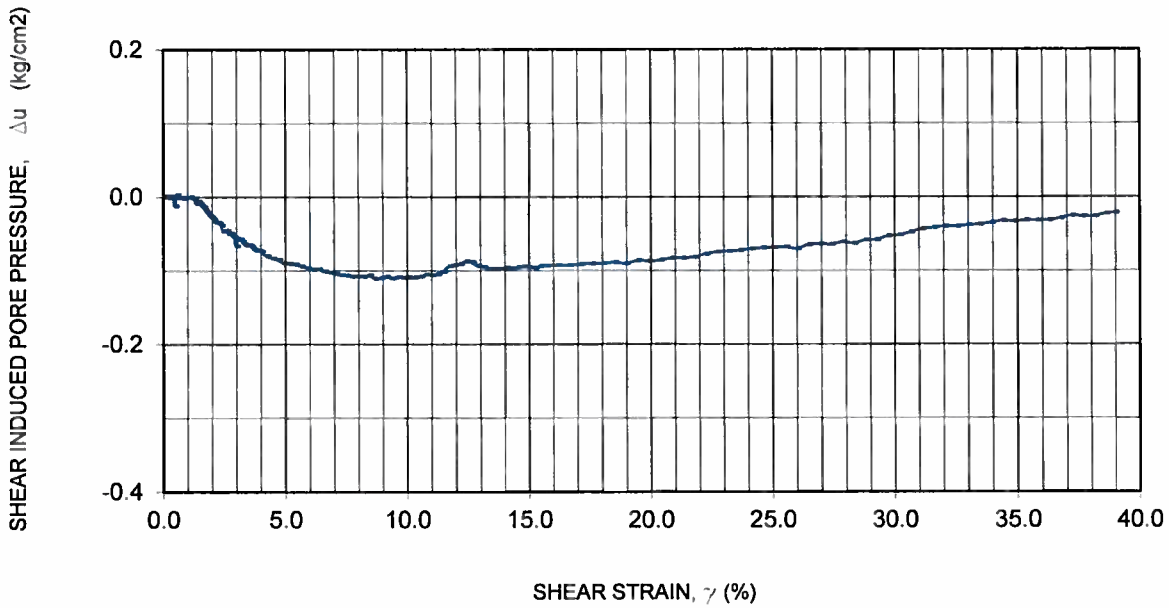
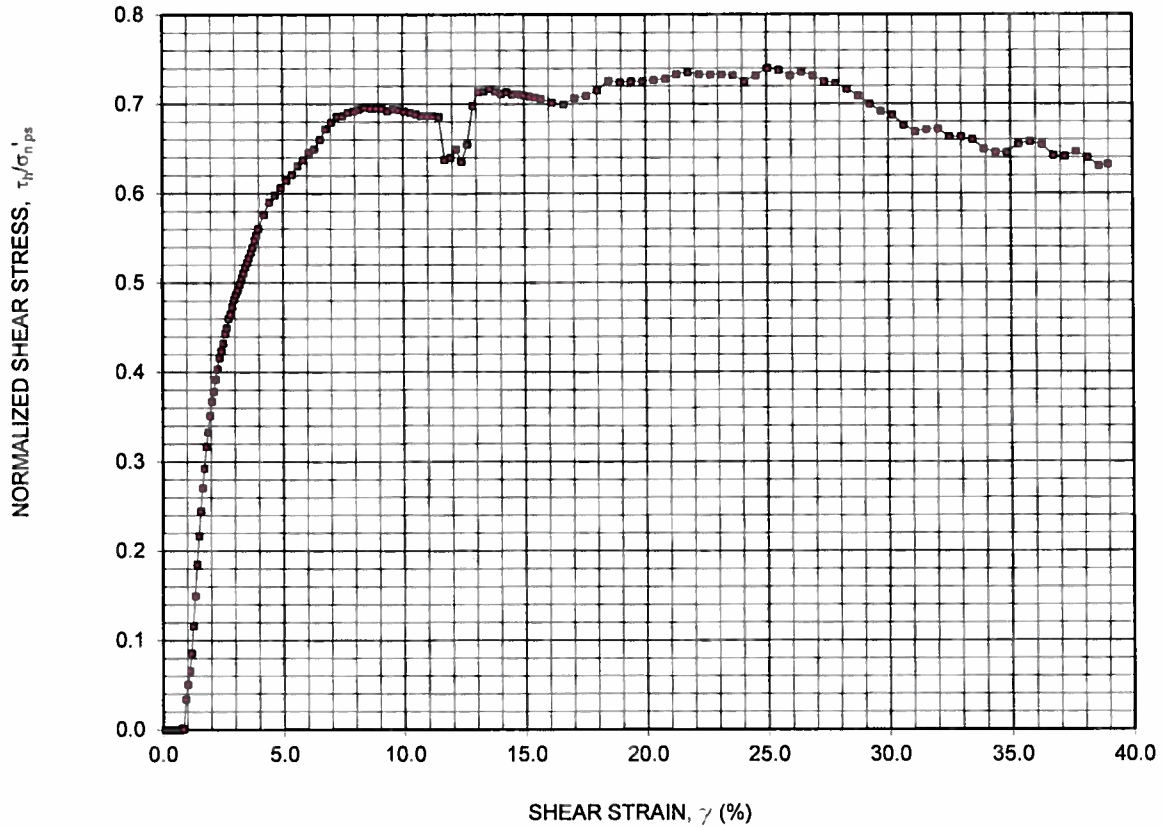
**Horizontal Load, kgs.:** -115721.6  
**Vertical Load, kgs:** -67588.6  
**Vertical dc/dt, cm:** -219.453  
**Excitation volts:** 10.000

Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Normal Effective Stress (kg/cm <sup>2</sup> )	Shear induced Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
0.00	0.010	0.000	0.781	0.000	0.000	0.000	0.0131	0.013
1.00	0.011	0.078	0.778	0.004	0.001	14.435	0.014	0.014
2.00	0.010	0.155	0.778	0.004	0.001	6.686	0.013	0.013
3.00	0.010	0.233	0.780	0.001	0.003	4.379	0.013	0.013
4.00	0.011	0.311	0.777	0.005	0.003	3.514	0.014	0.014
5.00	0.011	0.389	0.776	0.005	0.004	2.872	0.014	0.014
6.00	0.012	0.467	0.776	0.005	0.005	2.463	0.015	0.015
7.00	0.017	0.545	0.777	0.005	0.004	3.174	0.022	0.022
8.00	0.031	0.623	0.778	0.003	0.006	4.943	0.039	0.040
9.00	0.044	0.701	0.778	0.004	0.006	6.306	0.057	0.057
10.00	0.056	0.779	0.774	0.007	0.006	7.243	0.072	0.073
11.00	0.068	0.857	0.770	0.012	0.007	7.960	0.087	0.089
12.00	0.080	0.935	0.765	0.017	0.007	8.561	0.102	0.105
13.00	0.091	1.013	0.759	0.022	0.009	8.976	0.116	0.120
14.00	0.100	1.091	0.756	0.025	0.012	9.181	0.128	0.132
15.00	0.108	1.169	0.752	0.030	0.014	9.246	0.138	0.144
16.00	0.116	1.248	0.754	0.027	0.016	9.268	0.148	0.153
17.00	0.121	1.325	0.742	0.040	0.017	9.105	0.154	0.163
18.00	0.126	1.403	0.740	0.041	0.017	8.964	0.161	0.170
19.00	0.131	1.481	0.736	0.045	0.017	8.839	0.168	0.178
20.00	0.136	1.559	0.731	0.050	0.019	8.692	0.173	0.185
21.02	0.140	1.637	0.727	0.055	0.018	8.569	0.180	0.193
22.02	0.144	1.715	0.722	0.059	0.018	8.384	0.184	0.199
23.02	0.148	1.793	0.720	0.061	0.020	8.236	0.189	0.205
24.02	0.151	1.872	0.709	0.073	0.022	8.055	0.193	0.213
25.02	0.154	1.950	0.711	0.070	0.023	7.876	0.196	0.216
26.02	0.155	2.027	0.708	0.073	0.024	7.669	0.199	0.220
27.02	0.158	2.105	0.706	0.076	0.024	7.494	0.202	0.224
28.02	0.160	2.183	0.703	0.078	0.024	7.311	0.204	0.227
29.02	0.161	2.261	0.697	0.085	0.026	7.098	0.205	0.230
30.02	0.165	2.339	0.698	0.084	0.026	7.051	0.211	0.236
31.02	0.168	2.418	0.691	0.091	0.023	6.932	0.214	0.243
32.02	0.170	2.495	0.691	0.091	0.025	6.794	0.217	0.245
33.02	0.171	2.574	0.687	0.094	0.024	6.650	0.219	0.249
34.02	0.173	2.652	0.684	0.097	0.023	6.518	0.221	0.253
35.03	0.174	2.730	0.679	0.103	0.024	6.381	0.223	0.257
36.03	0.175	2.808	0.676	0.105	0.024	6.235	0.224	0.259
37.03	0.177	2.886	0.676	0.105	0.022	6.137	0.227	0.262
38.03	0.177	2.964	0.674	0.107	0.024	5.983	0.227	0.263
39.03	0.180	3.042	0.671	0.110	0.023	5.907	0.230	0.268
40.03	0.180	3.120	0.668	0.113	0.023	5.774	0.231	0.270
41.03	0.182	3.198	0.666	0.116	0.023	5.677	0.232	0.273


Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Effective Stress (kg/cm <sup>2</sup> )	Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
42.03	0.183	3.276	0.664	0.117	0.023	5.587	0.234	0.276
43.03	0.184	3.354	0.662	0.119	0.024	5.482	0.235	0.278
44.03	0.185	3.432	0.658	0.124	0.023	5.391	0.237	0.281
45.03	0.187	3.510	0.656	0.125	0.023	5.318	0.239	0.284
46.03	0.188	3.588	0.655	0.127	0.023	5.232	0.240	0.287
47.03	0.189	3.666	0.652	0.130	0.025	5.149	0.242	0.290
48.03	0.189	3.744	0.651	0.130	0.024	5.052	0.242	0.290
49.03	0.191	3.822	0.651	0.131	0.023	4.987	0.244	0.293
50.03	0.191	3.900	0.647	0.135	0.024	4.906	0.245	0.296
51.03	0.193	3.977	0.645	0.137	0.023	4.841	0.246	0.299
54.03	0.197	4.211	0.640	0.142	0.023	4.681	0.252	0.308
57.03	0.200	4.445	0.634	0.147	0.025	4.509	0.257	0.316
60.03	0.202	4.679	0.629	0.152	0.025	4.324	0.259	0.321
63.03	0.205	4.913	0.625	0.156	0.024	4.167	0.262	0.327
66.03	0.208	5.147	0.620	0.162	0.026	4.041	0.266	0.336
69.05	0.210	5.381	0.618	0.163	0.028	3.900	0.269	0.339
72.05	0.212	5.615	0.613	0.168	0.029	3.783	0.272	0.346
75.05	0.216	5.849	0.609	0.172	0.028	3.687	0.276	0.354
78.05	0.218	6.083	0.605	0.177	0.029	3.585	0.279	0.361
81.05	0.220	6.317	0.603	0.178	0.032	3.478	0.281	0.364
84.05	0.222	6.551	0.600	0.182	0.033	3.383	0.284	0.369
87.05	0.223	6.785	0.598	0.184	0.034	3.290	0.286	0.373
90.05	0.224	7.019	0.592	0.190	0.034	3.196	0.287	0.379
93.05	0.226	7.252	0.591	0.190	0.032	3.123	0.290	0.383
96.07	0.228	7.486	0.589	0.193	0.033	3.042	0.291	0.387
99.07	0.228	7.720	0.586	0.195	0.032	2.956	0.292	0.389
102.07	0.229	7.954	0.584	0.198	0.032	2.876	0.293	0.392
105.07	0.229	8.188	0.581	0.200	0.033	2.797	0.293	0.394
108.07	0.229	8.422	0.578	0.203	0.033	2.718	0.293	0.396
111.07	0.229	8.656	0.576	0.205	0.033	2.651	0.294	0.398
114.07	0.228	8.890	0.572	0.209	0.033	2.564	0.292	0.398
117.07	0.228	9.124	0.571	0.211	0.035	2.495	0.291	0.399
120.07	0.227	9.358	0.567	0.215	0.037	2.426	0.291	0.401
123.07	0.226	9.592	0.565	0.217	0.037	2.353	0.289	0.400
126.07	0.225	9.826	0.561	0.220	0.035	2.293	0.288	0.402
129.07	0.224	10.060	0.556	0.225	0.034	2.230	0.287	0.403
132.08	0.224	10.294	0.555	0.227	0.034	2.172	0.286	0.403
135.08	0.222	10.528	0.551	0.231	0.034	2.112	0.285	0.404
138.08	0.222	10.761	0.547	0.235	0.033	2.065	0.284	0.407
141.08	0.221	10.995	0.547	0.234	0.034	2.011	0.283	0.404
144.08	0.220	11.229	0.540	0.241	0.032	1.959	0.281	0.407
147.08	0.220	11.463	0.539	0.242	0.035	1.917	0.281	0.408
150.08	0.219	11.697	0.534	0.248	0.033	1.871	0.280	0.410
153.08	0.218	11.931	0.533	0.249	0.033	1.827	0.279	0.409
156.08	0.216	12.165	0.529	0.253	0.034	1.778	0.277	0.409
159.08	0.212	12.399	0.525	0.257	0.035	1.713	0.272	0.405
162.08	0.213	12.633	0.521	0.260	0.035	1.689	0.273	0.409
165.10	0.215	12.867	0.519	0.262	0.034	1.669	0.275	0.414
168.12	0.216	13.101	0.517	0.265	0.032	1.648	0.276	0.418
171.12	0.217	13.334	0.517	0.264	0.034	1.626	0.277	0.419
174.13	0.217	13.569	0.514	0.268	0.033	1.600	0.278	0.423
177.13	0.218	13.802	0.510	0.271	0.034	1.582	0.279	0.428
180.13	0.217	14.036	0.510	0.272	0.034	1.550	0.278	0.427
183.13	0.217	14.271	0.508	0.273	0.035	1.522	0.278	0.427
186.13	0.218	14.504	0.505	0.276	0.034	1.500	0.278	0.431
189.13	0.218	14.738	0.505	0.277	0.035	1.478	0.279	0.432
192.13	0.217	14.972	0.502	0.279	0.034	1.450	0.278	0.432
195.13	0.219	15.206	0.500	0.282	0.033	1.438	0.280	0.437
198.15	0.218	15.440	0.495	0.286	0.034	1.414	0.279	0.441
201.15	0.218	15.674	0.494	0.287	0.037	1.392	0.279	0.442
207.15	0.218	16.142	0.490	0.291	0.037	1.350	0.279	0.445
213.15	0.219	16.609	0.483	0.298	0.037	1.318	0.280	0.453
219.15	0.218	17.077	0.481	0.300	0.035	1.279	0.280	0.454
225.15	0.218	17.544	0.484	0.298	0.036	1.243	0.279	0.451
231.15	0.219	18.012	0.476	0.306	0.038	1.213	0.280	0.459

Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Effective Stress (kg/cm <sup>2</sup> )	Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
237.15	0.217	18.480	0.470	0.311	0.038	1.172	0.277	0.461
243.15	0.215	18.948	0.465	0.317	0.036	1.137	0.276	0.464
249.15	0.213	19.415	0.462	0.319	0.036	1.099	0.273	0.462
255.15	0.212	19.883	0.456	0.325	0.036	1.068	0.272	0.465
261.15	0.212	20.350	0.454	0.328	0.035	1.040	0.271	0.467
267.15	0.211	20.818	0.455	0.327	0.036	1.011	0.269	0.463
273.15	0.209	21.286	0.445	0.336	0.034	0.983	0.268	0.470
279.15	0.208	21.754	0.443	0.339	0.036	0.957	0.266	0.470
284.73	0.209	22.188	0.437	0.344	0.036	0.940	0.267	0.477

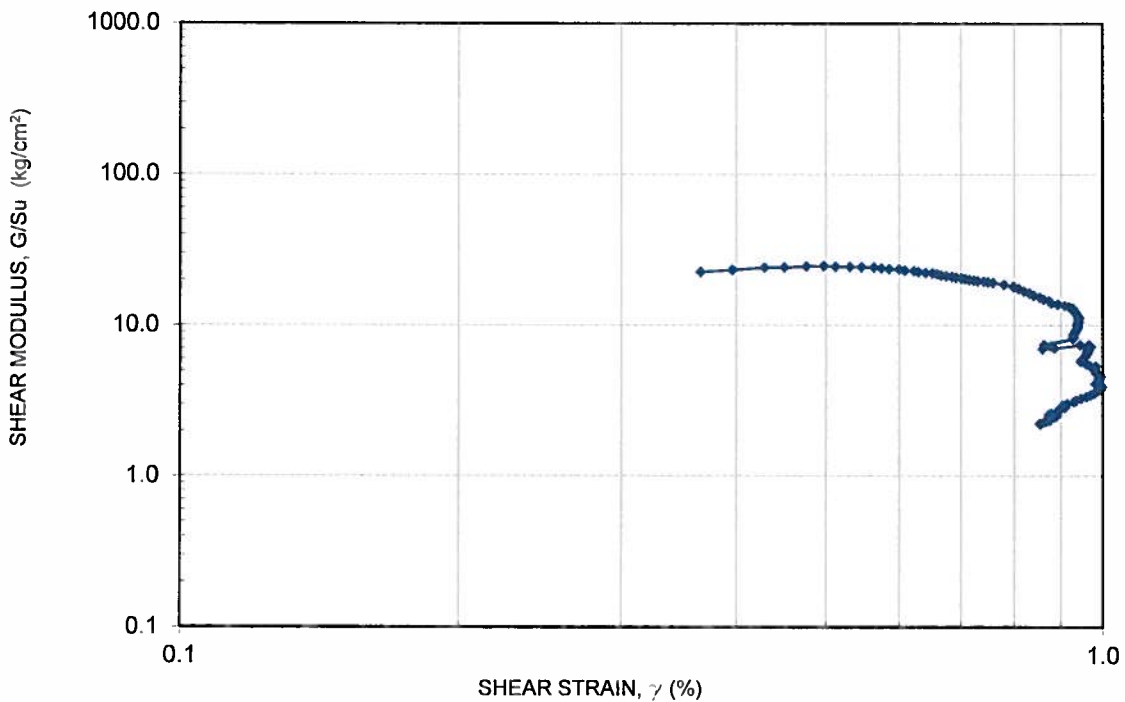
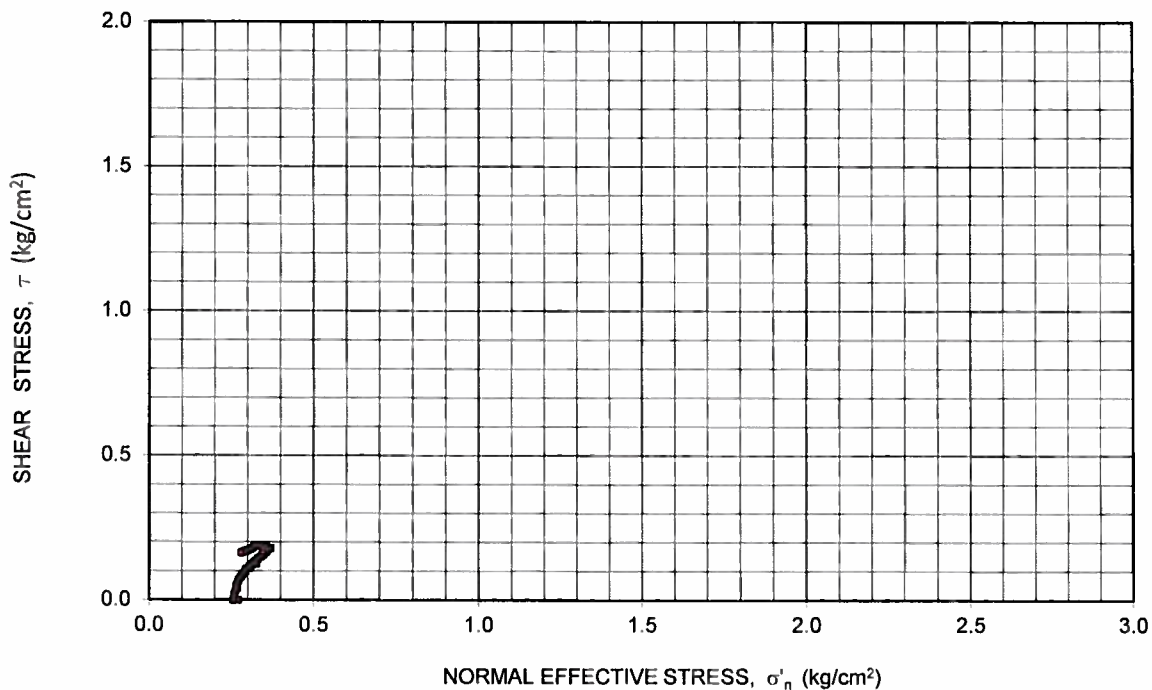
# DIRECT SIMPLE SHEAR



Boring: B-02  
Depth: 14-16

 <b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants		
<b>OYSTER BAYOU CPRA</b>		
DRAWN BY: RJB	CHECKED BY: <i>MBS</i>	DATE: 08-07-13
FILE NO.: 12-80-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: E-3

# DIRECT SIMPLE SHEAR



Boring: B-02  
Depth: 14-16

<b>Ardaman &amp; Associates, Inc.</b> Geotechnical, Environmental and Materials Consultants			
<b>OYSTER BAYOU</b> <b>CPRA</b>			
DRAWN BY: RJB	CHECKED BY: <i>mg</i>	DATE: 06-07-13	
FILE NO.: 12-60-3741	APPROVED BY: <i>[Signature]</i>	FIGURE: E-4	



**ARDAMAN & ASSOCIATES**  
Direct Simple Shear Test

File Number 12-80-3741  
Project Name  
Sample Name B-02 14-16

Sample Area 34.78 cm<sup>2</sup>  
Height (preshear) 1.63 cm  
Normal Load 9.0 Kg  
Normal Stress 0.26 Kg/cm<sup>2</sup>  
Displacement Rate 0.00019 in/min

**Calibration Factors**

Horizontal Load, kgs.: -115721.6  
Vertical Load, kgs: -67588.6  
Vertical dc/dt, cm: -219.453  
Excitation volts: 10.000

Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Normal Effective Stress (kg/cm <sup>2</sup> )	Shear induced Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
0.00	-0.001	0.000	0.258	0.000	0.000	0.000	-0.0038	-0.004
1.00	0.000	0.077	0.257	0.001	-0.001	0.026	0.000	0.000
2.00		0.156	0.259	0.000	-0.002	#VALUE!	#VALUE!	#VALUE!
3.00		0.234	0.260	-0.001	-0.004	#VALUE!	#VALUE!	#VALUE!
4.00		0.312	0.257	0.002	-0.006	#VALUE!	#VALUE!	#VALUE!
5.00		0.390	0.259	-0.001	-0.005	#VALUE!	#VALUE!	#VALUE!
6.00		0.468	0.270	-0.012	-0.007	#VALUE!	#VALUE!	#VALUE!
7.00		0.546	0.255	0.003	-0.008	#VALUE!	#VALUE!	#VALUE!
8.00		0.624	0.260	-0.001	-0.009	#VALUE!	#VALUE!	#VALUE!
9.00		0.702	0.259	-0.001	-0.008	#VALUE!	#VALUE!	#VALUE!
10.00	0.000	0.780	0.260	-0.002	-0.009	0.061	0.002	0.002
11.02	0.000	0.858	0.259	-0.001	-0.010	0.025	0.001	0.001
12.02	0.009	0.936	0.259	-0.001	-0.011	0.947	0.034	0.034
13.02	0.013	1.014	0.259	-0.001	-0.012	1.294	0.051	0.051
14.02	0.017	1.092	0.258	0.000	-0.012	1.562	0.066	0.066
15.02	0.022	1.170	0.260	-0.002	-0.009	1.896	0.086	0.085
16.02	0.030	1.248	0.261	-0.003	-0.008	2.408	0.116	0.115
17.02	0.039	1.326	0.267	-0.009	-0.004	2.918	0.150	0.145
18.02	0.048	1.404	0.265	-0.006	-0.003	3.405	0.185	0.181
19.02	0.056	1.482	0.267	-0.009	0.001	3.784	0.217	0.210
20.02	0.063	1.561	0.270	-0.012	0.003	4.057	0.245	0.234
21.02	0.070	1.639	0.273	-0.014	0.003	4.266	0.271	0.256
22.02	0.076	1.717	0.277	-0.018	0.003	4.404	0.293	0.273
23.03	0.082	1.794	0.280	-0.022	0.002	4.561	0.317	0.292
24.03	0.086	1.873	0.283	-0.025	-0.001	4.591	0.333	0.304
25.03	0.091	1.951	0.286	-0.028	-0.001	4.658	0.352	0.318
26.03	0.095	2.028	0.289	-0.031	-0.003	4.676	0.367	0.328
27.03	0.098	2.107	0.293	-0.034	-0.005	4.638	0.378	0.334
28.03	0.101	2.185	0.293	-0.035	-0.007	4.638	0.392	0.346
29.03	0.104	2.263	0.294	-0.036	-0.008	4.606	0.404	0.354
30.03	0.108	2.341	0.297	-0.039	-0.011	4.596	0.416	0.362
31.03	0.110	2.419	0.305	-0.046	-0.011	4.528	0.424	0.360
32.03	0.112	2.497	0.304	-0.045	-0.012	4.474	0.432	0.368
33.03	0.115	2.575	0.304	-0.046	-0.014	4.448	0.443	0.377
34.03	0.116	2.653	0.309	-0.050	-0.014	4.379	0.450	0.376
35.05	0.119	2.731	0.308	-0.049	-0.016	4.350	0.460	0.386
36.05	0.120	2.809	0.312	-0.053	-0.016	4.277	0.465	0.386
37.05	0.122	2.887	0.313	-0.055	-0.016	4.234	0.473	0.390
38.05	0.124	2.965	0.325	-0.067	-0.018	4.194	0.482	0.383
39.05	0.126	3.043	0.315	-0.057	-0.020	4.137	0.487	0.399
40.05	0.127	3.122	0.315	-0.057	-0.021	4.070	0.492	0.403
41.05	0.129	3.200	0.319	-0.060	-0.020	4.023	0.498	0.404



Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Effective Stress (kg/cm <sup>2</sup> )	Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
42.05	0.131	3.277	0.322	-0.064	-0.019	3.984	0.506	0.405
43.05	0.132	3.356	0.324	-0.065	-0.019	3.931	0.511	0.408
44.07	0.134	3.434	0.324	-0.066	-0.021	3.894	0.518	0.412
45.07	0.135	3.512	0.324	-0.065	-0.021	3.846	0.523	0.417
46.07	0.136	3.590	0.326	-0.067	-0.023	3.798	0.528	0.419
47.07	0.138	3.668	0.329	-0.070	-0.021	3.760	0.534	0.420
48.07	0.139	3.746	0.330	-0.072	-0.020	3.721	0.540	0.422
49.07	0.141	3.824	0.331	-0.073	-0.017	3.700	0.548	0.427
50.07	0.143	3.902	0.331	-0.073	-0.012	3.663	0.553	0.432
51.07	0.145	3.980	0.333	-0.074	-0.009	3.639	0.561	0.435
54.07	0.149	4.214	0.339	-0.080	-0.004	3.533	0.576	0.440
57.07	0.152	4.448	0.341	-0.083	-0.007	3.428	0.590	0.447
60.07	0.155	4.682	0.344	-0.086	-0.012	3.301	0.598	0.449
63.07	0.157	4.916	0.348	-0.090	-0.015	3.186	0.606	0.450
66.08	0.159	5.150	0.349	-0.091	-0.018	3.084	0.615	0.455
69.08	0.160	5.384	0.350	-0.092	-0.019	2.980	0.621	0.458
72.08	0.163	5.617	0.352	-0.094	-0.021	2.903	0.631	0.463
75.08	0.165	5.851	0.355	-0.096	-0.022	2.814	0.637	0.464
78.08	0.167	6.085	0.357	-0.098	-0.022	2.742	0.646	0.468
81.08	0.168	6.319	0.356	-0.098	-0.024	2.657	0.650	0.471
84.08	0.170	6.553	0.359	-0.101	-0.020	2.602	0.660	0.475
87.08	0.174	6.787	0.361	-0.102	-0.008	2.558	0.672	0.482
90.08	0.176	7.021	0.363	-0.104	-0.001	2.500	0.679	0.484
93.10	0.177	7.255	0.364	-0.106	-0.003	2.442	0.686	0.486
96.10	0.177	7.489	0.365	-0.107	-0.008	2.368	0.687	0.486
99.10	0.178	7.723	0.366	-0.108	-0.012	2.310	0.691	0.487
102.10	0.179	7.957	0.366	-0.108	-0.016	2.247	0.692	0.488
105.10	0.179	8.191	0.366	-0.108	-0.017	2.189	0.694	0.489
108.10	0.180	8.425	0.365	-0.106	-0.018	2.135	0.696	0.493
111.10	0.180	8.659	0.369	-0.111	-0.021	2.074	0.695	0.487
114.10	0.180	8.893	0.369	-0.110	-0.022	2.020	0.696	0.488
117.10	0.180	9.127	0.367	-0.109	-0.018	1.968	0.695	0.490
120.10	0.179	9.361	0.369	-0.111	-0.006	1.911	0.693	0.485
123.10	0.179	9.594	0.367	-0.109	-0.002	1.870	0.695	0.489
126.12	0.179	9.829	0.368	-0.110	-0.005	1.823	0.694	0.487
129.12	0.179	10.062	0.368	-0.109	-0.009	1.776	0.692	0.486
132.12	0.178	10.297	0.368	-0.109	-0.013	1.733	0.691	0.485
135.12	0.178	10.530	0.366	-0.108	-0.015	1.690	0.689	0.486
138.12	0.177	10.764	0.364	-0.105	-0.018	1.647	0.687	0.488
141.12	0.177	10.998	0.365	-0.106	-0.019	1.613	0.687	0.486
144.12	0.177	11.232	0.363	-0.105	-0.018	1.579	0.687	0.488
147.12	0.177	11.466	0.360	-0.101	-0.019	1.545	0.686	0.492
150.12	0.165	11.700	0.352	-0.094	-0.018	1.408	0.638	0.467
153.12	0.165	11.934	0.351	-0.092	-0.019	1.385	0.640	0.471
156.12	0.168	12.168	0.349	-0.091	-0.020	1.378	0.649	0.480
159.12	0.164	12.402	0.346	-0.088	-0.016	1.324	0.636	0.475
162.13	0.169	12.636	0.347	-0.089	-0.004	1.338	0.655	0.487
165.13	0.180	12.870	0.352	-0.094	-0.001	1.401	0.698	0.512
168.13	0.184	13.104	0.354	-0.096	-0.005	1.407	0.714	0.521
171.13	0.184	13.338	0.356	-0.098	-0.008	1.383	0.714	0.518
174.13	0.185	13.571	0.356	-0.098	-0.011	1.365	0.717	0.520
177.13	0.185	13.805	0.356	-0.097	-0.013	1.337	0.714	0.519
180.13	0.184	14.039	0.355	-0.096	-0.016	1.309	0.711	0.518
183.15	0.184	14.273	0.356	-0.098	-0.014	1.291	0.713	0.518
186.17	0.184	14.507	0.354	-0.096	-0.017	1.266	0.711	0.519
189.17	0.184	14.741	0.353	-0.095	-0.019	1.246	0.711	0.520
192.18	0.183	14.975	0.354	-0.096	-0.018	1.224	0.710	0.518
195.18	0.183	15.209	0.355	-0.097	-0.020	1.203	0.708	0.516
198.18	0.183	15.443	0.352	-0.094	-0.021	1.183	0.708	0.519
201.18	0.182	15.677	0.352	-0.094	-0.021	1.163	0.706	0.518
207.18	0.181	16.145	0.351	-0.093	-0.020	1.123	0.702	0.516
213.18	0.181	16.612	0.351	-0.093	-0.021	1.088	0.699	0.514
219.18	0.183	17.080	0.350	-0.092	-0.022	1.069	0.707	0.522
225.18	0.183	17.548	0.349	-0.091	-0.022	1.044	0.709	0.525
231.18	0.185	18.015	0.349	-0.090	-0.011	1.025	0.715	0.530

Elapsed Time (minutes)	Shear Stress (kg/cm <sup>2</sup> )	Shear Strain (%)	Effective Stress (kg/cm <sup>2</sup> )	Pore Pressure (kg/cm <sup>2</sup> )	Axial Strain (%)	Shear Modulus (kg/cm <sup>2</sup> )	Normalized Shear Stress	Obliquity
237.18	0.188	18.483	0.347	-0.089	-0.004	1.015	0.726	0.540
243.18	0.187	18.951	0.349	-0.090	-0.011	0.987	0.724	0.536
249.18	0.187	19.418	0.345	-0.087	-0.017	0.965	0.725	0.543
255.18	0.187	19.886	0.346	-0.087	-0.019	0.942	0.725	0.542
261.20	0.188	20.353	0.344	-0.086	-0.021	0.922	0.727	0.545
267.20	0.188	20.821	0.342	-0.083	-0.024	0.903	0.728	0.550
273.20	0.189	21.289	0.341	-0.083	-0.008	0.890	0.733	0.555
279.20	0.190	21.757	0.340	-0.082	-0.004	0.873	0.735	0.558
285.20	0.189	22.224	0.336	-0.078	-0.017	0.852	0.733	0.564
291.20	0.189	22.692	0.333	-0.075	-0.015	0.834	0.733	0.568
297.20	0.189	23.160	0.332	-0.074	0.002	0.817	0.733	0.570
303.20	0.189	23.627	0.331	-0.073	0.002	0.800	0.732	0.571
309.20	0.187	24.096	0.329	-0.071	-0.013	0.778	0.725	0.569
315.20	0.189	24.563	0.328	-0.069	-0.004	0.770	0.732	0.577
321.20	0.191	25.031	0.327	-0.069	0.010	0.764	0.740	0.584

## **APPENDIX F.      SETTLING AND SLURRY CONSOLIDATION TEST RESULTS**

This Appendix contains the following:

- Settling Column Test Results
- Slurry Consolidation Test Results

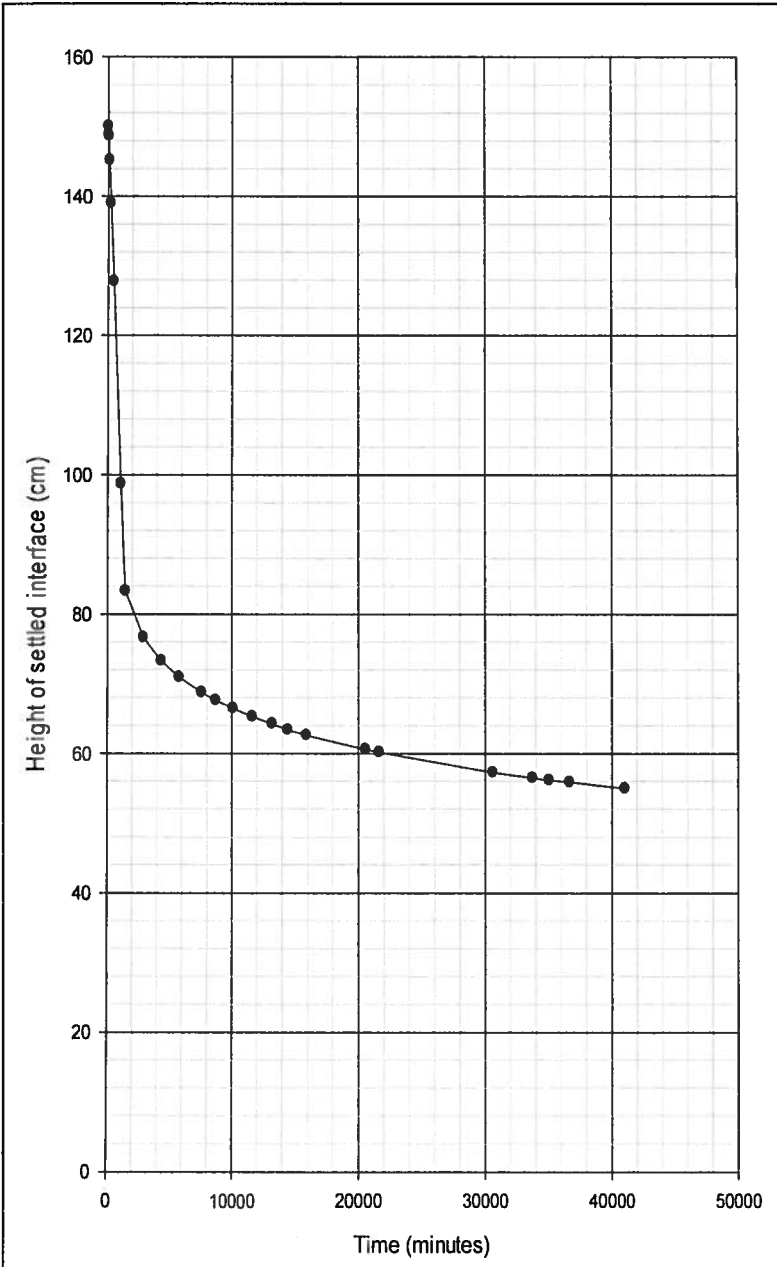
12-80-3741

Oyster Bayou Marsh Restoration Project (CS-59)  
Final Data Report of Field and Laboratory Data Collection  
**Confidential Information: Privileged & Confidential Work Product**



# ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY SETTLING TEST REPORT

CLIENT: CPRA INCOMING SAMPLE NO.: Type 1  
 PROJECT: Oyster Bayou BORING: Borrow SAMPLE: Composite  
 FILE NO.: 12-80-3741 DEPTH: 0 - 10 ft.  ft;  m  
 LABORATORY IDENTIFICATION: 803741/1  
 DATE SAMPLE RECEIVED: --- SAMPLE DESCRIPTION: Gray clay with trace shell  
 DATE TEST SET-UP: 06/17/13  
 DATE REPORTED: 08/02/13



Settling Column Diameter: 20.28 cm  
 Initial Slurry Height: 150.0 cm  
 Initial Slurry Solids Content: 13.0 %  
 Final Settled Solids Content: 31.9 %  
 Final Settled Height: 53.25 cm  
 Test Duration: 29 days

Time (minutes)	Settled Ht. (cm)	Time (minutes)	Settled Ht. (cm)
0.0	150.0	5766	70.95
0.1	-	7563	68.75
0.25	-	8708	67.65
0.5	-	10105	66.50
0.75	-	11643	65.30
1	-	13211	64.30
2	-	14452	63.40
4	-	15899	62.65
8	-	20556	60.60
15	-	21614	60.20
30	148.80	30619	57.30
60	148.65	33750	56.50
120	145.15	35087	56.20
240	139.00	36680	55.90
485	127.75	41044	55.00
1075	98.70		
1440	83.30		
2885	76.65		
4329	73.30		

Comments: \_\_\_\_\_

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Checked By: *DD* Date: 8/8/13

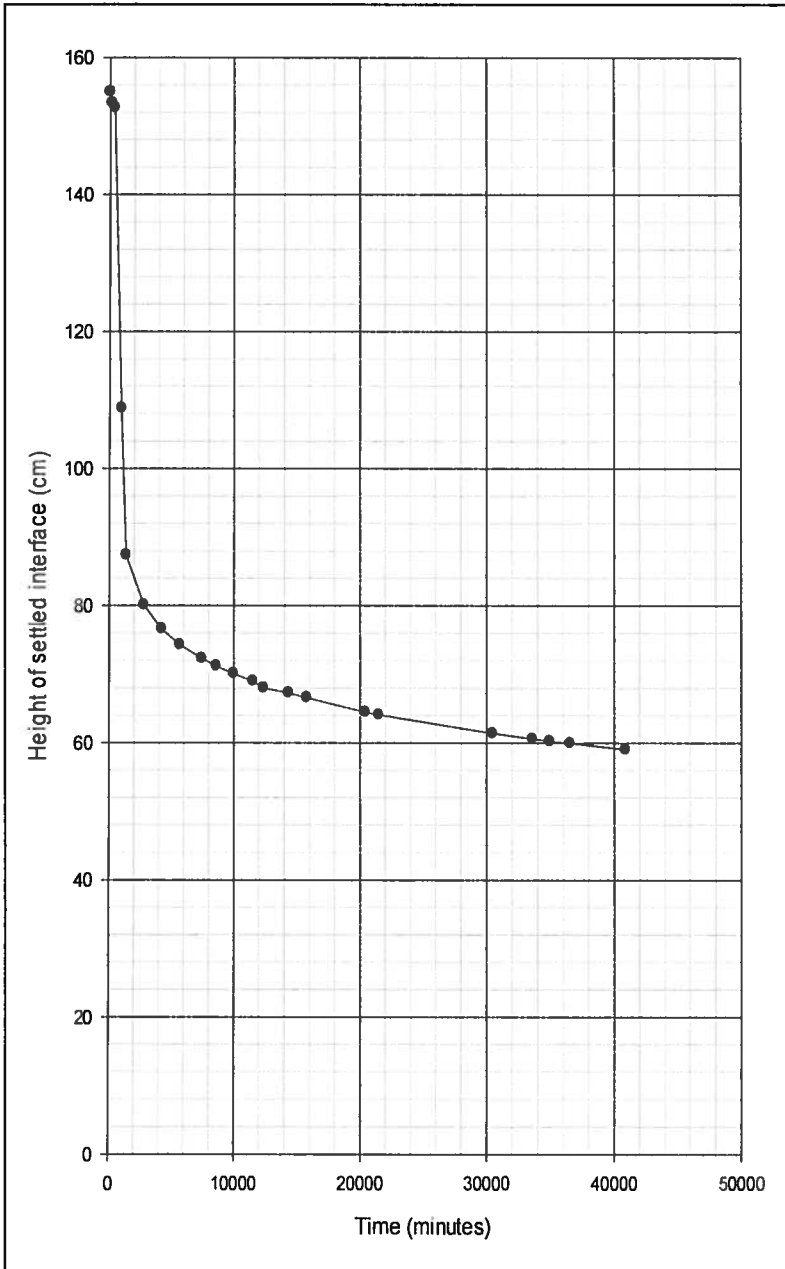
Confidential Information  
Privileged & Confidential  
Work Product

Figure F-1

# ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY SETTLING TEST REPORT

CLIENT: CPRA  
 PROJECT: Oyster Bayou  
 FILE NO.: 12-80-3741  
 DATE SAMPLE RECEIVED: ---  
 DATE TEST SET-UP: 06/17/13  
 DATE REPORTED: 08/02/13

INCOMING SAMPLE NO.: Type 2  
 BORING: Borrow SAMPLE: Composite  
 DEPTH: 0 - 10 ft.  ft;  m  
 LABORATORY IDENTIFICATION: 803741/2  
 SAMPLE DESCRIPTION: Gray clay with trace shell



Settling Column Diameter: 20.28 cm  
 Initial Slurry Height: 155.0 cm  
 Initial Slurry Solids Content: 13.1 %  
 Final Settled Solids Content: 30.3 %  
 Final Settled Height: 59.05 cm  
 Test Duration: 29 days

Time (minutes)	Settled Ht. (cm)	Time (minutes)	Settled Ht. (cm)
0.0	155.0	5645	74.30
0.1	-	7416	72.30
0.25	-	8561	71.20
0.5	-	9957	70.10
0.75	-	11496	69.00
1	-	12343	68.00
2	-	14304	67.30
4	-	15750	66.60
8	-	20410	64.50
15	-	21466	64.10
30	-	30471	61.40
60	-	33602	60.60
120	-	34940	60.25
141	153.35	36533	59.95
361	152.70	40896	59.05
926	108.80		
1313	87.40		
2749	80.10		
4189	76.60		
1			

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Checked By:  Date: 8/8/13

Confidential Information  
 Privileged & Confidential  
 Work Product

Figure F-2

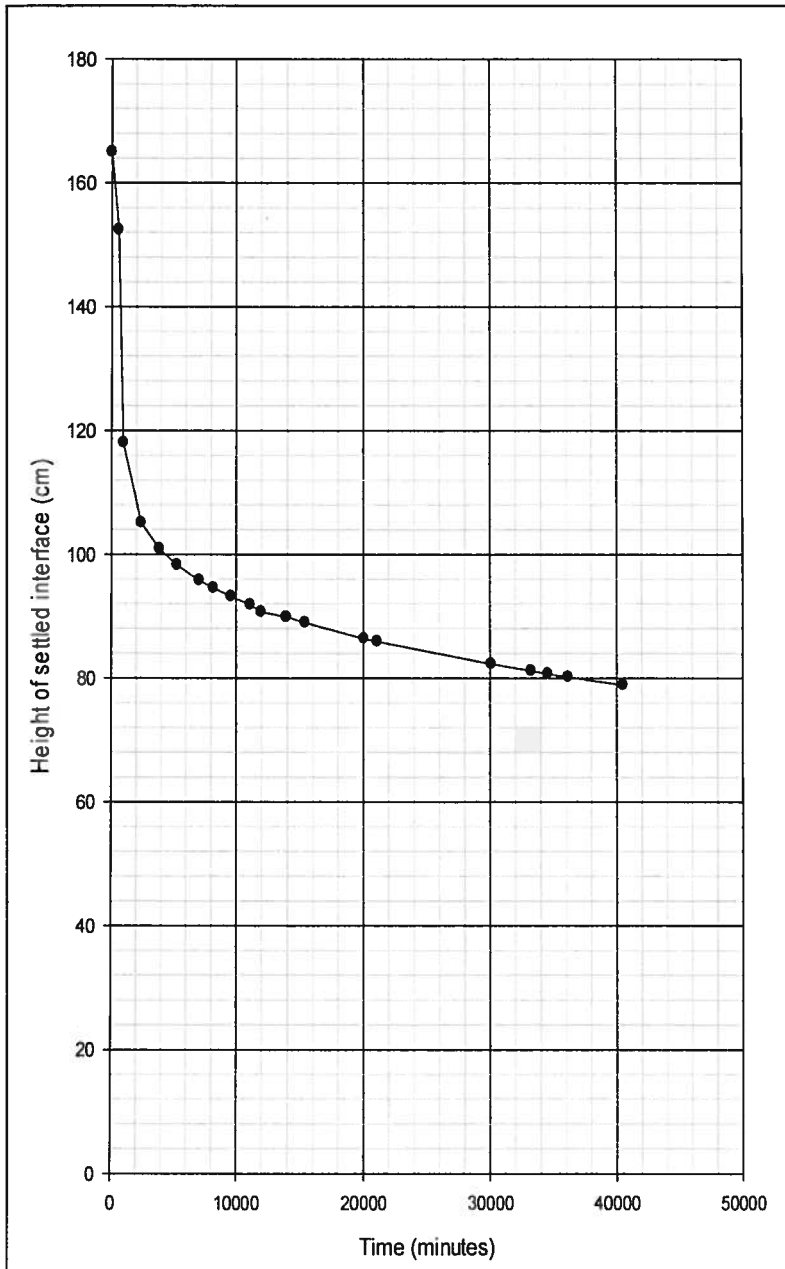
# ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY

## SETTLING TEST REPORT

CLIENT: CPRA  
 PROJECT: Oyster Bayou  
 FILE NO.: 12-80-3741

DATE SAMPLE RECEIVED: ---  
 DATE TEST SET-UP: 06/17/13  
 DATE REPORTED: 08/02/13

INCOMING SAMPLE NO.: Type 3  
 BORING: Borrow SAMPLE: Composite  
 DEPTH: 0 - 10 ft.  ft,  m  
 LABORATORY IDENTIFICATION: 803741/3  
 SAMPLE DESCRIPTION: Gray clay with trace shell



Settling Column Diameter: <u>20.28</u> cm			
Initial Slurry Height: <u>165.0</u> cm			
Initial Slurry Solids Content: <u>14.0</u> %			
Final Settled Solids Content: <u>27.6</u> %			
Final Settled Height: <u>75.7</u> cm			
Test Duration: <u>29</u> days			
Time (minutes)	Settled Ht. (cm)	Time (minutes)	Settled Ht. (cm)
0.0	165.0	5277	98.25
0.1	-	7047	95.80
0.25	-	8192	94.55
0.5	-	9587	93.20
0.75	-	11127	91.85
1	-	11974	90.70
2	-	13936	89.85
4	-	15381	88.95
8	-	20040	86.40
15	-	21097	85.90
30	-	30102	82.30
60	-	33233	81.20
120	-	34571	80.70
240	-	36163	80.20
480	-	40527	78.90
555	152.40		
960	118.00		
2400	105.10		
3856	100.90		

Comments: \_\_\_\_\_

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Checked By: *D. Wan* Date: 8/8/13

Confidential Information  
 Privileged & Confidential  
 Work Product

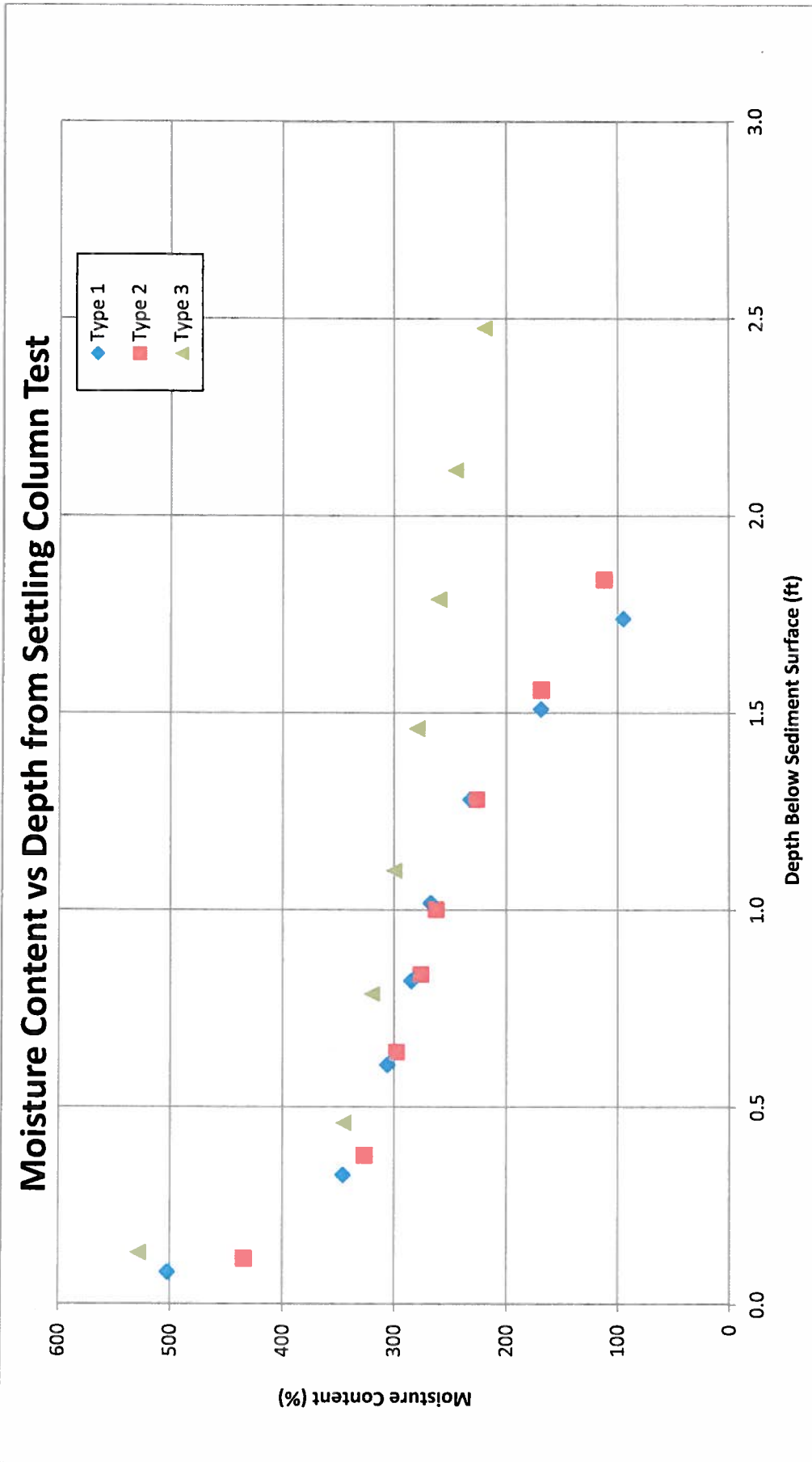
Settling test calculations			
Requested S(%)	13.5	13.5	3
Diameter of cylinder (cm)	20.28	20.36	18.97
Initial height (cm)	150	155	165
Final height (cm)	53.25	59.05	75.7
Total WDS (g)	6876	7200	7163
Specific gravity	2.72	2.72	2.72

Outputs:

Volume initial (cm3)	48452.60	50463.47	46634.62
Volume final (cm3)	17200.67	19224.95	21395.40
Volume solids (cm3)	2527.94	2647.06	2633.46
Volume water (cm3)i	45924.65	47816.41	44001.17
Volume water (cm3)f	14672.73	16577.90	18761.94
Water content i	6.679	6.641	6.143
Solids (%)i	13.02	13.09	14.00
Concentration (g/L) i	141.9	142.7	153.6
Water content f	2.134	2.302	2.619
Solids (%)f	31.91	30.28	27.63
Concentration (g/L)f	399.8	374.5	334.8
Final water content:			
wws+tare, g	281.37	270.72	373.9
wds+tare, g	105.22	98.17	100
tare, g	21.74	21.72	0
Final water content (%)	211	226	274

TYPE 1      TYPE 2      TYPE 3

Figure F-4



Client: CPRA  
 Project: Oyster Bayou  
 AAI Project No. 12-80-3741

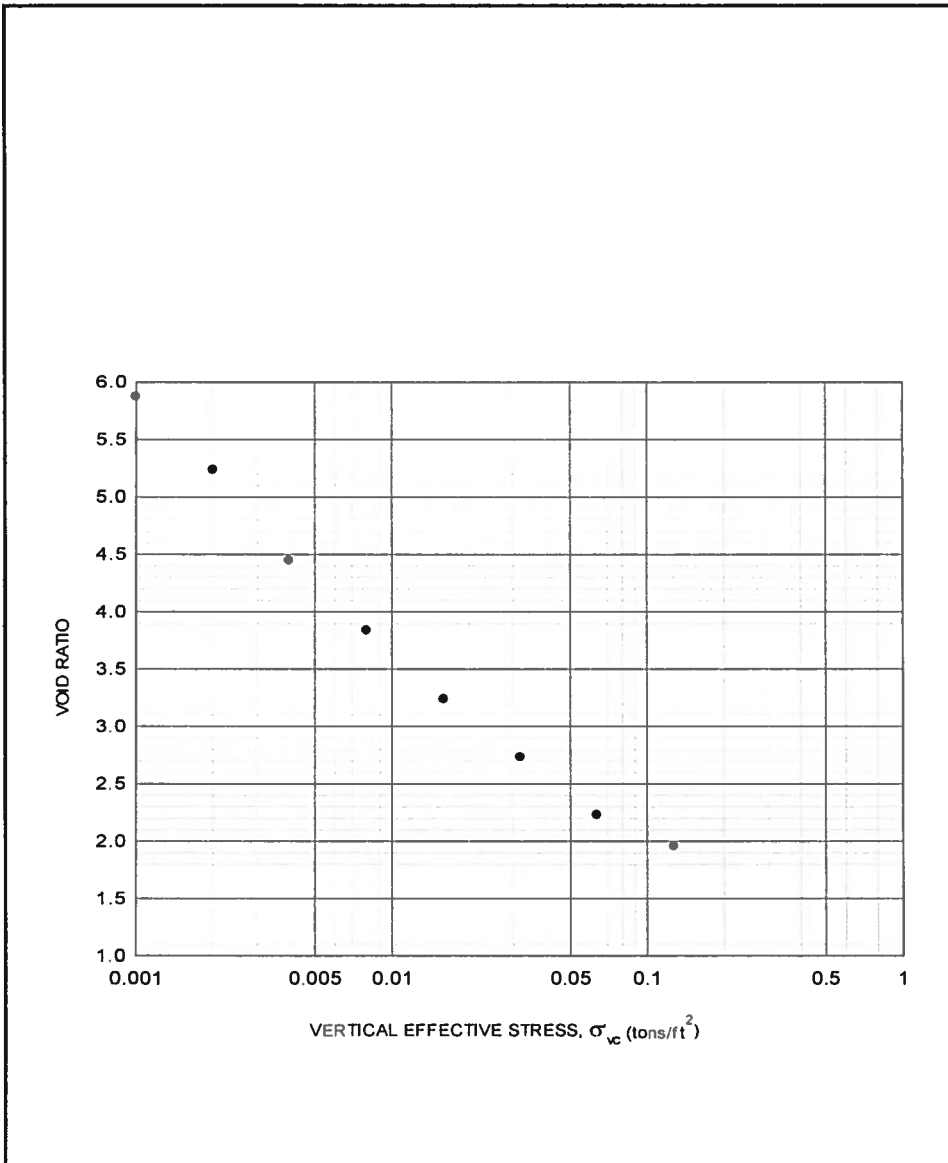
Figure F-5



# ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY SLURRY CONSOLIDATION TEST REPORT

CLIENT: CPRA  
 PROJECT: Oyster Bayou  
 FILE NO.: 12-80-3741  
 DATE SAMPLE RECEIVED: -  
 DATE SAMPLE SET-UP: 06/24/13  
 DATE REPORTED: 08/02/13

INCOMING SAMPLE NO.: \_\_\_\_\_  
 BORING: TYPE 1 SAMPLE: Borrow  
 DEPTH: Composite (0-10 f  ft;  m  
 LAB IDENTIFICATION NO.: 123741 / TYPE1  
 SAMPLE DESCRIPTION: Clay with sand



Test Methods & Procedures		
ASTM Standard D2435 <input type="checkbox"/> Method A <input checked="" type="checkbox"/> Method B C <sub>v</sub> Interpretation Method <input type="checkbox"/> C <sub>v</sub> [Log Time] <input type="checkbox"/> C <sub>v</sub> [Sq. Root Time] Trimming Method <input checked="" type="checkbox"/> cutting shoe <input type="checkbox"/> other _____ Initial Sample Diameter <u>10.09</u> (cm)		
Test Conditions		
<input type="checkbox"/> Tested at Natural Moisture Content <input checked="" type="checkbox"/> Specimen Tested Inundated Inundated at $\sigma'_{vc}$ <u>0.001</u> (tsf) Inundation Fluid: <input checked="" type="checkbox"/> tap water <input type="checkbox"/> other _____		
Specimen Conditions		
Parameter	Initial	Final
D (cm)	10.09	10.09
H (cm)	9.213	3.360
w <sub>c</sub> (%)	246.6	67.8
$\gamma_d$ (pcf)	21.0	57.6
e	7.086	1.950
S (%)	95	95
G <sub>s</sub> : <u>2.72</u>	<input checked="" type="checkbox"/> Assumed <input type="checkbox"/> Measured	
Index Properties		
LL		
PL		
PI		

Particle-Size Analysis	U.S. Standard Sieve Size	Gravel			Coarse Sand		Medium Sand		Fine Sand			
		3/4"	3/8"	No. 4	No. 10	No. 20	No. 40	No. 60	No. 100	No. 140	No. 200	
<input checked="" type="checkbox"/> ASTM D422 <input type="checkbox"/> ASTM D1140-Method	Soil Passing (% dry mass basis)	100	100	100	100	99.9	99.9	98.9	94.4	88.7	83.2	
Dry Mass(g): <u>248.10</u>												

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Where: H=Specimen height; D = Specimen diameter; w<sub>c</sub> = Water content (ASTM D2216);  $\gamma_d$  = Dry density; e = Void ratio; S = Saturation; G<sub>s</sub> = Specific gravity; c<sub>v</sub> = Coefficient of consolidation; and C<sub>se</sub> = Secondary compression index.