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October 20, 2005

Natural Resources Conservation Service
3737 Government Street
Alexandria, Louisiana 71302

Project No. 02485-3A

Attention: Ralph Broome, Contracting Officer

Addendum to May 2003 Report of Geotechnical Investigation
West Lake Boudreaux Shoreline Protection Project (TE-46)
Terrebonne Parish, Louisiana

Gentlemen:

Submitted herewith is the addendum to the May 2003 Report of Geotechnical Investigation documenting the slope stability analyses for the rock dike and containment levee and the laboratory testing and analyses performed for the composite sample no. 2 settling column test for West Lake Boudreaux (TE-46), Terrebonne Parish. In accordance with your instructions, the results of the laboratory testing and analyses performed for composite sample nos. 1 and 3 will be provided as a supplement to this addendum.

We appreciate the opportunity to be of service. If you should have any questions concerning this letter, please do not hesitate to call us.

Very truly yours,

BURNS COOLEY DENNIS, INC.

Larry A. Cooley

Larry A. Cooley, P.E.

LAC/khb
Copies Submitted: (6)

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INTRODUCTION AND PURPOSE

The United States Fish and Wildlife Service and the Louisiana Department of Natural Resources are planning construction of a shoreline protection and marsh creation project in the western portion of Lake Boudreaux in Terrebonne Parish, Louisiana. The general project area is located near Dulac, Louisiana and includes more than 2 mi. of shoreline protection. A report of a geotechnical investigation for the project was prepared in May 2003. Subsequent to that investigation additional laboratory sedimentation testing and analysis of soil samples taken in March 2003 located in the borrow area and adjacent to the shoreline, and additional stability analyses of the containment levee and flotation channel berm for the rock dike were authorized. The additional laboratory sedimentation testing and analysis were to provide information relative to borrow material for the marsh creation area.

The specific purposes of this investigation were:

1) to perform laboratory sedimentation testing and analysis in accordance with U.S. Army Corps of Engineers Engineer Manual, EM 1110-2-5027 to provide data for designing the marsh creation containment area to meet effluent suspended solids criteria, to determine the quantity of in situ borrow material and the quantity of newly placed dredged solids required to fill the marsh creation site;
2) to perform consolidation tests on the settled material to estimate the settlement due to self-weight consolidation of the newly placed dredged material;
3) to research reference materials and interview USACE sources in order to obtain the most current information and methods in addition to EM 1110-2-5027 to perform the scope of services;
4) to provide data/calculations/analysis required to design a containment area for the compression settling process and for determining bulking factors of the dredged borrow material;
5) to perform slope stability analyses of the rock dike shoreline protection measures for a flotation channel depth of cut to El. -10 ft NAVD 88; and
6) to perform slope stability analyses and berm distance requirements for the containment levee with height of 7 ft and borrow excavation depths of 6 ft and 10 ft.

In addition to slope stability analyses for the rock dike and containment levee, settling column tests were accomplished on three composite samples composed of soils from the borrow area and adjacent to the shoreline. This addendum to the May 2003 Report of Geotechnical Investigation presents the results of the laboratory testing and analyses performed for the composite sample no. 2 settling column test and the results of slope stability analyses for the rock dike shoreline protection and the earthen containment levee system. The results of laboratory testing and analyses performed for sample nos. 1 and 3 will be provided as a supplement to this addendum.

SEDIMENTATION TESTING AND ANALYSES

Sample Preparation

Composite samples were prepared to represent three potential borrow sources. Composite samples no. 1 and no. 2 were to be representative of borrow area Borings 14 through 19, 21 and 33 through 36 to a depth of El. -15 ft. Due to insufficient sample material of the above borings to crate both composite samples, representative sample material from borrow area Borings 20, 24, 25, 29, 31 and 32 was added to generate a sufficient quantity of material. Composite sample no. 1 is representative of a borrow depth of -15 feet NAVD 88. Composite sample no. 2 is representative of a borrow depth of -20 feet NAVD 88. Composite sample no. 3 was to be representative of shoreline Borings 1, 2, A, 6, B, 7, C, 10, D and 12 to a depth of -10 feet NAVD 88. The soil borings were analyzed and percentages computed by volume for the five soil types encountered as presented in Table 1:

Table 1 – Composite Sample Material Types In Percent By Volume

Composite Sample No.	CH	CL	OH	ML	SM
1	36.1	15.8	11.0	36.2	0.9
2	23.1	11.8	9.4	46.9	8.8
3	98.5	0.0	0.9	0.6	0.0

The composite samples were prepared using the remains of jar samples from the soil borings made in 2003. The percentages by volume in Table 1 were converted to weight after testing for moisture content of representative samples of the remains in the jar samples. It was considered

desirable to create a slurry for settling column testing that had a total solids concentration of between 100 and 200 grams per liter. Therefore, the weight of material that theoretically would compose a sample with a total solids concentration of approximately 150 grams per liter in a 6-ft height of slurry in the settling column was then mixed with lake water from the project site to provide the slurry mixture. Where a given material type was insufficient, additional similar material was obtained from other soil borings from the project. It is believed that overall representative sample composition by material type was obtained. In the first two settling column tests, although the total solids concentration in the mixing tub was reasonably close to 150 grams per liter, the measured initial solids concentration in the settling column was at the low end of the 100 to 200 grams per liter range due to the necessity of adding about 30 percent more lake water to the slurry in order to pump the slurry from the mixing tub into the settling column. For the third test about 30 percent more soil was added to compensate for the additional lake water, which resulted in an initial solids concentration closer to 150 grams per liter in the settling column.

Laboratory Testing

Index testing was accomplished on the three composite samples. These tests included Atterberg limits, water content, specific gravity, organic content and grain size analyses. Results of these tests, except for the grain size analyses, are presented in Table 2. Grain size analyses are presented in Appendix A.

Table 2 – Composite Sample Index Test Results

Composite Sample No.	LL	PL	PI	Water Content, %	Specific Gravity	Organic Content, %
1	85	35	50	121	2.52	12.9
2	48	20	28	100	2.52	12.6
3	84	25	59	86	2.56	12.5

Consolidation tests were also performed on the three composite samples. Results of the consolidation tests are included in Appendix C.

Salinity tests were performed on the lake water provided by NRCS from the project site. Salinity measurements at the time the lake water was obtained were also provided by NRCS. The lake water was obtained on the morning of May 23, 2005. The gage located at South Bayou

Terrebonne Floodgate read +1.27 ft and 8:28 A.M. At the point of water sampling Lake Boudreaux mud line was at El -5.18 ft, and the water sample was taken at El. -3.50 ft. The salinity measurement at 8:47 A.M. was 4.5 parts per thousand, and the salinity measurement at 10:10 A.M. was 4.4 parts per thousand. Burns Cooley Dennis (BCD) also made salinity measurements on five samples of the lake water provided and measurements ranged between 3.6 and 3.9 parts per thousand.

Fifteen day settling column tests were performed on the three composite samples in accordance with EM 1110-2-5027. Data obtained from each of the settling column tests are presented in Appendix D.

Initial Bulking Factors From Settling Column Tests

In order to obtain an estimate of bulking factors for comparative purposes based on data that were available immediately after the performance of each settling column test, bulking factors were computed from the settling column test data for each of the three composite samples for a 15-day solids concentration. It is important to note that the computed bulking factors only apply to a 30-day dredging operation with 15 days being the one-half time used in determining the solids concentration.

The initial void ratios of the in situ material in the borrow area and along the shoreline were computed using the specific gravity of the composite samples, a weighted average water content based on the percentage of soil types to be dredged and assuming 100 percent saturation. The water content of each in situ soil type was based on data from the soil borings in the May 2003 report.

The solids concentration at 15 days was computed by multiplying the average initial solids concentration in the settling column by the ratio of the initial and final heights of the slurry. The 15-day solids concentration was then used to compute the void ratio of the settled soil in the column.

The initial and 15-day void ratios were used to compute the bulking factors for the fine-grained portions of the three composite samples. Only composite sample no. 2 contained enough coarse-grained soil to possibly be significant, so the bulking factor was adjusted for this sample to take the coarse-grained soil into account. A summary of the bulking factors at 15 days for the three composite samples is presented in the following Table 3:

Table 3 - Summary of Bulking Factors At 15 Days

Composite Sample No.	Bulking Factor Fine-Grained Only	Bulking Factor Fine- and Coarse-Grained
1	1.94	1.94
2	1.90	1.82
3	2.52	2.52

The computation sheets for the bulking factors are included in Appendix E.

SETTLE and PSDDF Models

The volume occupied by the dredged material was estimated based on the settling behavior of the dredged material and the SETTLE model developed by the US Army Corps of Engineers (Hayes and Schroeder 1992). The settling behavior was determined by performing the laboratory column settling tests. After initial settling, long-term consolidation will occur which further reduces the dredged material volume and elevation. This long-term consolidation was modeled using another model titled Primary Consolidation Secondary Compression and Desiccation of Dredged Fill (PSDDF) (Stark, 1996).

Project Specifics

It was specified that the desired marsh elevation should be El. 1.3 ft (NAVD 88) at 20 years after placement. Area subsidence, 0.7 ft over 20 years, was also accounted for in addition to consolidation of the dredged material and the consolidation of the foundation material on which the dredged material will be placed. It was desired to know the volume of sediment that must be dredged and placed at the site to achieve this elevation.

As previously stated, composite samples were prepared to represent three potential borrow sources as fill material for the marsh. Properties are shown in Table 4.

Table 4 - Dredged Material Properties

Material Properties	Dredged Material		
	Composite 1	Composite 2	Composite 3
Percent fines (by wt.)	99.3	87	98
Avg. specific gravity	2.52	2.52	2.56
% Organic	12.9	12.6	12.5
LL	85	48	89
PL	35	20	25
PI	50	28	64
In Situ Water Content, %	162	125	100
In Situ Void Ratio	4.08	3.15	2.56
USCS Classification	CH	CL	CH

The placement site is divided into three separate areas, 157 acres in the North Area, 46 acres in the Central Area, and 81 acres in the South Area, totaling 284 acres. The average elevation of the areas is approximately El. 0.5 ft. The capacities of the placement areas are about 750,000, 200,000, and 350,000 cubic yards at El. 3.2 ft. It is desirable to minimize the dike heights to the extent possible. It was suggested by NRCS that a 24-inch dredge would be appropriate and that it could likely operate 7 days per week, 24 hours per day, with 50 % of the time actually spent dredging.

Column Settling Tests

Settling column tests were performed in accordance with (USACE 1987) using an approximate 6-ft column of slurry and monitoring settlement and effluent quality over 15 days. Laboratory data obtained from each of the settling column tests are presented in Appendix D. From the resulting data, the SETTLE model was used to develop settling curves for the zone and compression settling regimes based on the sediment-water interface height recorded during the tests. The resulting curves are shown in Table 5 and Figures 1 and 2 below. Throughout the 15-

day test the effluent above the interface was sampled at available ports 6 inches apart at various time intervals. Both turbidity and total suspended solids (TSS) were measured for the samples to develop a flocculent settling curve. Although the turbidity readings appeared reasonable (increasing with depth but decreasing over time), the TSS measurements did not seem accurate. It was therefore decided to trust the turbidity measurements. However, a TSS vs. turbidity curve is necessary to relate the turbidity measurements back to trustworthy TSS values. Therefore, a series of dilutions were performed on a sample of each composite, and turbidity and TSS measurements made on each dilution for the purpose of developing the TSS vs. turbidity curve.

Table 5. Settling Coefficients for Composites 1, 2 and 3

	Dredged Material		
Settling Coefficients	Composite 1	Composite 2	Composite 3
Zone settling velocity, ft/hr	0.1080	0.1040	0.1190
Compression settling coefficient A	180.10	200.48	214.87
Compression settling coefficient B	0.1521	0.1690	0.1072

Compression Settling Curve: $C = A\ [Time]^B$, where C is concentration in g/L and Time is in days.

Figure 1 - Compression Settling Curves for Composites 1, 2 and 3

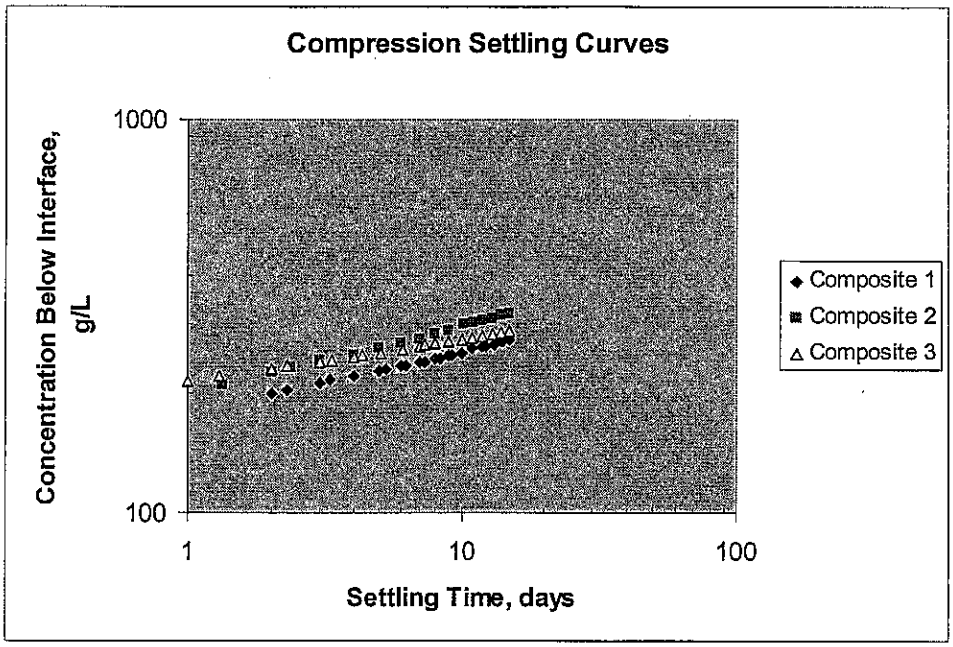
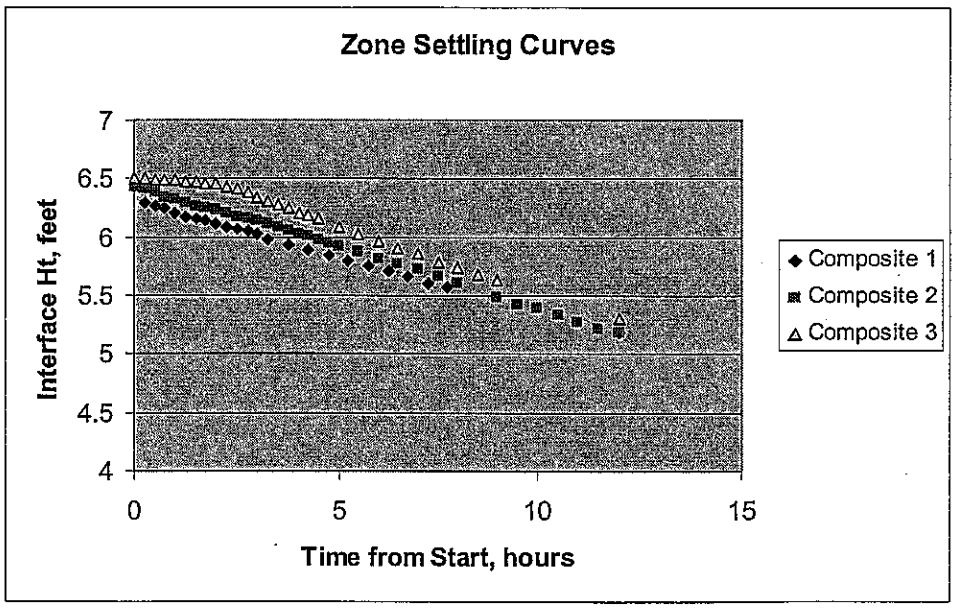


Figure 2 - Zone Settling Curves for Composites 1, 2 and 3



Modeling

The SETTLE and PSDDF models were developed to support typical dredging projects and CDF design where a known volume is dredged and it is desired to know the elevation of the material at a future time. As the scenario for this project is reversed from the typical, the models were run iteratively by estimating a dredging volume, using SETTLE to determine the as-placed volume/thickness and void ratio, and using PSDDF to determine the resulting 20-year elevation. The dredging volume was then adjusted accordingly on the subsequent iteration.

In the first set of iterations, the dredging and site parameters shown in Table 6 were used in the SETTLE model to determine the void ratio and average thickness of the dredged material resulting from the estimated in situ volume. It was presumed that the elevation at 20 years will be mostly dependent on the in situ volume of dredged material placed at the site, and nearly independent of the dredging operations and how the material is initially placed. PSDDF was then used to determine the consolidation over 20 years, and the resulting elevation.

Table 6 - SETTLE Parameters

SETTLE Input	Dredged Material		
	Composite 1	Composite 2	Composite 3
Sediment Data			
In situ volume of material to be dredged, yd^3	To be determined		
Percent fines, %	99.3	87	98
Average specific gravity of the material	2.52	2.52	2.56
Average in situ void ratio	4.08	3.15	2.56
Average in situ water content, %	162	125	100
Settled Sand Data			
Average specific gravity of the sands and gravels	2.68	2.68	2.68
Average dry density of the settled sands, lb/ft^3	85	85	85
Production Rate and Operating Time Data			
Influent pipe diameter, inches	24	24	24
Average pipeline velocity, ft/s	15	15	15
Influent percent solids by weight, %	20	20	20
Solids output, in situ yd^3 / hr	1304	1304	1304
Number of hrs/day dredge is operating, hr/day	12	12	12
Average number of operating days per week	7	7	7
Disposal Area Configuration Data			
Average dike height, ft	5.5	5.5	5.5
Minimum freeboard, ft	1.5	1.5	1.5
Minimum ponded water depth required, ft	1	1	1
Depth of withdrawal or ponding at the weir, ft	1	1	1
Average storage area, accounting for dike slope, acres	284	284	284
Percent of the area ponded at the end of dredging, %	100	100	100
Hydraulic efficiency of the disposal area, %	70	70	70
Maximum allowable effluent solids concentration, mg/L	2000	2000	2000

The PSDDF model uses consolidation properties and thicknesses of the newly placed material and the foundation material as well as climate data for the area. Monthly rainfall data was provided for the Houma LA 4407 weather station. Evaporation data for the area was not located, and therefore data from the Lake Charles area were used instead. As the depth and properties of the compressible foundation in the format required by the model were unknown, the properties of a similar foundation material and a thickness of approximately 136 ft was used to produce consolidation at 20 years, similar to that estimated in the May 2003 report. For each time interval, the foundation consolidation computed by the model was subtracted, and that estimated in the May 2003 report was added for increased accuracy. Table 7 shows the parameters used for the PSDDF model.

Table 7 - PSDDF Parameters

Incompressible Foundation Parameters			
Void Ratio	1		
Permeability (ft/day)	1		
Length of drainage path (ft)	25		
Elevation of external water table (ft)	0		
Dredged Fill Desiccation and Placement Area Parameters			
	Composite 1	Composite 2	Composite 3
Desiccation Limit	2.02	1.80	2.16
Shrinkage Limit	3.80	2.57	4.58
Max depth to which 2nd stage drying will occur	0.795	0.762	0.816
Degree of saturation of dredged fill at desiccation limit	0.524	0.336	0.356
Surface drainage efficiency	0.34	0.34	0.34
Evaporation and Precipitation			
Month	Precipitation (ft)	Evaporation (ft)	
January	0.413	0.088	
February	0.368	0.130	
March	0.411	0.214	
April	0.360	0.406	
May	0.405	0.553	
June	0.528	0.567	
July	0.671	0.399	
August	0.594	0.476	
September	0.557	0.425	
October	0.281	0.244	
November	0.350	0.115	
December	0.389	0.090	

To properly characterize the consolidation of the dredged material and foundation, both self-weight and oedometer consolidation were considered. As the loads used in the oedometer consolidation tests were somewhat higher than loading from self-weight consolidation, available data from sediment with similar properties were used to build the self-weight portion of the consolidation curves. The resulting consolidation curves for Composite 2 are shown in Figures 3 and 4 below.

Figure 3 - Composite 2 Consolidation, Void Ratio vs. Effective Stress

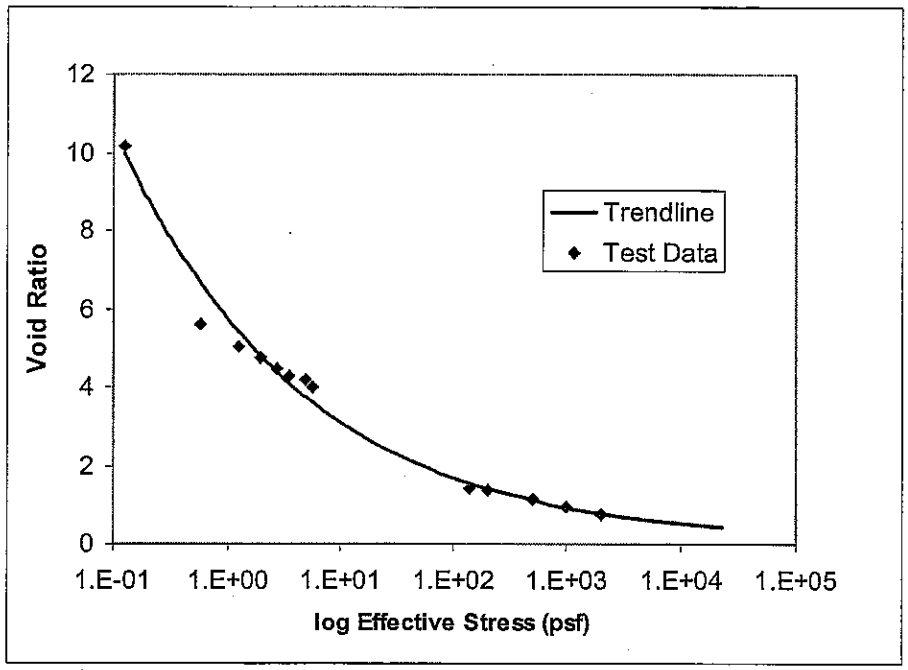
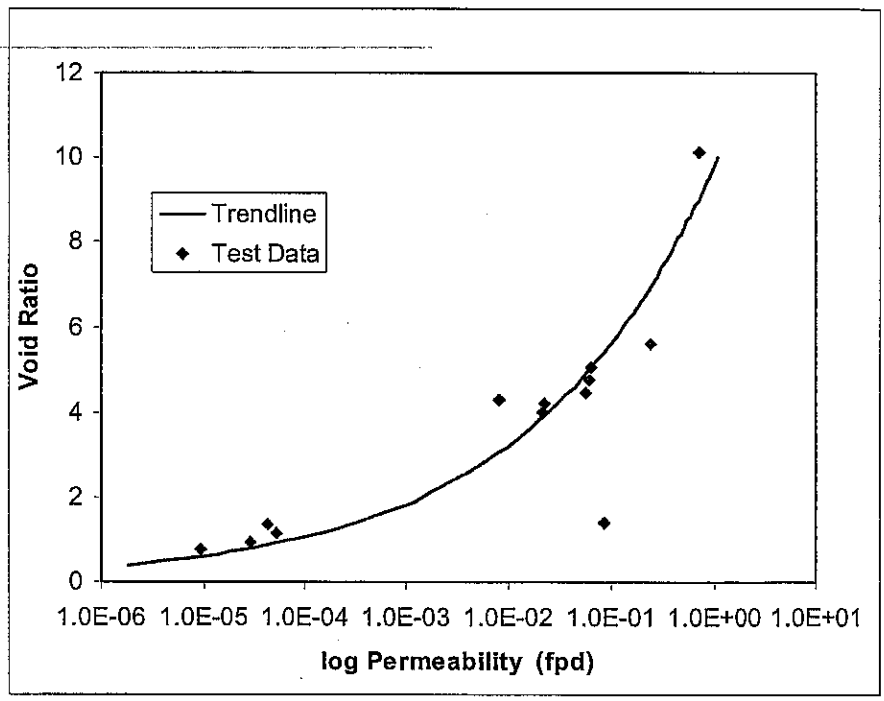


Figure 4 - Composite 2 Consolidation, Void Ratio vs. Permeability



The model runs and results are shown in Table 8 below. In order to achieve the desired El. 1.3 ft at 20 years from placement, it appears that approximately 1,315,000 cubic yards of in situ Composite 2 material would need to be dredged. As shown, dredging this volume using the dredging parameters listed above would require an initial dike elevation of 7 ft to accommodate 1.5 ft of freeboard and 1 ft of ponding. Changing the dredging/placement conditions, according to the model, would alter the elevation at 20 years slightly, but not considerably.

Table 8 - PSDDF Model Runs, Composite 2

	As Placed							
In Situ Volume yd^3	Volume Sand yd^3	Volume Fines Yd^3	Volume Total yd^3	Solids Conc. of Fines g/L	Void Ratio Fines	Sediment Elev ft	Dike Elev[1] ft	Elev at 20 years[2] ft
800,000	46,348	1,218,173	1,264,521	346.94	6.264	3.13	5.63	0.76
950,000	55,039	1,405,124	1,460,163	357.17	6.055	3.56	6.06	0.89
1,000,000	57,935	1,466,297	1,524,232	360.29	5.994	3.70	6.20	0.98
1,100,000	63,729	1,587,124	1,650,853	366.15	5.882	3.98	6.48	1.08
1,200,000	69,522	1,706,105	1,775,627	371.58	5.782	4.25	6.75	1.17
1,300,000	75,316	1,823,417	1,898,733	376.64	5.691	4.52	7.02	1.28
1,315,000	**76,185**	**1,840,880**	**1,917,065**	**377.37**	**5.678**	**4.56**	**7.06**	**1.30**
1,320,000	76,475	1,846,693	1,923,168	377.62	5.673	4.57	7.07	1.31
1,350,000	78,213	1,881,495	1,959,708	379.06	5.648	4.65	7.15	1.34
1,500,000	86,903	2,053,612	2,140,515	385.87	5.531	5.04	7.54	1.60

[1] Assuming 1.5 ft freeboard and 1 ft ponded depth required.

[2] Including subsidence.

Aside from developing the settling curves, the SETTLE model uses the curves and project specific information to determine the dredged material volume at the end of placement and the resulting effluent quality. The model can be used as tool to determine the most effective dredging parameters where limitations exist on storage area, dike heights, dredging time, for

instance. For this project, it is desirable to maintain dike heights below an elevation of approximately 6 ft, and therefore, a variety of dredging scenarios were run to provide an idea of how the dredging could be operated to meet that criteria. In general, slower dredging gives solids more time to settle and results in lower volume/elevation requirements. Inevitably, there will be tradeoffs between optimization of dike elevation and dredging efficiency.

The sediment volumes as-placed and void ratios and associated elevations and required dike heights which were used as input into PSDDF were based on average values at the end of dredging. However, because the containment area is divided into three distinct areas, the settling time at the end of dredging for each individual area will be less than that for the total. Therefore, solids concentrations will be lower, and dike height requirements will be greater than if the material were to be placed in one large area. This assumes that dredged material is not placed incrementally in the three areas, but rather one placement is made for each area. To determine more realistic storage area requirements and dike heights, each area must be considered separately. Table 9 shows several dredging rates and the resulting elevations and dike requirements at the end of dredging.

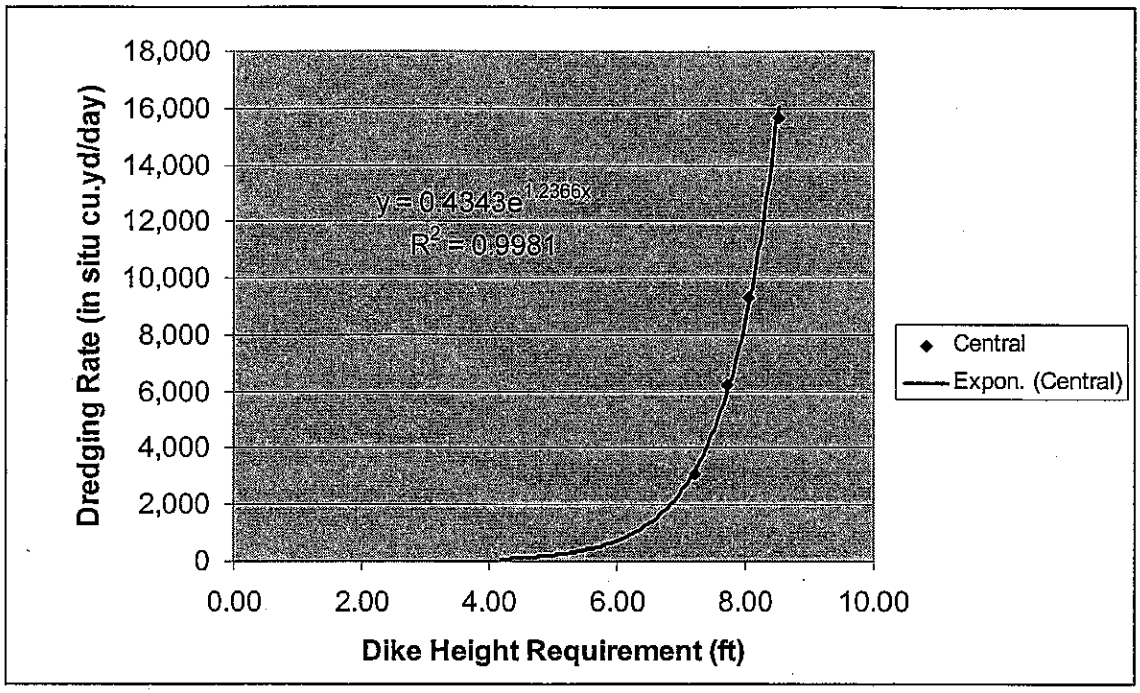
Table 9 - End of Placement Conditions For Various Dredging Rates

		North	Central	South	Total
In situ volume of material to be dredged:	yd^3	726,954	212,993	375,053	1,315,000
Dredging Rate (in situ yd^3 / day):	15,645				
Estimated time to complete the dredging	days	46.5	13.6	24.0	84.1
Volume sand	yd^3	42,116	12,340	21,729	76,185
Volume fines	yd^3	1,125,008	405,715	649,190	1,840,880
Volume total	yd^3	1,167,124	418,055	670,919	1,917,065
Sediment elevation	ft	4.98	6.01	5.51	5.30
Dike requirement	ft	7.48	8.51	8.01	7.80
Dredging Rate (in situ yd^3 / day):	9,313				
Estimated time to complete the dredging	days	78.1	22.9	40.3	141.2
Volume sand	yd^3	42,116	12,340	21,729	76,185
Volume fines	yd^3	1,030,465	371,620	594,634	1,686,152
Volume total	yd^3	1,072,581	383,960	616,363	1,762,337
Sediment elevation	ft	4.61	5.55	5.09	4.90
Dike requirement	ft	7.11	8.05	7.59	7.40
Dredging Rate (in situ yd^3 / day):	6,208				
Estimated time to complete the dredging	days	117.1	34.3	60.4	211.8
Volume sand	yd^3	42,116	12,340	21,729	76,185
Volume fines	yd^3	962,141	346,985	555,207	1,574,353
Volume total	yd^3	1,004,257	359,325	576,936	1,650,538
Sediment elevation	ft	4.34	5.21	4.79	4.61
Dike requirement	ft	6.84	7.71	7.29	7.11
Dredging Rate (in situ yd^3 / day):	3,104				
Estimated time to complete the dredging	days	234.2	68.6	120.8	423.6
Volume sand	yd^3	42,116	12,340	21,729	76,185
Volume fines	yd^3	855,669	308,586	493,772	1,400,129
Volume total	yd^3	897,785	320,926	515,501	1,476,314
Sediment elevation	ft	3.92	4.70	4.32	4.16
Dike requirement[1]	ft	6.42	7.20	6.82	6.66

[1] Assuming 1.5 ft freeboard and 1 ft ponding

Being the smallest area, the Central storage area requires the highest dike elevations. The dike requirements for placing Composite 2 material in the Central area are shown below in Figure 5. The exponential curve fit suggests that to keep the dike height requirement below 6 feet, the dredging rate would have to be limited to approximately 725 in situ cubic yards per day.

Figure 5 - Dredging Rate vs. Dike Height Requirements for Composite 2, Central Area



SLOPE STABILITY ANALYSES

General

All stability analyses were performed using the slope stability program, UTEXAS3 developed by Professor Steve Wright at the University of Texas for the U.S. Army Corps of Engineers Waterways Experiment Station.

Shoreline Protection Measures

The foundation analyses were performed for a rock dike. The analyses established the expected configuration of the rock structure. The analyses established the stable side slopes of the rock structure and evaluated the 40-ft minimum berm distance shown on Figure 2 of the May

2003 report between the rock structure and the access channel to be excavated to construct the dike. A minimum factor of safety of 1.3 was required in the stability analyses. The steepest side slope considered for the rock dike structure was 1V on 2H. The crown width is 3 ft. The side slope provided for the excavated access channel was 1V on 1H. This slope was not analyzed for stability. However, due to the low cohesive strengths of some of the upper soils, sloughing of the 1V on 1H side slopes for the access channel may occur. However, the 40-ft minimum berm width should prevent sloughing of the access channel side slopes from adversely affecting the dike structure.

Rock Dike Stability

A total of 11 separate dike analyses were performed for Borings 1, 2, A, 6, B, 7, C, 10, D, 12 and E. The rock dike stability analyses are presented in Appendix B as Figures B-1A through B-11A. Shear strengths used in the dike stability analyses are the same as those presented in the May 2003 report. A geotextile with a minimum ultimate tensile strength of 4,800 lbs per ft is to be placed at the mud line beneath the rock dike. Pullout resistance of the geotextile was included in the stability analyses. Factors of safety for creep, installation damage, and durability of 1.4, 2.6, and 1.1, respectively, were applied to the ultimate strength of the geotextile. Collectively, these safety factors resulted in use of a maximum of 25 percent of the ultimate tensile strength of the geotextile, or 1,200 lbs per ft, unless the strengths of the soil and rock resulted in less pullout resistance, in which case the lower pullout resistance was used. A factor of safety of 1.5 was applied to the soil and rock parameters, and an additional efficiency factor of 0.8 for soil or rock on geotextile was also applied in computing pullout resistance.

Dike Stability Summary

Table 10 presents a tabulation of results of the rock dike stability analyses. The "Distance to Excavation" column in Table 10 is the distance in ft from the top of the 1V on 1H excavation slope of the access channel to the waterway side dike toe. Although the stability analyses for Borings 6 and B resulted in safety factors greater than the minimum required for the 1V on 2.5H dike side slopes, guidance provided to us indicated that these rock dike side slopes should be 1V on 2.5H. Also, the stability analyses for Boring C indicate a safety factor of 1.22 for the 40-ft-wide berm, which is less than the 1.30 minimum required. However, the controlling

soil stratum consists of very soft clays (CH) that are slightly silty with fine sand. An angle of internal friction of only one degree increases the safety factor to 1.30. Therefore, it is believed that the 40-ft berm width is adequate.

Table 10 - Dike Stability Summary

Boring No.	Rock Dike Slope, H	Distance to Excavation, Ft
1	2.5	40
2	3.5	40
A	2.5	40
6	2.5	40
B	2.5	40
7	2.5	40
C	2	40
10	2	40
D	2	40
12	2	40
E	2	40

Containment Levee Stability

The analyses established the stable side slopes and evaluated the 25-ft minimum berm distance shown on Figure 5 in the May 2003 report between the containment levee and the containment levee borrow channel. Where the 25-ft minimum berm width was inadequate, the minimum required berm width was determined. A 2-ft crown width was utilized. A minimum factor of safety of 1.3 was required in the stability analyses. The steepest side slope considered for the containment levee was 1V on 2H. Initial guidance provided to us indicated that the containment levee height would be 6 ft. Stability analyses were accomplished for some of the soil borings using this dimension. However, subsequent guidance indicated the containment levee height would be 7 ft. Those analyses whose safety factors were sufficiently close to 1.3 were then reanalyzed to determine if changes in the containment levee slopes or berm widths were necessary. Those analyses whose safety factors were sufficiently high to not require a

change in the containment levee slopes or berm widths were not reanalyzed. Consequently, some of the stability analyses indicate a containment levee height of 6 ft, and others indicate 7 ft. Seven separate analyses were performed for Borings 3, 4, 5, 8, 9, and 11 in the marsh areas and Boring 12 along the proposed shoreline protection measures, for a borrow depth of 6 ft. Seven additional analyses were then performed for a borrow depth of 10 ft. The containment levee stability analyses are presented in Appendix F as Figures F-1A through F-14A. Shear strengths used in the containment levee stability analyses are the same as those used in the May 2003 report. The shear strength of the embankment was assumed to be 80 percent of the strength of the top stratum of the foundation soils. The borrow channel in the stability analyses was assumed to have 1V on 1H side slopes. Table 11 presents a tabulated summary of the results of the containment levee stability analyses. The "Distance to Excavation" column in Table 11 is the minimum required distance in ft from the top of the excavation slope of the containment levee borrow channel to the interior containment levee toe. As indicated in Table 11, for Borings 3, 4 and 11 it will be necessary to use geotextile reinforcement beneath the containment levee in order to avoid constructing side slopes flatter than 1V on 3H. The geotextile reinforcement analyzed for the containment levees had the same parameters as that used for the rock dikes.

Table 11 – Containment Levee Stability Summary

Boring No.	Borrow Depth, Ft	Levee Ht, Ft	Slope, H	Distance To Excavation, Ft	Geotextile Reinforcement
3	6	7	3	25	Yes
4	6	7	3	30	Yes
5	6	6	2	25	No
8	6	6	2	25	No
9	6	7	2	25	No
11	6	7	3	25	Yes
12	6	7	2	25	No
3	10	7	3	25	Yes
4	10	7	3	50	Yes
5	10	7	2	25	No
8	10	7	2	25	No
9	10	7	2	25	No
11	10	7	3	25	Yes
12	10	7	2	35	No

RECOMMENDATIONS FOR ROCK DIKE AND CONTAINMENT LEVEE STABILITY

Presented here are our recommendations that are based on the results of the analyses and conclusions that we have drawn from the analyses.

Rock Dike

Stability analyses for Borings C, 10, D, 12 and E indicate the rock dike could be constructed using 1V on 2H side slopes provided a 4,800 lb per ft minimum tensile strength geotextile is placed beneath the rock dike. Stability analyses along with guidance provided to us indicate Borings 1, A, 6, B and 7 would require 1V on 2.5H rock dike side slopes. However, stability analyses of Boring 2 indicate 1V on 3.5H rock dike side slopes would be required. Therefore, it is recommended that 1V on 3.5H dike side slopes be constructed from Boring 1 to the location of Boring A, 1V on 2.5H dike side slopes be constructed from Boring A to the location of Boring C, and 1V on 2H dike side slopes be constructed from Boring C to Boring E. A minimum distance of 40 ft from the top of the excavation slope of the access channel to the waterway side dike toe should be required.

Containment Levee

For a containment levee height of 7 ft, only the area between Borings 5 and 9 appears suitable for 1V on 2H containment levee side slopes without geotextile reinforcement and with a minimum distance of 25 ft from the top of the excavation slope of the containment levee borrow channel to the interior containment levee toe for either a 6-ft or 10-ft borrow depth. It is recommended that the areas north of Boring 5 and south of Boring 9 utilize 1V on 3H side slopes with geotextile reinforcement beneath the containment levee for either a 6-ft or 10-ft borrow depth. It is further recommended that for the area north of Boring 5, a minimum distance of 30 ft from the top of the excavation slope of the containment levee borrow channel to the interior containment levee toe be required for a 6-ft borrow depth, and that a minimum distance of 50 ft be required for a 10-ft borrow depth. For the area south of Boring 9, a minimum distance of 25 ft from the top of the excavation slope of the containment levee borrow channel to the interior containment levee toe is recommended for a 6-ft borrow depth, and a minimum distance of 35 ft is recommended for a 10-ft borrow depth.

REPORT LIMITATIONS

The analyses and conclusions discussed in this addendum are based on conditions as they existed at the time of our field investigation and further on the assumption that the exploratory borings are representative of subsurface conditions within the areas investigated. It should be noted that actual subsurface conditions between and beyond the borings might differ from those encountered at the boring locations.

This addendum has been prepared for the exclusive use of the Natural Resources Conservation Service for specific application to the geotechnical-related aspects of design and construction of a shoreline protection and marsh creation project (TE-46) in the western portion of Lake Boudreaux in Terrebonne Parish, Louisiana. The only warranty made by us in connection with the services provided is we have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty, express or implied, is made or intended.

References

Hayes, D. F. and Schroeder, P. R. (1992). "Documentation of the SETTLE module for ADDAMS: Design of confined disposal facilities for solids retention and initial storage," *Environmental Effects of Dredging Technical Notes* EEDP-06-18, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Stark, T.D. (1996). "Program documentation and user's guide: PSDDF primary consolidation, secondary compression, and desiccation of dredged fill," Draft, Instruction Report EL-96-XX, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

U.S. Army Corps of Engineers (USACE). (1987). "Confined disposal of dredged material," Engineer Manual 1110-2-5027, Washington, DC.

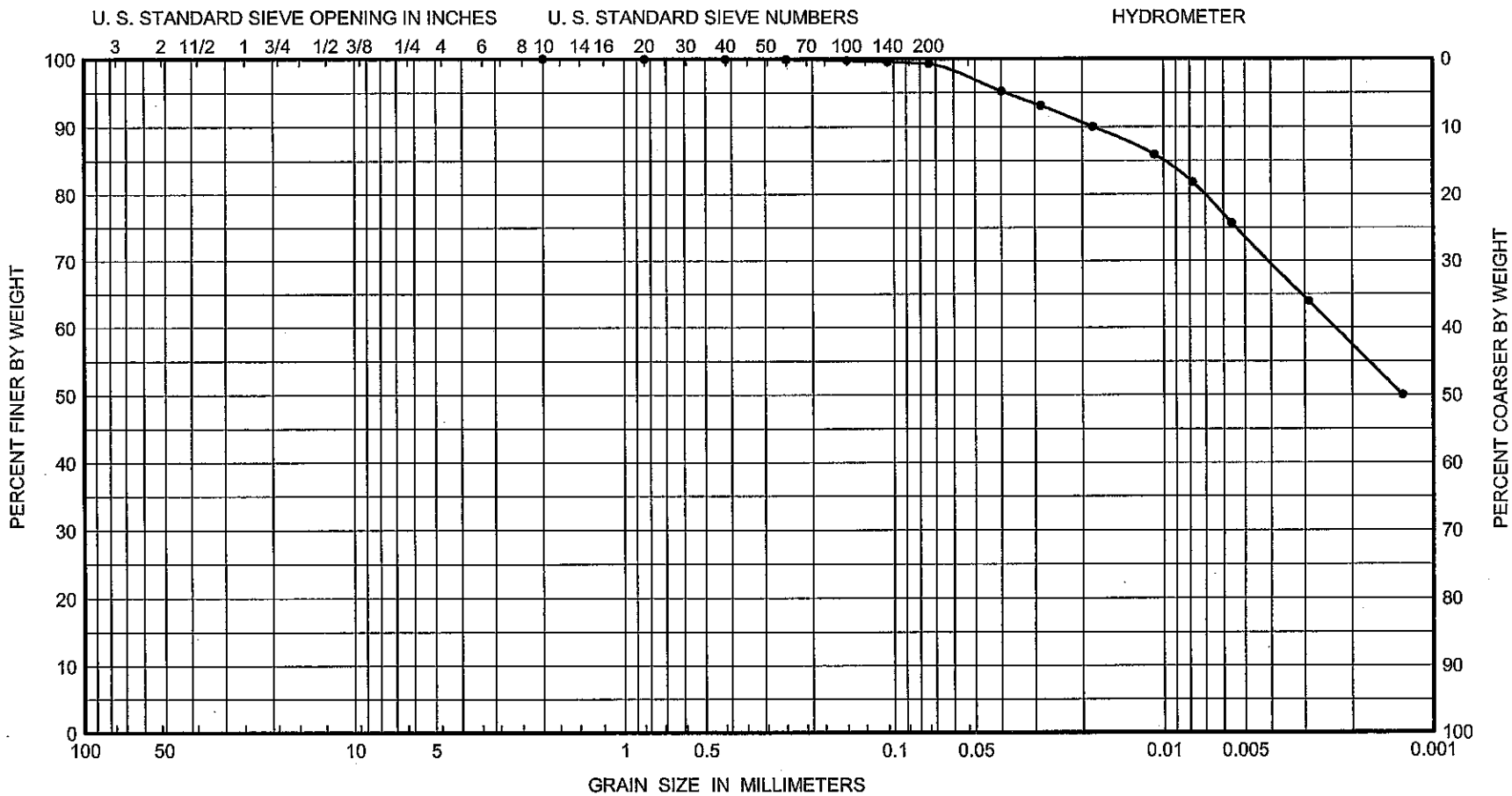
APPENDIX A

COMPOSITE SAMPLES

GRAIN SIZE CURVES

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL AND MATERIALS ENGINEERING CONSULTANTS

GRAIN SIZE CURVES



Boring No.	Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
			Composite - Sample 1 (CH)	**121.0**	**85**	**35**	**50**

Project WEST LAKE BOUDREAUX

Terrebone Parish, Louisiana (TE- 46)

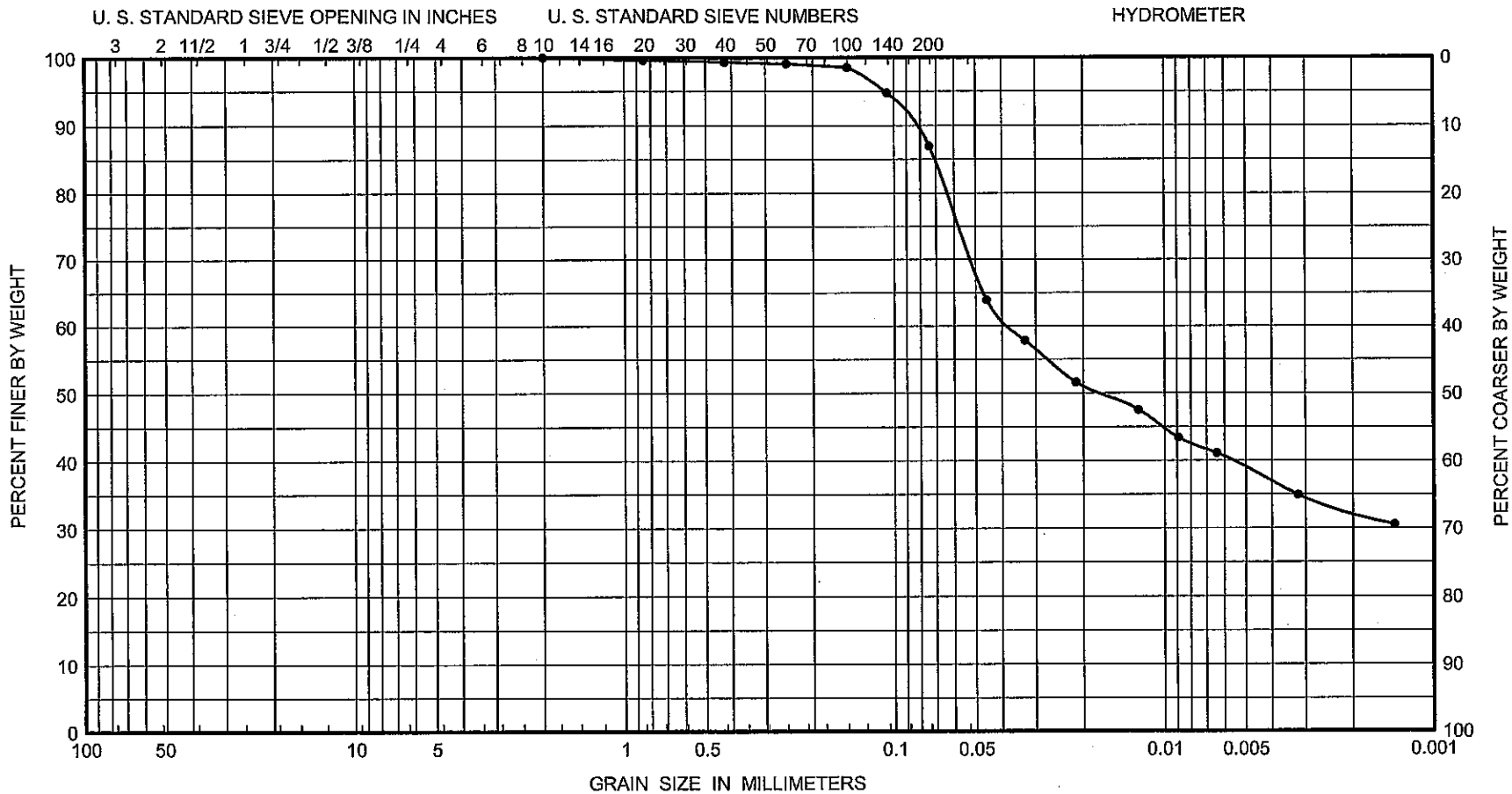
Date **7/25/05**

Job No. 02485-3A

FIGURE 1

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL AND MATERIALS ENGINEERING CONSULTANTS

GRAIN SIZE CURVES



GRAVEL	SAND			SILT or CLAY
	Coarse	Medium	Fine	

Boring No.	Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
			Composite - Sample 2 (CL)	**99.7**	**48**	**20**	**28**

Project WEST LAKE BOUDREAUX

Terrebone Parish, Louisiana (TE- 46)

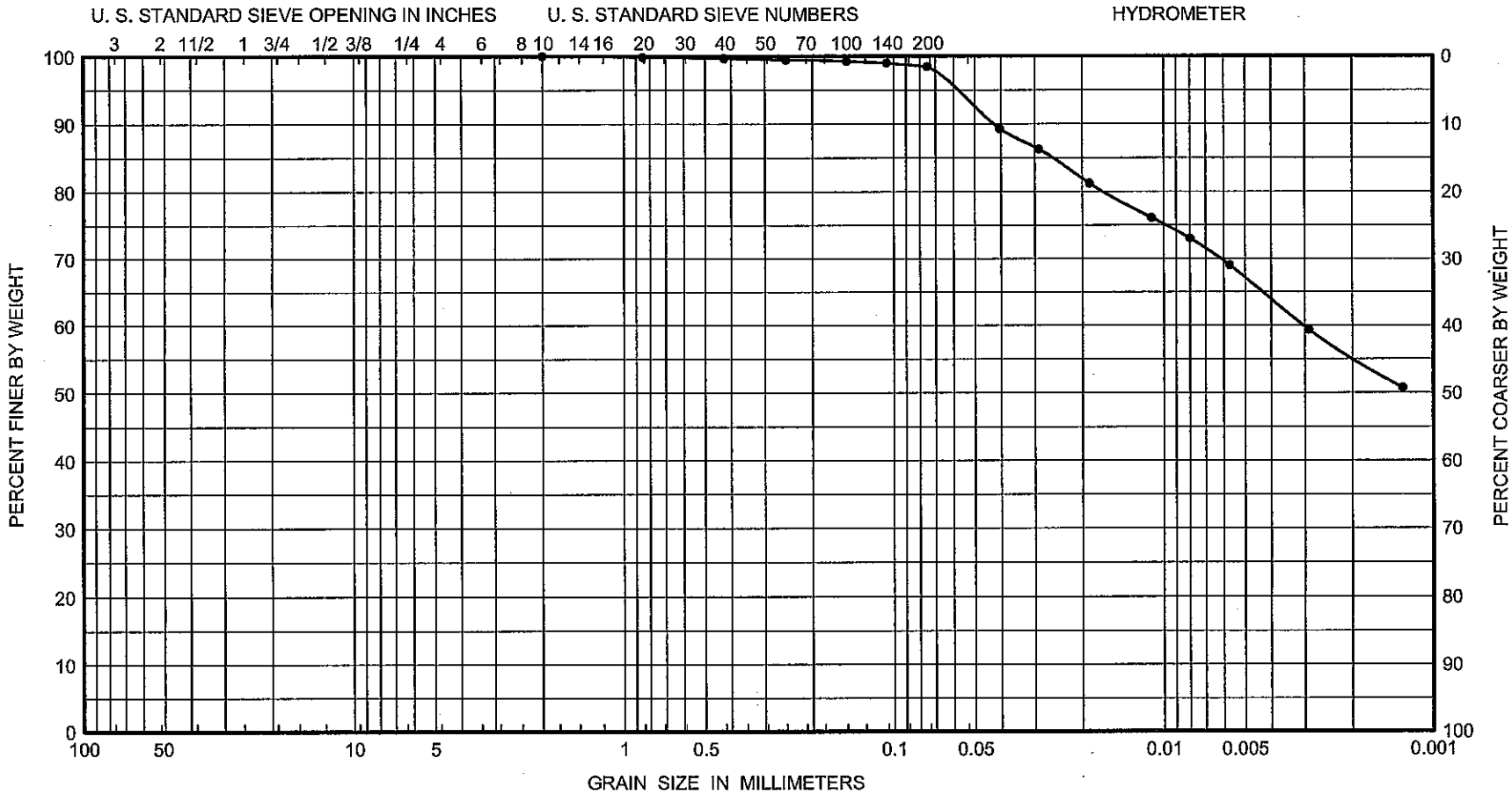
Date **7/21/05**

Job No. 02485-3A

FIGURE 2

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL AND MATERIALS ENGINEERING CONSULTANTS

GRAIN SIZE CURVES



GRAVEL	SAND			SILT or CLAY
	Coarse	Medium	Fine	

Boring No.	Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
			Composite - Sample 3 (CH)		**89**	**25**	**64**

Project WEST LAKE BOUDREAUX

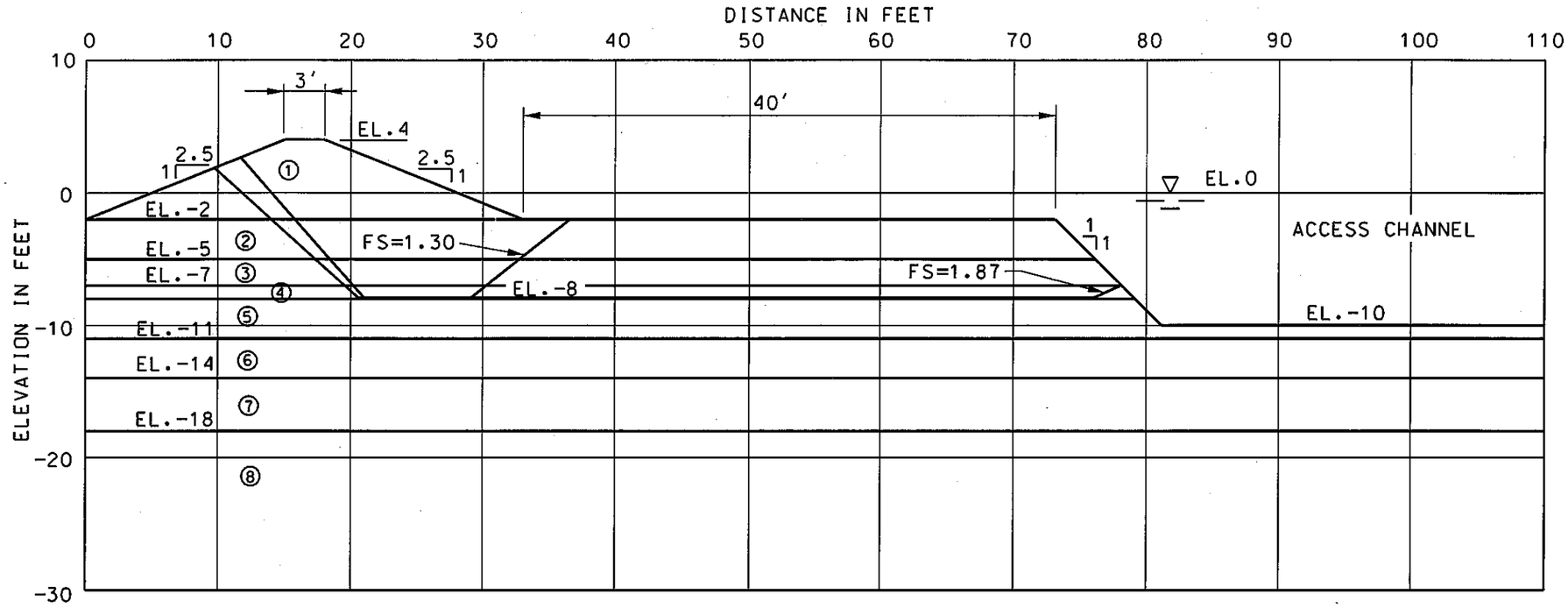
Terrebone Parish, Louisiana (TE- 46)

Date **7/25/05** Job No. 02485-3A

FIGURE 3

APPENDIX B

ROCK DIKE STABILITY ANALYSES



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2	0
5	-2	347
11	-2	1200
20	-2	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	98	75	0
3	98	120	0
4	75	75	0
5	98	220	0
6	120	0	30
7	110	200	20
8	98	120	0

X	Y	FS
9.73	1.89	1.30
20.57	-7.90	
29.08	-7.90	
36.57	-2.00	
11.69	2.68	1.87
21.00	-7.90	
76.04	-7.90	
78.00	-7.00	

Stability Analysis

ROCK DIKE - BORING 1
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
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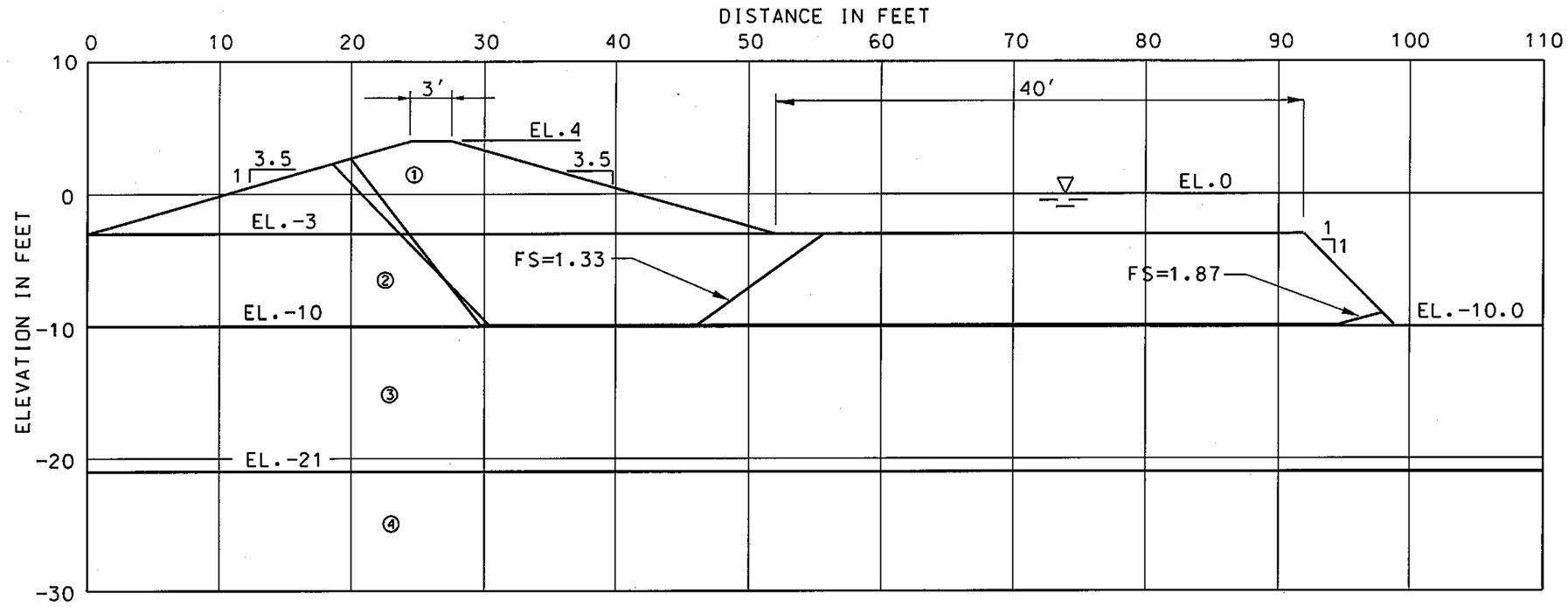
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3A | SCALE: 1"= 10' | FIGURE B-1A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-3	0
10.5	-3	940
13	-3	1200
35	-3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	77	85	0
3	110	200	20
4	100	230	0

X	Y	FS
18.56	2.30	1.33
30.34	-9.90	
46.07	-9.90	
55.66	-3.00	
19.94	2.70	1.87
29.68	-9.90	
94.59	-9.90	
98.00	-9.00	

Stability Analysis

ROCK DIKE - BORING 2
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
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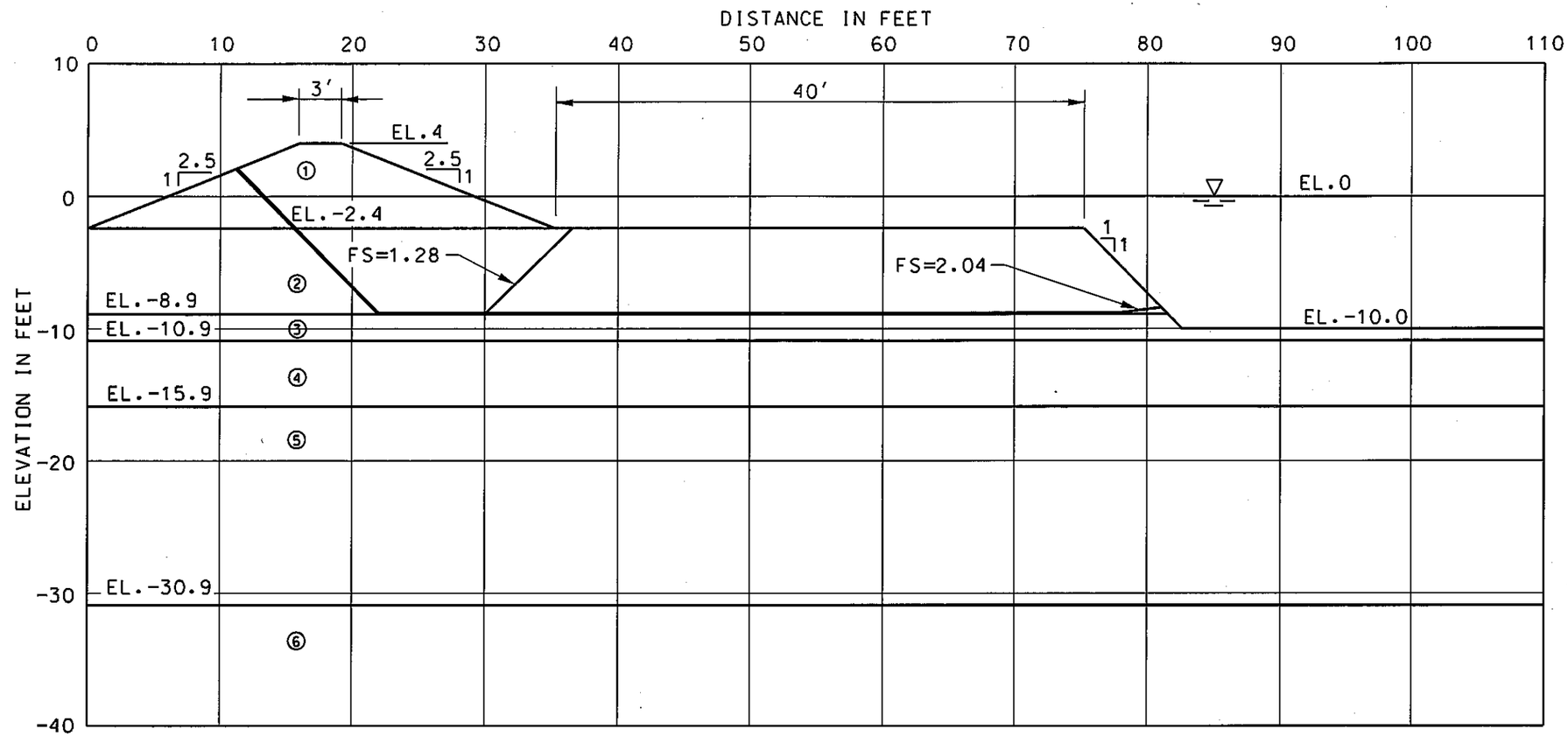
JOB NO. 02485-3A | SCALE: 1"= 10' | FIGURE B-2A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P. LBS/FT
0	-2.4	0
6	-2.4	500
11	-2.4	1200
25	-2.4	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	84	90	0
3	110	150	0
4	110	200	20
5	105	150	0
6	105	250	0

X	Y	FS
11.16	2.06	1.28
21.90	-8.80	
30.05	-8.80	
36.50	-2.40	
11.29	2.12	2.04
22.00	-8.80	
77.83	-8.80	
81.00	-8.40	

Stability Analysis

ROCK DIKE - BORING A
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
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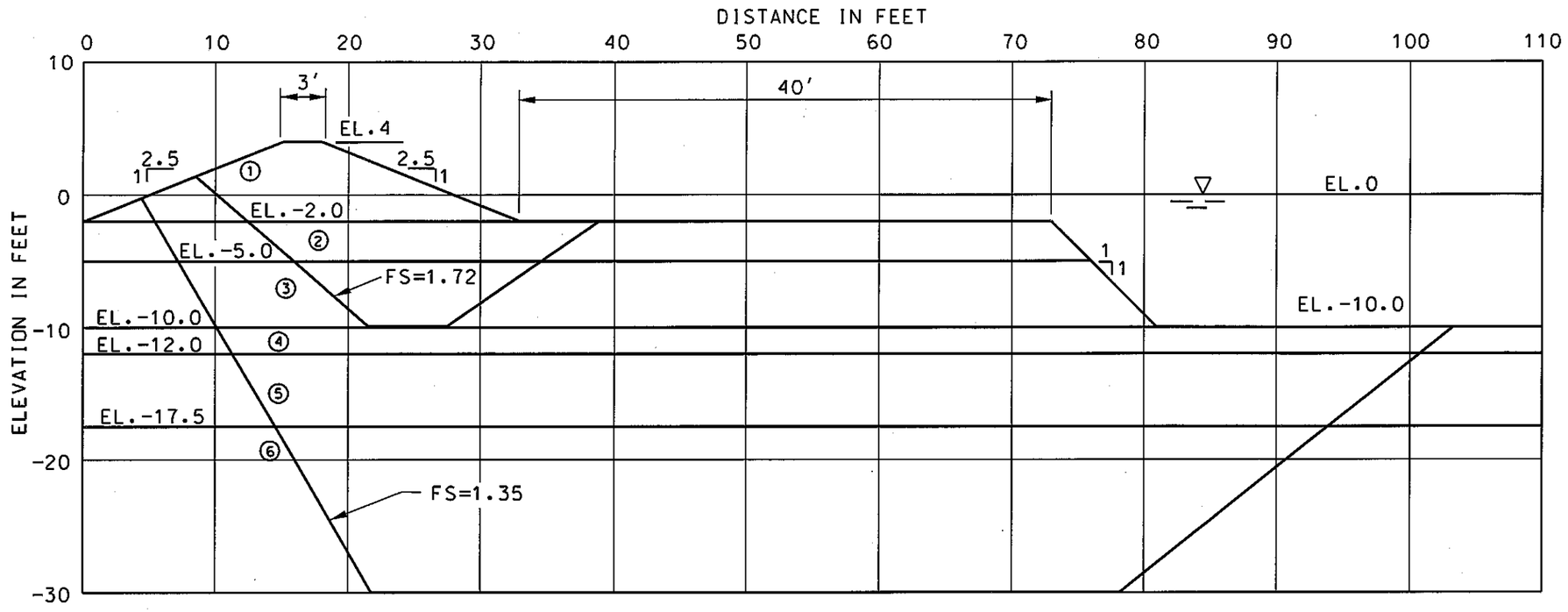
JOB NO. 02485-3A | SCALE: 1"= 10' | FIGURE B-3A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.0	0
5	-2.0	587
8	-2.0	1200
20	-2.0	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	94	110	0
3	92	140	0
4	120	0	30
5	110	200	20
6	104	86	0

X	Y	FS
8.54	1.41	1.72
21.51	-9.90	
27.52	-9.90	
38.81	-2.0	
4.44	-0.23	1.35
21.76	-30.00	
78.19	-30.00	
103.25	-10.00	

Stability Analysis

ROCK DIKE - BORING 6
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

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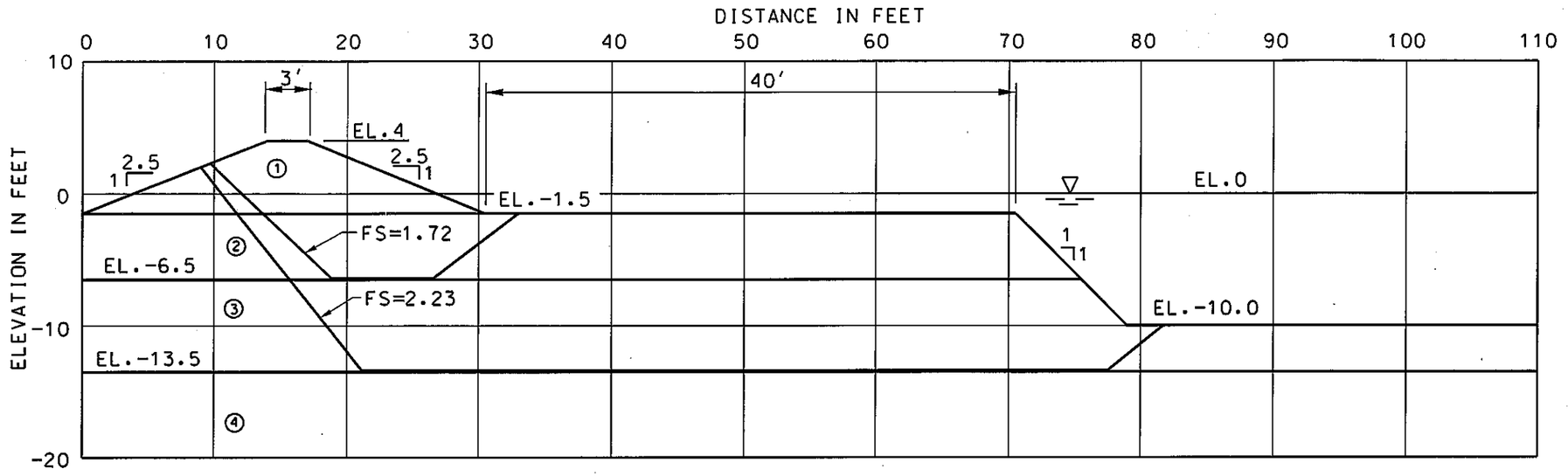
JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-4A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.5	0
3.75	-1.5	383
8	-1.5	1200
18	-1.5	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	92	100	0
3	94	160	0
4	110	200	20

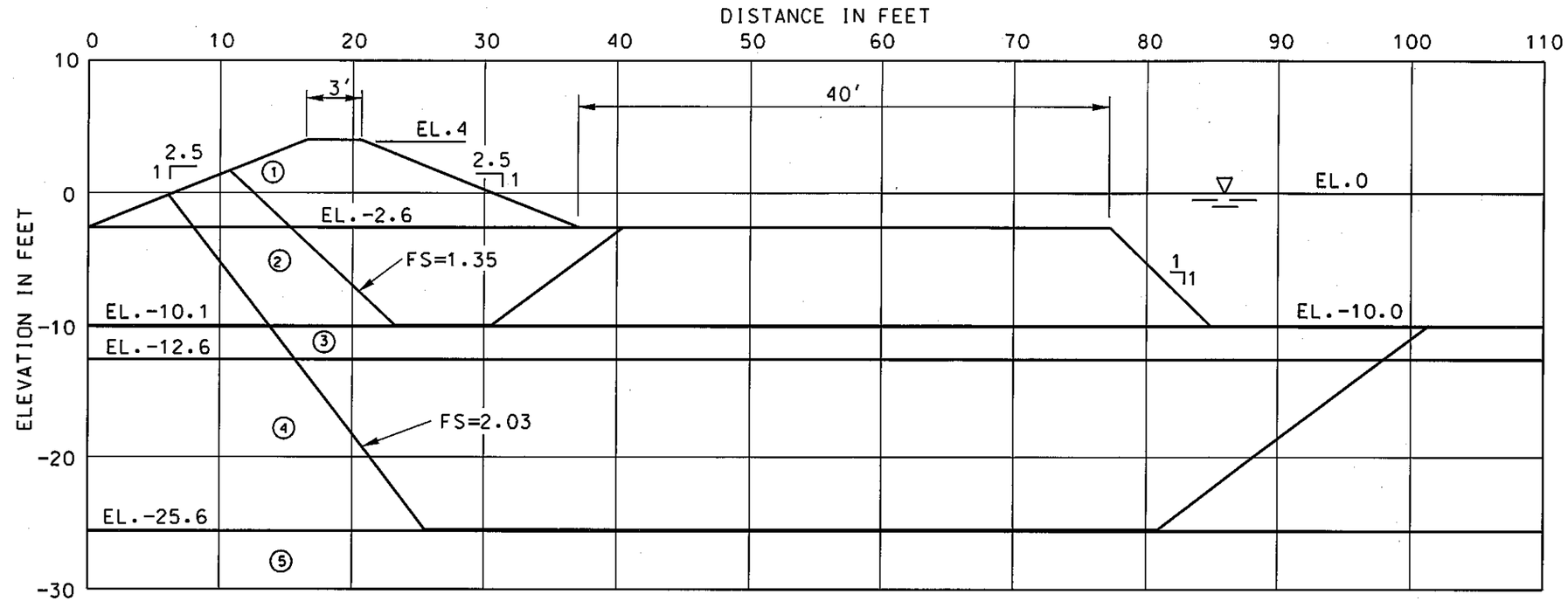
X	Y	FS
9.64	2.35	1.72
18.83	-6.4	
26.53	-6.4	
32.98	-1.5	
8.93	2.07	2.23
21.15	-13.40	
77.50	-13.40	
81.71	-10.00	

Stability Analysis

ROCK DIKE - BORING B
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-5A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.6	0
6.5	-2.6	613
10	-2.6	1200
20	-2.6	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	102	105	0
3	110	200	20
4	94	200	0
5	94	330	0

X	Y	FS
10.72	1.69	1.35
23.21	-10.0	
30.54	-10.0	
40.43	-2.6	
6.14	-0.14	2.03
25.52	-25.50	
80.86	-25.50	
101.35	-10.00	

Stability Analysis

ROCK DIKE - BORING 7
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

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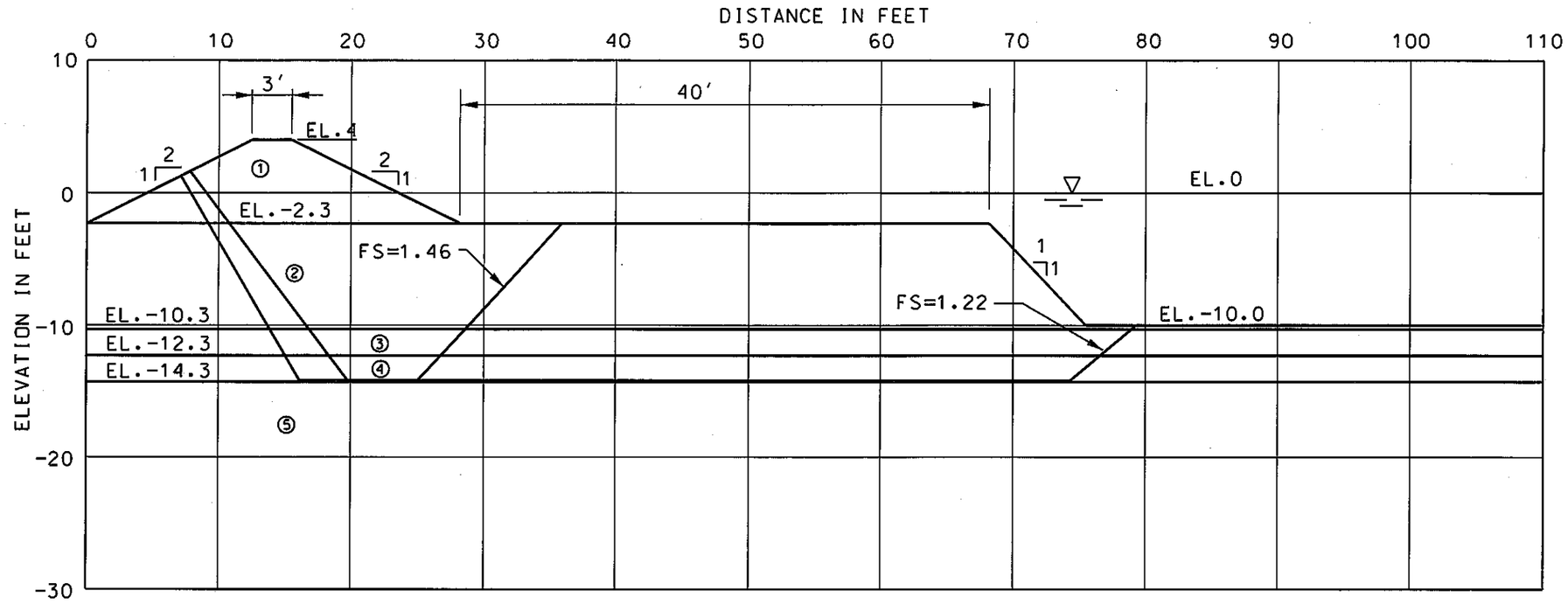
JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-6A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.3	0
4.6	-2.3	524
8	-2.3	1200
20	-2.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	100	150	0
3	120	0	30
4	100	70	0
5	120	0	30

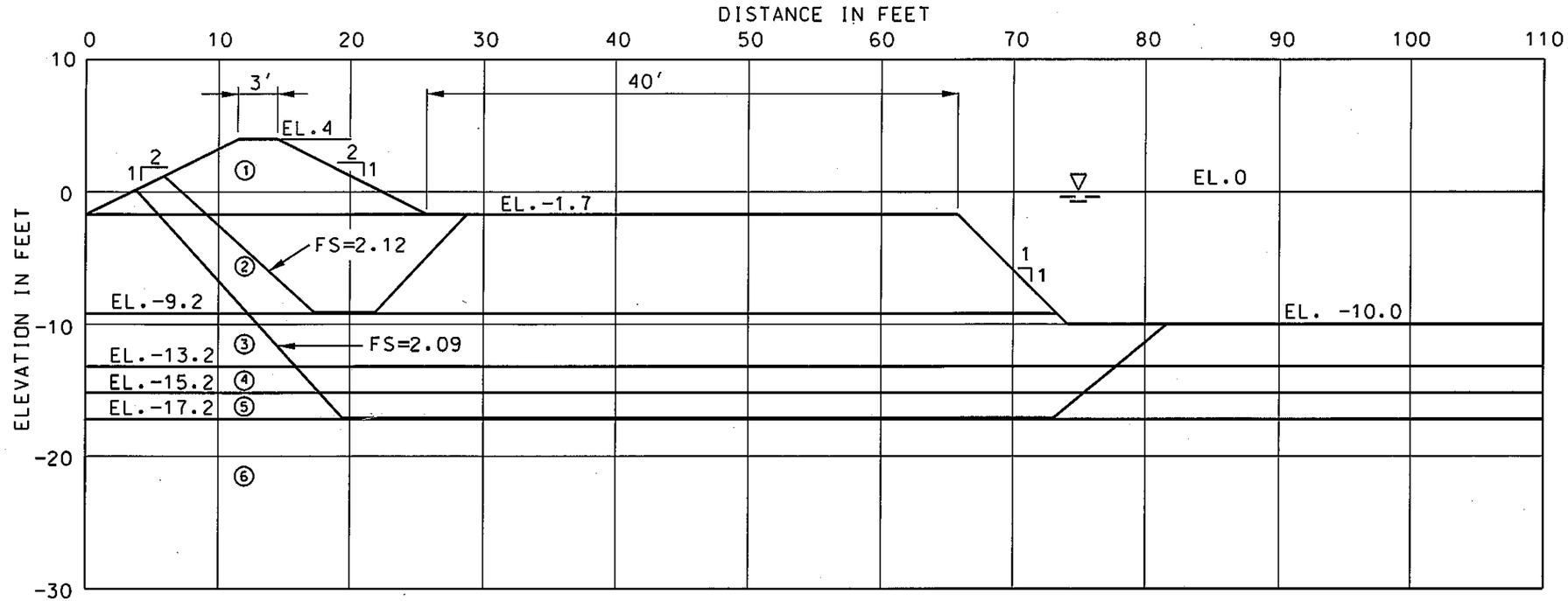
X	Y	FS
7.14	1.27	1.46
16.13	-14.20	
25.00	-14.20	
35.90	-2.30	
7.83	1.62	1.22
19.79	-14.20	
74.29	-14.20	
79.29	-10.00	

Stability Analysis

ROCK DIKE - BORING C
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-7A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
3.4	-1.7	402
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	108	175	0
3	110	350	0
4	110	200	20
5	115	150	0
6	120	0	30

X	Y	FS
5.85	1.22	2.12
17.31	-9.1	
21.88	-9.1	
28.75	-1.7	
3.76	0.17	2.09
19.44	-17.10	
73.04	-17.10	
81.63	-10.00	

Stability Analysis

ROCK DIKE - BORING 10
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
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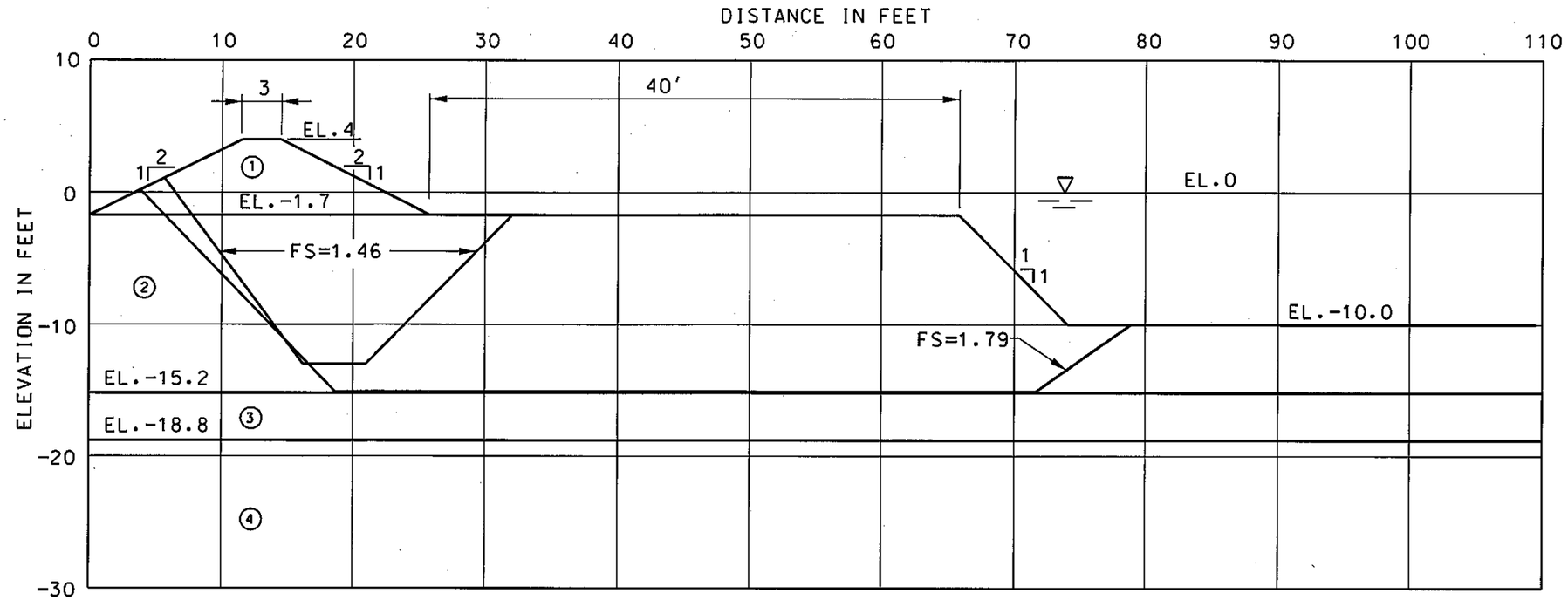
JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-8A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
3.4	-1.7	357
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	105	150	0
3	110	200	20
4	90	0	30

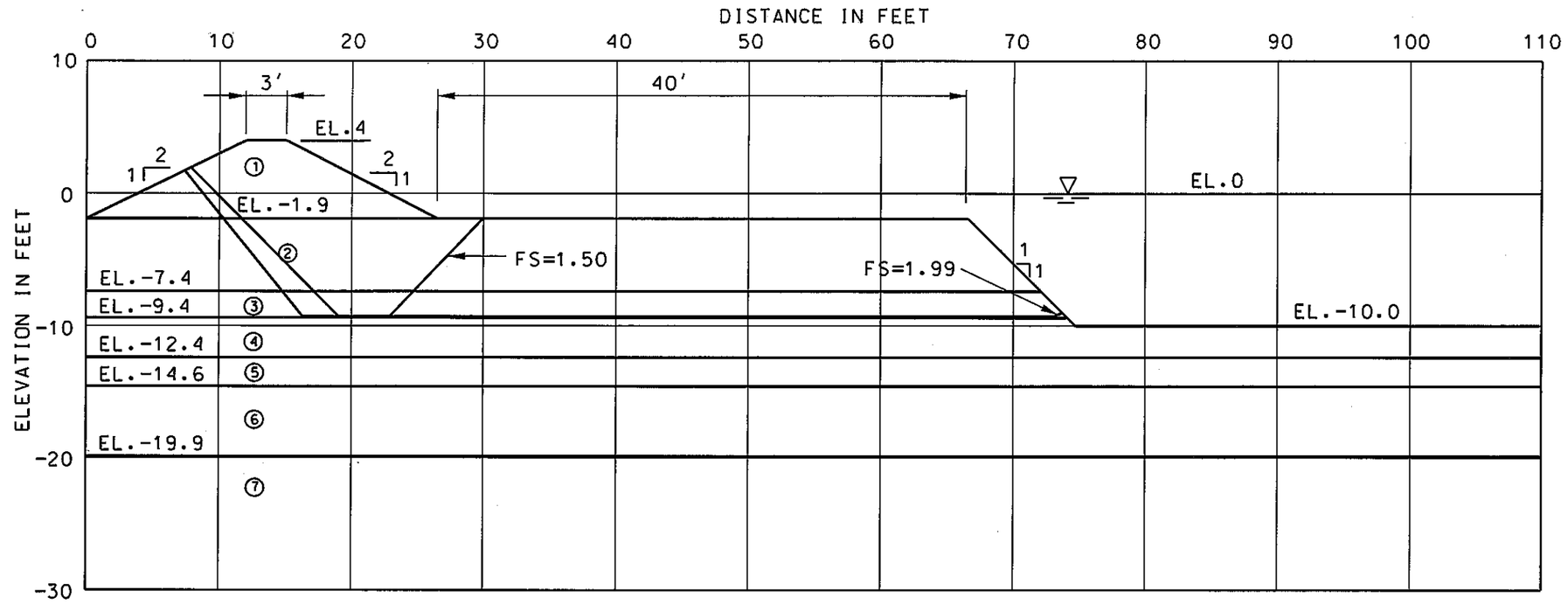
X	Y	FS
5.64	1.12	1.46
16.20	-13.00	
20.98	-13.00	
32.04	-1.70	
3.82	0.21	1.79
18.65	-15.10	
71.62	-15.10	
78.90	-10.00	

Stability Analysis

ROCK DIKE - BORING D
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-9A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.9	0
3.8	-1.9	461
8.0	-1.9	1200
20	-1.9	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	96	175	0
3	95	90	0
4	104	250	0
5	110	200	20
6	120	0	30
7	110	200	20

X	Y	FS
7.33	1.77	1.50
16.27	-9.3	
22.91	-9.3	
29.61	-1.9	
7.80	2.00	1.99
19.00	-9.3	
73.00	-9.3	
73.70	-9.0	

Stability Analysis

ROCK DIKE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

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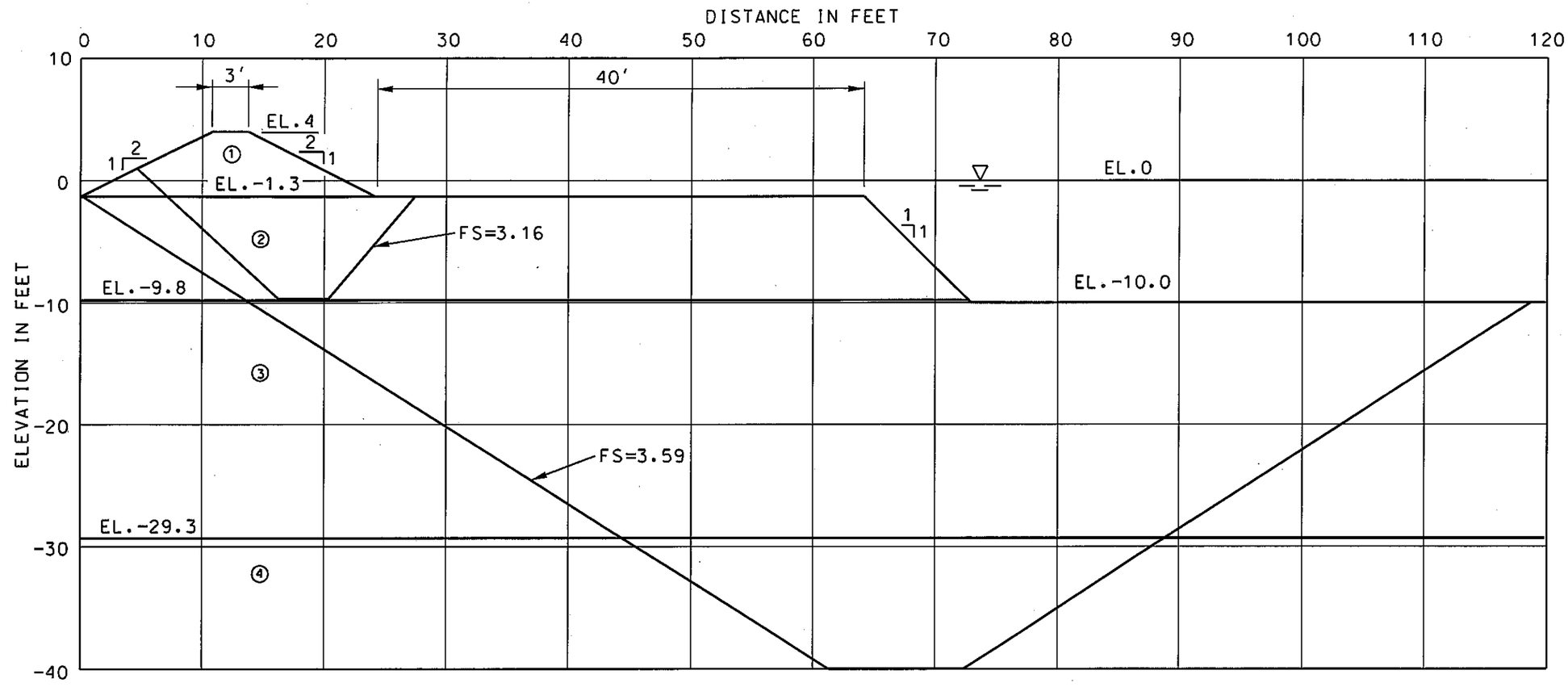
JOB NO.02485-3A | SCALE: 1"= 10' | FIGURE B-10A



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.3	0
2.6	-1.3	438
6	-1.3	1200
20	-1.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	115	280	0
3	120	0	30
4	105	300	0

X	Y	FS
4.66	1.03	3.16
16.27	-9.70	
20.30	-9.70	
27.43	-1.30	
0.13	-1.24	3.59
61.29	-40.00	
72.28	-40.00	
118.65	-10.00	

Stability Analysis

ROCK DIKE - BORING E
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3A | SCALE: 1"= 10' | FIGURE B-11A

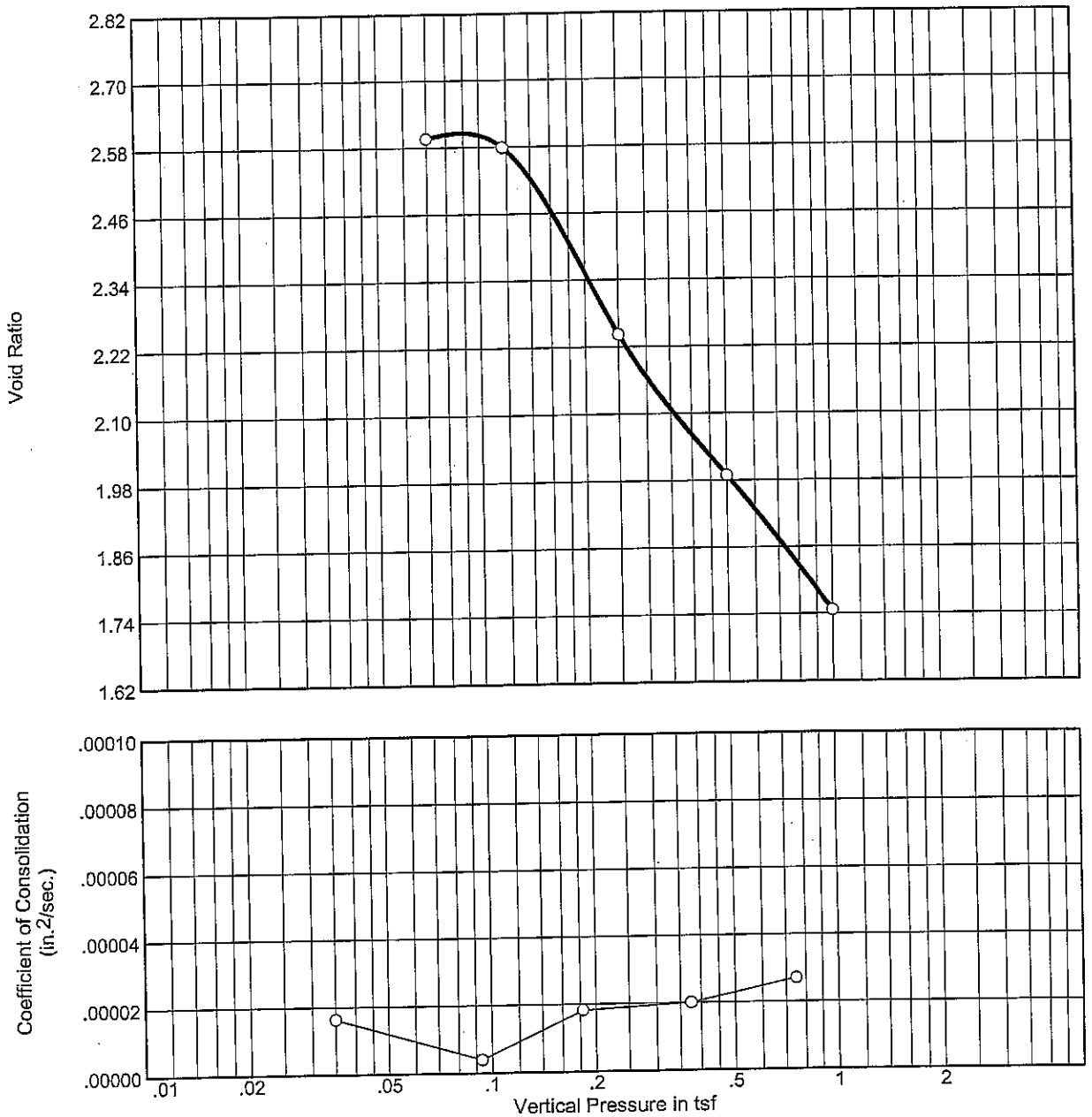
APPENDIX C

COMPOSITE SAMPLES

CONSOLIDATION TESTS

COMPOSITE SAMPLE NO. 1

CONSOLIDATION TEST



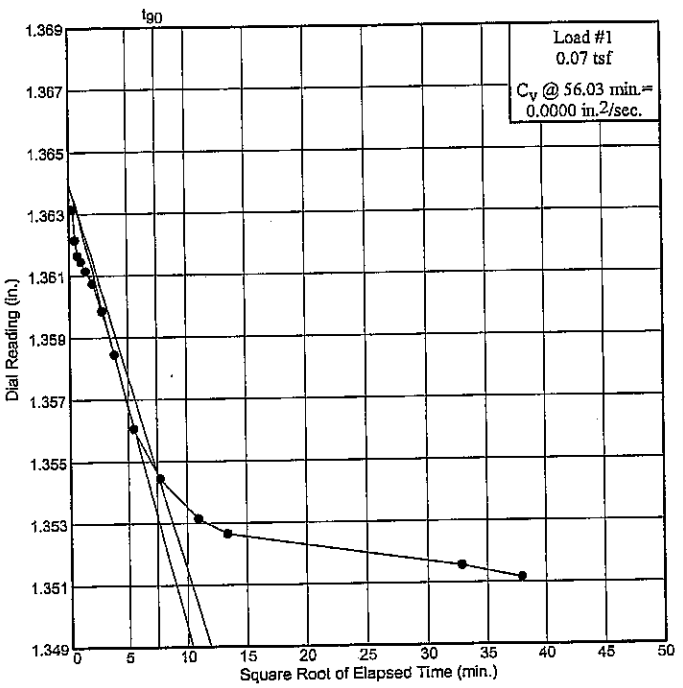
BORING NO.: Composite No.1	SAMPLE NO.: 1	DEPTH: 1.5-16.5
DESCRIPTION OF MATERIAL: Composite Sample No.1 comprising CH, CL, ML, SM, and OH		
LIQUID LIMIT:	PLASTIC LIMIT:	PLASTICITY INDEX:	TYPE SPECIMEN: Slurry
WATER CONTENT: 86.2 %	INITIAL VOID RATIO: 2.688	DRY DENSITY: 45.7 (pcf)

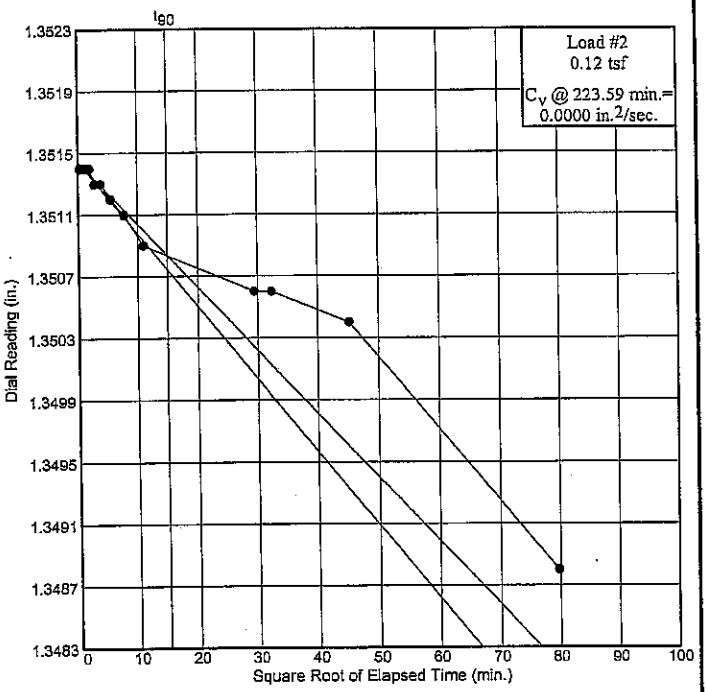
REMARKS	PROJECT West Lake Boudreaux (TE-46)
	Terrebonne Parish, Louisiana
	JOB NO. 02458-3A / DATE 6-29-05
	CONSOLIDATION TEST REPORT

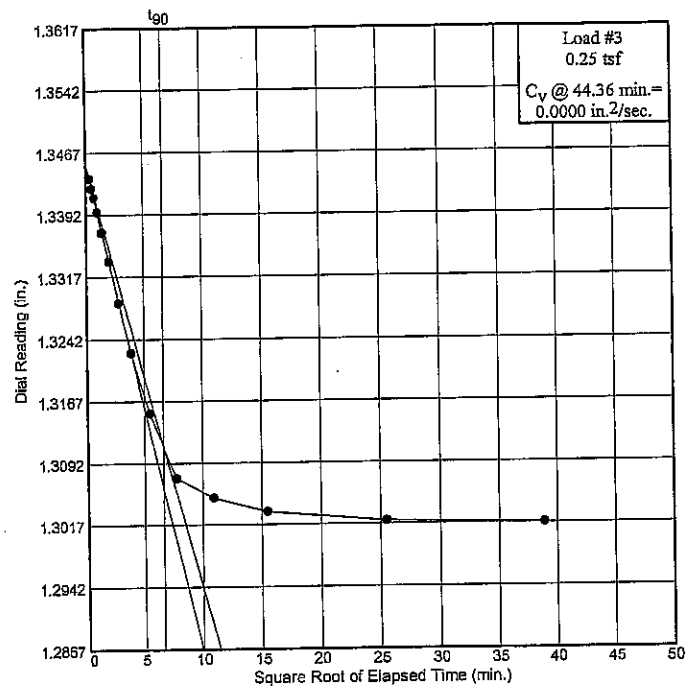
BURNS COOLEY DENNIS, INC.

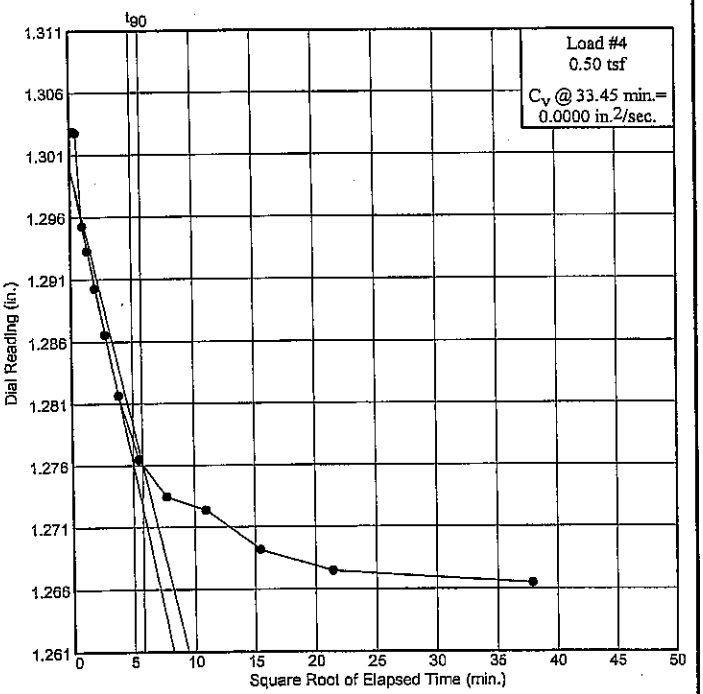
Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.1 Sample No.: 1 Elev./Depth: 1.5-16.5









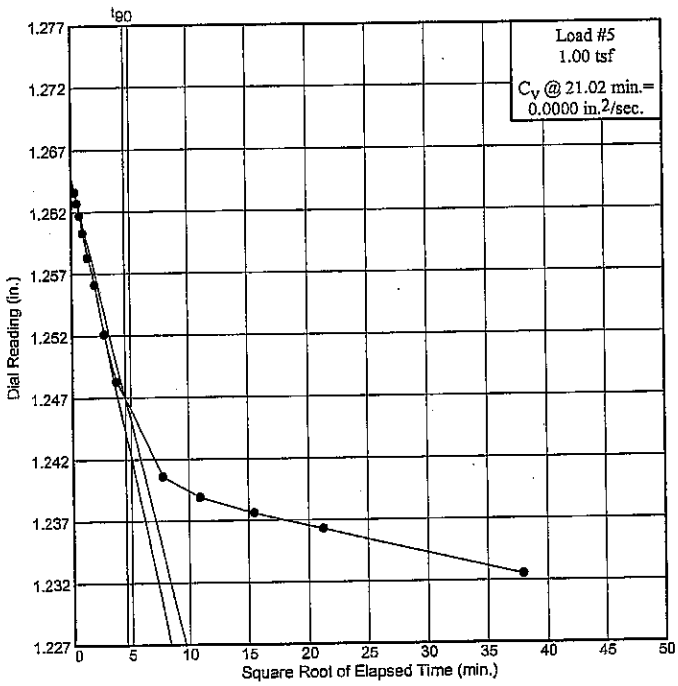
Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

FIGURE

Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.1 Sample No.: 1 Elev./Depth: 1.5-16.5



Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

FIGURE

CONSOLIDATION TEST DATA

Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Job Number: 02458-3A

Sample Data

Source: Composite No.1
Sample No.: 1
Elev. or Depth: 1.5-16.5 **Sample Length (in./cm.):**
Location:
Description: Composite Sample No.1 comprising CH, CL, ML, SM, and OH
Figure: **Date:** 6-29-05 **Spec. Type:** Slurry
Liquid Limit: **Plastic Limit:** **Plastiicty Index:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST
Wet w+t =	56.35 g.	Consolidometer # = 2	Wet w+t =
Dry w+t =	44.58 g.		Dry w+t =
Tare Wt. =	30.92 g.	Spec. Gravity = 2.7	Tare Wt. =
Height =	.51 in.	Height = .51 in.	
Diameter =	2.50 in.	Diameter = 2.50 in.	
Weight =	56.46 g.	Defl. Table = 1-9732-02485-3A-1	
Moisture =	86.2 %	Ht. Solids = 0.1396 in.	Moisture = %
Wet Den. =	85.1 pcf	Dry Wt. = 30.33 g.*	Dry Wt. = n/a
Dry Den. =	45.7 pcf	Void Ratio = 2.688	Void Ratio = 1.746
		Saturation = 86.5 %	

* Initial dry weight used in calculations

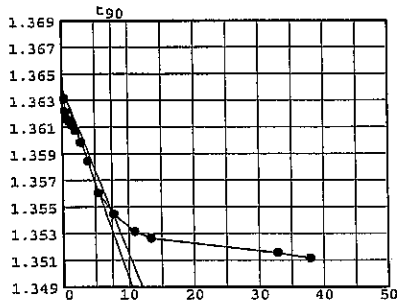
End-of-Load Summary

Pressure (tsf)	Final Dial (in.)	Machine Defl. (in.)	C_v (in.^{2}/sec.)	C_α	Void Ratio	% Compression /Swell
start	1.36400				2.688	
0.07	1.35050	0.00065	0.0000		2.596	2.5 Comprs.
0.12	1.34790	0.00090	0.0000		2.579	3.0 Comprs.
0.25	1.29970	0.00205	0.0000		2.242	12.1 Comprs.
0.50	1.26300	0.00345	0.0000		1.989	18.9 Comprs.
1.00	1.22740	0.00510	0.0000		1.746	25.5 Comprs.

C_c = 0.81 P_c = 0.09 tsf

Pressure: 0.07 tsf — TEST READINGS — Load No. 1

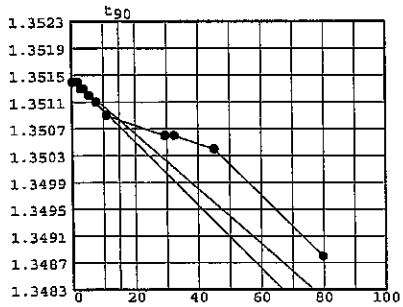
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.36400	11	60.00	1.35380
2	0.10	1.36250	12	120.00	1.35250
3	0.25	1.36150	13	180.00	1.35200
4	0.50	1.36100	14	1080.00	1.35090
5	1.00	1.36080	15	1440.00	1.35050
6	2.00	1.36050			
7	4.00	1.36010			
8	8.00	1.35920			
9	15.00	1.35780			
10	30.00	1.35540			



Void Ratio = 2.596 Compression = 2.5 %
D_0 = 1.36401 D_{90} = 1.35463 D_{100} = 1.35359
C_v at 56.0 min. = 0.0000 in.^{2}/sec.

Pressure: 0.12 tsf — TEST READINGS — Load No. 2

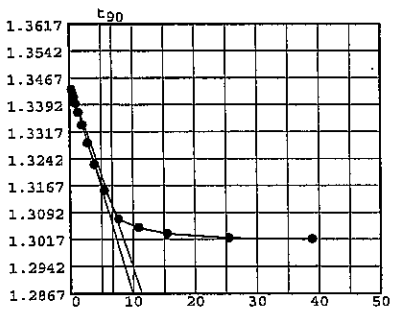
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.35050	11	60.00	1.35020
2	0.10	1.35050	12	120.00	1.35000
3	0.25	1.35050	13	870.00	1.34970
4	0.50	1.35050	14	1050.00	1.34970
5	1.00	1.35050	15	2040.00	1.34950
6	2.00	1.35050	16	6360.00	1.34790
7	4.00	1.35050			
8	8.00	1.35040			
9	15.00	1.35040			
10	30.00	1.35030			



Void Ratio = 2.579 Compression = 3.0 %
D_0 = 1.35145 D_{90} = 1.35083 D_{100} = 1.35077
C_v at 223.6 min. = 0.0000 in.^{2}/sec.

Pressure: 0.25 tsf — TEST READINGS — Load No. 3

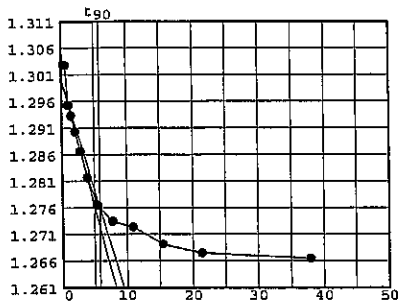
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.34950	11	60.00	1.30530
2	0.10	1.34150	12	120.00	1.30290
3	0.25	1.34030	13	240.00	1.30120
4	0.50	1.33920	14	650.00	1.30000
5	1.00	1.33750	15	1516.00	1.29970
6	2.00	1.33500			
7	4.00	1.33150			
8	8.00	1.32650			
9	15.00	1.32050			
10	30.00	1.31320			



Void Ratio = 2.242 Compression = 12.1 %
D_0 = 1.34540 D_{90} = 1.31113 D_{100} = 1.30732
C_v at 44.4 min. = 0.0000 in.^{2}/sec.

Pressure: 0.50 tsf | TEST READINGS | Load No. 4

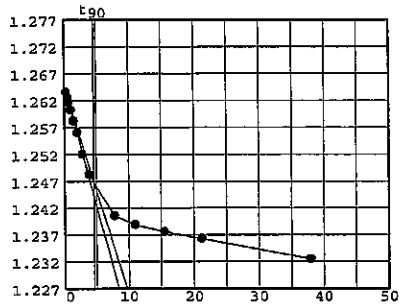
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.29970	11	120.00	1.26890
2	0.10	1.29940	12	240.00	1.26570
3	0.25	1.29930	13	460.00	1.26400
4	1.00	1.29180	14	1440.00	1.26300
5	2.00	1.28980			
6	4.00	1.28680			
7	8.00	1.28310			
8	15.00	1.27820			
9	30.00	1.27300			
10	60.00	1.27000			



Void Ratio = 1.989 Compression = 18.9 %
D_0 = 1.30001 D_{90} = 1.27604 D_{100} = 1.27338
C_v at 33.5 min. = 0.0000 in.^{2}/sec.

Pressure: 1.00 tsf | TEST READINGS | Load No. 5

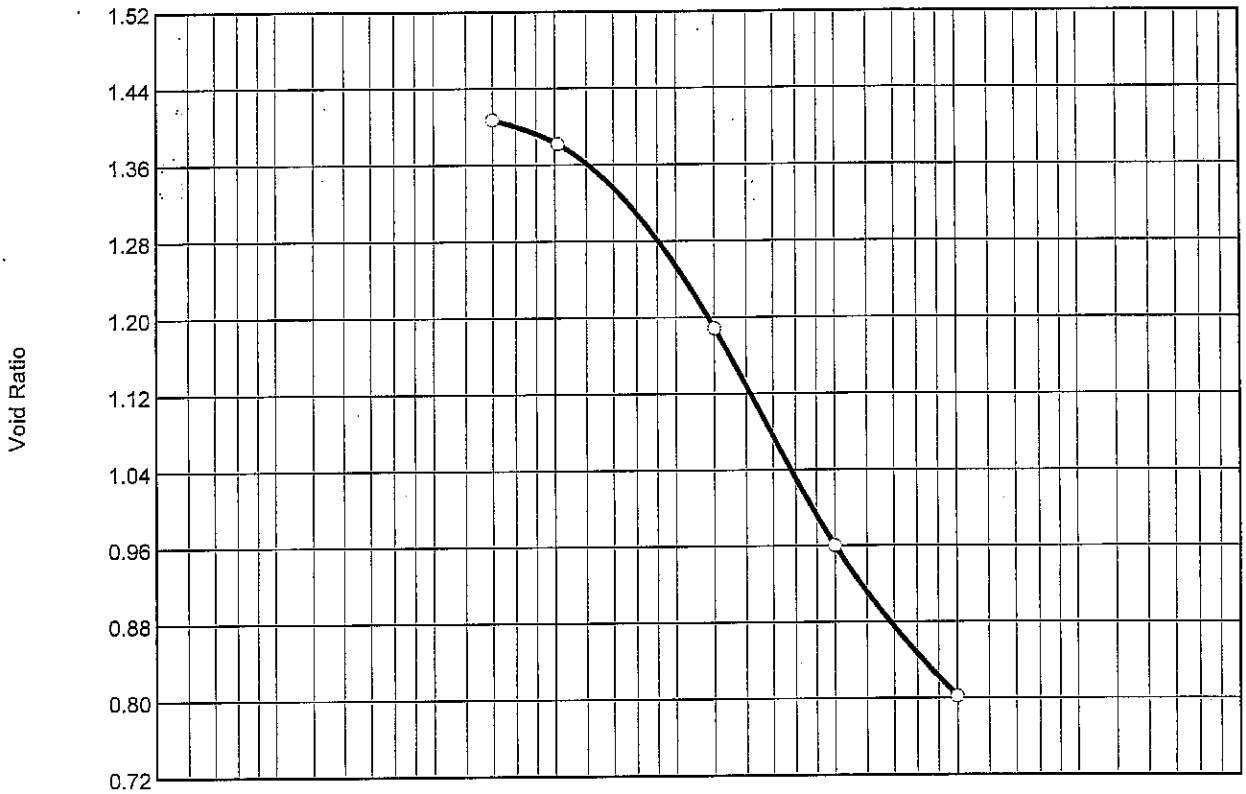
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.26300	11	120.00	1.23380
2	0.10	1.25850	12	240.00	1.23250
3	0.25	1.25760	13	450.00	1.23120
4	0.50	1.25660	14	1440.00	1.22740
5	1.00	1.25520			
6	2.00	1.25320			
7	4.00	1.25100			
8	8.00	1.24700			
9	15.00	1.24320			
10	60.00	1.23550			

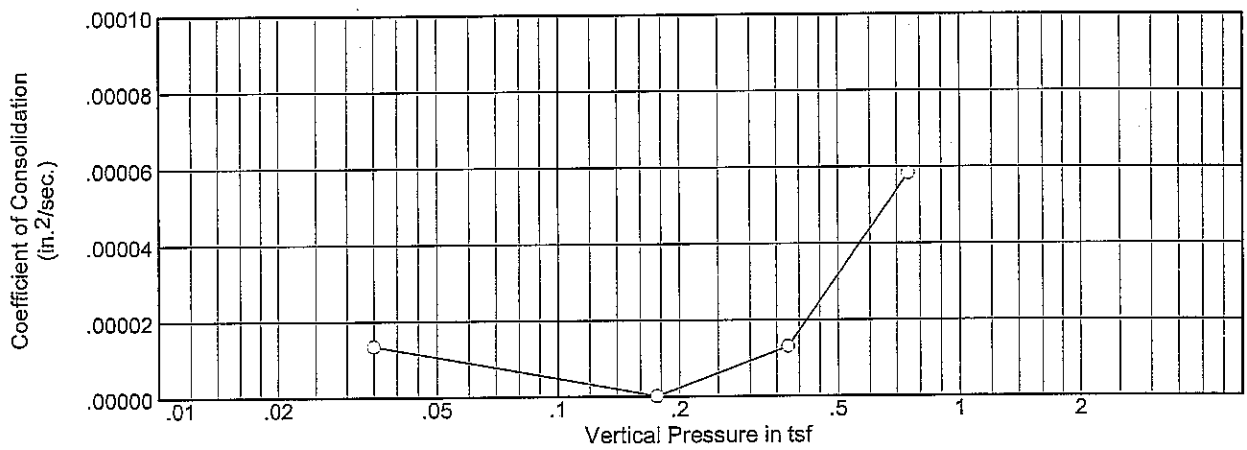


Void Ratio = 1.746 Compression = 25.5 %
D_0 = 1.26492 D_{90} = 1.24688 D_{100} = 1.24488
C_v at 21.0 min. = 0.0000 in.^{2}/sec.

COMPOSITE SAMPLE NO. 2

CONSOLIDATION TEST





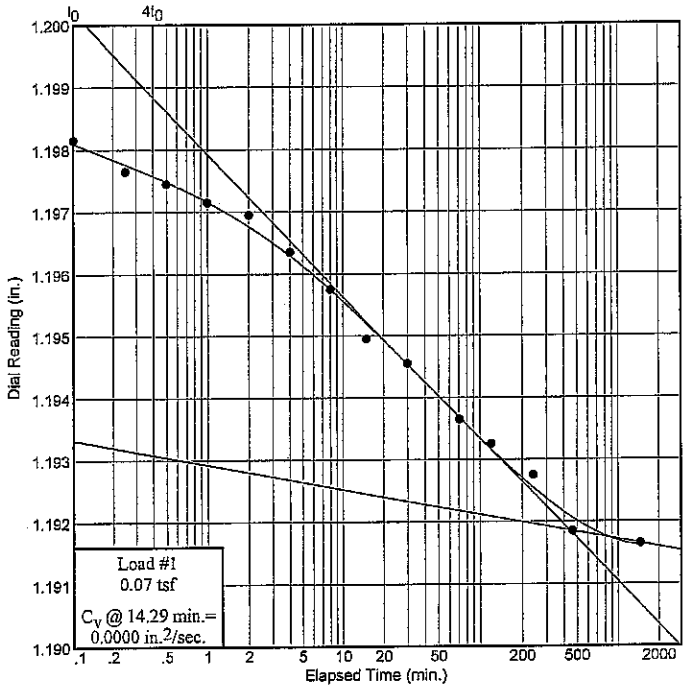
BORING NO.: Composite No.2	**SAMPLE NO.:** 2	**DEPTH:** Composite
DESCRIPTION OF MATERIAL: Composite Sample No.2		
LIQUID LIMIT: 48	**PLASTIC LIMIT:** 20	**PLASTICITY INDEX:** 28	**TYPE SPECIMEN:** Remolded
WATER CONTENT: 64.8 %	**INITIAL VOID RATIO:** 1.649	**DRY DENSITY:** 59.4 (pcf)

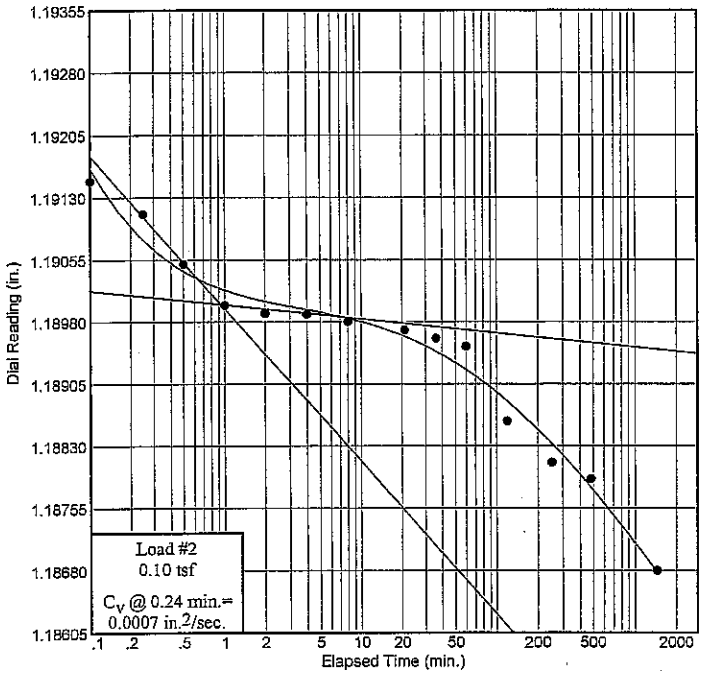
REMARKS	**PROJECT** West Lake Boudreaux (TE-46)
	Terrebonne Parish, Louisiana
	JOB NO. 02458-3A **DATE** 8-4-05
	CONSOLIDATION TEST REPORT

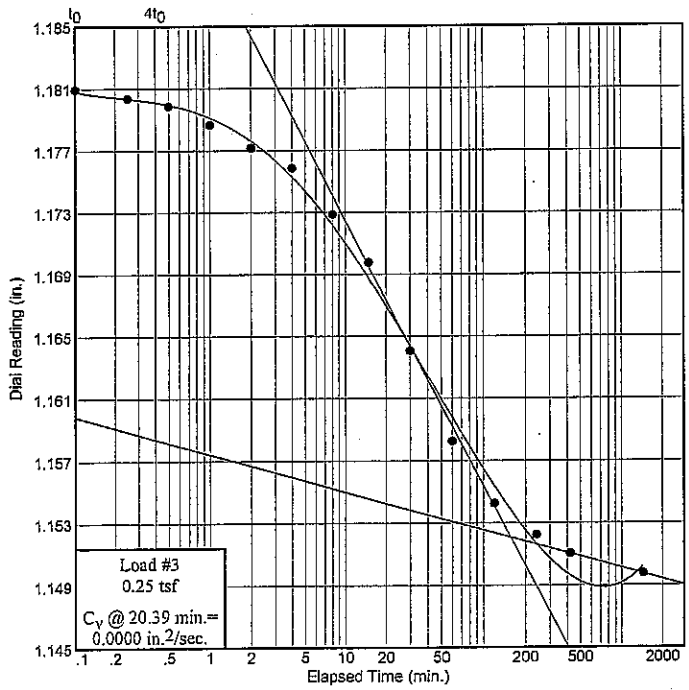
BURNS COOLEY DENNIS, INC.

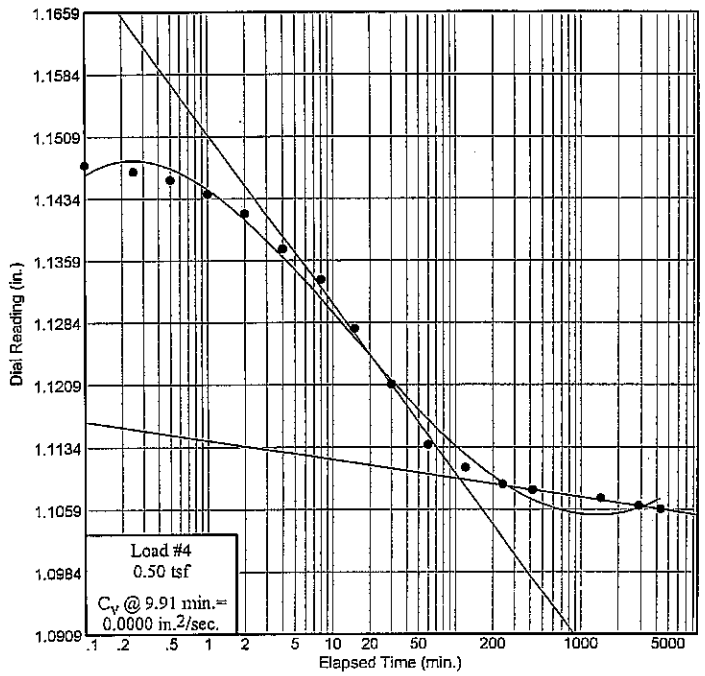
Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.2 Sample No.: 2 Elev./Depth: Composite









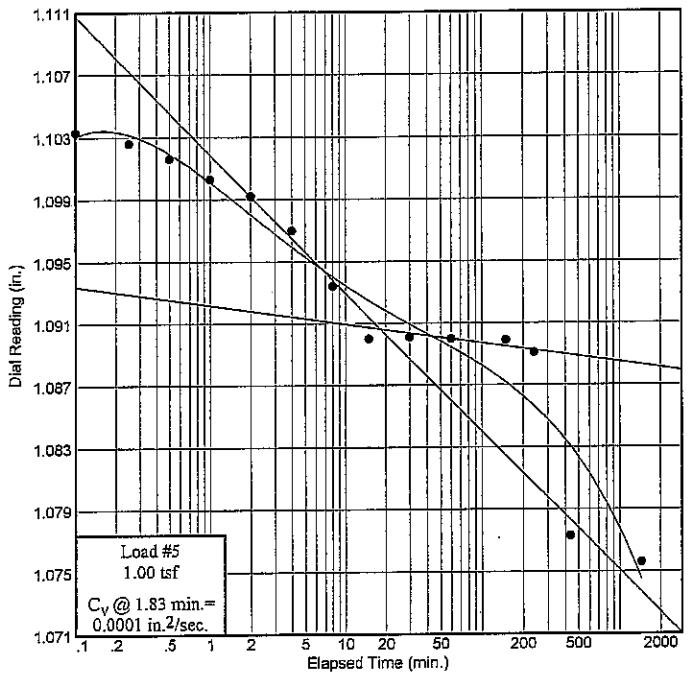
Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

FIGURE

Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.2 Sample No.: 2 Elev./Depth: Composite



Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

FIGURE

CONSOLIDATION TEST DATA

Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Job Number: 02458-3A

Sample Data

Source: Composite No.2
Sample No.: 2
Elev. or Depth: Composite
Location:
Description: Composite Sample No.2
Figure:
Liquid Limit: 48
Testing Remarks:

Sample Length (in./cm.):
Date: 8-4-05
Plastic Limit: 20
Spec. Type: Remolded
Plastiicty Index: 28

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST
Wet w+t =	59.54 g.	Consolidometer # = 15	Wet w+t = 199.09 g.
Dry w+t =	48.26 g.		Dry w+t = 183.11 g.
Tare Wt. =	30.86 g.	Spec. Gravity = 2.52	Tare Wt. = 144.55 g.
Height =	.51 in.	Height = .51 in.	
Diameter =	2.50 in.	Diameter = 2.50 in.	
Weight =	64.08 g.	Defl. Table = 1-9732-02485-3A-2	
Moisture =	64.8 %	Ht. Solids = 0.1918 in.	Moisture = 41.4 %
Wet Den. =	97.9 pcf	Dry Wt. = 38.88 g.*	Dry Wt. = 38.56 g.
Dry Den. =	59.4 pcf	Void Ratio = 1.649	Void Ratio = 0.802
		Saturation = 99.1 %	

* Initial dry weight used in calculations

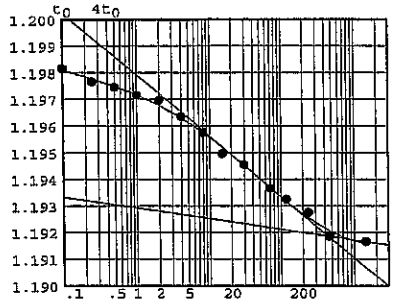
End-of-Load Summary

Pressure (tsf)	Final Dial (in.)	Machine Defl. (in.)	C_v (in.^{2}/sec.)	C_α	Void Ratio	% Compression /Swell
start	1.23800				1.649	
0.07	1.19100	0.00065	0.0000	0.001	1.407	9.1 Comprs.
0.10	1.18590	0.00090	0.0007	0.000	1.382	10.1 Comprs.
0.25	1.14770	0.00205	0.0000	-0.004	1.189	17.4 Comprs.
0.50	1.10250	0.00345	0.0000	0.005	0.960	26.0 Comprs.
1.00	1.07050	0.00510	0.0001	0.003	0.802	32.0 Comprs.

C_c = 0.51 P_c = 0.06 tsf

Pressure: 0.07 tsf — TEST READINGS — Load No. 1

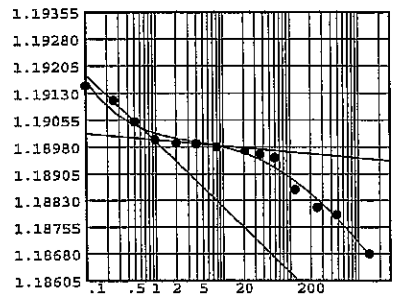
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.23800	11	71.00	1.19300
2	0.10	1.19750	12	120.00	1.19260
3	0.25	1.19700	13	240.00	1.19210
4	0.50	1.19680	14	463.00	1.19120
5	1.00	1.19650	15	1457.00	1.19100
6	2.00	1.19630			
7	4.00	1.19570			
8	8.00	1.19510			
9	15.00	1.19430			
10	30.00	1.19390			



Void Ratio = 1.407 Compression = 9.1 %
D_0 = 1.19862 D_{50} = 1.19524 D_{100} = 1.19186
C_v at 14.3 min. = 0.0000 in.^{2}/sec. C_α = 0.001

Pressure: 0.10 tsf — TEST READINGS — Load No. 2

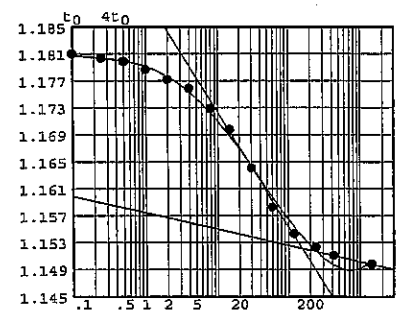
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.19100	11	60.00	1.18860
2	0.10	1.19060	12	120.00	1.18770
3	0.25	1.19020	13	252.00	1.18720
4	0.50	1.18960	14	480.00	1.18700
5	1.00	1.18910	15	1440.00	1.18590
6	2.00	1.18900			
7	4.00	1.18899			
8	8.00	1.18890			
9	21.00	1.18880			
10	36.00	1.18870			



Void Ratio = 1.382 Compression = 10.1 %
D_0 = 1.19165 D_{50} = 1.19083 D_{100} = 1.19001
C_v at 0.2 min. = 0.0007 in.^{2}/sec. C_α = 0.000

Pressure: 0.25 tsf — TEST READINGS — Load No. 3

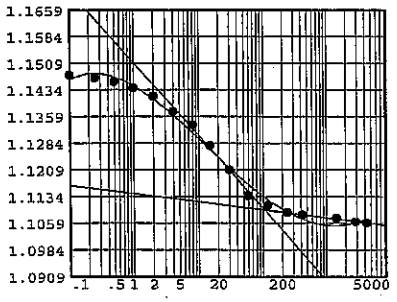
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.18590	11	60.00	1.15620
2	0.10	1.17890	12	120.00	1.15220
3	0.25	1.17830	13	240.00	1.15020
4	0.50	1.17780	14	420.00	1.14900
5	1.00	1.17660	15	1440.00	1.14770
6	2.00	1.17510			
7	4.00	1.17380			
8	8.00	1.17080			
9	15.00	1.16770			
10	30.00	1.16200			



Void Ratio = 1.189 Compression = 17.4 %
D_0 = 1.18154 D_{50} = 1.16682 D_{100} = 1.15209
C_v at 20.4 min. = 0.0000 in.^{2}/sec. C_α = -0.004

Pressure: 0.50 tsf | TEST READINGS | Load No. 4

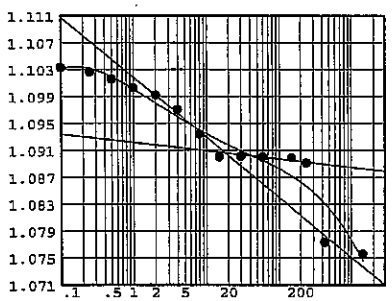
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.14770	11	60.00	1.11020
2	0.10	1.14400	12	120.00	1.10750
3	0.25	1.14320	13	240.00	1.10550
4	0.50	1.14220	14	420.00	1.10480
5	1.00	1.14050	15	1440.00	1.10380
6	2.00	1.13810	16	2880.00	1.10290
7	4.00	1.13380	17	4320.00	1.10250
8	8.00	1.13010			
9	15.00	1.12420			
10	30.00	1.11750			



Void Ratio = 0.960 Compression = 26.0 %
D_0 = 1.14975 D_{50} = 1.12967 D_{100} = 1.10960
C_v at 9.9 min. = 0.0000 in.^{2}/sec. C_α = 0.005

Pressure: 1.00 tsf | TEST READINGS | Load No. 5

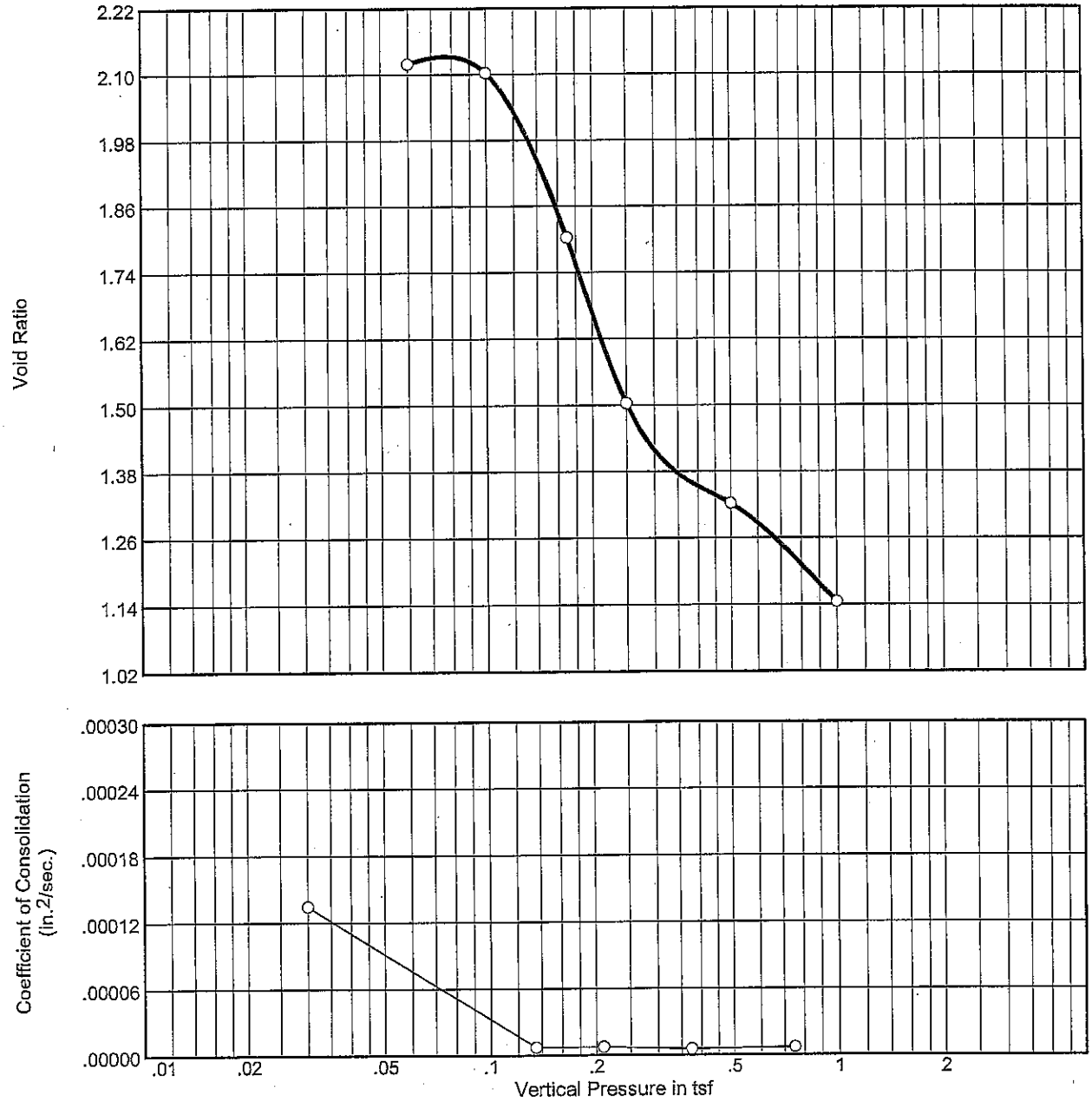
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	1.10250	11	60.00	1.08490
2	0.10	1.09820	12	150.00	1.08480
3	0.25	1.09750	13	240.00	1.08400
4	0.50	1.09650	14	435.00	1.07220
5	1.00	1.09520	15	1440.00	1.07050
6	2.00	1.09410			
7	4.00	1.09190			
8	8.00	1.08830			
9	15.00	1.08490			
10	30.00	1.08500			



Void Ratio = 0.802 Compression = 32.0 %
D_0 = 1.10595 D_{50} = 1.09829 D_{100} = 1.09062
C_v at 1.8 min. = 0.0001 in.^{2}/sec. C_α = 0.003

COMPOSITE SAMPLE NO. 3

CONSOLIDATION TEST



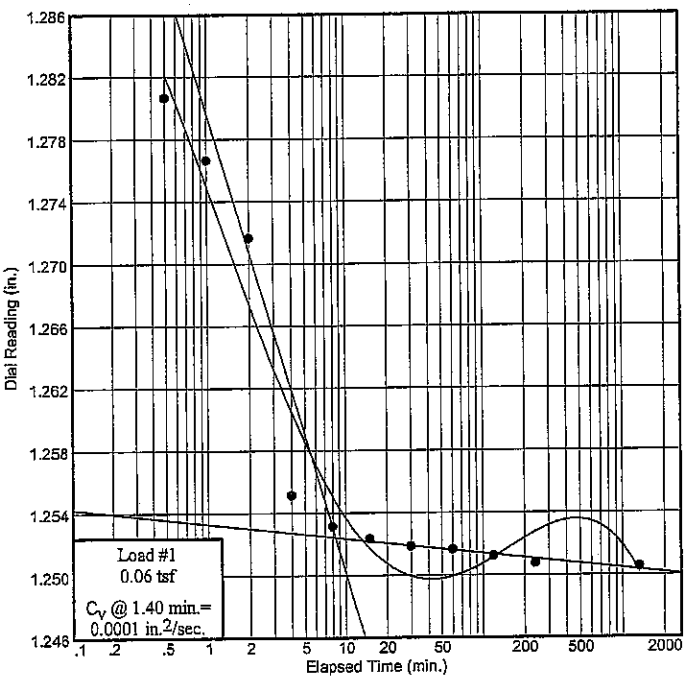
BORING NO.: Composite No.3	SAMPLE NO.: 3	DEPTH: Composite
DESCRIPTION OF MATERIAL: Composite Sample No. 3		
LIQUID LIMIT: 84	PLASTIC LIMIT: 25	PLASTICITY INDEX: 59	TYPE SPECIMEN: Remolded
WATER CONTENT: 85.7 %	INITIAL VOID RATIO: 2.387	DRY DENSITY: 49.0 (pcf)
REMARKS	PROJECT West Lake Boudreaux (TE-46)	
	Terrebonne Parish, Louisiana	
	JOB NO. 02458-3A	DATE 9-6-05

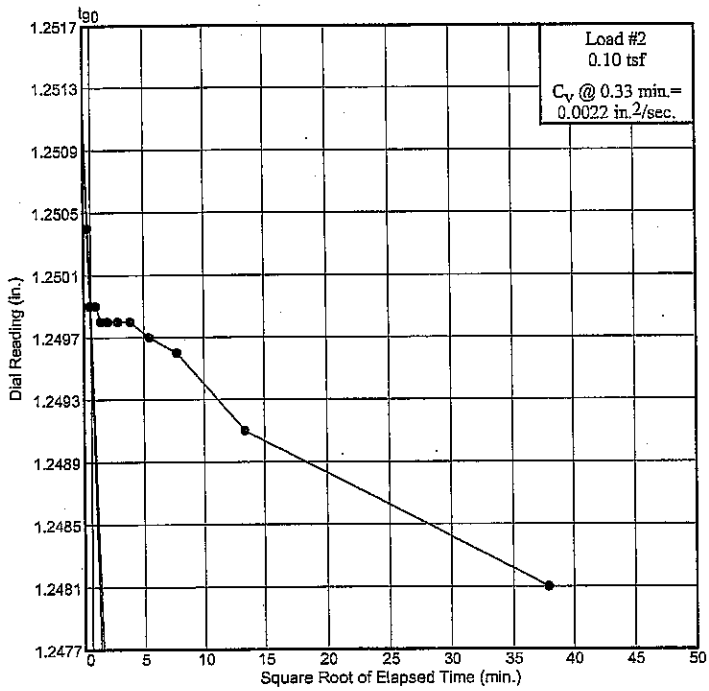
CONSOLIDATION TEST REPORT

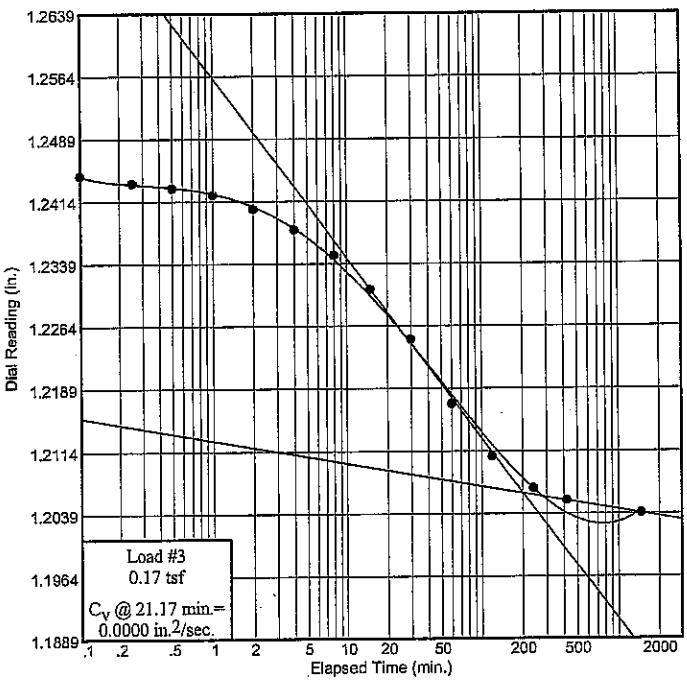
BURNS COOLEY DENNIS, INC.

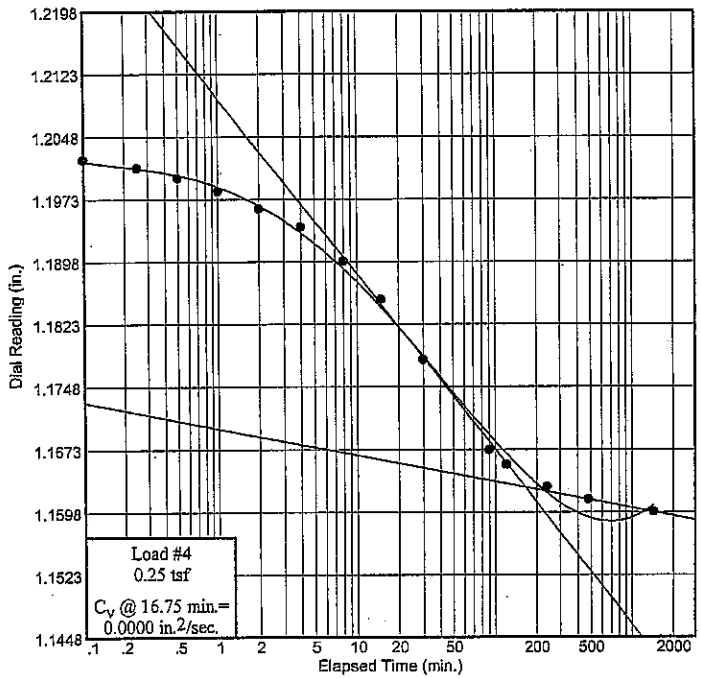
Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.3 Sample No.: 3 Elev./Depth: Composite









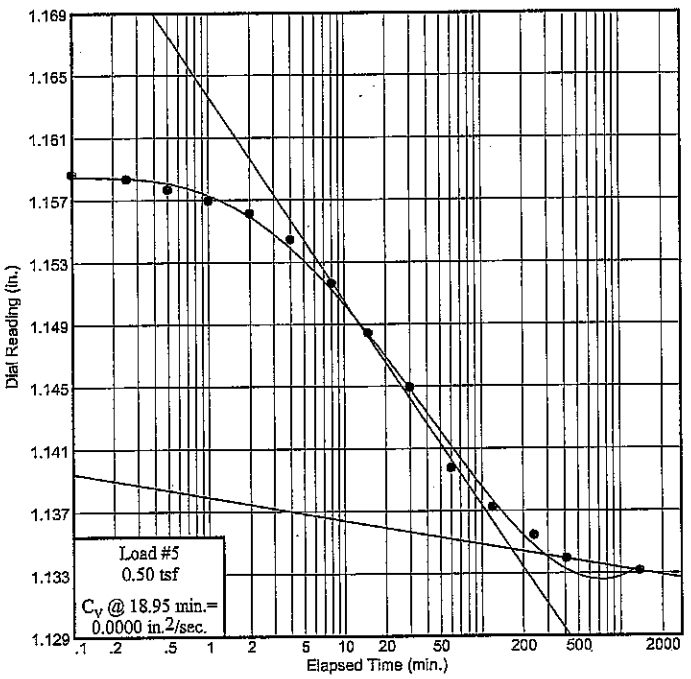
Dial Reading vs. Time

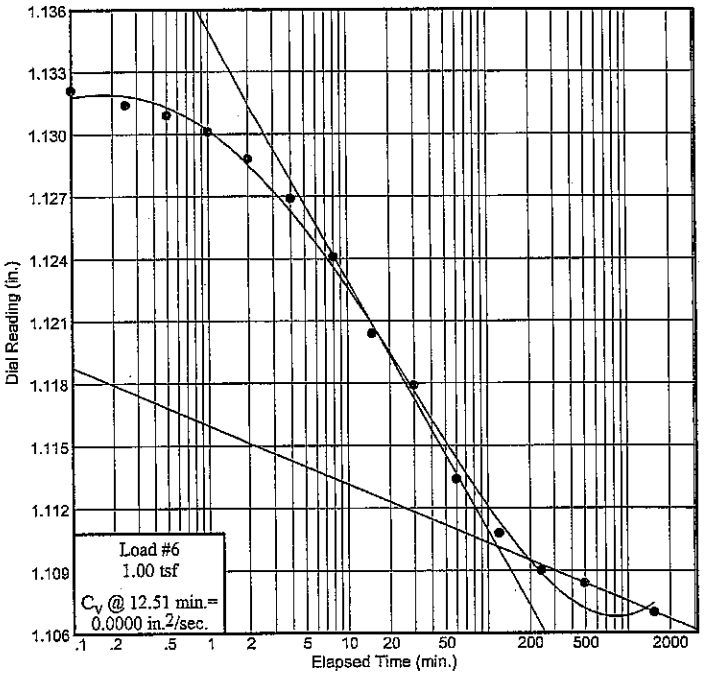
BURNS COOLEY DENNIS, INC.

FIGURE

Dial Reading vs. Time

Project No.: 02458-3A
Project: West Lake Boudreaux (TE-46)
Terrebonne Parish, Louisiana
Source: Composite No.3 Sample No.: 3 Elev./Depth: Composite





Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

FIGURE

APPENDIX D

SETTLING COLUMN TEST RESULTS

COMPOSITE SAMPLE NO. 1

SETTLING COLUMN TEST RESULTS

File Name: 02485-3A-coll.sched.ws-1

Record & Sample Collection Schedule

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

Job No.: 02485-3A Date: 7-6-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Record Interface Height				Collect Samples from Above Interface:		
Date:	Time:	Time:	Remarks:	Date:	Time:	Remarks:
7-6	0847		As Directed	7-6	0947	1-Hr. No Sample Taken
					1047	2-Hr. No Sample Taken
					1247	4-Hr. Sample Taken - P6/TSS
					1547	7-Hr. P6/TSS, Photo
					2047	12-Hr. P6, P5.5/TSS
7-7	0847	1547		7-7	0847	24-Hr.
7-8	0847	1547		7-8	0847	48-Hr.
7-9	0847	1547		7-9	0847	72-Hr.
7-10	0847	1547		7-10	0847	96-Hr.
7-11	0847	1547				
7-12	0847	1547				
7-13	0847	1547		7-13	0847	168-Hr.
7-14	0847	1547				
7-15	0847	1547				
7-16	0847	1547				
7-17	0847	1547		7-17	0847	264-Hr.
7-18	0847	1547				
7-19	0847	1547				
7-20	0847	1547				
7-21	0847	1547	End of Test	7-21	0847	360-Hr.

Tested By: hs Reduced By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-1

Settling Column Data Sheet

Sheet No. 1

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 7-6-05

Composite Sample No.: 1 Day No.: 1

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Date (2005)	Time	Elapsed Time	Surface Water Height *	Solids Interface Height	Coarse Material Height	Ports Sampled / Type of Analysis
7-6	0847	0	6.325	0	0	
	0902	0:15		6.300		
	0917	0:30		6.270		
	0932	0:45		6.250		
	0947**	1:00		6.213		None
	1002	1:15		6.185		
	1017	1:30		6.159		
	1032	1:45		6.135		
	1047**	2:00		6.115		None
	1102	2:15		6.095		
	1117	2:30		6.074		
	1132	2:45		6.050		
	1147	3:00		6.028		
	1217	3:15		5.981		Begin Recording Interface Ht. @ 30 min. Interval
	1247**	3:45	6.305	5.935		P6 / Tss 4 Hr.
	1317	4:15		5.891		
	1347	4:45		5.839		
	1417	5:15		5.800		
	1447	5:45		5.755		
	1517	6:15		5.708		
	1547**	6:45	6.293	5.661		P6 / TSS 7 Hr., Photo
	1617	7:15		5.610		
	1647	7:45		5.569		
	2047**	12:00	6.270	5.190		P6, 5.5 / TSS 12 Hr.

*Surface Water Height after TSS's samples have been taken. ** Indicates time TSS sample to be takened.

Tested By: hs Reduced By: _____ Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-ws-2

Settling Column Data Sheet

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 7-7-05

Composite Sample No.: 1 Day No.: **2 - 10**

Initial Concentration: **127.08** Salinity, ppt: **4.40** Specific Gravity: 2.68 (est.)

Date (2005)	Time	Elapsed Time	Surface Water Height *	Solids Interface Height	Coarse Material Height	Ports Sampled / Type of Analysis
7-7	0847	24:00	6.225	4.064	n/a	P6, 5.5, 5, 4.5, / TSS
	1547	31:00		3.333	n/a	Photo
7-8	0847	48:00	6.15	2.699		P6, 5.5, 5, 4.5, 4, 3.5, 3 / TSS
	1547	55:00		2.648		Photo
7-9	0847	72:00	6.078	2.54		P6, 5.5, 5, 4.5, 4, 3.5, 3 / TSS
	1547	79:00		2.503		Photo
7-10	0847	96:00	5.995	2.44		P6, 5.5, 5, 4.5, 4, 3.5, 3, 2.5 / TSS
	1547	103:00				Photo
7-11	0847	120:00		2.368		
	1547	127:00		2.35		
7-12	0847	144:00		2.31		
	1547	151:00		2.295		
7-13	0847	168:00	5.915	2.26		P5.5, 5, 4.5, 4, 3.5, 3, 2.5 / TSS
	1547	175:00		2.245		
7-14	0847	192:00		2.212		
	1547	199:00		2.202		
7-15	0847	216:00		2.176		
	1547	223:00		2.169		

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: Checked By: Date of Recap.:

File Name: 02485-3A-set.col.-ds-ws-3

Settling Column Data Sheet

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 7-16-05

Composite Sample No.: 1 Day No.: **11-16**

Initial Concentration: **127.08** Salinity, ppt: **4.40** Specific Gravity: 2.68 (est.)

Date (2005)	Time	Elapsed Time	Surface Water Height *	Solids Interface Height	Coarse Material Height	Ports Sampled / Type of Analysis
7-16	0847	240:00		2.139		
	1547	247:00		n/a		
7-17	0847	264:00	5.841	2.090		P5.5, 5, 4.5, 4, 3.5, 3, 2.5 / TSS
	1547	271:00		n/a		
7-18	0847	288:00		2.063		
	1547	295:00		2.055		
7-19	0847	312:00		n/a		
	1405	319:00		2.029		
7-20	0847	336:00		2.000		
	1547	343:00		1.992		
7-21	0847	360:00	5.767	1.977		P5.5, 5, 4.5, 4, 3.5, 3, 2.5 / TSS
	1547	367:00				

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: Checked By: Date of Recap.:

File Name:02485-3A-total solids-1a

Total Solids Report Sheet

Sheet No. 1a

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-6-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 134.90 Salinity, ppt: 4.40 Specific Gravity: (Est.) 2.68

Drying Time

Date: _____ Time In: _____ Time Out: _____

Sample No.: (ft.)	Pre-Test	1	2	3	4	5	6		
Tare No.:	X	1	2	3	4	5	6		
Wet Sample + Tare Wt., g	88.4894	115.2152	104.6864	106.4921	102.9712	97.3052	108.5285		
Dried Sample + Tare Wt., g	14.9514	15.1527	12.7242	13.2746	12.7147	12.1685	12.8915		
Tare Wt., g	4.1803	4.2391	4.1796	4.1769	4.1786	4.1757	4.2405		
Water Wt., g	73.5380	100.0625	91.9622	93.2175	90.2565	85.1367	95.6370		
Dried Sample Wt., g	10.7711	10.9136	8.5446	9.0977	8.5361	7.9928	8.6510		
Salt Wt., g	0.3250	0.4422	0.4064	0.4120	0.3989	0.3763	0.4227		
Particulates Wt., g	10.4461	10.4714	8.1382	8.6857	8.1372	7.6165	8.2283		
Particulates Conc. (g/L)	134.9002	100.7157	85.6661	90.0463	87.2224	86.5726	83.3610		

Remarks: Corrected 7-21-05 by: HS

Tested By: hs Checked By: hs Date of Recap.: _____

File Name:02485-3A-total solids-1

Total Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-6-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: (Est.) 2.68

Drying Time

Date: _____ Time In: _____ Time Out: _____

Sample No.: (ft.)	Pre-Test	1	2	3	4	5	6		
Tare No.:	X	1	2	3	4	5	6		
Wet Sample + Tare Wt., g	114.2900	111.8792	69.5286	77.6394	58.3187	90.6644	88.4728		
Dried Sample + Tare Wt., g	17.5700	14.7434	9.7367	10.1014	8.4616	10.8675	10.5929		
Tare Wt., g	4.2400	4.2391	4.1796	4.1769	4.1786	4.1757	4.2405		
Water Wt., g	96.7200	97.1358	59.7919	67.5380	49.8571	79.7969	77.8799		
Dried Sample Wt., g	13.3300	10.5043	5.5571	5.9245	4.2830	6.6918	6.3524		
Salt Wt., g	0.4274	0.4293	0.2642	0.2985	0.2203	0.3527	0.3442		
Particulates Wt., g	12.9026	10.0750	5.2929	5.6260	4.0627	6.3391	6.0082		
Particulates Conc. (g/L)	127.0757	99.8563	85.6908	80.7904	79.0816	77.1539	74.9885		

Remarks: _____

Tested By: _____ Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-1

Suspended Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-6-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-18-05 Time In: 0635 Time Out: 0700

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P6-4**	**P6-7**	**P6-12**	**P5.5-12**	**P6-24**	**P5.5-24**	**P5-24**	**P4.5-24**	
Tare No.:	1	2	3	4	1	2	3	4	5
Dry Particulates + Filter Paper Wt., g	**0.5491**	**0.5627**	**0.5466**	**0.5655**	**0.5630**	**0.5535**	**0.5579**	**0.5714**	
Filter Paper Wt., g	**0.5472**	**0.5592**	**0.5463**	**0.5636**	**0.5609**	**0.5742**	**0.5849**	**0.5796**	
Dry Particulates Wt., g	0.0019	0.0035	0.0003	0.0019	0.0021	-0.0207	-0.0270	-0.0082	
Volume (mL)	**90.0**	**100.0**	**98.0**	**98.0**	**81.0**	**78.5**	**100.0**	**93.7**	
Particulates TSS Concentrate (mg/L)	**21.11**	**35.00**	**3.06**	**19.39**	**25.93**	**-263.69**	**-270.00**	**-87.51**	
Turbidity (NTU)	16.10	52.70	32.60	53.70	29.90	31.70	46.90	87.70	
Average (NTU)	**16.10**	**52.70**	**32.60**	**53.70**	**29.90**	**31.70**	**46.90**	**87.70**	

Remarks: Transported to CMT Lab @ 1130 hrs. 7-7-05

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-2

Suspended Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-8-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-19-05 Time In: 0600 Time Out: 0430 - 7-20-05

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	P6-48	P5.5-48	P5-48	P4.5-48	P4-48	P3.5-48	P3-48		
Tare No.:					1	2	3		
Dry Particulates + Filter Paper Wt., g					0.5514	0.5593	0.5603		
Filter Paper Wt., g					0.5481	0.5541	0.5566		
Dry Particulates Wt., g	0.0000	0.0000	0.0000	0.0000	0.0033	0.0052	0.0037		
Volume (mL)					98.0	96.0	100.0		
Particulates TSS Concentrate (mg/L)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	33.67	54.17	37.00		
Turbidity (NTU)	16.66	15.81	26.80	30.10	30.70	23.10	4.03		
Average (NTU)	16.66	15.81	26.80	30.10	30.70	23.10	4.03		

Remarks: Transported to CMT Lab @ 1300 hrs. 7-8-05

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-3

Suspended Solids Report Sheet

Sheet No. 3

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-9-058

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-22-05 Time In: 0615 Time Out: 0715 - 7-23-05

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P6-72**	**P5.5-72**	**P5-72**	**P4.5-72**	**P4-72**	**P3.5-72**	**P3-72**		
Tare No.:	4	5	6	7	8	9	10		
Dry Particulates + Filter Paper Wt., g	**0.5564**	**0.5617**	**0.5547**	**0.5598**	**0.5567**	**0.5602**	**0.5706**		
Filter Paper Wt., g	**0.5544**	**0.5578**	**0.5539**	**0.5563**	**0.5501**	**0.5534**	**0.5540**		
Dry Particulates Wt., g	0.0020	0.0039	0.0008	0.0035	0.0066	0.0068	0.0166		
Volume (mL)	**97.5**	**98.0**	**97.0**	**97.0**	**95.5**	**97.0**	**94.0**		
Particulates TSS Concentrate (mg/L)	**20.51**	**39.80**	**8.25**	**36.08**	**69.11**	**70.10**	**176.60**		
Turbidity (NTU)	9.76	14.09	12.89	30.50	22.90	19.02	118.00		
	10.30	13.85	12.69	29.70	23.40	18.25	117.00		
	9.74	13.89	12.37	29.70	22.90	18.96	116.00		
Average (NTU)	**9.93**	**13.94**	**12.65**	**29.97**	**23.07**	**18.74**	**117.00**		

Remarks: Transported to CMT Lab @

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-4

Suspended Solids Report Sheet

Sheet No. 4

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-10-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-22-05 Time In: 0615 Time Out: 0715 - 7-23-05

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P6-96**	**P5.5-96**	**P5-96**	**P4.5-96**	**P4-96**	**P3.5-96**	**P3-96**	**P2.5-96**	
Tare No.:	11	12	13	14	15	1	2	3	
Dry Particulates + Filter Paper Wt., g	**0.5647**	**0.5513**	**0.5596**	**0.5673**	**0.5606**	**0.5775**	**0.5694**	**0.5578**	
Filter Paper Wt., g	**0.5552**	**0.5442**	**0.5537**	**0.5604**	**0.5519**	**0.5717**	**0.5610**	**0.5494**	
Dry Particulates Wt., g	0.0095	0.0071	0.0059	0.0069	0.0087	0.0058	0.0084	0.0084	0.0000
Volume (mL)	**91.0**	**97.0**	**90.0**	**91.5**	**95.0**	**99.8**	**96.1**	**95.8**	
Particulates TSS Concentrate (mg/L)	**104.40**	**73.20**	**65.56**	**75.41**	**91.58**	**58.12**	**87.41**	**87.68**	**#DIV/0!**
Turbidity (NTU)	3.08	8.76	10.06	6.58	3.95	8.49	5.35	22.20	
	2.82	8.17	10.17	6.73	4.00	8.65	5.44	21.20	
	2.71	8.35	9.80	6.43	3.86	8.46	5.38	21.30	
Average (NTU)	**2.87**	**8.43**	**10.01**	**6.58**	**3.94**	**8.53**	**5.39**	**21.57**	**0.00**

Remarks: Transported to CMT Lab @

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-5

Suspended Solids Report Sheet

Sheet No. 5

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-13-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: _____ Time In: _____ Time Out: _____

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P5.5-168**	**P5-168**	**P4.5-168**	**P4-168**	**P3.5-168**	**P3-168**	**P2.5-168**		
Tare No.:	4	5	6	7	8	9	10		
Dry Particulates + Filter Paper Wt., g	**0.5642**	**0.5706**	**0.5594**	**0.5580**	**0.5742**	**0.5606**	**0.5627**		
Filter Paper Wt., g	**0.5563**	**0.5651**	**0.5509**	**0.5514**	**0.5676**	**0.5556**	**0.5550**		
Dry Particulates Wt., g	0.0079	0.0055	0.0085	0.0066	0.0066	0.0050	0.0077		
Volume (mL)	**98.0**	**100.0**	**93.0**	**91.0**	**95.5**	**95.6**	**97.8**		
Particulates TSS Concentrate (mg/L)	**80.61**	**55.00**	**91.40**	**72.53**	**69.11**	**52.30**	**78.73**		
Turbidity (NTU)	1.95	1.95	5.94	5.21	2.74	2.57	15.94		
	1.94	1.95	5.96	4.87	2.57	2.45	16.09		
	1.79	1.82	5.86	4.75	2.58	2.58	16.46		
Average (NTU)	**1.89**	**1.91**	**5.92**	**4.94**	**2.63**	**2.53**	**16.16**		

Remarks: Transported to CMT Lab @ _____

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-6

Suspended Solids Report Sheet

Sheet No. 6

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-17-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-23-05 Time In: 1500 Time Out: 1000 7-24-05

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P5.5-265**	**P5-265**	**P4.5-265**	**P4-265**	**P3.5-265**	**P3-265**	**P2.5-265**		
Tare No.:	11	12	13	14	15	16	17		
Dry Particulates + Filter Paper Wt., g	**0.5715**	**0.5593**	**0.5654**	**0.5645**	**0.5570**	**0.5637**	**0.5732**		
Filter Paper Wt., g	**0.5639**	**0.5499**	**0.5582**	**0.5599**	**0.5511**	**0.5557**	**0.5666**		
Dry Particulates Wt., g	0.0076	0.0094	0.0072	0.0046	0.0059	0.0080	0.0066		
Volume (mL)	**97.2**	**81.1**	**82.5**	**81.6**	**82.8**	**82.0**	**78.2**		
Particulates TSS Concentrate (mg/L)	**78.19**	**115.91**	**87.27**	**56.37**	**71.26**	**97.56**	**84.40**		
Turbidity (NTU)	2.04	2.27	2.43	10.03	3.76	2.77	9.83		
	1.95	2.02	2.63	6.86	3.75	2.70	9.77		
	2.12	2.01	2.58	9.93	3.88	2.61	9.51		
Average (NTU)	**2.04**	**2.10**	**2.55**	**8.94**	**3.80**	**2.69**	**9.70**		

Remarks: Transported to CMT Lab @

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-7

Suspended Solids Report Sheet

Sheet No. 7

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-21-05

Boring No.: _____ Composite Sample No.: 1 Depth, feet: _____

Initial Concentration: 127.08 Salinity, ppt: 4.40 Specific Gravity: 2.68 (est.)

Drying Time

Date: 7-24-05 Time In: 0510 7-25-05 Time Out: 0615 7-25-05

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P5.5-360**	**P5-360**	**P4.5-360**	**P4-360**	**P3.5-360**	**P3-360**	**P2.5-360**		
Tare No.:	18	19	20	21	22	23	24		
Dry Particulates + Filter Paper Wt., g	**0.5641**	**0.5464**	**0.5582**	**0.5534**	**0.5741**	**0.5511**	**0.5572**		
Filter Paper Wt., g	**0.5586**	**0.5459**	**0.5552**	**0.5515**	**0.5681**	**0.5476**	**0.5539**		
Dry Particulates Wt., g	0.0055	0.0005	0.0030	0.0019	0.0060	0.0035	0.0033		
Volume (mL)	**75.1**	**82.0**	**81.0**	**83.0**	**81.5**	**72.0**	**72.1**		
Particulates TSS Concentrate (mg/L)	**73.24**	**6.10**	**37.04**	**22.89**	**73.62**	**48.61**	**45.77**		
Turbidity (NTU)	2.43	2.71	1.54	2.28	10.56	3.09	5.64		
	2.45	2.76	1.63	2.46	10.58	3.03	5.80		
	2.63	2.74	1.55	2.34	9.74	3.21	6.12		
Average (NTU)	**2.50**	**2.74**	**1.57**	**2.36**	**10.29**	**3.11**	**5.85**		

Remarks: Transported to CMT Lab @

Tested By: hs Checked By: _____ Date of Recap.: _____

COMPOSITE SAMPLE NO. 2

SETTLING COLUMN TEST RESULTS

File Name: 02485-3A-coll.sched.ws-1

Record & Sample Collection Schedule

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 7-27-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Record Interface Height				Collect Samples from Above Interface:		
Date:	Time:	Time:	Remarks:	Date:	Time:	Remarks:
7-27	0800	1600	As Directed	7-27	0900	1-Hr. No Sample Taken
					1000	2-Hr. No Sample Taken
					1200	4-Hr. No Sample Taken
					1500	7-Hr. P6 / TSS
					2000	12-Hr. P6, 5.5 / TSS, Photo
7-28	0800	1600		7-28	0800	24-Hr. P6, 5.5, 5, 4.5, 4 / TSS
7-29	0800	1600		7-29	0800	48-Hr. P6, 5.5, 5, 4.5, 4, 3.5, 3 / TSS
7-30	0800	1600		7-30	0800	72-Hr. P6, 5.5, 5, 4.5, 4, 3.5, 3 / TSS
7-31	0800	1600		7-31	0800	96-Hr. P6, 5.5, 5, 4.5, 4, 3.5, 3 / TSS
8-1	0800	1600				
8-2	0800	1600				
8-3	0800	1600		8-3	0800	168-Hr. P6, 5.5, 5, 4.5, 4, 3.5, 3, 2.5/ TSS
8-4	0800	1600				
8-5	0800	1600				
8-6	0800	1600				
8-7	0800	1600				
8-8	0800	1600		8-8	0800	276-Hr. P6, 5.5, 5, 4.5, 4, 3.5, 3, 2.5, 2/ TSS
8-9	0800	1600				
8-10	0800	1600				
8-11	0800	1600	End of Test	8-11	0800	360-Hr. P5.5, 5, 4.5, 4, 3.5, 3, 2.5, 2/ TSS

Tested By: hs Reduced By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-ws-1

Settling Column Data Sheet

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 7-27-05

Composite Sample No.: **2** Day No.: **1**

Initial Concentration: **93.1716** Salinity, ppt: **4.40** Specific Gravity: 2.52

Date (2005)	Time	Elapsed Time	Surface Water Height *	Solids Interface Height	Coarse Material Height	Ports Sampled / Type of Analysis
27-Jul	0800	0:00:00	6.428	6.428	n/a	
		0:15		6.405		
		0:30		6.378		
		0:45		6.34		
	0900	1:00		6.325	n/a	No coarse material noted at bottom of column
		0:15		6.299		
		0:30		6.268		
		0:45		6.249		
	1000	2:00		6.226		
		0:15		6.205		
		0:30		6.181		
		0:45		6.16		
	1100	3:00		6.135		
		0:15		6.11		
		0:30		6.085		
		0:45		6.059		
	1200	4:00		6.034		
		0:15		6.007		
		0:30		5.98		
		0:45		5.955		
	1300	5:00		5.92		Begin interface measurements at 30 min. cycle
		0:30		5.875		
	1400	6:00		5.825		
		0:30	6.428	5.769		
	1500	7:00	6.412	5.718		P6-7 TSS
		0:30		5.665		
	1600	8:00		5.611	n/a	

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-ws-2

Settling Column Data Sheet

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: _____

Composite Sample No.: **2** Day No.: **1 to 15**

Initial Concentration: _____ Salinity, ppt: **4.40** Specific Gravity: 2.52

Date (2005)	Time	Elapsed Time	Surface Water Height *	Solids Interface Height	Coarse Material Height	Ports Sampled / Type of Analysis
27-Jul	1630	8:30:00	6.412	n/a	n/a	No coarse material noted at bottom of column
	1700	9:00		5.488		
	1730	9:30		5.430		
	1800	10:00		5.393		
	1830	10:30		5.330		
	1900	11:00		5.280		
	1930	11:30	6.412	5.220		
	2000	12:00	6.390	5.180		P6, P5.5-12 TSS & Photo
28-Jul	0800	24:00	6.336	3.812		P6, P5.5, P5, P4.5, P4-24 TSS
	1600	32:00		2.835		
29-Jul	0800	48:00	6.259	2.637		P6, P5.5, P5, P4.5, P4, P3.5, P3-48 TSS
	1600	56:00		2.569		
30-Jul	0800	72:00	6.178	2.471		P6, P5.5, P5, P4.5, P4, P3.5, P3-72 TSS
31-Jul	0800	96:00	6.091	2.385		P6, P5.5, P5, P4.5, P4, P3.5, P3-96 TSS
1-Aug	0800	120:00		2.300		
2-Aug	0800	144:00		2.231		
3-Aug	0800	168:00	6.000	2.181		P6, P5.5, P5, P4.5, P4, P3.5, P3, P2.5-168 TSS
4-Aug	0800	192:00		2.113		
5-Aug	0800	216:00		2.065		
6-Aug	1200	244:00		2.000		
7-Aug	1200	268:00		1.980		
8-Aug	0800	288:00	5.918	1.950		P5.5, P5, P4.5, P4, P3.5, P3, P2.5, P2-288 TSS
9-Aug	0800	312:00		1.940		
10-Aug	0800	336:00		1.900		
11-Aug	0800	360:00	5.835	1.870		P5.5, P5, P4.5, P4, P3.5, P3, P2.5, P2-360 TSS
						No coarse material noted at bottom of column

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: hs Checked By: _____ Date of Recap.: _____

File Name:02485-3A-total solids-2

Total Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 7-27-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: _____ Time In: _____ Time Out: _____

	Pre-Test								Salt
Sample No.: (ft.)	1		6	5	4	3	2	1	2
Tare No.:	1		2	3	4	5	6	7	n/a
Wet Sample + Tare Wt., g	245.5300		117.0700	105.6100	104.9700	104.0700	114.8500	110.5000	161.5600
Dried Sample + Tare Wt., g	25.7600		13.9900	13.2300	13.3200	13.6400	14.7400	14.4100	5.0300
Tare Wt., g	4.2400		4.2200	4.1800	4.1700	4.2400	4.2400	4.2600	4.2000
Water Wt., g	219.7700		103.0800	92.3800	91.6500	90.4300	100.1100	96.0900	156.5300
Dried Sample Wt., g	21.5200		9.7700	9.0500	9.1500	9.4000	10.5000	10.1500	0.8300
Salt Wt., g	0.9713		0.4556	0.4083	0.4050	0.3997	0.4424	0.4247	0.6918
Particulates Wt., g	20.5487		9.3144	8.6417	8.7450	9.0003	10.0576	9.7253	0.1382
Particulates Conc. (g/L)	90.1560		87.2333	90.1972	91.9358	95.7468	96.6135	97.3027	0.8827

Remarks: Average initial concentration = 93.1716 gram / liter

Tested By: _____ Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-1

Suspended Solids Report Sheet

Sheet No. 1

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: **2** Depth, feet: _____

Initial Concentration: **93.17** Salinity, ppt: **4.40** Specific Gravity: **2.52**

Drying Time

Date: 8-9-05 Time In: 1500 Time Out: 8-10-05 1000

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P6-7**	**P6-12**	**P5.5-12**	**P6-24**	**P5.5-24**	**P5-24**	**P4.5-24**	**P4-24**	**P6-48**
Tare No.:	1	2	3	4	5	6	7	8	9
Dry Particulates + Filter Paper Wt., g	**0.5630**	**0.5709**	**0.5704**	**0.5740**	**0.5796**	**0.5692**	**0.5680**	**0.5722**	**0.5761**
Filter Paper Wt., g	**0.5558**	**0.5610**	**0.5562**	**0.5632**	**0.5697**	**0.5591**	**0.5550**	**0.5604**	**0.5707**
Dry Particulates Wt., g	0.0072	0.0099	0.0142	0.0108	0.0099	0.0101	0.0130	0.0118	0.0054
Volume (mL)	**72.0**	**77.0**	**87.5**	**90.0**	**90.0**	**88.9**	**89.5**	**88.0**	**88.5**
Particulates TSS Concentrate (mg/L)	**100.00**	**128.57**	**162.29**	**120.00**	**110.00**	**113.61**	**145.25**	**134.09**	**61.02**
Turbidity (NTU)	26.80	18.69	63.70	22.40	16.50	42.80	32.80	36.00	17.06
	26.70	18.88	63.10	19.82	16.28	44.40	31.80	34.80	16.37
	27.20	19.93	62.30	19.57	16.13	43.90	26.50	35.00	15.69
Average (NTU)	**26.90**	**19.17**	**63.03**	**20.60**	**16.30**	**43.70**	**30.37**	**35.27**	**16.37**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-2

Suspended Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: 8-9-05 Time In: 1500 Time Out: 8-10-05 1000

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P5.5-48**	**P5-48**	**P4.5-48**	**P4-48**	**P3.5-48**	**P3-48**	**P6-72**	**P5.5-72**	**P5-72**
Tare No.:	10	11	12	13	14	15	16	17	18
Dry Particulates + Filter Paper Wt., g	**0.5689**	**0.5703**	**0.5537**	**0.5668**	**0.5659**	**0.5755**	**0.5528**	**0.5670**	**0.5779**
Filter Paper Wt., g	**0.5594**	**0.5629**	**0.5446**	**0.5563**	**0.5544**	**0.5673**	**0.5437**	**0.5603**	**0.5668**
Dry Particulates Wt., g	0.0095	0.0074	0.0091	0.0105	0.0115	0.0082	0.0091	0.0067	0.0111
Volume (mL)	**90.0**	**88.3**	**89.9**	**87.9**	**87.0**	**73.5**	**77.0**	**74.3**	**75.0**
Particulates TSS Concentrate (mg/L)	**105.56**	**83.81**	**101.22**	**119.45**	**132.18**	**111.56**	**118.18**	**90.17**	**148.00**
Turbidity (NTU)	11.57	19.11	12.23	15.25	10.75	18.61	3.67	2.02	3.67
	11.33	19.20	11.02	13.42	10.48	17.66	2.90	1.95	3.67
	11.31	18.94	10.04	13.16	10.42	18.27	2.98	1.96	3.46
Average (NTU)	**11.40**	**19.08**	**11.10**	**13.94**	**10.55**	**18.18**	**3.18**	**1.98**	**3.60**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-3

Suspended Solids Report Sheet

Sheet No. 3

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: 8-9-05 Time In: 1500 Time Out: 8-10-05 1000

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P4.5-72**	**P4-72**	**P3.5-72**	**P3-72**	**P2.5-72**	**P6-96**	**P5.5-96**	**P5-96**	**P4.5-96**
Tare No.:	19	20	21	22	23	24	14	11	23
Dry Particulates + Filter Paper Wt., g	**0.5625**	**0.5723**	**0.5563**	**0.5654**	**0.5735**	**0.5749**	**0.5836**	**0.5594**	**0.5671**
Filter Paper Wt., g	**0.5541**	**0.5639**	**0.5490**	**0.5559**	**0.5629**	**0.5651**	**0.5742**	**0.5548**	**0.5594**
Dry Particulates Wt., g	0.0084	0.0084	0.0073	0.0095	0.0106	0.0098	0.0094	0.0046	0.0077
Volume (mL)	**75.0**	**74.0**	**75.0**	**74.0**	**76.0**	**75.8**	**73.5**	**74.5**	**73.0**
Particulates TSS Concentrate (mg/L)	**112.00**	**113.51**	**97.33**	**128.38**	**139.47**	**129.29**	**127.89**	**61.74**	**105.48**
Turbidity (NTU)	2.89	3.89	9.24	3.26	15.01	1.66	0.85	1.06	1.06
	3.69	3.45	8.53	3.67	16.24	1.46	1.04	1.05	0.83
	3.87	3.62	8.93	2.69	15.01	1.46	0.75	0.87	0.82
Average (NTU)	**3.48**	**3.65**	**8.90**	**3.21**	**15.42**	**1.53**	**0.88**	**0.99**	**0.90**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-4

Suspended Solids Report Sheet

Sheet No. 4

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: 8-11-05 Time In: 1400 Time Out: 8-12-05 0600

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P4-96**	**P3.5-96**	**P3-96**	**P2.5-96**	**P6-168**	**P5.5-168**	**P5-168**	**P4.5-168**	**P4-168**
Tare No.:	6	19	24	22	2	18	13	9	21
Dry Particulates + Filter Paper Wt., g	**0.5657**	**0.5607**	**0.5636**	**0.5670**	**0.5656**	**0.5591**	**0.5741**	**0.5652**	**0.5507**
Filter Paper Wt., g	**0.5576**	**0.5540**	**0.5571**	**0.5599**	**0.5556**	**0.5490**	**0.5657**	**0.5564**	**0.5416**
Dry Particulates Wt., g	0.0081	0.0067	0.0065	0.0071	0.0100	0.0101	0.0084	0.0088	0.0091
Volume (mL)	**74.5**	**75.0**	**75.0**	**78.0**	**74.8**	**70.8**	**78.5**	**74.0**	**72.0**
Particulates TSS Concentrate (mg/L)	**108.72**	**89.33**	**86.67**	**91.03**	**133.69**	**142.66**	**107.01**	**118.92**	**126.39**
Turbidity (NTU)	0.95	1.80	1.04	1.39	6.26	6.84	7.44	7.53	6.20
	0.94	2.04	1.29	1.45	6.67	5.72	4.73	4.71	4.14
	1.22	1.89	1.09	1.68	6.40	5.00	4.04	3.64	2.68
Average (NTU)	**1.04**	**1.91**	**1.14**	**1.51**	**6.44**	**5.85**	**5.40**	**5.29**	**4.34**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-5

Suspended Solids Report Sheet

Sheet No. 5

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: 8-11-05 Time In: 1400 Time Out: 8-12-05 0600

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P3.5-168**	**P3-168**	**P2.5-168**	**P5.5-288**	**P5-288**	**P4.5-288**	**P4-288**	**P3.5-288**	**P3-288**
Tare No.:	20	17	10	16	1	5	3	7	15
Dry Particulates + Filter Paper Wt., g	**0.5781**	**0.5780**	**0.5461**	**0.5548**	**0.5582**	**0.5721**	**0.5636**	**0.5500**	**0.5714**
Filter Paper Wt., g	**0.5644**	**0.5677**	**0.5427**	**0.5498**	**0.5502**	**0.5646**	**0.5559**	**0.5435**	**0.5633**
Dry Particulates Wt., g	0.0137	0.0103	0.0034	0.0050	0.0080	0.0075	0.0077	0.0065	0.0081
Volume (mL)	**72.2**	**73.8**	**63.0**	**72.0**	**76.0**	**74.0**	**62.0**	**72.0**	**74.0**
Particulates TSS Concentrate (mg/L)	**190.30**	**139.57**	**53.97**	**69.44**	**105.26**	**101.35**	**124.19**	**90.28**	**109.46**
Turbidity (NTU)	38.60	5.41	16.25	2.37	3.83	3.83	7.94	3.97	11.28
	34.00	4.94	14.22	2.36	2.05	3.51	6.89	4.15	11.00
	34.20	4.75	14.50	2.17	2.05	3.32	7.47	3.52	11.43
Average (NTU)	**35.60**	**5.03**	**14.99**	**2.30**	**2.64**	**3.55**	**7.43**	**3.88**	**11.24**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-6

Suspended Solids Report Sheet

Sheet No. 6

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-10-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: 93.17 Salinity, ppt: 4.40 Specific Gravity: 2.52

Drying Time

Date: 8-13-05 Time In: 1030 Time Out: 8-14-05 0900

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P2.5-2.88**	**P2-288**	**P5.5-360**	**P5-360**	**P4.5-360**	**P4-360**	**P3.5-360**	**P3-360**	**P2.5-360**
Tare No.:	4	8	25	12	11	23	6	19	21
Dry Particulates + Filter Paper Wt., g	**0.5565**	**0.5613**	**0.5649**	**0.5765**	**0.5710**	**0.5692**	**0.5645**	**0.5758**	**0.5628**
Filter Paper Wt., g	**0.5435**	**0.5508**	**0.5575**	**0.5713**	**0.5640**	**0.5618**	**0.5566**	**0.5693**	**0.5538**
Dry Particulates Wt., g	0.0130	0.0105	0.0074	0.0052	0.0070	0.0074	0.0079	0.0065	0.0090
Volume (mL)	**75.0**	**66.0**	**72.0**	**70.8**	**71.5**	**73.5**	**66.0**	**74.0**	**74.8**
Particulates TSS Concentrate (mg/L)	**173.33**	**159.09**	**102.78**	**73.45**	**97.90**	**100.68**	**119.70**	**87.84**	**120.32**
Turbidity (NTU)	65.20	26.00	2.59	10.59	5.07	6.04	6.25	3.23	7.63
	66.60	26.00	1.84	8.67	4.95	3.92	6.37	3.59	7.17
	66.50	25.90	1.82	6.32	4.66	3.71	6.08	3.42	6.40
Average (NTU)	**66.10**	**25.97**	**2.08**	**8.53**	**4.89**	**4.56**	**6.23**	**3.41**	**7.07**

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-7

Suspended Solids Report Sheet

Sheet No. 7

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-13-05

Boring No.: _____ Composite Sample No.: 2 Depth, feet: _____

Initial Concentration: **93.17** Salinity, ppt: **4.40** Specific Gravity: **2.52**

Drying Time

Date: 8-13-05 Time In: 1030.00 Time Out: 8-14-05 0900

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P2-360**								
Tare No.:	14								
Dry Particulates + Filter Paper Wt., g	**0.5702**								
Filter Paper Wt., g	**0.5563**								
Dry Particulates Wt., g	0.0139								
Volume (mL)	**68.2**								
Particulates TSS Concentrate (mg/L)	**203.81**								
Turbidity (NTU)	15.84 15.11 14.20								
Average (NTU)	**15.05**								

Remarks: _____

Tested By: hs Checked By: hs Date of Recap.: _____

COMPOSITE SAMPLE NO. 3

SETTLING COLUMN TEST RESULTS

File Name: 02485-3A-coll.sched.ws-1

Record & Sample Collection Schedule

Sheet No. 1

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 8-15-05

Boring No.: _____ Composite Sample No.: 3 Depth, feet: _____

Record Interface Height				Collect Samples from Above Interface:		
Date:	Time:	Time:	Remarks:	Date:	Time:	Remarks:
8-15	0900	1600	As Directed	8-15		1-Hr. No Sample
						2-Hr. No Sample
						4-Hr. No Sample
						7-Hr. P6 - TSS & Photo
						12-Hr. P6, 5.5 - TSS
8-16	0900	1600		8-16	0900	24-Hr. P6, 5.5, 5, 4.5 - TSS
8-17	0900	1600		8-17	0900	48-Hr. P6, 5.5, 5, 4.5, 4 - TSS & Photo
8-18	0900	1600		8-18	0900	72-Hr. P6, 5.5, 5, 4.5, 4 - TSS
8-19	0900	1600		8-19	0900	96-Hr. P6, 5.5, 5, 4.5, 4 - TSS
8-20	0900	1600				
8-21	0900	1600				
8-22	0900	1600		8-22	0900	168-Hr.
8-23	0900	1600				
8-24	0900	1600				
8-25	0900	1600				
8-26	0900	1600		8-26	0900	264-Hr.
8-27	0900	1600				
8-28	0900	1600				
8-29	0900	1600				
8-30	0900	1600	End of Test	8-30	0900	360-Hr.

Tested By: hs Reduced By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-ws-1

Settling Column Data Sheet

Sheet No. 1

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 8-15-05

Composite Sample No.: 3 Day No.: 1

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: 2.56

Date (2005)	Time	Elapsed Time (hr.:min.)	Surface Water Height, ft.	Solids Interface Height, ft.	Coarse Material Height, ft.	Ports Sampled / Type of Analysis
8-15	0900	0:00	6.55'	6.550'	0	P6 thur P1 Sampled for Total Solids
	0915	:15	6.5' *	6.499		
	0930	:30		6.490		
	0945	:45		6.485		
	1000	1:00		6.484'	0	No 1 Hr. Sample
	1015	:15		6.480		
	1030	:30		6.470		
	1045	:45		6.465		
	1100	2:00		6.456'	0	No 2 Hr. Sample
	1115	:15		6.430		
	1130	:30		6.409		
	1145	:45		6.378		
	1200	3:00		6.347'	0	No 3 Hr. Sample but Photo Taken
	1215	:15		6.317		
	1230	:30		6.276		
	1245	:45		6.249		
	1300	4:00		6.210'	0	No 4 Hr. Sample
	1315	:15		6.185		
	1330	:30		6.155		Begin recording Interface Height at 30 min. intervals
	1400	5:00		6.089		
	1430	:30		6.028		
	1500	6:00		5.966		
	1530	:30		5.910		
	1600	7:00	6.485'	5.854'	0	P6-7 / TSS & Photo
	1630	:30		5.790		
	1700	8:00		5.737		
	1730	:30		5.685		

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: _____ Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-set.col.-ds-ws-2

Settling Column Data Sheet

Sheet No. 2

Project: West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana Job No.: 02485-3A Date: 8-15-05

Composite Sample No.: 3 Day No.: 1 - 15

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: 2.56

Date (2005)	Time	Elapsed Time (hr.:min.)	Surface Water Height, ft.	Solids Interface Height, ft.	Coarse Material Height	Ports Sampled / Type of Analysis
8-15	1800	9:00		5.628		Next Reading at 12 Hr Sample
	2100	12:00	6.464	5.312	0.0	P6, 5.5 / 12 - TSS
8-16	0900	24:00	6.419	4.211	0.0	P6, 5.5, 5, 4.5 / 24 - TSS & Photo
	1600	31:00		4.086		
8-17	0900	48:00	6.370	3.905	0.0	P6, 5.5, 5, 4.5, 4 / 48 - TSS & Photo
	1600	55:00		3.857		
8-18	0900	72:00	6.318	3.752	0.0	P6, 5.5, 5, 4.5, 4 / 72 - TSS & Photo
	1600	79:00		3.728		
8-19	0900	96:00	6.266	3.660	0.0	P6, 5.5, 5, 4.5, 4 / 96 - TSS & Photo
	1600	103:00		3.630		
8-20	0930	120:30		3.570		
8-21	1000	145:00		3.500		
8-22	0900	168:00	6.200	3.435	0.0	P6, 5.5, 5, 4.5, 4, 3.5 / 168 - TSS & Photo
	1600	175:00		3.421		
8-23	0900	192:00		3.385		
	1600	199:00		-		
8-24	0900	216:00		3.340		
8-25	0900	240:00		3.300		
8-26	0900	264:00	6.130	3.265	0.0	P6, 5.5, 5, 4.5, 4, 3.5 / 264 - TSS
8-27	0900	288:00		3.223		
8-28	0930	312:30		3.200		
8-29	0900	336:00		3.175		
8-30	0900	360:00	6.058	3.130	0.0	P6, 5.5, 5, 4.5, 4, 3.5 / 360 - TSS

*Surface Water Height measured after TSS's samples have been taken.

Tested By: hs Reduced By: _____ Checked By: _____ Date of Recap.: _____

File Name:02485-3A-total solids-1

Total Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-14-05

Boring No.: _____ Composite Sample No.: 3 Depth, feet: _____

Initial Concentration, gm/L 139.5942 Salinity, ppt: 4.40 Specific Gravity: 2.56

Drying Time

Date: 8-13-05 Time In: 1030 Time Out: 8-14-05 0900

	Pre-Test								Salt
Sample No.: (ft.)	1								
Tare No.:	1								
Wet Sample + Tare Wt., g	68.3800								
Dried Sample + Tare Wt., g	12.6800								
Tare Wt., g	4.2100								
Water Wt., g	55.7000								
Dried Sample Wt., g	8.4700								
Salt Wt., g	0.2462								
Particulates Wt., g	8.2238								
Particulates Conc. (g/L)	139.5942								

Remarks: Average initial concentration = 139.5942 gram / liter
60 ml Sample

Tested By: hs Checked By: hs Date of Recap.: _____

File Name:02485-3A-total solids-2

Total Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-16-05

Boring No.: _____ Composite Sample No.: **3** Depth, feet: _____

Initial Concentration: **136.1606** Salinity, ppt: **4.40** Specific Gravity: **2.56**

Drying Time

Date: 8-16-05 Time In: 1600 Time Out: 8-17-05 0630

	Pre-Test							Salt
Sample No.: (ft.)		**6**	**5**	**4**	**3**	**2**	**1**		
Tare No.:		6	5	4	3	2	1		
Wet Sample + Tare Wt., g		**99.2600**	**99.2300**	**99.4000**	**87.6900**	**100.7800**	**98.3800**		
Dried Sample + Tare Wt., g		**16.5600**	**16.5100**	**16.5900**	**15.0100**	**16.5800**	**16.1600**		
Tare Wt., g		**4.2000**	**4.1600**	**4.2100**	**4.1900**	**4.2100**	**4.2100**		
Water Wt., g		82.7000	82.7200	82.8100	72.6800	84.2000	82.2200		
Dried Sample Wt., g		12.3600	12.3500	12.3800	10.8200	12.3700	11.9500		
Salt Wt., g		0.3655	0.3656	0.3660	0.3212	0.3721	0.3634		
Particulates Wt., g		11.9945	11.9844	12.0140	10.4988	11.9979	11.5866		
Particulates Conc. (g/L)		**137.2600**	**137.1193**	**137.2985**	**136.7367**	**134.9795**	**133.5696**		

Remarks: Average initial concentration = **136.1606** gram / liter

Tested By: hs Checked By: hs Date of Recap.: _____

File Name: 02485-3A-tss-1

Suspended Solids Report Sheet

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-17-05

Boring No.: _____ Composite Sample No.: 3 Depth, feet: _____

Initial Concentration: 139.59 Salinity, ppt: 4.40 Specific Gravity: 2.56

Drying Time

Date: 8-18-05 Time In: 1515 Date: 8-19-05 Time Out: 0545

	1	2	3	4	5	6	7	8	9
Sample No.-Hr.:	**P6-7**	**P6-12**	**P5.5-12**	**P6-24**	**P5.5-24**	**P5-24**	**P4.5-24**	**P6-48**	**P5.5-48**
Tare No.:	7	6	8	3	4	2	9	1	5
Dry Particulates + Filter Paper Wt., g	**0.5702**	**0.5792**	**0.5669**	**0.5723**	**0.5828**	**0.5563**	**0.5751**	**0.5621**	**0.5763**
Filter Paper Wt., g	**0.5602**	**0.5715**	**0.5585**	**0.5643**	**0.5730**	**0.5442**	**0.5656**	**0.5545**	**0.5707**
Dry Particulates Wt., g	0.0100	0.0077	0.0084	0.0080	0.0098	0.0121	0.0095	0.0076	0.0056
Volume (mL)	**74.8**	**72.7**	**74.0**	**64.0**	**71.0**	**72.9**	**64.0**	**73.2**	**55.0**
Particulates TSS Concentrate (mg/L)	**133.69**	**105.91**	**113.51**	**125.00**	**138.03**	**165.98**	**148.44**	**103.83**	**101.82**
Turbidity (NTU)	75.20	26.00	70.50	23.40	20.30	39.80	36.80	17.09	12.94
	76.90	25.90	68.50	21.80	20.10	40.40	31.40	17.02	12.85
	76.10	25.80	68.40	22.00	20.20	39.60	30.40	17.01	12.96
Average (NTU)	**76.07**	**25.90**	**69.13**	**22.40**	**20.20**	**39.93**	**32.87**	**17.04**	**12.92**

Remarks: _____

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-2

Suspended Solids Report Sheet

Sheet No. 2

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-18-05

Boring No.: _____ Composite Sample No.: 3 Depth, feet: _____

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: **2.56**

Drying Time

Date: 8-18-05 Time In: 1515 Date: 8-19-05 Time Out: 0545

	10	11	12	13	14	15	16	17	18
Sample No.-Hr.:	**P5-48**	**P4.5-48**	**P4-48**	**P6-72**	**P5.5-72**	**P5-72**	**P4.5-72**	**P4-72**	**P6-96**
Tare No.:	10	11	13	10	25	6	15	12	18
Dry Particulates + Filter Paper Wt., g	**0.5757**	**0.5531**	**0.5756**	**0.1122**	**0.1112**	**0.1096**	**0.1087**	**0.1091**	**0.1108**
Filter Paper Wt., g	**0.5690**	**0.5446**	**0.5649**	**0.1098**	**0.1105**	**0.1086**	**0.1082**	**0.1077**	**0.1100**
Dry Particulates Wt., g	0.0067	0.0085	0.0107	0.0024	0.0007	0.0010	0.0005	0.0014	0.0008
Volume (mL)	**68.0**	**67.0**	**69.0**	**65.0**	**80.3**	**96.0**	**77.5**	**97.5**	**98.9**
Particulates TSS Concentrate (mg/L)	**98.53**	**126.87**	**155.07**	**36.92**	**8.72**	**10.42**	**6.45**	**14.36**	**8.09**
Turbidity (NTU)	11.81	12.26	57.50	14.81	8.77	15.46	9.17	8.93	5.34
	12.04	12.17	59.40	14.55	7.24	15.88	9.18	8.82	4.81
	11.69	12.10	60.20	13.94	7.16	15.15	9.18	8.80	4.74
Average (NTU)	**11.85**	**12.18**	**59.03**	**14.43**	**7.72**	**15.50**	**9.18**	**8.85**	**4.96**

Remarks: _____

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-3

Suspended Solids Report Sheet

Sheet No. 3

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-19-05

Boring No.: _____ Composite Sample No.: **3** Depth, feet: _____

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: **2.56**

Drying Time

Date: 8-18-05 Time In: 1515 Date: 8-19-05 Time Out: 0545

	19	20	21	22	23	24	25	26	27
Sample No.-Hr.:	**P5.5-96**	**P5-96**	**P4.5-96**	**P4-96**	**P6-168**	**P5.5-168**	**P5-168**	**P4.5-168**	**P4-168**
Tare No.:	19	17	20	16	14	13	1	7	8
Dry Particulates + Filter Paper Wt., g	**0.1131**	**0.1108**	**0.1138**	**0.1111**	**0.1091**	**0.1079**	**0.1101**	**0.1117**	**0.1114**
Filter Paper Wt., g	**0.1102**	**0.1101**	**0.1094**	**0.1101**	**0.1083**	**0.1071**	**0.1089**	**0.1092**	**0.1096**
Dry Particulates Wt., g	0.0029	0.0007	0.0044	0.0010	0.0008	0.0008	0.0012	0.0025	0.0018
Volume (mL)	**98.8**	**95.0**	**99.1**	**98.0**	**99.7**	**94.0**	**96.5**	**97.5**	**94.0**
Particulates TSS Concentrate (mg/L)	**29.35**	**7.37**	**44.40**	**10.20**	**8.02**	**8.51**	**12.44**	**25.64**	**19.15**
Turbidity (NTU)	23.90	5.22	34.90	4.99	3.96	3.06	7.66	16.82	10.77
	23.50	5.01	35.30	5.08	3.94	3.05	7.19	16.96	10.91
	22.90	5.15	35.10	4.98	3.95	3.10	6.77	16.36	10.60
Average (NTU)	**23.43**	**5.13**	**35.10**	**5.02**	**3.95**	**3.07**	**7.21**	**16.71**	**10.76**

Remarks: _____

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-4

Suspended Solids Report Sheet

Sheet No. 4

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-22-05

Boring No.: _____ Composite Sample No.: 3 Depth, feet: _____

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: **2.56**

Drying Time

Date: 8-22-05 Time In: 1500 Date: 8-23-05 Time Out: 0600

	28	29	30	31	32	33	34	35	36
Sample No.-Hr.:	**P3.5-168**	**P6-264**	**P5.5-264**	**P5-264**	**P4.5-264**	**P4-264**	**P3.5-264**	**P6-360**	**P5.5-360**
Tare No.:	21	5	9	4	11	25	24	12	18
Dry Particulates + Filter Paper Wt., g	**0.1157**	**0.1091**	**0.1096**	**0.1089**	**0.1090**	**0.1108**	**0.1100**	**0.1108**	**0.1101**
Filter Paper Wt., g	**0.1108**	**0.1079**	**0.1085**	**0.1081**	**0.1083**	**0.1100**	**0.1096**	**0.1105**	**0.1094**
Dry Particulates Wt., g	0.0049	0.0012	0.0011	0.0008	0.0007	0.0008	0.0004	0.0003	0.0007
Volume (mL)	**99.2**	**101.5**	**100.1**	**100.0**	**97.8**	**97.8**	**101.0**	**135.0**	**116.0**
Particulates TSS Concentrate (mg/L)	**49.40**	**11.82**	**10.99**	**8.00**	**7.16**	**8.18**	**3.96**	**2.22**	**6.03**
Turbidity (NTU)	48.80	2.39	6.45	2.33	3.00	2.30	3.08	2.35	2.92
	49.80	2.14	6.69	2.27	3.04	2.09	3.03	1.98	2.45
	50.40	2.03	6.38	2.15	2.84	1.99	3.16	3.01	2.33
Average (NTU)	**49.67**	**2.19**	**6.51**	**2.25**	**2.96**	**2.13**	**3.09**	**2.45**	**2.57**

Remarks: _____

Tested By: hs Checked By: _____ Date of Recap.: _____

File Name: 02485-3A-tss-5

Suspended Solids Report Sheet

Sheet No. 5

Project: West Lake Boudreaux (TE-46) Job No.: 02485-3A Date: 8-30-05

Boring No.: _____ Composite Sample No.: **3** Depth, feet: _____

Initial Concentration: **139.59** Salinity, ppt: **4.40** Specific Gravity: **2.56**

Drying Time

Date: 9-1-05 Time In: 1415 Date: 9-2-05 Time Out: 1130

	37	38	39	40					
Sample No.-Hr.:	**P5-360**	**P4.5-360**	**P4-360**	**P3.5-460**					
Tare No.:	19	17	23	22					
Dry Particulates + Filter Paper Wt., g	**0.1106**	**0.1102**	**0.1102**	**0.1111**					
Filter Paper Wt., g	**0.1102**	**0.1098**	**0.1093**	**0.1099**					
Dry Particulates Wt., g	0.0004	0.0004	0.0009	0.0012					
Volume (mL)	**116.5**	**95.0**	**111.0**	**118.0**					
Particulates TSS Concentrate (mg/L)	**3.43**	**4.21**	**8.11**	**10.17**					
Turbidity (NTU)	1.43	3.55	2.40	10.67					
	1.45	3.89	2.24	10.44					
	1.40	3.77	2.38	10.38					
Average (NTU)	**1.43**	**3.74**	**2.34**	**10.50**					

Remarks: _____

Tested By: hs Checked By: _____ Date of Recap.: _____

APPENDIX E

BULKING FACTOR COMPUTATIONS FOR 15-DAY SOLIDS CONCENTRATIONS

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL CONSULTANTS

Subject West Lake Boudreaux Settling Column Test Composite Sample No. 1

Job No. _____

Sheet No. 1 of 3

Date 8/11/05

Computed by JA

Checked by _____

Compute void ratio of borrow before dredging:

36.1 %	CH	w = 215 %
15.8 %	CL	w = 133 %
36.2 %	ML	w = 50 %
0.9 %	SM	w = 44 %
11.0 %	OH	w = 412 %
100.0 %		

$$w_{avg} = \underset{77.62}{(0.361)(215)} + \underset{21.01}{(0.158)(133)} + \underset{18.1}{(0.362)(50)} + \underset{0.4}{(0.009)(44)} + \underset{45.32}{(0.11)(412)} = 162\ \%$$

$G_s = 2.52$

$$e_i = \frac{w G_s}{S_p} = \frac{(162)(2.52)}{100} = 4.08$$

Compute void ratio of dredged material:

Initial height in settling column = 6.325 ft

Initial particulates concentration in column = 88.7 g/L avg.

Final height in settling column = 1.977 ft

Solids concentration, $C_d = \frac{(88.7)(6.325)}{1.977} = 283.8$ g/L

$$e_o = \frac{G_s \gamma_w}{C_d} - 1 = \frac{(2.52)(1000)}{283.8} - 1 = 8.88$$

$$V_f = V_i \left[\frac{e_o - e_i}{1 + e_i} + 1\right] = V_i \left[\frac{8.88 - 4.08}{1 + 4.08} + 1\right] = 1.94\ V_i$$

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL CONSULTANTS

Subject West Lake Boudreaux Settling Column Test Composite Sample No. 2

Job No. _____

Sheet No. 2 of 3

Date 8/15/05

Computed by _____ Checked by _____

Compute void ratio of borrow before dredging:

23.1 %	CH	w = 206 %
11.8 %	CL	w = 106 %
46.9 %	ML	w = 48 %
8.8 %	SM	w = 44 %
9.4 %	OH	w = 412 %
100.0 %		

$$w_{avg} = \underset{41.59}{(0.231)(206)} + \underset{13.51}{(0.118)(106)} + \underset{22.51}{(0.469)(48)} + \underset{3.87}{(0.088)(44)} + \underset{38.73}{(0.094)(412)} = 125\%$$

$G_s = 2.52$

$$e_i = \frac{w G_s}{S_D} = \frac{(125)(2.52)}{100} = 3.15$$

Compute void ratio of dredged material:

Initial height in settling column = 6.428 ft

Initial particulates concentration in column = 93.2 g/L avg.

Final height in settling column = 1.87 ft

Solids concentration, $C_d = \frac{(93.2)(6.428)}{1.87} = 320.4$ g/L

$$e_o = \frac{G_s \gamma_w}{C_d} - 1 = \frac{(2.52)(1000)}{320.4} - 1 = 6.87$$

$$V_f = V_i \left[\frac{e_o - e_i}{1 + e_i} + 1\right] = V_i \left[\frac{6.87 - 3.15}{1 + 3.15} + 1\right] = 1.90\, V_i$$

Compute effects of sand:

$$\left[(1.90)(0.912) + (1.0)(0.088)\right] V_i = 1.733 + 0.088 = 1.82\, V_i$$

BURNS COOLEY DENNIS, INC.
GEOTECHNICAL & MATERIALS
ENGINEERING CONSULTANTS

Subject West Lake Boudreaux
Settling Column Test
Composite Sample No. 3

Job No. _____
Sheet No. 3 of 3
Date 9/7/05

Computed by JAD Checked by _____

Compute void ratio of borrow before dredging:

98.5 %	CH	w = 97 %
0.9 %	OH	w = 412 %
0.6 %	ML	w = 48 %
100.0 %		

$w_{avg} = (0.985)(97) + (0.009)(412) + (0.006)(48) = 100\ \%$

$G_s = 2.56$

$e_i = \frac{w G_s}{S_0} = \frac{(100)(2.56)}{100} = 2.56$

Compute void ratio of dredged material:

Initial height in settling column = 6.55 ft

Initial particulates concentration in column = 136.2 g/L avg.

Final height in settling column = 3.13 ft

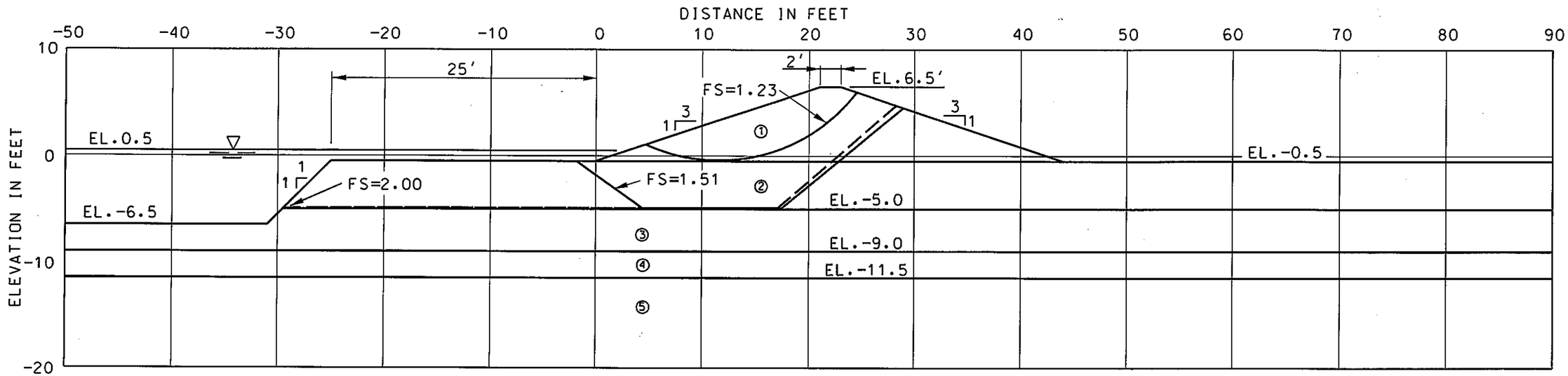
Solids concentration, $C_d = \frac{(136.2)(6.55)}{3.13} = 285$ g/L

$e_0 = \frac{G_s \gamma_w}{C_d} - 1 = \frac{(2.56)(1000)}{285} - 1 = 7.98$

$V_f = V_i \left[\frac{e_0 - e_i}{1 + e_i} + 1 \right] = V_i \left[\frac{7.98 - 2.56}{1 + 2.56} + 1 \right] = 2.52\ V_i$

APPENDIX F

CONTAINMENT LEVEE STABILITY ANALYSES



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	· PHI DEGREES
1	95	80	0
2	98	100	0
3	98	150	0
4	110	200	0
5	110	200	20

X	Y	FS
-1.84	-0.50	1.51
4.37	-4.90	
17.40	-4.90	
28.95	4.52	
-29.44	-4.94	2.00
-19.88	-4.90	
17.01	-4.90	
28.27	4.74	

X	Y	R	FS
11.5	16	16.4	1.23

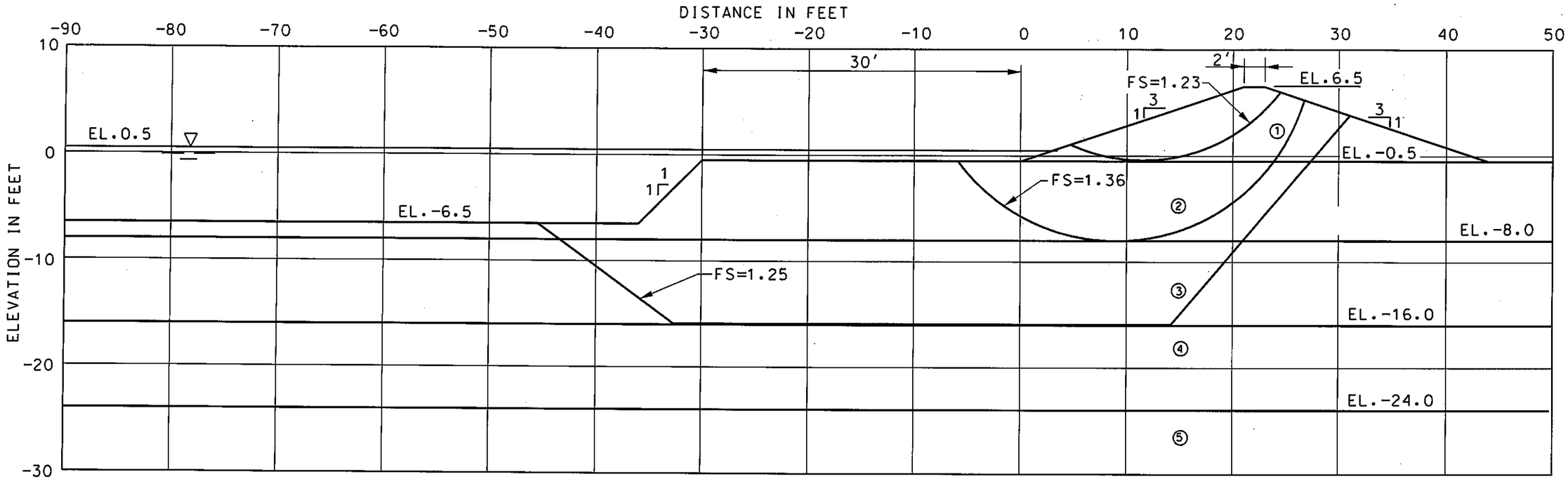
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P. LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 3
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-1A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	87	100	0
3	110	100	0
4	120	200	20
5	108	280	0

X	Y	FS
-45.52	-6.50	1.25
-32.63	-15.90	
14.14	-15.90	
31.05	3.82	

X	Y	R	FS
11.5	16	16.4	1.23
9	10.5	18.5	1.36

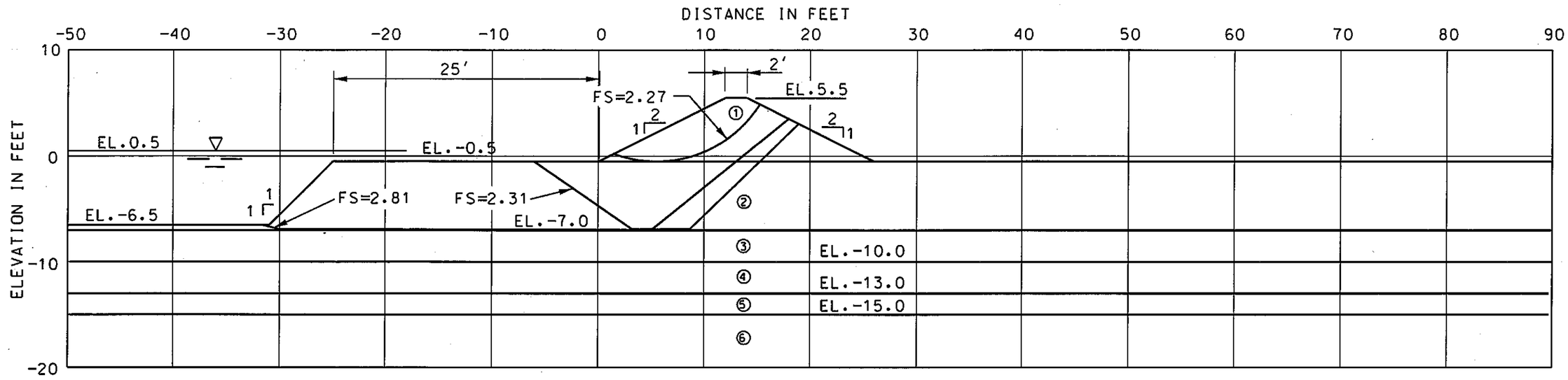
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 4
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A	SCALE: 1"=10'	FIGURE F-2A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	160	0
2	104	200	0
3	104	260	0
4	104	400	0
5	110	200	20
6	120	0	30

X	Y	FS
-6.03	-0.50	2.31
3.24	-6.90	
8.62	-6.90	
18.90	3.05	
-31.59	-6.50	2.81
-30.00	-6.90	
5.02	-6.96	
17.96	3.52	

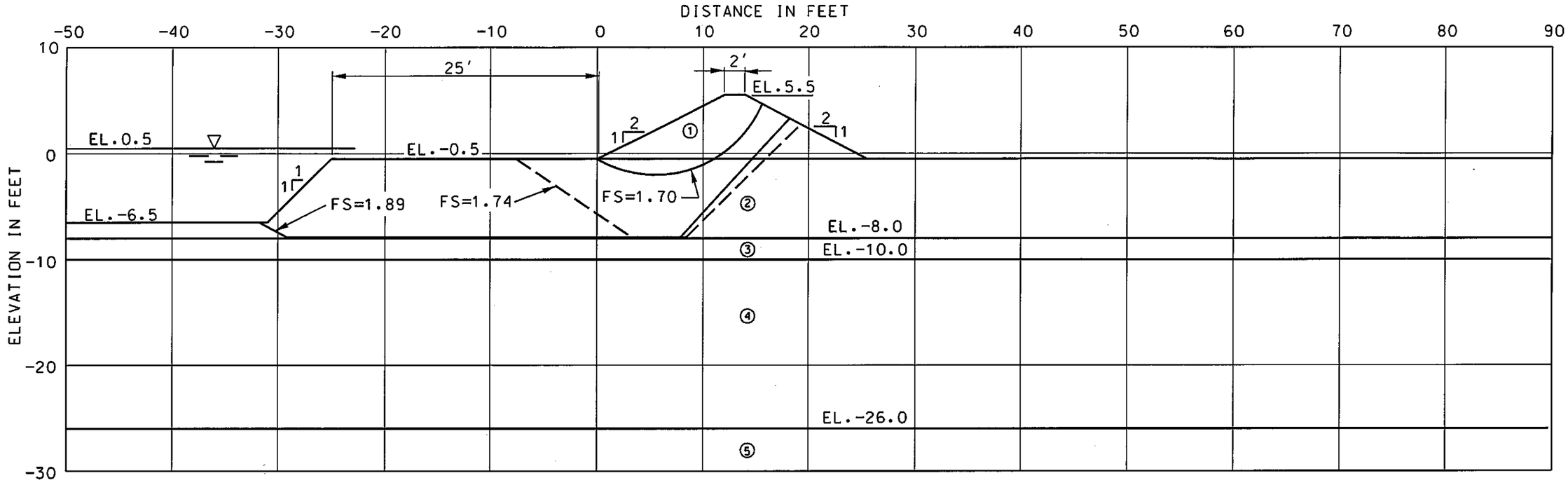
X	Y	R	FS
5.5	11	11.5	2.27

Stability Analysis

CONTAINMENT LEVEE - BORING 5
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-3A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	120	0
2	107	150	0
3	115	275	0
4	110	200	20
5	120	0	30

X	Y	FS
-7.54	-0.50	1.74
3.25	-7.90	
8.36	-7.90	
19.34	2.83	
-31.75	-6.50	1.89
-29.13	-7.90	
7.81	-7.90	
18.26	3.37	

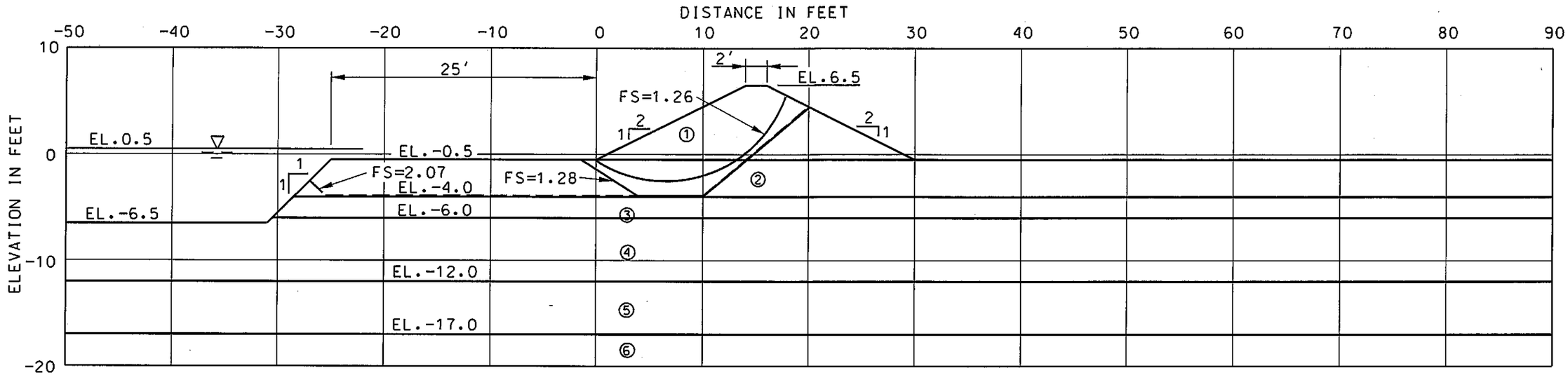
X	Y	R	FS
5.5	9	11	1.70

Stability Analysis

CONTAINMENT LEVEE - BORING 8
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-4A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	104	0
2	107	130	0
3	107	200	0
4	107	230	0
5	110	200	20
6	120	0	30

X	Y	FS
-1.43	-0.50	1.28
3.92	-3.90	
10.05	-3.90	
20.07	4.47	
-27.00	-2.5	2.07
-25.50	-3.9	
10.00	-3.9	
20.00	4.5	

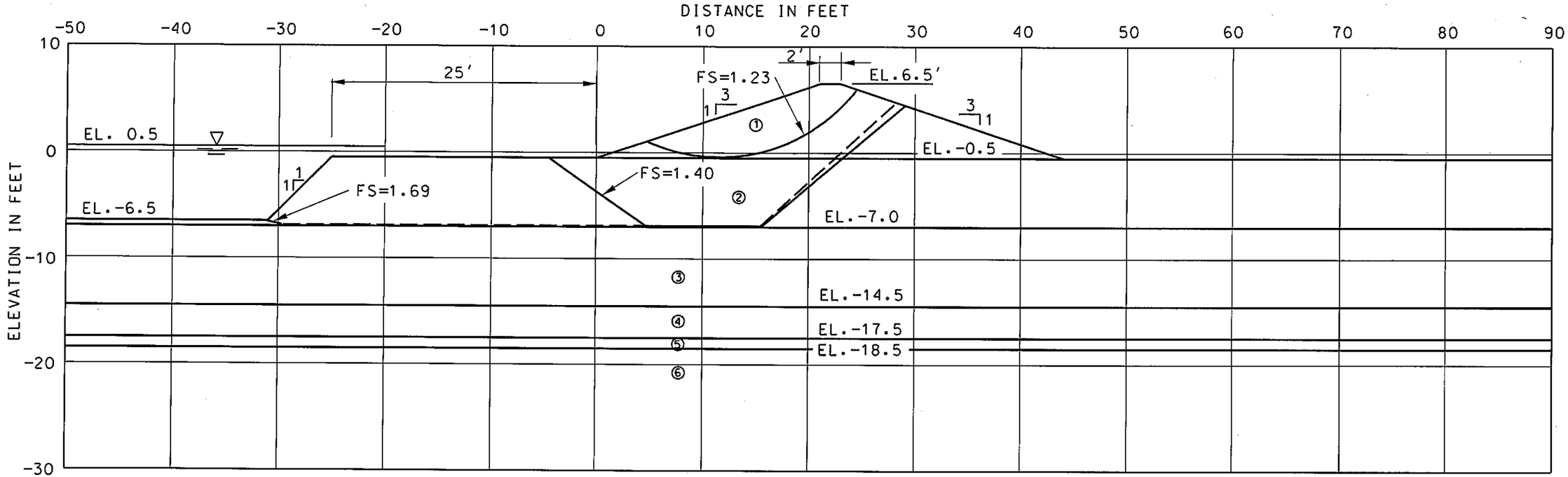
X	Y	R	FS
6.5	9.5	12	1.26

Stability Analysis

CONTAINMENT LEVEE - BORING 9
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1'=10' | FIGURE F-5A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	92	100	0
3	92	150	0
4	110	200	20
5	100	150	0
6	120	0	30

X	Y	FS
-4.52	-0.50	1.40
4.64	-6.90	
15.52	-6.90	
29.06	4.48	
-31.26	-6.50	1.69
-29.54	-6.90	
15.37	-6.90	
28.21	4.76	

X	Y	R	FS
11.5	16	16.4	1.23

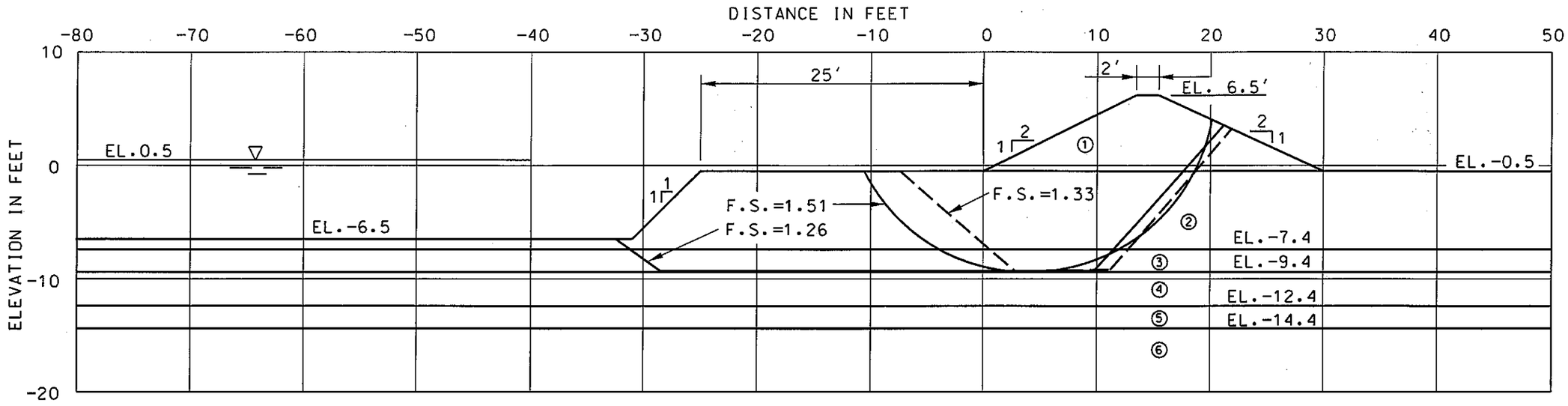
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 11
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A	SCALE: 1"=10'	FIGURE F-6A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	140	0
2	96	175	0
3	96	90	0
4	96	250	0
5	110	200	20
6	120	0	30

X	Y	FS
-7.38	-0.50	1.33
2.79	-9.3	
11.16	-9.3	
22.08	3.46	
-32.42	-6.50	1.26
-28.50	-9.30	
9.74	-9.30	
21.40	3.80	

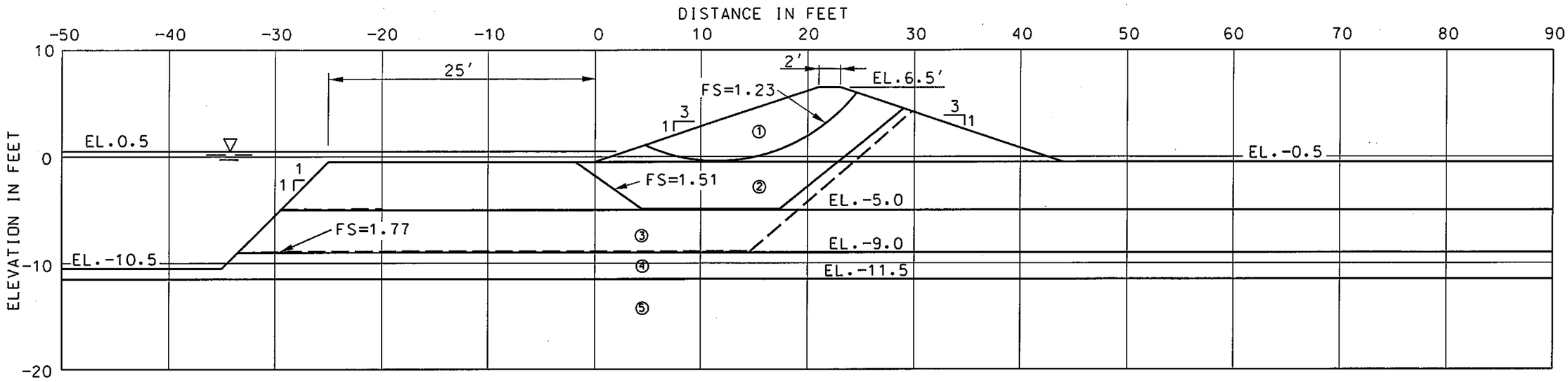
X	Y	R	FS
4	7	16.40	1.51

Stability Analysis

CONTAINMENT LEVEE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-7A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	98	100	0
3	98	150	0
4	110	200	0
5	110	200	20

X	Y	FS
-1.84	-0.50	1.51
4.37	-4.90	
17.40	-4.90	
28.95	4.52	
-33.50	-9.00	1.77
-26.88	-8.90	
14.61	-8.90	
29.73	4.26	

X	Y	R	FS
11.5	16	16.4	1.23

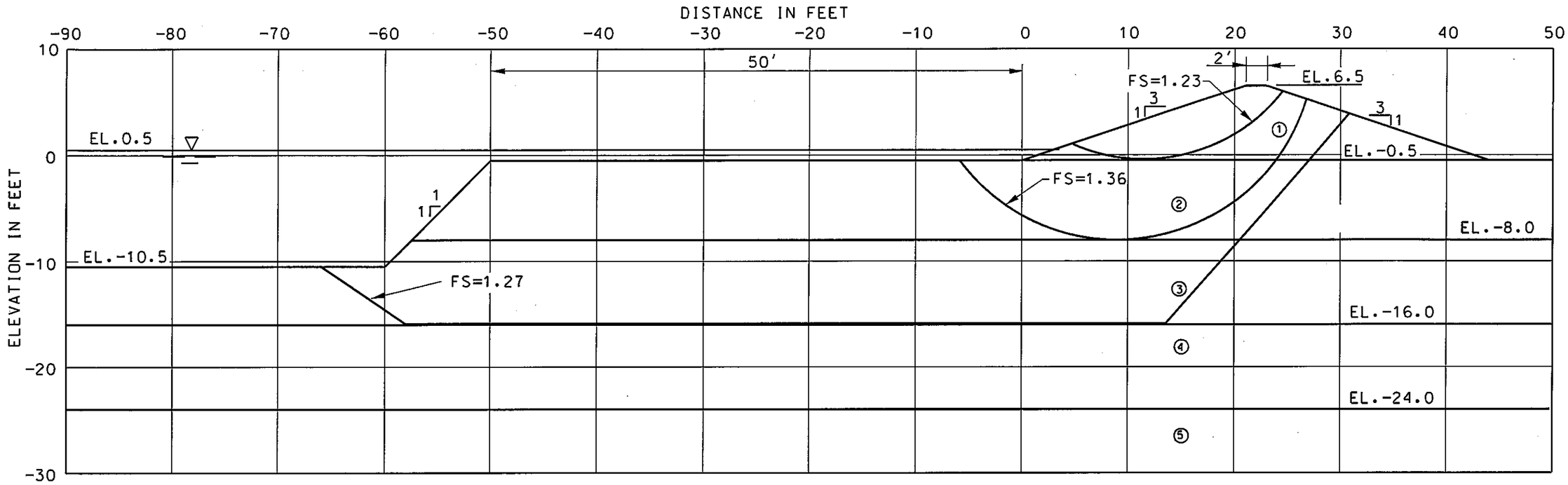
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 3
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-8A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	87	100	0
3	110	100	0
4	120	200	20
5	108	280	0

X	Y	FS
-65.91	-10.50	1.27
-58.06	-15.90	
13.63	-15.90	
30.83	3.89	

X	Y	R	FS
11.5	16	16.4	1.23
9	10.5	18.5	1.36

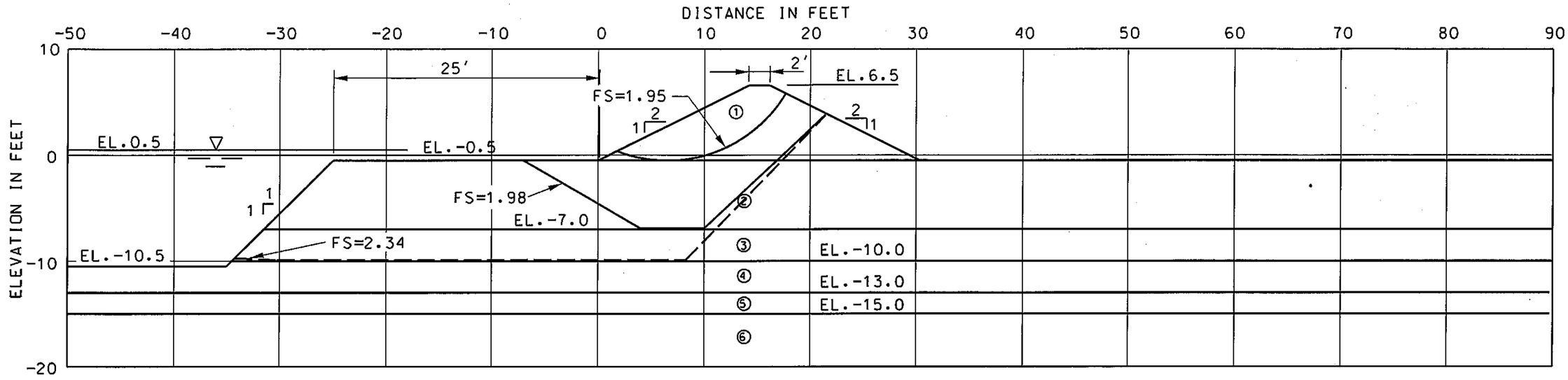
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 4
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-9A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	160	0
2	104	200	0
3	104	260	0
4	104	400	0
5	110	200	20
6	120	0	30

X	Y	FS
-7.00	-0.50	1.98
4.00	-6.90	
9.96	-6.90	
21.42	3.79	
-34.21	-9.71	2.34
-30.23	-9.90	
8.23	-9.90	
21.45	3.77	

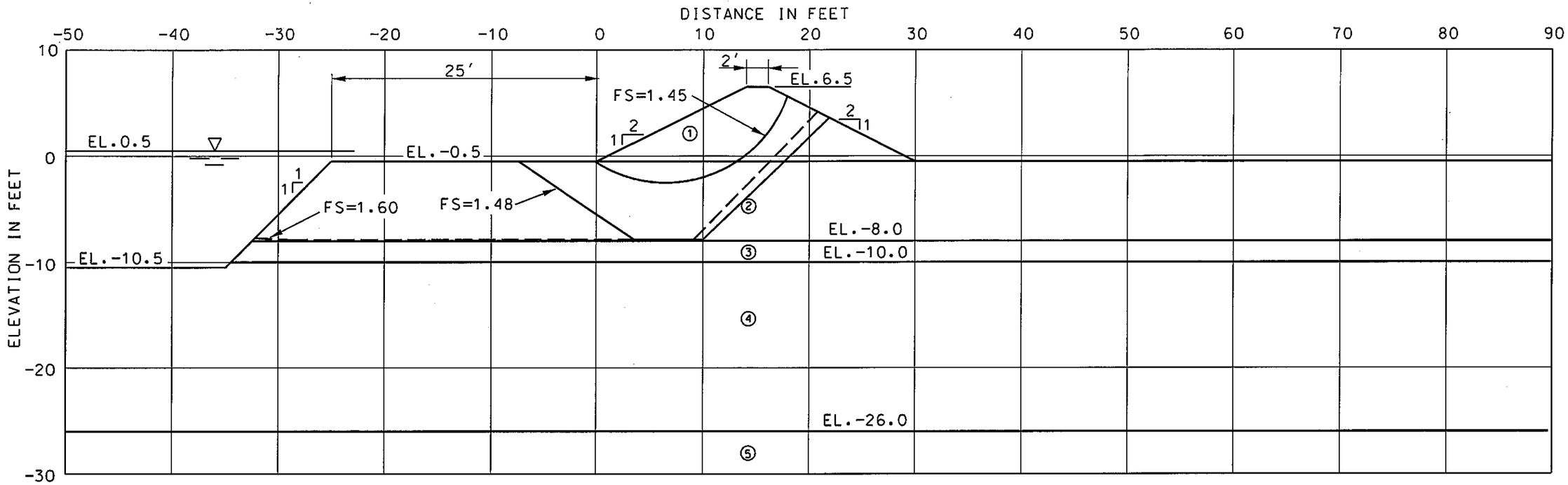
X	Y	R	FS
6.5	12.5	13.0	1.95

Stability Analysis

CONTAINMENT LEVEE - BORING 5
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-10A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	120	0
2	107	150	0
3	115	275	0
4	110	200	20
5	120	0	30

X	Y	FS
-7.37	-0.50	1.48
3.58	-7.90	
9.94	-7.90	
21.82	3.59	
-32.22	-7.72	1.60
-28.81	-7.90	
9.08	-7.90	
20.71	4.14	

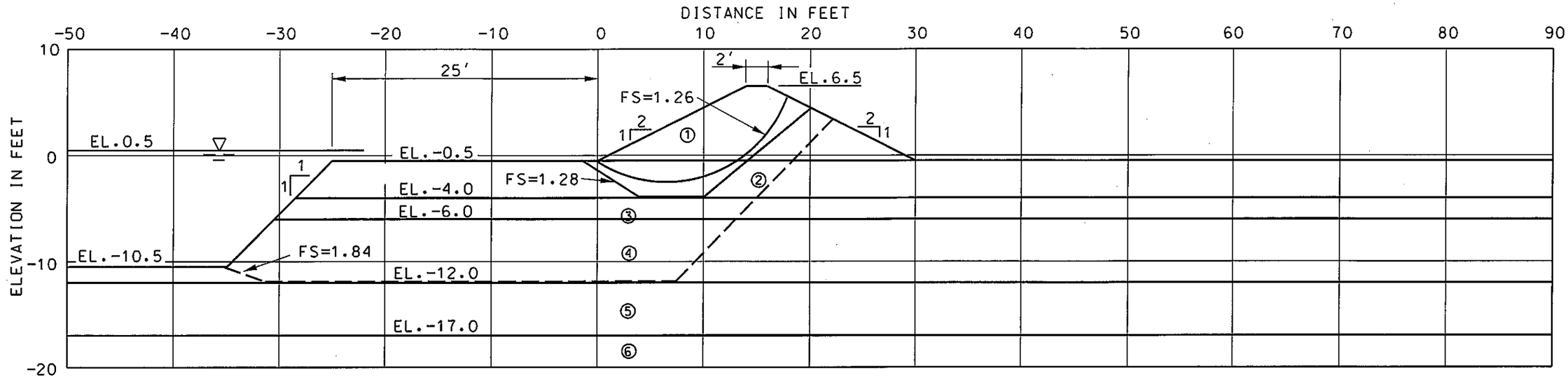
X	Y	R	FS
6.5	9.5	12	1.45

Stability Analysis

CONTAINMENT LEVEE - BORING 8
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-11A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	104	0
2	107	130	0
3	107	200	0
4	107	230	0
5	110	200	20
6	120	0	30

X	Y	FS
-1.43	-0.50	1.28
3.92	-3.90	
10.05	-3.90	
20.07	4.47	
-35.26	-10.50	1.84
-31.34	-11.90	
7.38	-11.90	
22.14	3.43	

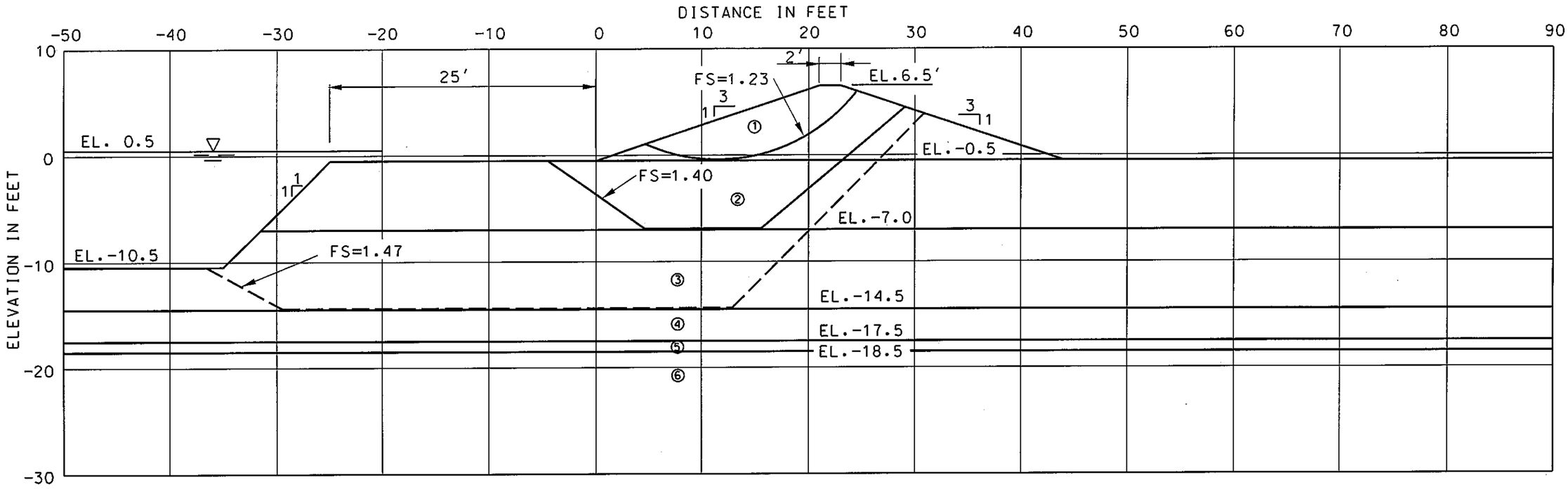
X	Y	R	FS
6.5	9.5	12	1.26

Stability Analysis

CONTAINMENT LEVEE - BORING 9
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1'=10' | FIGURE F-12A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	92	100	0
3	92	150	0
4	110	200	20
5	100	150	0
6	120	0	30

X	Y	FS
-4.52	-0.50	1.40
4.64	-6.90	
15.52	-6.90	
29.06	4.48	
-36.50	-10.50	1.47
-29.50	-14.40	
12.82	-14.40	
30.86	3.88	

X	Y	R	FS
11.5	16	16.4	1.23

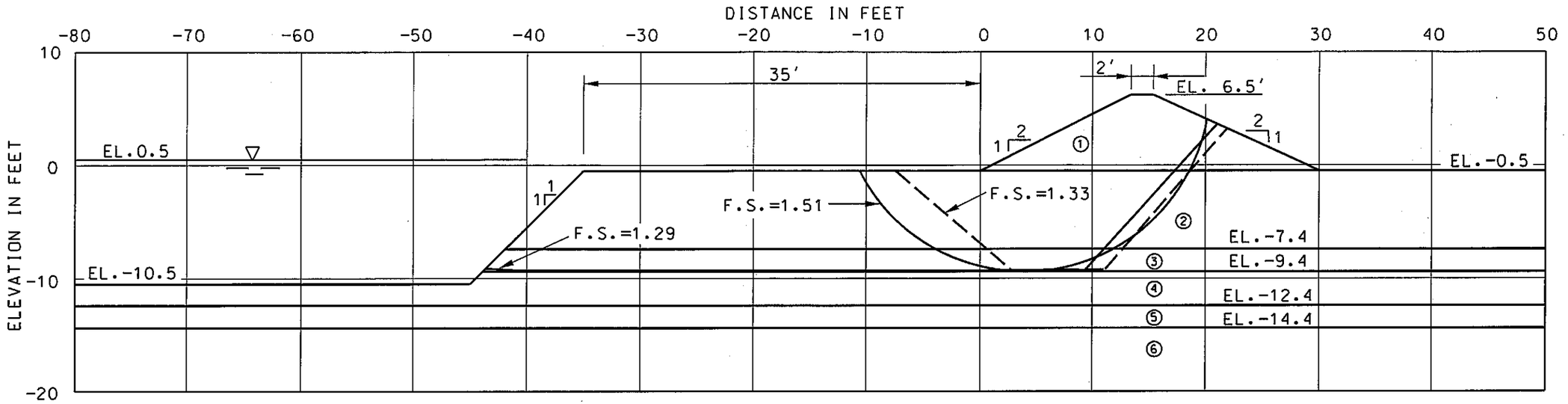
GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
5	-0.5	1200
31.5	-0.5	1200
44	-0.5	0

Stability Analysis

CONTAINMENT LEVEE - BORING 11
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-13A



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	140	0
2	96	175	0
3	96	90	0
4	96	250	0
5	110	200	20
6	120	0	30

X	Y	FS
-7.38	-0.50	1.33
2.79	-9.3	
11.16	-9.3	
22.08	3.46	
-43.61	-9.11	1.29
-40.37	-9.30	
9.34	-9.30	
21.24	3.88	

X	Y	R	FS
4	7	16.40	1.51

Stability Analysis

CONTAINMENT LEVEE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO.02485-3A | SCALE: 1"=10' | FIGURE F-14A