GEOTECHNICAL INVESTIGATION

EXISTING STORMWATER MANAGEMENT FACILITY FLOOD MITIGATION PROJECT TIMBERLAKE SUBDIVISION LEON COUNTY, FLORIDA

Prepared For:

PBS&J
2639 NORTH MONROE STREET
BUILDING C
TALLAHASSEE, FLORIDA 32303

Prepared By:

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
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December 2010
22-32-10-03

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

December 28, 2010

EGS File Number: 22-32-10-03

PBS&J, Inc.
2639 North Monroe Street
Building C
Tallahassee, FL 32303

ATTN: Kathy Burke, P.E.
Project Manager

SUBJECT: Report of Geotechnical Investigation
Existing Stormwater Management Facility
Flood Mitigation Project
Timberlake Subdivision
Leon County, Florida

Dear Kathy:

Enclosed is Copy of the Report of Geotechnical Investigation prepared for the above referenced project. Presented in this Report is a summary of the field investigation, subsurface materials encountered, laboratory test results, requested infiltration rate, geotechnical design recommendations, and construction considerations.

Environmental and Geotechnical Specialists, Inc. (**EGS**) appreciates the opportunity to be of service on this project.

Very truly yours,

Environmental and Geotechnical Specialists, Inc.
Florida Certificate of Engineering Authorization 6222

12-28-10

Myron L. Hayden, Ph.D., P.E.
Consulting Geotechnical Engineer
FL P.E. No. 34067

Enclosure

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1.0 INTRODUCTION

Environmental and Geotechnical Specialists, Inc. (**EGS**) has completed the subsurface investigation as authorized by PBS&J to evaluate the subsurface conditions for the existing stormwater management facility (**SWMF**) located at the entrance of the Timberlake Subdivision. In general, the project may involve the removal of the existing sediment and possible plugging of the drainage well that is "reported" to exist in the bottom of the **SWMF**.

This Report includes a summary of the geotechnical investigation conducted for this study, an evaluation of field and laboratory test data, groundwater conditions, existing infiltration recommendations, geotechnical recommendations for removal and disposal of the sediments, and construction considerations.

2.0 SCOPE OF SERVICES

The following Scope of Services comprised the work authorized for this study:

- Installation of two (2) soil borings varying in depths from 56.5 to 59.0 feet;
- Collection of 15 samples of sediment in the existing **SWMF**;
- Conducting a field study to monitor and determine the actual infiltration rate in the existing **SWMF**;
- Conducting environmental testing of a composite sample of the sediment to evaluate and identify restrictions of its reuse;
- Conducting a drying study of the sediment to evaluate the time necessary to dewater the extracted sediment before it can be loaded and transported off site;
- Conducting laboratory testing to classify the subsurface materials, strength parameters, and permeability rates;
- Develop recommendations for the infiltration rate of stormwater if the existing "reported" drainage well is plugged; and,
- Preparation of this Report.

3.0 SITE LOCATION

The site is located immediately at the entrance of the Timberlake Subdivision immediately off US 27 (Apalachee Parkway). The Timberlake Subdivision is located approximately one (1) mile east of the City of Tallahassee in Leon County, Florida. A Site Location Map has been included as **Figure 1**.

The location of the existing **SWMF** is shown on the **USGS** Topographic Survey Map provided as **Figure 2**. As can be seen in **Figure 2**, the surface water and likely ground water generally flows to this **SWMF** and then to the north toward Piney Z Lake and to the east. Normal seasonal high groundwater in the area appears to be around EL 50 feet. The hydraulic gradient of the surficial aquifer in the area is very low at around 0.001 foot/foot to the north.

The site is currently the **SWMF** for the subdivision. Photographs of the area around the project site are shown in **Figures 3A** through **3D**. The normal pool elevation of this **SWMF** appears to be between EL 45 and EL 50 feet.

4.0 SUBSURFACE INVESTIGATION

EGS conducted the subsurface investigation described in this Report in September and October of 2010. The investigation was conducted under the supervision of Myron L. Hayden, Ph.D., P.E., Geotechnical Engineer, with Matthew Landschoot, E.I., of **EGS** serving as the field coordinator.

The two (2) soil borings installed for this project were labeled **BP-1** and **BP-2**. Soil Boring **BP-1** and **BP-2** was installed to a depth of 56.5 and 59.0 feet respectively. A map of the Soil Boring locations has been included as **Figure 4** with a Generalized Soil Profile shown in **Figure 5**.

Cone Penetration Index (**CPI**) tests were conducted on two and one-half (2 ½) feet intervals in the top five (5) feet of each soil boring and Standard Penetration Tests (**SPT**) were conducted on two and one-half (2 ½) feet intervals from a depth of seven and one-half (7 ½) feet to the soil boring termination. The **CPI** test results have been converted to equivalent **SPT** '**N**' values in this Report using the correlation **SPT** '**N**' = **CPI** /4.

Soil samples were collected on one (1) foot intervals in the top seven (7) feet and at each **SPT** location. The soil samples were classified in the field by **EGS** personnel and then sealed and transported to **EGS**'s laboratory for additional testing. The laboratory tests included water contents, grain-size distribution, Atterberg limits, organic contents, permeability, and shear strength.

All soil samples were classified with respect to the Unified Soil Classification system (**UNIFIED**) and the American Association of State Highway and Transportation Officials (**AASHTO**) soil classification system. The results of the laboratory testing are summarized on the Soil Survey provided in **APPENDIX A**. Copies of the individual Soil Boring Logs and Soil Classification Data Sheets have been provided in **APPENDICES B** and **C**, respectively.

As part of this study, fifteen (15) sediment samples, labeled **S-1** through **S-15**, were installed throughout the existing **SWMF**. The locations of the sediment samples are shown in **Figure 4** with the Global Positioning Survey (**GPS**) Coordinate Points listed in **TABLE 1**.

5.0 SUBSURFACE CONDITIONS

5.1 Soils

Although no soil boring was installed within the **SWMD**, the "Generalized" Soil Profile shown in **Figure 5** was based on extrapolating the data from the two (2) soil borings installed on the perimeter of the **SWMF**. Based on the two (2) soil borings installed for this study, the subsurface materials likely consist of the following:

- 0.0 – 30.0 feet - Loose to Medium Dense - Silty to Clayey Fine Sand (**SM/SC / A-2-4/A-2-6 / STRATA 1** and **3**)
- 30.0 – 40.0 feet – Very Soft to Stiff - Highly Plastic Clay (**CH/ A-7-5 / STRATUM 1**)
- 40.0 – 45.0 feet – Soft Highly Weathered Limestone (**STRATUM 7**)
- 45.0^{+} – Hard to Very Hard Limestone (**STRATUM 8**)

5.2 Groundwater

Groundwater was encountered at a depth of five (5) feet and six (6) feet in Soil Borings **B-1** and **B-2**, respectively. If should be noted that heavy rainfall (over two and one-half (2 ½)) inches occurred the day before the groundwater readings were taken. This heavy rainfall resulted in the groundwater elevations around the perimeter of the **SWMF** being higher than would normally exist. The approximate elevations of both the measured and the estimated "normal" seasonal high groundwater are provided in **TABLE 2**.

5.3 USDA Soil Survey

As part of this investigation, **EGS** reviewed the United States Department of Agriculture's (**USDA**) Soil Survey of Leon County. The soils reported in the **USDA** Soil Survey consist of Orangeburg Fine Sandy Loam (MATERIAL 34). This material is consistent with the soils encountered during the field investigation. Variations in soil properties will occur when comparing data from the **USDA** Soil Survey and data obtained in the field.

A summary of the pertinent **USDA** Soil Survey Data has been provided in **TABLE 3**. Copies of selected TABLES from the **USDA** Soil Survey and **Figure D-1** have been provided as **APPENDIX D**.

5.4 Sediment Samples

Fifteen (15) samples of the sediment in the bottom of the **SWMF** were collected. These samples were collected in the following manner:

- A work boat was placed in the **SWMF** and positioned over the sampling using a **GPS** that is accurate to within a five (5) feet radius (the **GPS** coordinates are reported in **TABLE 1**);

- The depth to the top of the sediment was measured using a weighted tape;
- The 3-inch diameter Lucite sampling tube was then lowered to the top of the sediment and pushed through the sediment into the underlying natural soils;
- When the sampling tube was through the sediment, it was closed and brought back to the water surface where it was visually inspected and measured;
- After the measurements were made, the Lucite sampling tubes were sealed and the sample transported **EGS**'s laboratory for material testing; and,
- This process was repeated for all 15 sediment samples collected.

In the laboratory each sediment sample was inspected and classified. A composite sample was made up of sediment samples and submitted to an environmental laboratory (TestAmerica in Tallahassee) for determination of the presence of regulated constituents that would impact the handling, disposal or reuse of this sediment. It is not uncommon for **SWMF** sediments to contain elevated levels of pesticides or herbicides to a sufficient concentration that it impacts their handling, disposal, or reuse.

Results of the laboratory tests are provided in **APPENDIX E** and summarized in **TABLE 4**. As can be seen in **TABLE 4**, only four (4) constituents (Methylene Chloride, Dichlorprop, mixed Petroleum Hydrocarbons, and Barium) were detected with elevated concentrations; however, the concentrations of the four (4) constituents were below the regulated values to impact human exposure, restrict disposal, or impact its reuse.

5.5 Soil Permeability Values

The soils encountered in this study were consistent with those encountered in the other two (2) studies (i.e. *Geotechnical Investigation for the East Stormwater Management Facility* and *Geotechnical Investigation for the South Depression Area*) which were previously submitted. The infiltration rates are also similar to those other studies; therefore, the soil permeabilities determined from these other two (2) studies will be used in this investigation and are summarized in **TABLE 5.**

The permeability data shown in **TABLE 5** includes the permeability rates measured in the field, the permeability rates measured in the laboratory, the permeability rates estimated from grain-size distribution correlations, and the soil permeabilities reported in the **USDA** Soil Survey.

It should be noted that the "recommended permeability rates" in **TABLE 5** are **not** infiltration rates and as such do not account for effects of groundwater mounding or contain a factor of safety.

5.6 Possible Active Karst Feature

As part of this study, the Leon County / City of Tallahassee GIS database was reviewed to identify possible karst features that may exist within the project area. The results of this database search are shown in **Figure 6**. As can be seen in **Figure 6**, the project site is located within an area identified as possibly containing an underlying active karst feature.

Based on the subsurface investigation conducted for this study, there does not appear to be an active karst feature underlying this site; however, a detailed analysis was beyond the Scope of Services authorized.

5.7 Clay Content of Subsoils

As part of this study, the percentage of clay was determined from representative samples of the subsoils. This determination was made in accordance with ASTM Procedure D422 using a calibrated hydrometer. Copies of the hydrometer test data have been included in **APPENDIX F**. As can be seen in **APPENDIX F**, the percentage of clay for **STRATUM 3** varies from 20 to 30 feet and for **STRATUM 6** the percentage of clay is around 72 percent. Based on this study, it is clearly shown that there is more than 20 feet of soil with a clay content (less than 0.002 mm) of over 10 percent.

6.0 RECOMMENDATIONS

6.1 Field Infiltration Rates

The infiltration rate of stormwater into the subsoils can be determined using the following equation:

$$I_f = \{(K)*(A)*(T)*(\delta H/L)\} / (F_s) \qquad \textit{Equ. 6.1}$$

Where:
- I_f = design infiltration rate
- K = soil permeability given in **TABLE 4**
- A = cross-sectional area normal to flow
- T = time for infiltration
- δH = change in hydraulic head
- L = length of shortest seepage path
- F_s = factor of safety (at least 2)

It should be noted that when determining the effective infiltration rate, groundwater mounding must be considered. The mounding of groundwater causes the hydraulic head (δh) to reduce as the length of seepage (L) increases; thus, causing the hydraulic gradient ($\delta h/L$) to reduce. As the hydraulic gradient reduces, the effective infiltration rate through the bottom of the depression also reduces with time.

To evaluate the effective infiltration rate, the geotechnical design parameters have been provided in **TABLE 6**. Sample calculations conducted for this study indicate the effective infiltration rate for this **SWMF** is 0.2 inches/Day

The results of the actual measurements made in the **SWMF** are summarized in **TABLE 7**. As can be seen in **TABLE 7**, the current infiltration rate of the **SWMF** is around 1.0 inch/day. **Therefore, if the "reported" discharge well located in the bottom of the SWMF is plugged, it should be anticipated that the infiltration rate of the existing SWMF would reduce to approximately 0.2 inches/day.**

6.2 Presence of Clay beneath the SWMF

Based on the analyses conducted for this study, there is over twenty (20) feet of low permeability clay material below the depression. The low permeable clay material has a clay fraction (particle size less than 0.002 mm) over twenty (20) percent.

6.3 Existence of an Active Karst Feature

Based on this investigation, it is unlikely that an active karst feature exists beneath this area.

6.4 Sediment Removal

Based on this investigation, if the sediment is removed it can be disposed of or reused without restriction. Based on a sediment drying study conducted for this project, it appears that the sediment will need to dry approximately six (6) days before it will be sufficiently dry that it can be transported off site in conventional trucks. If the sediment is removed before six (6) days, it is likely that special trucks will be needed to keep the sediment from spilling on to pavement during removal. The six (6) day estimate is based on average weather conditions. It should be noted that actual weather conditions could lengthen or shorten the time period.

7.0 CLOSURE

The data and results presented in this Report are intended for the use of **PBS&J** and **Leon County** for the evaluation of the infiltration rate of the existing Stormwater Management Facility located at the entrance of the Timberlake Subdivision, described herein. This Report is not intended for any other use and will likely not be applicable. The data and recommendations presented in this Report are based on the borings made at the specific locations and depths noted. Subsurface conditions at other locations may vary significantly from those presented herein. Should data become available which is different from the data presented herein, Environmental and Geotechnical Specialists, Inc. requests the opportunity to review the data and make any modifications to the design recommendations which may be appropriate.

8.0 SIGNATURE

Environmental and Geotechnical Specialists, Inc.
Florida Certificate of Engineering Authorization Number 6222

12-28-10

Myron L. Hayden, P.E.
Senior Geotechnical Engineer
FL P.E. Number 34067

TABLES

TABLE 1
SOIL BORING/SEDIMENT PROBE LOCATION DATA
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

LOCATION NUMBER	DEPTH [1,2] (FEET)	ELEVATION [3] (FEET)	GLOBAL POSITIONING SATELLITE SYSTEM COORDINATES			
			LATITUDE		LONGITUDE	
			DEG(°)	MIN(')	DEG(°)	MIN(')
SOIL BORING LOCATIONS						
B-1	56.5	57.0	30	25.698	84	11.644
B-2	59.0	58.0	30	25.665	84	11.667
POND SEDIMENT PROBE LOCATIONS						
S-1	11.7	--	30	25.641	84	11.607
S-2	12.5	--	30	25.627	84	11.607
S-3	9.6	--	30	25.614	84	11.607
S-4	13.1	--	30	25.651	84	11.625
S-5	12.9	--	30	25.641	84	11.625
S-6	13.2	--	30	25.627	84	11.625
S-7	12.7	--	30	25.614	84	11.625
S-8	13.2	--	30	25.654	84	11.643
S-9	11.6	--	30	25.641	84	11.643
S-10	13.4	--	30	25.627	84	11.643
S-11	12.2	--	30	25.614	84	11.643
S-12	13.8	--	30	25.647	84	11.659
S-13	10.3	--	30	25.634	84	11.659
S-14	11.2	--	30	25.621	84	11.659
S-15	10.7	--	30	25.634	84	11.675

NOTES: 1. DEPTHS OF SOIL BORINGS ARE BELOW EXISTING GROUND SURFACE.
2. DEPTHS OF SEDIMENT PROBES ARE BELOW POND WATER SURFACE AT THE TIME OF INSTALLATION.
3. ELEVATIONS OBTAINED FROM TOPOGRAPHIC DRAWINGS PROVIDED BY PBS&J

TABLE 2
GROUNDWATER DATA
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

LOCATION NUMBER	DEPTH [1] (FEET)	ELEVATION [3] (FEET)	GROUNDWATER DATA			
			MEASURED GROUNDWATER [2,4]		ESTIMATED SEASONAL HIGH GROUNDWATER	
			DEPTH [1,2] (FEET)	ELEVATION [3] (FEET)	DEPTH [1] (FEET)	ELEVATION [3] (FEET)
SOIL BORINGS						
B-1	56.5	57.0	6.0	51.0	7.0	50.0
B-2	59.0	58.0	5.0	53.0	7.0	51.0
AVERAGES				**52.0**		**50.5**

NOTES: 1. DEPTH IS BELOW EXISTING GROUND SURFACE
2. HEAVY RAINFALL (OVER 2.5 INCHES) RAISED THE ELEVATION OF WATER IN SWMF BEFORE THE SURVEY WAS PERFORMED.
3. ELEVATIONS OBTAINED FROM TOPOGRAPHIC DRAWINGS PROVIDED BY PBS&J.
4. MEASURED GROUNDWATER BASED ON 24-HOUR MEASURED WATER LEVELS.

TABLE 3
USDA SOIL SURVEY DATA
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

SOIL BORING	MATERIAL REFERENCE [1]	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION	USDA ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER (FEET)
B-1, B-2	34	0-10	ORANGEBURG FINE SANDY LOAM	SM	> 6.0
		10-80	ORANGEBURG SANDY CLAY LOAM	SC, CL	

NOTE: 1. BASED ON THE USDA SOIL SURVEY REPORT FOR LEON COUNTY, FLORIDA

TABLE 4
SEDIMENT CONTAMINANT DATA
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

CONTAMINANT DETECTED	TEST METHOD	MEASURED CONCENTRATION [1] (PPM)	SOIL CLEANUP TARGET LEVEL FOR DIRECT EXPOSURE [2] (PPM)	RESTRICTION ON HANDLING OR DISPOSAL OF SEDIMENTS
METHYLENE CHLORIDE	8260C	0.0018	17	NONE
DICHLORPROP	8151A	0.0057	370	NONE
MIXED PETROLEUM HYDROCARBONS	FL-PRO	120	460	NONE
BARIUM	6010B	0.29	120	NONE

NOTES: 1. CONTANIMATION DETECTION CONCENTRATIONS AS DETERMINED BY TEST AMERICA, INC.
2. SOIL CONTAMINATION TARGET CLEANUP LEVELS ARE BASED ON FDEP TECHNICAL REPORT FOR DEVELOPMENT OF CLEANUP TARGET LEVELS (CTLs) CHAPTER 62-777, F.A.C.

TABLE 5
SOIL PERMEABILITY ESTIMATES
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

STRATA NUMBER	MATERIAL CLASSIFICATION		SOIL PERMEABILITY VALUES						
	AASHTO	UNIFIED	USDA SOIL TEXTURAL CLASSIFICATION	USDA SOIL SURVEY ESTIMATE [1] (IN/HR)	LABORATORY GRAIN-SIZE ESTIMATE [2] (IN/HR)	LABATORY TEST RESULTS [3] (IN/HR)	FIELD TEST RESULTS [4] (IN/HR)	AVERAGE SATURATED PERMEABILITY VALUE [5] (IN/HR)	AVERAGE UNSATURATED PERMEABILITY VALUE [5] (IN/HR)
1	SM	A-2-4	LOAMY SAND	2.3 - 3.1	3.5 - 4.3	--	2.00	**2.0**	**1.3**
2	SM	A-2-4	LOAMY FINE SAND	1.4 - 2.3	1.1 - 3.4	1.52 - 3.58	1.52	**1.5**	**1.0**
3	SC	A-2-6	SANDY LOAM	0.1 - 0.7	0.1 - 0.9	0.61 - 0.77	< 0.10 - 0.61	**0.20**	**0.13**
4	SC	A-6	SANDY CLAY LOAM	--	< 0.1	--	--	**0.06**	**0.04**
5	SC	A-7-5	SANDY CLAY	--	< 0.01	--	--	**0.00**	**0.00**
6	CH	A-7-5	CLAY	--	< 0.01	--	< 0.10	**0.00**	**0.00**

NOTES:

1. REPORTED IN USDA SOIL SURVEY FOR LEON COUNTY
2. ESTIMATED FROM GRAIN-SIZE DISTRIBUTION CURVES
3. PERMEABILITY VALUES DETERMINED FROM FALLING HEAD PERMEABILITY TEST
4. PERMEABILITY VALUES DETERMINED FROM "CASED HOLE" PIEZOMETER ANALYSIS
5. AVERAGE PERMEABILITY VALUES SHOWN ARE NOT INFILTRATION VALUES SINCE THEY DO NOT INCLUDE THE EFFECTS OF GROUNDWATER MOUNDING, CLOGGING WITH FINES OR FACTOR OF SAFETY
6. SOME MATERIALS IDENTIFIED ABOVE MAY NOT BE ENCOUNTERED THROUGHOUT THE ENTIRE PROJECT LIMITS. REFER TO SOIL BORING LOGS PROVIDED IN APPENDIX B FOR FURTHER INFORMATION.

-- MEANS NOT TESTED

TABLE 6
GEOTECHNICAL INFILTRATION PARAMETERS
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

PARAMETER	ELEVATION (FEET)	VALUE/UNITS
UNSATURATED VERTICAL PERMEABILITY [1]		N/A INCHES/HOUR
SATURATED VERTICAL PERMEABILITY [1]	27.0 - 45.0	2.00 INCHES/HOUR
AVERAGE EFFECTIVE STORAGE COEFFICIENT		N/A
ELEVATION OF CONFINING LAYER	20.0	FEET
ELEVATION OF EXISTING GROUNDWATER	52.0	FEET
ELEVATION OF SEASONAL HIGH GROUNDWATER	52.0	FEET
HORIZONTAL UNSATURATED PERMEABILITY [1]		N/A INCHES/HOUR
HORIZONTAL SATURATED PERMEABILITY [1]	27.0 - 45.0	3.00 INCHES/HOUR
AVERAGE SPECIFIC YIELD		N/A %

NOTE: 1. THE VALUES **DO NOT** INCLUDE A FACTOR OF SAFETY

TABLE 7
MEASURED INFILTRATION DATA
EXISTING STORMWATER MANAGEMENT FACILITY
FLOOD MITIGATION PROJECT
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

READING NUMBER	DATE	TIME	TOTAL ELAPSED TIME (HOURS)	MEASURED WATER LEVEL DEVIATION FROM DATUM (INCHES)	MEASURED INFILTRATION RATE (INCHES/DAY)
1	10-14-2010	8:00 AM	0.0	DATUM	- -
2	10-15-2010	8:00 AM	24.0	-1.10	1.20
3	10-16-2010	8:00 AM	48.0	-2.10	0.96
4	10-17-2010	8:00 AM	72.0	-3.00	0.96
5	10-18-2010	8:00 AM	96.0	-3.90	0.96
6	10-19-2010	8:00 AM	120.0	-4.90	0.96
AVERAGE					**1.01**

NOTE: 1. INSTRUMENT READINGS BASED ON TEMPORARY MEASUREMENT STAKE INSTALLED IN POND.

FIGURES

DRAWN: M. LANDSCHOOT, E.I.	CHECKED: T. HAYDEN, P.E.
ENGINEER: M. HAYDEN, P.E.	
CLIENT: PBS&J	
PROJ. NO.: 22-32-10-03	SCALE:

EGS Environmental and Geotechnical Specialists, Inc.
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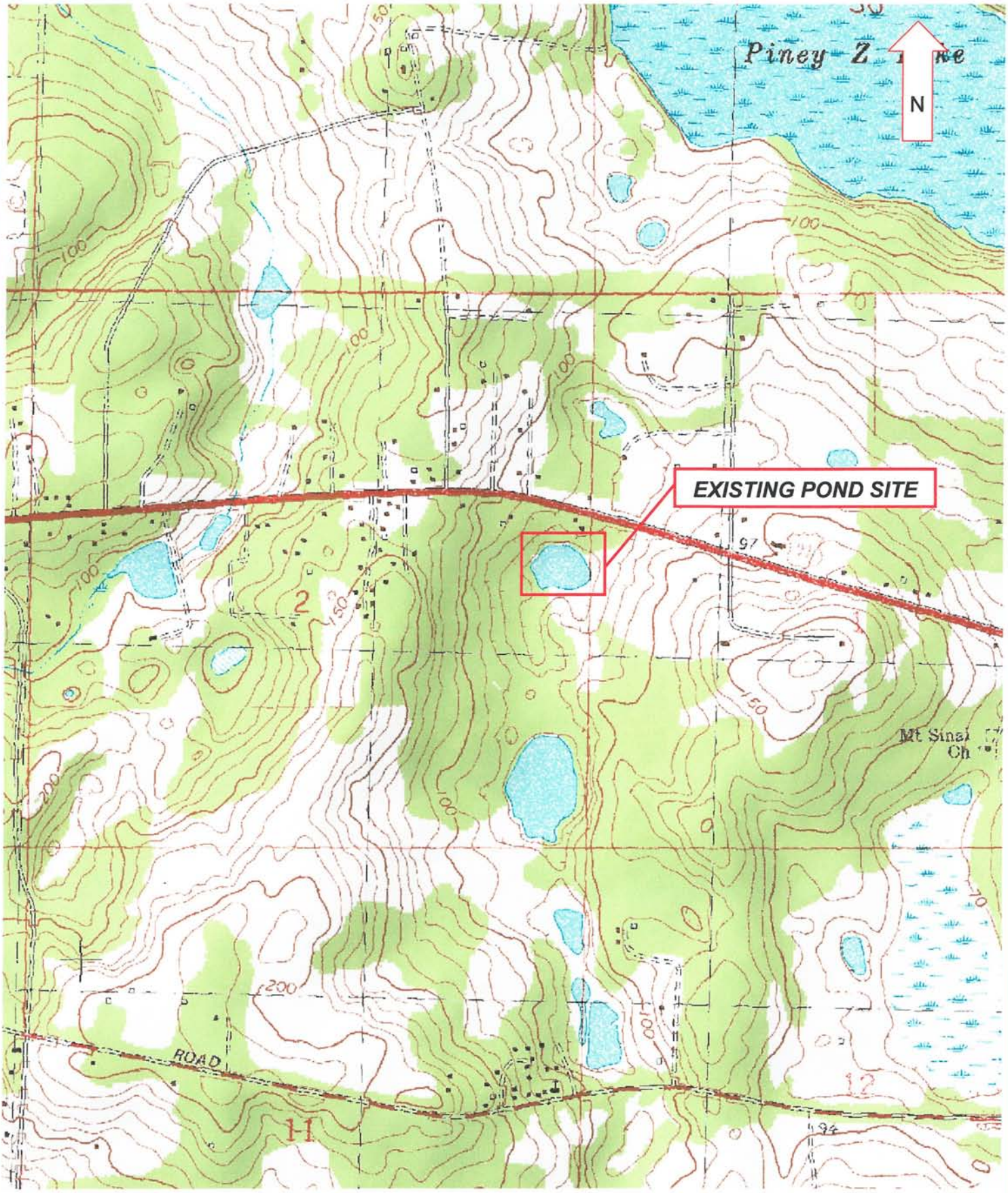
TITLE:
SITE LOCATION MAP
FLOOD MITIGATION PROJECT
EXISTING SWMF
TIMBERLAKE SUBDIVISION
LEON COUNTY, FLORIDA

DATE: DECEMBER 2010	FIGURE NO.: 1



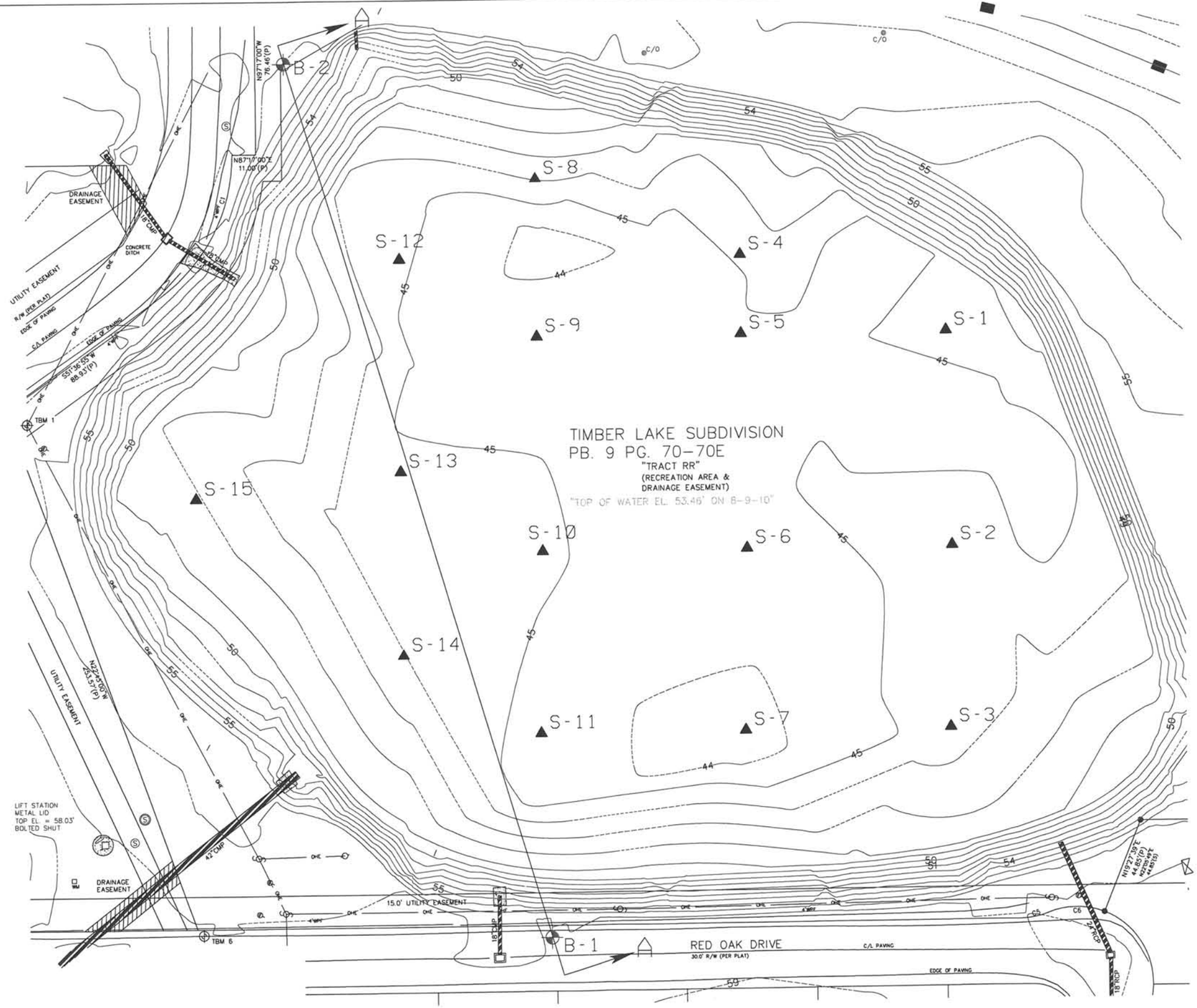
DRAWN: M. LANDSCHOOT, E.I.	CHECKED: T. HAYDEN, P.E.	EGS Environmental and Geotechnical Specialists, Inc.	TITLE: USGS TOPOGRAPHICAL MAP FLOOD MITIGATION PROJECT EXISTING SWMF TIMBERLAKE SUBDIVISION LEON COUNTY, FLORIDA
ENGINEER: M. HAYDEN, P.E.			
CLIENT: PBS&J		3154 ELIZA ROAD | TALLAHASSEE, FLORIDA 32308 OFFICE #: (850) 386-1253 | FAX #: (850) 385-8050	
PROJ. NO.: 22-32-10-03	SCALE:		DATE: DEC 2010 / FIGURE NO.: 2

FIGURE 3A: VIEW OF THE EXISTING POND (FACING NORTH)

FIGURE 3B: VIEW OF DRAINAGE INLET LEADING TO THE EXISTING POND (FACING WEST)

FIGURE 3C: VIEW OF SOUTHERN SLOPE OF THE EXISTING POND (FACING WEST)

FIGURE 3D: VIEW OF CONCRETE DRAINAGE DITCH (FACING EAST)



LEGEND

- ⊕ - SOIL BORING LOCATION
- ▲ - POND SEDIMENT PROBE LOCATION

PREPARED BY:	M. LANDSCHOOT, E.I.
REVISED:	M. LANDSCHOOT, E.I.
CHECKED:	T. HAYDEN, P.E.
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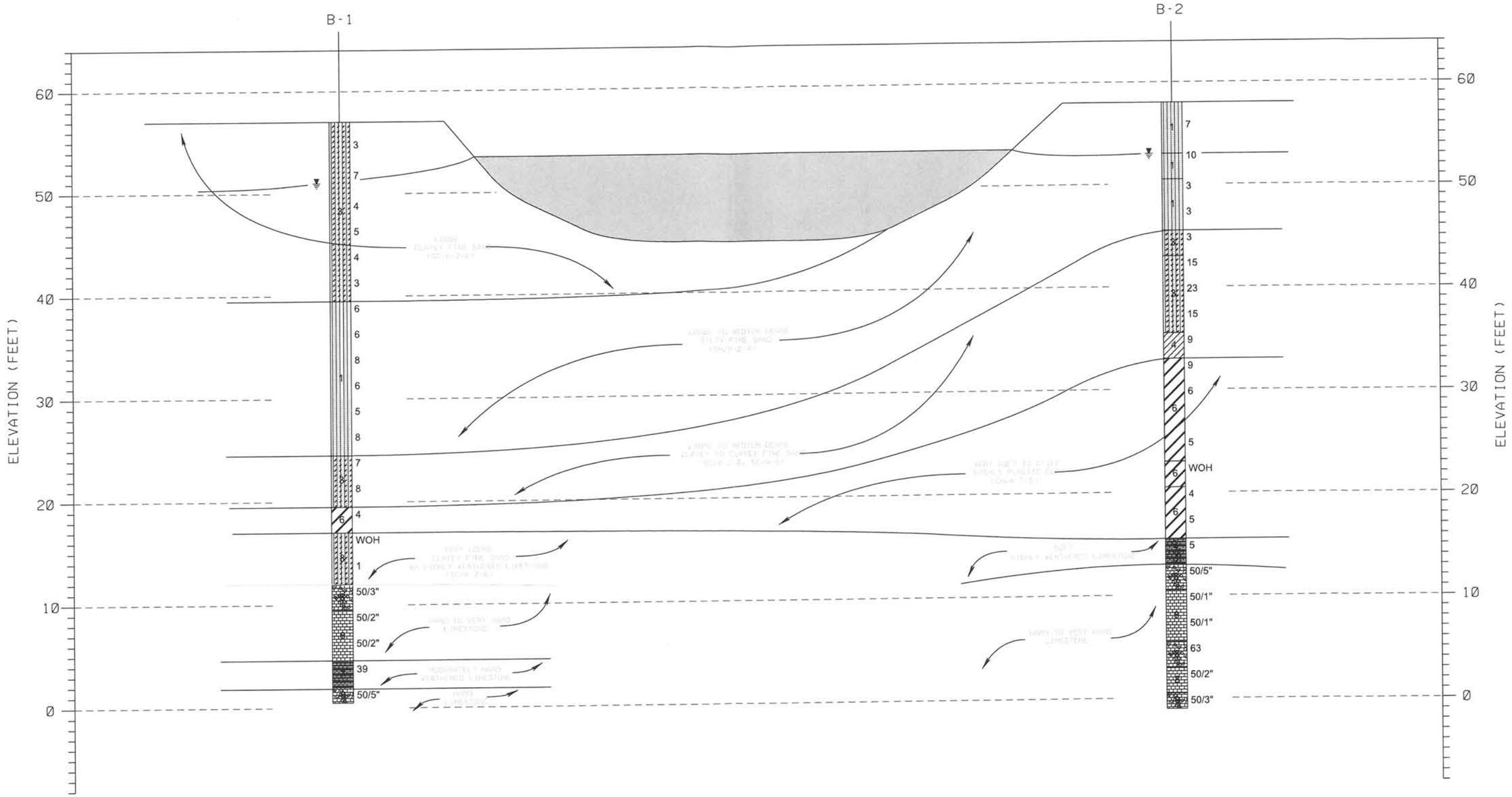
SOIL BORING/PROBE LOCATION MAP
EXISTING SWMF INVESTIGATION
TIMBERLAKE FLOOD MITIGATION
LEON COUNTY, FLORIDA

SCALE:	DATE: OCTOBER 2010
PROJ. NO.: 22-32-10-03	FIGURE NO.: 4

"GENERALIZED" SOIL PROFILE (A-A')



NOTES:

1. SOIL BORINGS PLOTTED TO ELEVATION.
2. NUMBERS RIGHT OF BORINGS INDICATE MEASURED STANDARD PENETRATION VALUES (SPT) 'N' VALUES.
3. ▼ 24-HOUR MEASURED GROUNDWATER LEVEL.

PREPARED BY:	M. LANDSCHOOT, E.I.
REVISED:	M. LANDSCHOOT, E.I.
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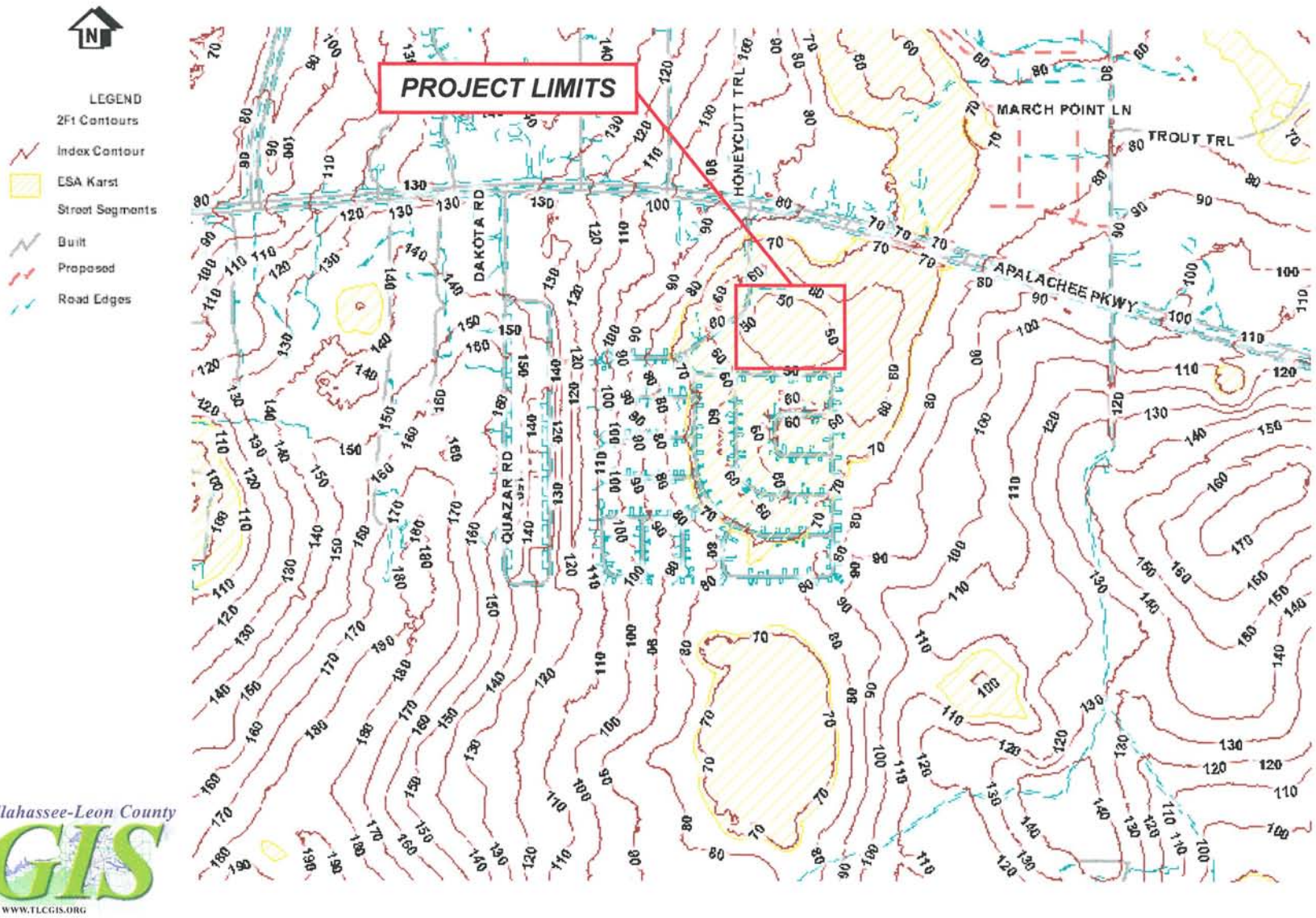
Office : (850) 386-1253 Fax : (850) 385-8050

"GENERALIZED" SOIL PROFILE (A-A')
EXISTING POND SITE INVESTIGATION
TIMBERLAKE FLOOD MITIGATION
LEON COUNTY, FLORIDA

SCALE:	DATE: OCTOBER 2010
PROJ. NO.: 22-32-10-03	FIGURE NO.: 5



TLCGIS Map Disclaimer: This product has been compiled from the most accurate source data from Leon County, the City of Tallahassee, and the Leon County Property Appraiser. However, this product is for reference purposes only and is not to be construed as a legal document or survey instrument. Any reliance on the information contained herein is at the user's own risk. Leon County, the City of Tallahassee, and the Leon County Property Appraiser assume no responsibility for any use of the information contained herein or any loss resulting therefrom.

DRAWN: M. LANDSCHOOT, E.I.	CHECKED: T. HAYDEN, P.E.	EGS Environmental and Geotechnical Specialists, Inc.	TITLE: KARST FEATURES MAP FLOOD MITIGATION PROJECT EXISTING SWMF TIMBERLAKE SUBDIVISION LEON COUNTY, FLORIDA
ENGINEER: M. HAYDEN, P.E.		3154 ELIZA ROAD | TALLAHASSEE, FLORIDA 32308 OFFICE #: (850) 386-1253 | FAX #: (850) 385-8050	
CLIENT: PBS&J			DATE: DECEMBER 2010
PROJ. NO.: 22-32-10-03	SCALE:		FIGURE NO.: 6

APPENDIX A
REPORT OF CORE BORINGS

REPORT OF TESTS
SOIL SURVEY – TIMBERLAKE SUBDIVISION
FLOOD MITIGATION

DATE OF SURVEY: 9-24-2010
SURVEY MADE BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
SUBMITTED BY: M. HAYDEN, P.E.

LOCATION: TALLAHASSEE, FLORIDA
COUNTY: LEON

	ORGANIC CONTENT			SIEVE ANALYSIS RESULTS PERCENT PASSING						ATTERBERG LIMITS (%)			CLASSIFICATION			
STRATUM NO.	NO. OF TESTS	MOISTURE CONTENT	PERCENT (%) ORGANIC	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	USCS GROUP	AASHTO GROUP	COLOR	DESCRIPTION
1	–	–	–	9	100	80–99	54–94	22–45	14–19	–	–	–	SM	A-2-4	BROWN, PURPLE	SILTY FINE SAND
2	–	–	–	9	100	84–99	65–89	38–56	20–29	1	24	4	SM	A-2-4	BROWN, GRAY	SILTY FINE SAND
3	1	24	2.1	32	100	71–100	53–98	30–80	21–35	20	18–39	11–22	SC	A-2-6	BROWN, GRAY, RED, PURPLE	CLAYEY FINE SAND
4	–	–	–	6	100	86–99	73–93	55–81	36–49	2	32–39	11–21	SC	A-6	BROWN, GRAY, RED, PURPLE	CLAYEY SAND
5	–	–	–	1	100	97	88	45	36	1	65	34	SC	A-7-5	BROWN	SANDY CLAY
6	–	–	–	12	100	94–100	84–100	68–99	52–95	9	57–100	25–68	CH	A-7-5	BROWN, GRAY	HIGHLY PLASTIC CLAY
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	GRAY	WEATHERED LIMESTONE
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	GRAY	LIMESTONE

STANDARD PENETRATION NOTES

Granular Materials Relative Density	SPT (blows/12 in.)	Silts and Clays Consistency	SPT (blows/12 in.)
Very Loose	Less than 3	Very Soft	Less than 1
Loose	3 – 8	Soft	1 – 3
Medium or Compact	8 – 24	Firm	3 – 6
Dense	24 – 40	Stiff	6 – 12
Very Dense	Greater than 40	Very Stiff	12 – 24
		Hard	Greater than 24

SPLIT-SPOON:
INSIDE DIAMETER: 1⅜ in.
OUTSIDE DIAMETER: 2.0 in.
AVG. HAMMER DROP: 30.0 in.
HAMMER WEIGHT: 140 lbs.
HAMMER TYPE: Automatic

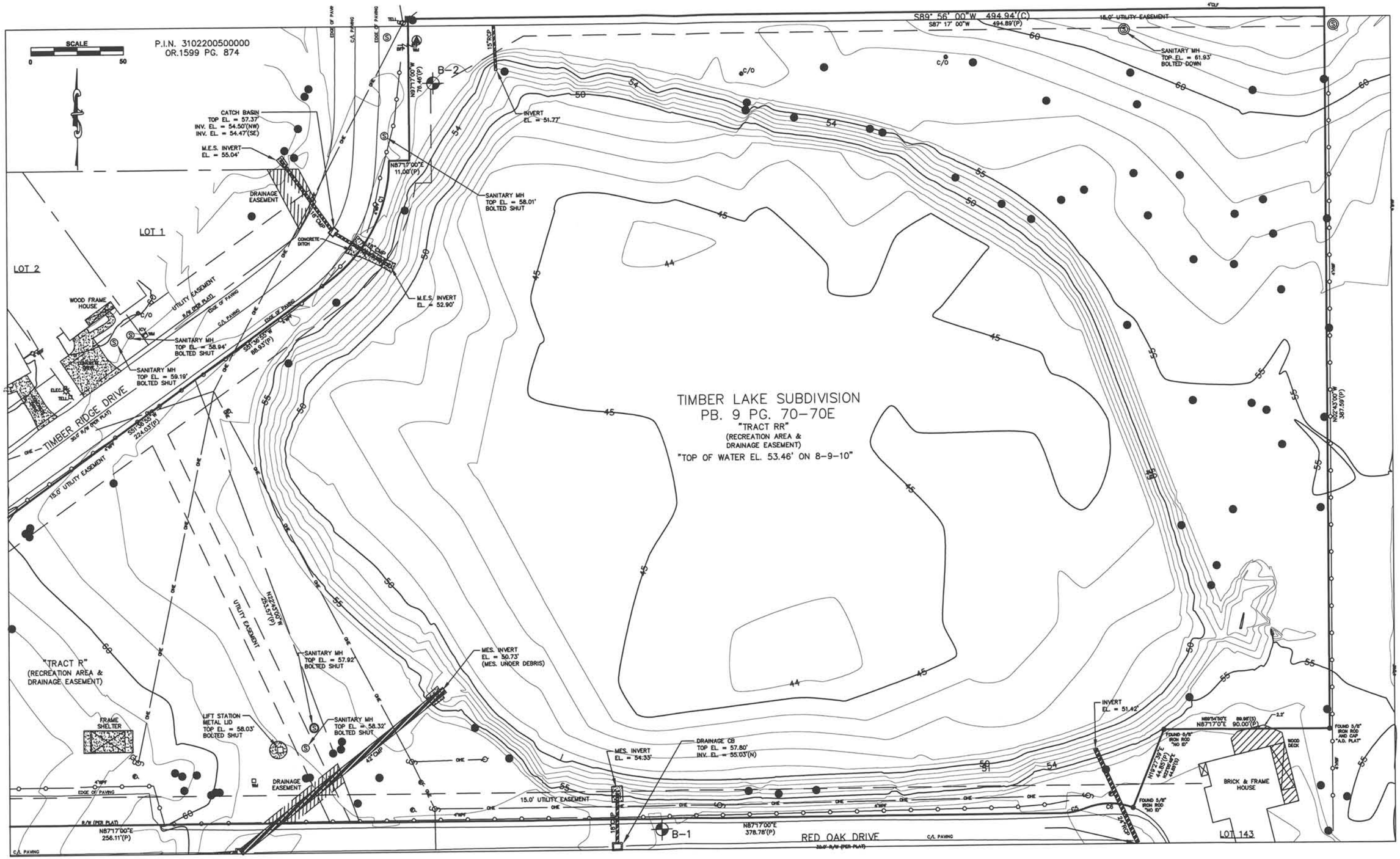
LEGEND

SOIL BORING LOCATION ⊕
LEVEL OF WATER AT 24 HOURS ▼
SOIL PROPERTIES NOT DETERMINED --

GENERAL NOTES

1. Numbers left of borings indicate standard penetration test (SPT) N-values for 12 in. penetration (Unless otherwise noted).
2. Numbers in center of borings indicate the stratum number.
3. Soil descriptions, test data, and standard penetration values shown are for the soil boring only and may not apply to any other location. Extrapolation of the soil boring data to other locations is the sole responsibility of the person performing the extrapolation.
4. Strata boundaries are approximate.
5. Water Levels shown represent the water elevations of the water encountered. Fluctuations in the elevations of the water should be expected.
6. Elevations at Soil Boring locations have been estimated from survey contours provided by PBS&J.
7. Some of the materials identified above may not be encountered within the project limits. Refer to "Report of Core Borings" for further detail regarding site classification.

REVISIONS						SEAL:	Environmental & Geotechnical Specialists, Inc.	PBS&J	SOIL SURVEY REPORT OF TESTS AND NOTES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	M. HAYDEN, P.E.	EGS 3154 ELIZA ROAD TALLAHASSEE, FLORIDA 32308 OFFICE: (850) 386-1253 FAX: (850) 385-8050	PROJECT TITLE		
						P.E. NO.: 34067	Cert. of Auth.: 6222	TIMBERLAKE FLOOD MITIGATION		



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

SEAL:

M. HAYDEN, P.E.

P.E. NO.: 34067

Environmental & Geotechnical Specialists, Inc.

EGS

Cert. of Auth.: 6222

3154 ELIZA ROAD
TALLAHASSEE, FLORIDA 32308
OFFICE: (850) 386-1253
FAX: (850) 385-8050

PBS&J

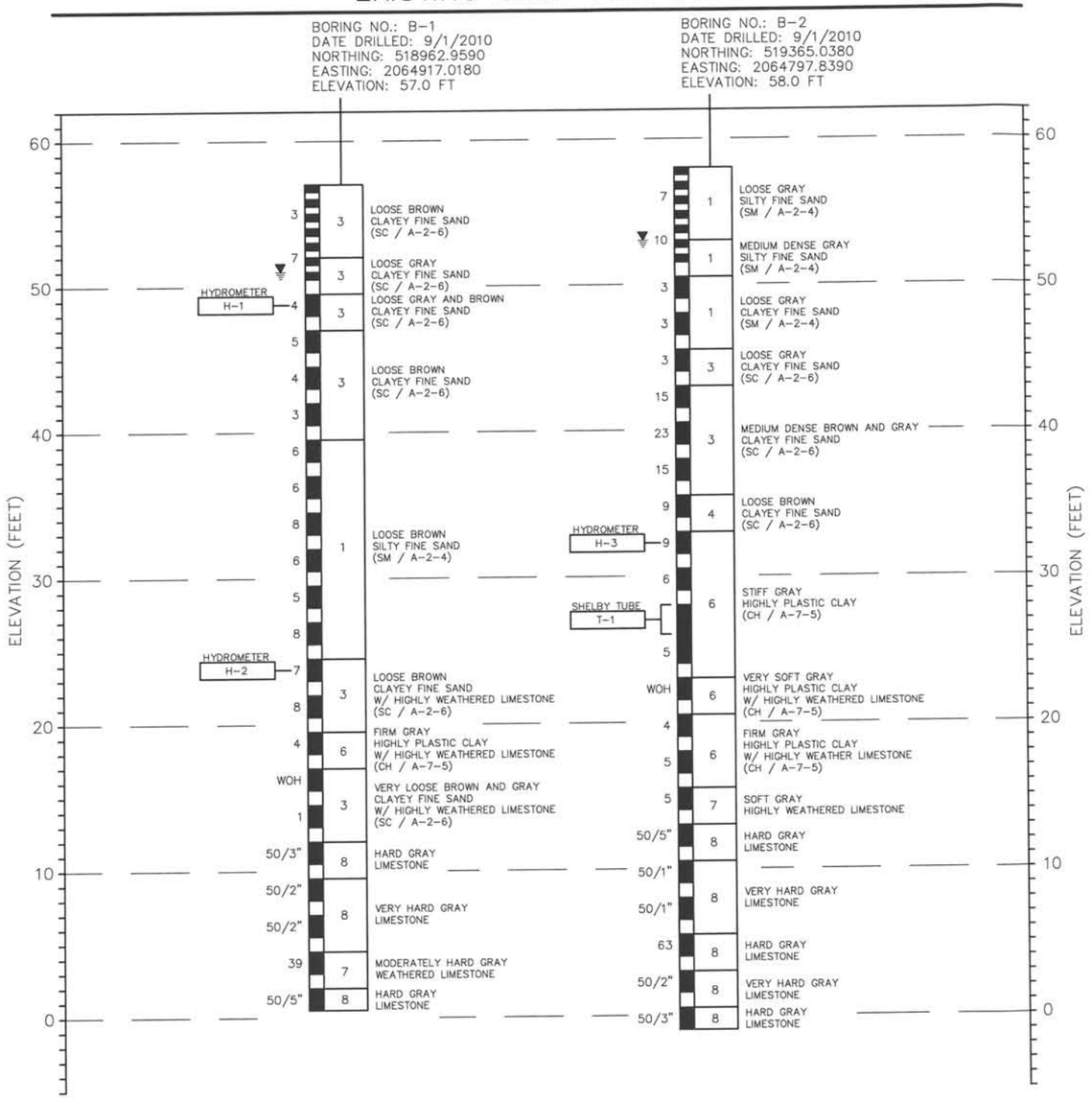
PROJECT TITLE

TIMBERLAKE FLOOD MITIGATION

SOIL SURVEY
SOIL BORING LOCATIONS
(EXISTING SWMF)

SHEET NO.

EXISTING SWMF SOIL BORINGS



UNDISTURBED SAMPLE LAB TEST DATA

SAMPLE NUMBER	ELEVATION (FEET)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX	NATURAL DENSITY (lbs/ft^3)	DRY DENSITY (lbs/ft^3)	UNCONFINED COMPRESSION (lbs/ft^2)
T-1	26.0-28.0	81	95	63	104.8	59.5	3,018

HYDROMETER RESULTS

SAMPLE NUMBER	ELEVATION (FEET)	PERCENT GRAVEL CONTENT (> 2.0mm)	PERCENT SAND CONTENT (2.0mm-0.075mm)	PERCENT SILT CONTENT (0.075mm-0.002mm)	PERCENT CLAY CONTENT (< 0.002mm)
H-1	48.0-49.5	0.0	64.9	6.1	29.0
H-2	23.0-24.0	0.0	73.0	6.4	20.6
H-3	31.5-33.0	0.0	17.8	6.3	75.9

REVISIONS						SEAL:	Environmental & Geotechnical Specialists, Inc.	PBS&J	SOIL SURVEY REPORT OF SOIL BORINGS (EXISTING SWMF)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	M. HAYDEN, P.E. P.E. NO.: 34067	EGS Cert. of Auth.: 6222 3154 ELIZA ROAD TALLAHASSEE, FLORIDA 32308 OFFICE: (850) 386-1253 FAX: (850) 385-8050	PROJECT TITLE TIMBERLAKE FLOOD MITIGATION		

REPORT OF TESTS
SEDIMENT SURVEY – EXISTING POND

DATE OF SURVEY: 10-11-2010
SURVEY MADE BY: ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
SUBMITTED BY: M. HAYDEN, P.E.

LOCATION: TALLAHASSEE, FLORIDA
COUNTY: LEON

	ORGANIC CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASSING						ATTERBERG LIMITS (%)			CLASSIFICATION			
STRATUM NO.	NO. OF TESTS	(%) ORGANIC	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	USCS GROUP	AASHTO GROUP	COLOR	DESCRIPTION
S1	2	1.5–2.6	2	100	78–91	49–75	26–42	13–15	–	–	–	SM	A-2-4	DARK GRAY	SILTY FINE SAND WITH ORGANICS
S2	1	5.9	1	100	92	76	48	29	1	28	11	SC	A-2-6	DARK GRAY	CLAYEY FINE SAND WITH ORGANICS
S3	3	1.5–5.7	3	100	91–98	79–90	57–72	36–45	1	38	21	SC	A-6	DARK GRAY	CLAYEY SAND WITH ORGANICS
S4	2	8.2–9.0	2	100	94–98	89–96	82–93	70–88	1	55	25	CH	A-7-5	DARK GRAY	HIGHLY PLASTIC CLAY WITH ORGANICS
S5	6	10.0–13.7	7	100	83–98	78–96	73–94	55–90	4	40–57	13–22	OH	A-8	DARK GRAY	ORGANIC CLAY

STANDARD PENETRATION NOTES

Granular Materials Relative Density	SPT (blows/12 in.)	Silts and Clays Consistency	SPT (blows/12 in.)
Very Loose	Less than 3	Very Soft	Less than 1
Loose	3 – 8	Soft	1 – 3
Medium or Compact	8 – 24	Firm	3 – 6
Dense	24 – 40	Stiff	6 – 12
Very Dense	Greater than 40	Very Stiff	12 – 24
		Hard	Greater than 24

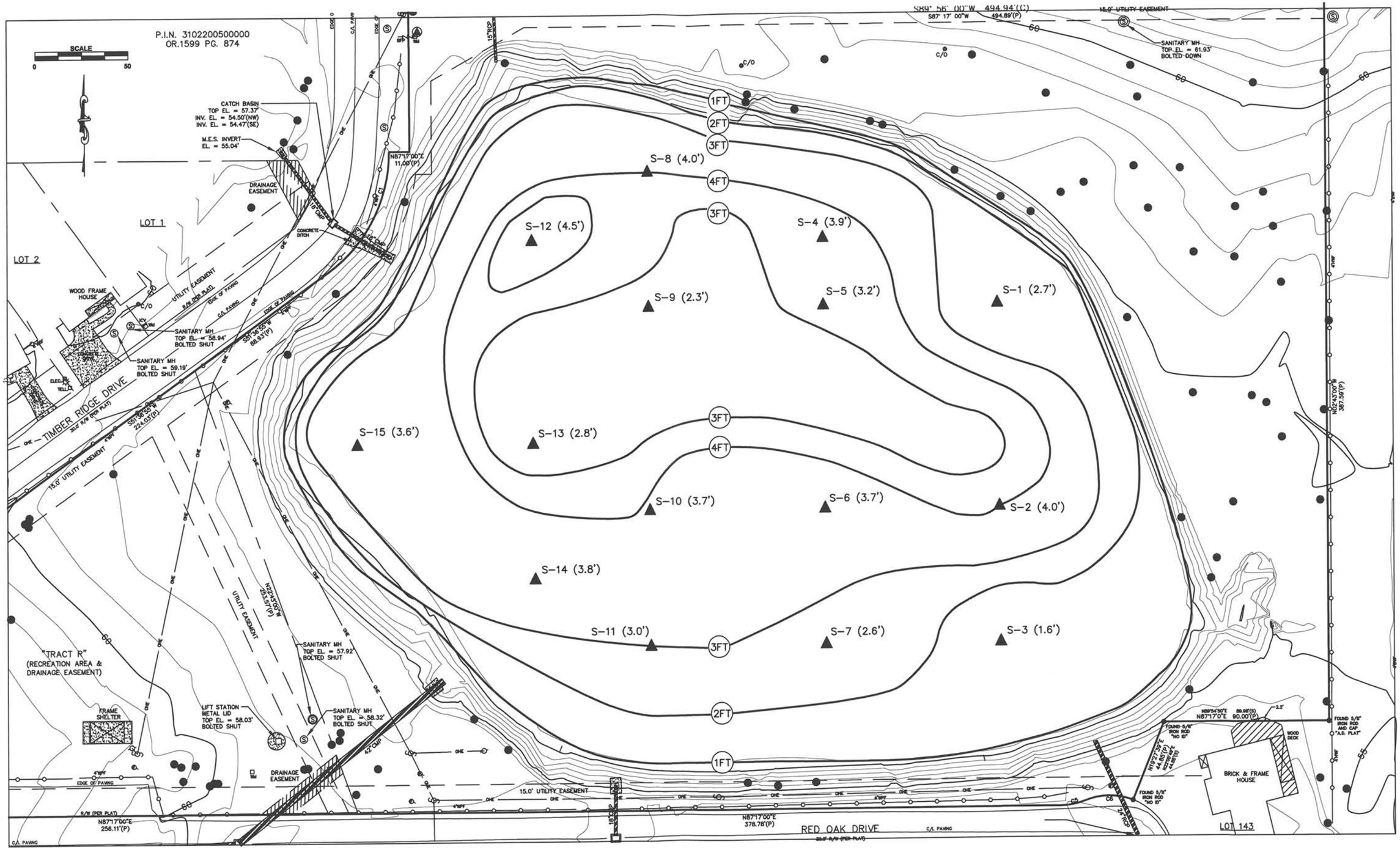
LEGEND

- POND SEDIMENT PROBE LOCATION ▲
- SEDIMENT PROBE NUMBER S–
- MEASURED SEDIMENT THICKNESS (FEET) (X.X')
- ESTIMATED SEDIMENT THICKNESS CONTOUR (FEET) (FT)
- ESTIMATED POND ELEVATION CONTOUR AFTER SEDIMENT REMOVAL (FEET) FT
- ESTIMATED POND ELEVATION AFTER SEDIMENT REMOVAL AT PROBE LOCATION (FEET) (XX.X)

GENERAL NOTES

1. Numbers left of borings indicate standard penetration test (SPT) N–values for 12 in. penetration (Unless otherwise noted).
2. Numbers in center of borings indicate the stratum number.
3. Soil descriptions, test data, and standard penetration values shown are for the soil boring only and may not apply to any other location. Extrapolation of the soil boring data to other locations is the sole responsibility of the person performing the extrapolation.
4. Strata boundaries are approximate.
5. Sediment thickness and elevation contours provided have been developed based on soils data collected from individual probe locations and may not reflect the true field conditions at any other location.

REVISIONS						SEAL:	Environmental & Geotechnical Specialists, Inc.	PBS&J	POND SEDIMENT SOIL SURVEY REPORT OF TESTS (EXISTING SWMF)	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	M. HAYDEN, P.E.	EGS 3154 ELIZA ROAD TALLAHASSEE, FLORIDA 32308 OFFICE: (850) 386-1253 FAX: (850) 385-8050	PROJECT TITLE		
						P.E. NO.: 34067	Cert. of Auth.: 6222	TIMBERLAKE FLOOD MITIGATION		



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

SEAL:

M. HAYDEN, P.E.

P.E. NO.: 34067

Environmental & Geotechnical Specialists, Inc.

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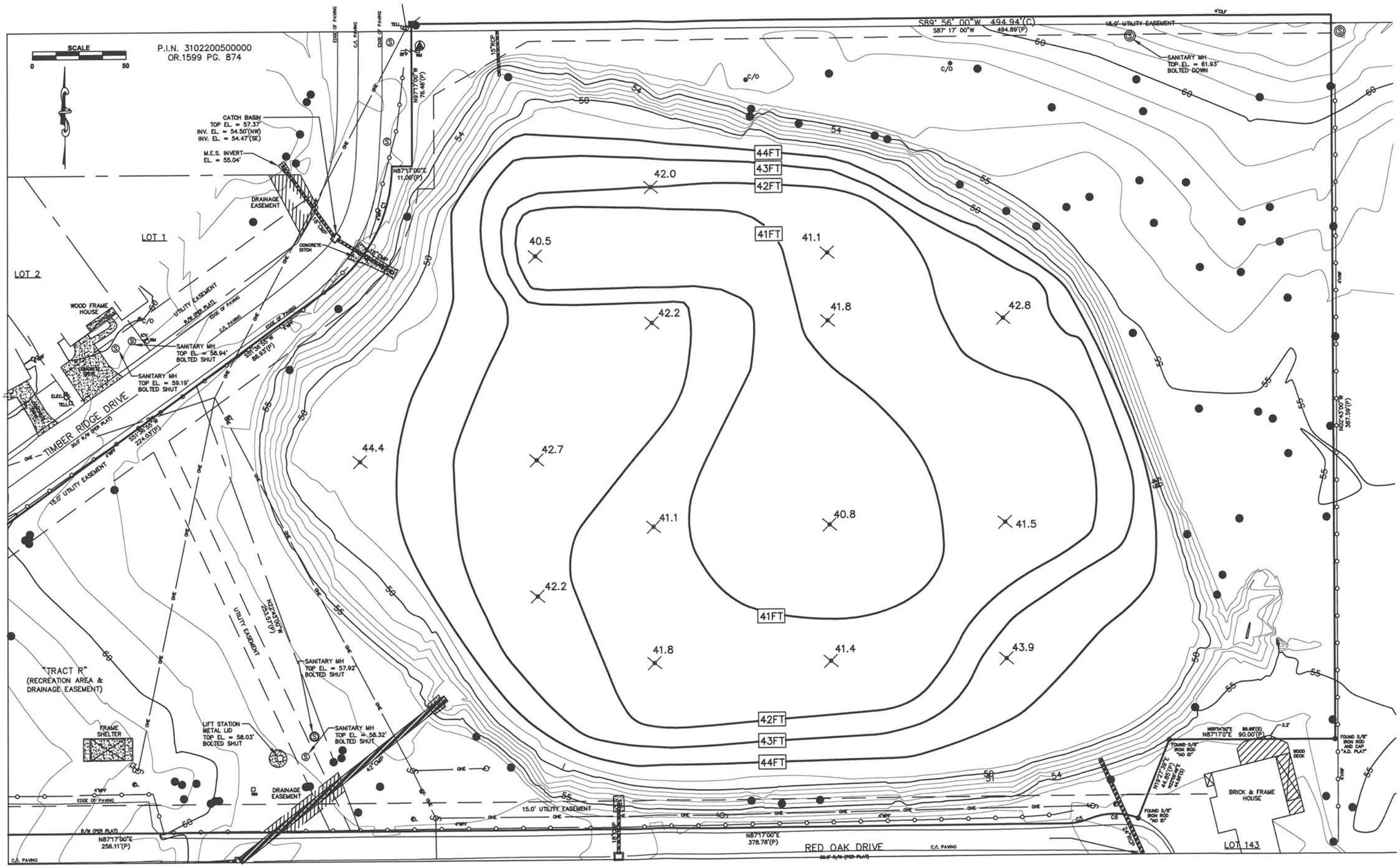
PBS&J

PROJECT TITLE

TIMBERLAKE FLOOD MITIGATION

POND SEDIMENT SOIL SURVEY PROBE LOCATIONS (EXISTING SWMF)

SHEET NO.



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

SEAL:

M. HAYDEN, P.E.

P.E. NO.: 34067

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Cert. of Auth.: 6222

3154 ELIZA ROAD
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FAX: (850) 385-8050

PBS&J

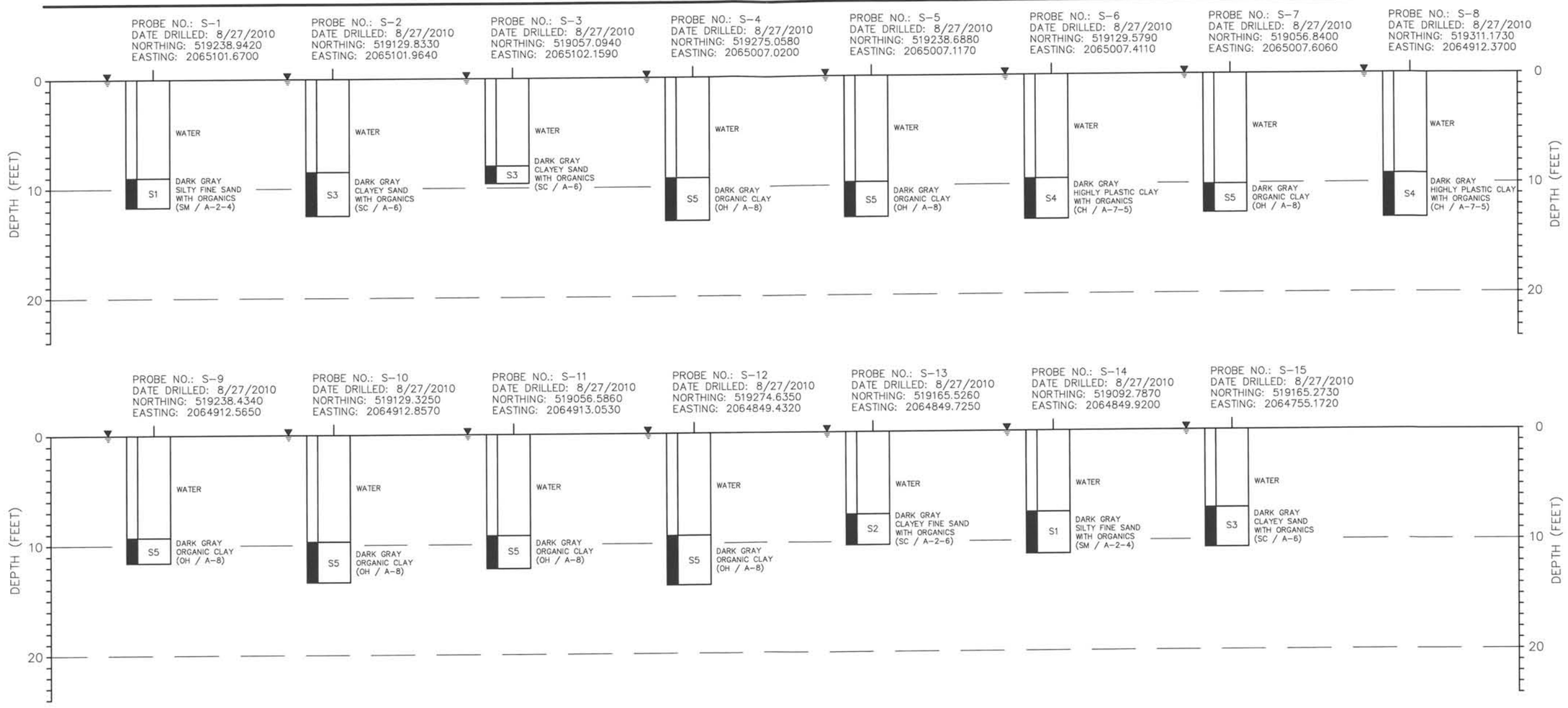
PROJECT TITLE

TIMBERLAKE FLOOD MITIGATION

POND SEDIMENT SOIL SURVEY SEDIMENT REMOVAL CONTOURS (EXISTING SWMF)

SHEET NO.

EXISTING SWMF SEDIMENT PROBES



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

SEAL:

M. HAYDEN, P.E.

P.E. NO.: 34067

Environmental & Geotechnical Specialists, Inc.

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PBS&J

PROJECT TITLE

TIMBERLAKE FLOOD MITIGATION

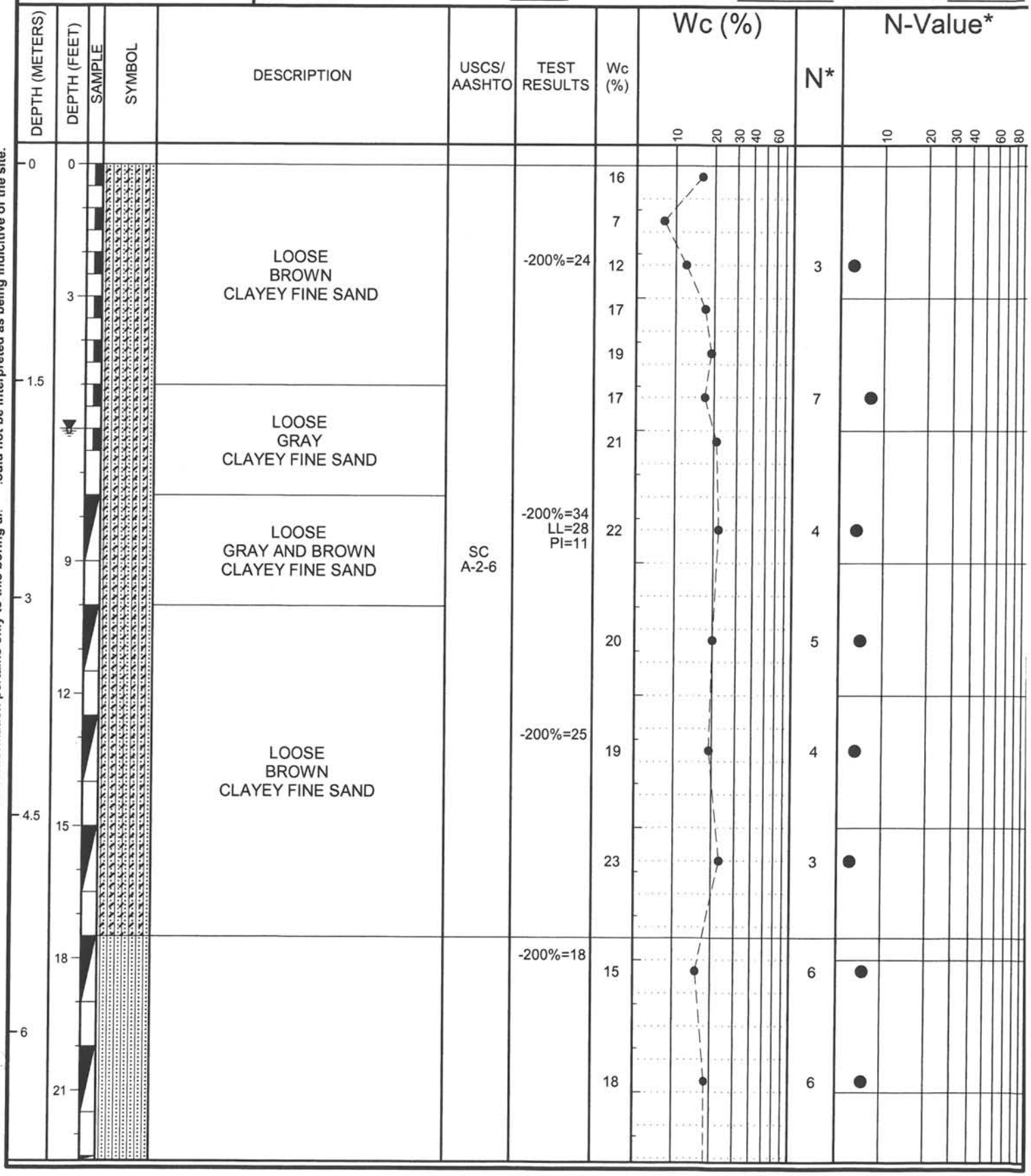
POND SEDIMENT SOIL SURVEY REPORT OF PROBES (EXISTING SWMF)

SHEET NO.

APPENDIX B
SOIL BORING LOGS

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET): 57.0'
BORING NO.: B-1
DATE: 9-1-2010
DRILLER: B. GUERRA
FLUID LOSS: 40.0'
DEPTH TO -WATER> INITIAL: ▽ > 7.0' **AFTER 24 HOURS:** ▽ 6.0' **CAVING>** ℄ NONE



This information pertains only to this boring at. .ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET): 57.0'
BORING NO.: B-1
DATE: 9-1-2010
DRILLER: B. GUERRA
FLUID LOSS: 40.0'
DEPTH TO -WATER> INITIAL: ▽ > 7.0' **AFTER 24 HOURS:** ▽ 6.0' **CAVING>** ℄ NONE

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*
7.5	24			LOOSE BROWN SILTY FINE SAND	SM A-2-4	-200%=17	18	8
							21	6
	27						17	5
9	30						22	8
10.5	33			LOOSE BROWN CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE	SC A-2-6	-200%=29 LL=32 PI=11	22	7
	36						42	8
12	39			FIRM GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE	CH A-7-5	-200%=73 LL=60 PI=32	71	4
	42			VERY LOOSE BROWN AND GRAY CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE	SC A-2-6		24	WOH
13.5	45						30	1

Wc (%): 10 20 30 40 60

N-Value*: 10 20 30 40 60 80

This information pertains only to this boring at. ,ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET): 57.0'
BORING NO.: B-1
DATE: 9-1-2010
DRILLER: B. GUERRA
FLUID LOSS: 40.0'
DEPTH TO -WATER> INITIAL: ▽ > 7.0' **AFTER 24 HOURS:** ▽ 6.0' **CAVING>** ℄ NONE

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
				HARD GRAY LIMESTONE				50/3"	50/3"
15	48			VERY HARD GRAY LIMESTONE				50/2"	50/2"
	51							50/2"	50/2"
16.5	54			MODERATELY HARD GRAY WEATHERED LIMESTONE				39	
				HARD GRAY LIMESTONE				50/5"	50/5"
	57								
18	60								
	63								
19.5	66								

Wc (%): 10 20 30 40 60
N-Value*: 10 20 30 40 60 80

This information pertains only to this boring an ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET): 58.0'
BORING NO.: B-2
DATE: 8-31-2010
DRILLER: B. GUERRA
FLUID LOSS: NONE
DEPTH TO -WATER> INITIAL: ▽ 7.0' **AFTER 24 HOURS:** ▽ 5.0' **CAVING>** ℄ NONE

This information pertains only to this boring ar. ould not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*
0	0			LOOSE GRAY SILTY FINE SAND	SM A-2-4	-200%=19	7, 11, 11, 15, 25	7
1.5	3							
	6			MEDIUM DENSE GRAY SILTY FINE SAND	SM A-2-4	-200%=14	11, 15	10
3	9			LOOSE GRAY SILTY FINE SAND	SM A-2-4		24, 23	3, 3
	12			LOOSE GRAY CLAYEY FINE SAND	SC A-2-6	-200%=21 LL=21 PI=11	22	3
4.5	15			MEDIUM DENSE BROWN AND GRAY CLAYEY FINE SAND	SC A-2-6	-200%=33 LL=28 PI=11	24, 24, 30	15, 23, 15
6	18							
	21							

Wc (%): 10 20 30 40 60

N-Value*: 10 20 30 40 60 80

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET): 58.0'
BORING NO.: B-2
DATE: 8-31-2010
DRILLER: B. GUERRA
FLUID LOSS: NONE
DEPTH TO -WATER> INITIAL: ▽ 7.0' **AFTER 24 HOURS:** ▽ 5.0' **CAVING>** ℄ NONE

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*
0								
	24			MEDIUM DENSE BROWN CLAYEY SAND	SC A-6	-200%=36	36	9
7.5								
	27			STIFF GRAY HIGHLY PLASTIC CLAY	CH A-7-5	-200%=69 LL=58 PI=28	60	9
							74	6
9								
	30			STIFF GRAY HIGHLY PLASTIC CLAY SHELBY TUBE	CH A-7-5	-200%=92 LL=95 PI=63	82	
	33			STIFF GRAY HIGHLY PLASTIC CLAY	CH A-7-5	-200%=54	62	5
10.5								
	36			VERY SOFT GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE	CH A-7-5		40	WOH
	39			FIRM GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE	CH A-7-5		44	4
12								
							70	5
	42							
				SOFT GRAY HIGHLY WEATHERED LIMESTONE				5
13.5								
	45							

N-Value* (10, 20, 30, 40, 60, 80)

This information pertains only to this boring at. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):** 58.0'
BORING NO.: B-2 **DATE:** 8-31-2010
DRILLER: B. GUERRA **FLUID LOSS:** NONE
DEPTH TO -WATER> INITIAL: ▽ 7.0' **AFTER 24 HOURS:** ▽ 5.0' **CAVING>** C NONE

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
				HARD GRAY LIMESTONE				50/5"	50/5"
	48							50/1"	50/1"
15				VERY HARD GRAY LIMESTONE					
	51							50/1"	50/1"
				HARD GRAY LIMESTONE				63	
16.5	54								
				VERY HARD GRAY LIMESTONE				50/2"	50/2"
	57								
				HARD GRAY LIMESTONE				50/3"	50/3"
18									
	60								
	63								
19.5									
	66								

Wc (%): 10 20 30 40 60
N-Value*: 10 20 30 40 60 80

This information pertains only to this boring at ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET):
BORING NO.: S-1
DATE: 8-27-2010
DRILLER: J. NELSON
FLUID LOSS:
DEPTH TO -WATER> INITIAL: ▽ AFTER 24 HOURS: ▽ CAVING> ⊏

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9			DARK GRAY SILTY FINE SAND WITH ORGANICS	SM A-2-4	-200%=15 ORG%=2.6			
3	12								
4.5	15								
	18								
6	21								

This information pertains only to this boring at ...ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-2 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▼ **CAVING>**

This information pertains only to this boring at ould not be interpreted as being indicitive of the site.

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9			DARK GRAY CLAYEY SAND WITH ORGANICS	SC A-6	-200%=41 LL=36 PI=18 ORG%=5.7			
3	12								
4.5	15								
	18								
6	21								

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-3 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0								
	3			WATER					
1.5	6								
	9			DARK GRAY CLAYEY SAND WITH ORGANICS	SC A-6	-200%=36 ORG%=1.5			
3	12								
4.5	15								
	18								
6	21								

Wc (%): 10 20 30 40 60

N-Value*: 10 20 30 40 60 80

This information pertains only to this boring ar. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-4 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	Wc (%)	N*	N-Value*	N-Value*
							10 20 30 40 60			10 20 30 40 60 80	
0	0										
	3			WATER							
1.5	6										
	9										
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=69 LL=40 PI=15 ORG%= 10.0					
	12										
4.5	15										
	18										
6	21										

This information pertains only to this boring ar. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-5 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0								
	3			WATER					
1.5	6								
	9								
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=69 LL=55 PI=20 ORG%= 13.3			
	12								
4.5	15								
	18								
6	21								

Wc (%): 10 20 30 40 60

N-Value*: 10 20 30 40 60 80

This information pertains only to this boring at. .ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-6 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9								
3	12			DARK GRAY HIGHLY PLASTIC CLAY WITH ORGANICS	CH A-7-5	-200%=88 LL=55 PI=25 ORG%=9.0			
4.5	15								
	18								
6	21								

This information pertains only to this boring ar. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET):
BORING NO.: S-7
DATE: 8-27-2010
DRILLER: J. NELSON
FLUID LOSS:
DEPTH TO -WATER> INITIAL: ▽ AFTER 24 HOURS: ▽ CAVING> ⌒

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9								
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=66 ORG%= 13.7			
	12								
4.5	15								
	18								
6	21								

This information pertains only to this boring at ...ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-8 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>** C

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9								
3	12			DARK GRAY HIGHLY PLASTIC CLAY WITH ORGANICS	CH A-7-5	-200%=70 ORG%=8.2			
4.5	15								
	18								
6	21								

This information pertains only to this boring a .ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-9 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>** C

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	Wc (%) 10 20 30 40 60	N*	N-Value* 10 20 30 40 60 80
0	0									
	3			WATER						
1.5	6									
	9									
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=75 LL=51 PI=13				
	12									
4.5	15									
	18									
6	21									

This information pertains only to this boring at this location and should not be interpreted as being indicitive of the site.

Figure

EGS

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-10 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9								
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=90 LL=57 PI=22 ORG%= 12.4			
	12								
4.5	15								
	18								
6	21								

This information pertains only to this boring at. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-11 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	Wc (%)	N*	N-Value*	N-Value*
							10 20 30 40 60			10 20 30 40 60 80	
0	0										
	3			WATER							
1.5	6										
	9										
3				DARK GRAY ORGANIC CLAY	OH A-8	-200%=55 ORG%= 10.0					
	12										
	15										
4.5											
	18										
6											
	21										

This information pertains only to this boring at ..ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-12 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9								
3	12			DARK GRAY ORGANIC CLAY	OH A-8	-200%=73 ORG%= 10.5			
4.5	15								
	18								
6	21								

This information pertains only to this boring at .ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA
ELEVATION (FEET):
BORING NO.: S-13
DATE: 8-27-2010
DRILLER: J. NELSON
FLUID LOSS:
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	Wc (%)	N*	N-Value*	N-Value*
							10 20 30 40 60			10 20 30 40 60 80	
0	0										
	3			WATER							
1.5	6										
	9			DARK GRAY CLAYEY FINE SAND WITH ORGANICS	SC A-2-6	-200%=29 LL=28 PI=11 ORG%=5.9					
3											
	12										
4.5	15										
	18										
6	21										

This information pertains only to this boring at ,ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-14 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	N*	N-Value*
0	0						10 20 30 40 60		10 20 30 40 60 80
	3			WATER					
1.5	6								
	9			DARK GRAY SILTY FINE SAND WITH ORGANICS	SM A-2-4	-200%=13 ORG%=1.5			
3									
	12								
4.5	15								
	18								
6	21								

This information pertains only to this boring a. ould not be interpreted as being indicitive of the site.

Figure

EGS
ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

PROJECT: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION
CLIENT: PBS&J
PROJECT NO.: 22-32-10-03
PROJECT LOCATION: LEON COUNTY, FLORIDA **ELEVATION (FEET):**
BORING NO.: S-15 **DATE:** 8-27-2010
DRILLER: J. NELSON **FLUID LOSS:**
DEPTH TO -WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

DEPTH (METERS)	DEPTH (FEET)	SAMPLE	SYMBOL	DESCRIPTION	USCS/ AASHTO	TEST RESULTS	Wc (%)	Wc (%)	N*	N-Value*	N-Value*
							10 20 30 40 60			10 20 30 40 60 80	
0	0										
	3			WATER							
1.5	6										
	9			DARK GRAY CLAYEY SAND WITH ORGANICS	SC A-6	-200%=45 ORG%=5.1					
3											
	12										
4.5	15										
	18										
6											
	21										

This information pertains only to this boring at[illegible] ould not be interpreted as being indicitive of the site.

Figure

APPENDIX C

SOIL CLASSIFICATION DATA SHEETS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-1

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 0.5	16												SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
1.0 - 1.5	7												SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
2.0 - 2.5	12	100	100	99	92	77	43	24				3	SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
3.0 - 3.5	17												SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
4.0 - 4.5	19												SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
5.0 - 5.5	17											7	SC	A-2-6	3	LOOSE GRAY CLAYEY FINE SAND
6.0 - 6.5	21												SC	A-2-6	3	LOOSE GRAY CLAYEY FINE SAND
7.5 - 9.0	22	100	100	99	94	84	56	34	28	11		4	SC	A-2-6	3	LOOSE GRAY AND BROWN CLAYEY FINE SAND
10.0 - 11.5	20											5	SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
12.5 - 14.0	19	100	100	99	93	80	52	25				4	SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND
15.0 - 16.5	23											3	SC	A-2-6	3	LOOSE BROWN

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-1

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
																CLAYEY FINE SAND
17.5 - 19.0	15	100	100	98	90	75	43	18				6	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
20.0 - 21.5	18											6	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
22.5 - 24.0	18											8	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
25.0 - 26.5	21	100	100	99	92	77	45	17				6	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
27.5 - 29.0	17											5	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
30.0 - 31.5	22											8	SM	A-2-4	1	LOOSE BROWN SILTY FINE SAND
32.5 - 34.0	22											7	SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE
35.0 - 36.5	42	100	100	100	99	96	67	29	32	11		8	SC	A-2-6	3	LOOSE BROWN CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE
37.5 - 39.0	71	100	100	98	97	96	91	73	60	32		4	CH	A-7-5	6	FIRM GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE
40.0 - 41.5	24											WOH	SC	A-2-6	3	VERY LOOSE BROWN AND GRAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-1

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
																CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE
42.5 - 44.0	30											1	SC	A-2-6	3	VERY LOOSE BROWN AND GRAY CLAYEY FINE SAND W/ HIGHLY WEATHERED LIMESTONE
45.0 - 46.5												50/3"			8	HARD GRAY LIMESTONE
47.5 - 49.0												50/2"			8	VERY HARD GRAY LIMESTONE
50.0 - 51.5												50/2"			8	VERY HARD GRAY LIMESTONE
52.5 - 54.0												39			7	MODERATELY HARD GRAY WEATHERED LIMESTONE
55.0 - 56.5												50/5"			8	HARD GRAY LIMESTONE

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-2

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 0.5	7												SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
1.0 - 1.5	11	100	100	99	91	75	45	19					SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
2.0 - 2.5	11											7	SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
3.0 - 3.5	15												SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
4.0 - 4.5	25												SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
5.0 - 5.5	11											10	SM	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
6.0 - 6.5	15	100	100	97	80	54	32	14					SM	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
7.5 - 9.0	24											3	SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
10.0 - 11.5	23											3	SM	A-2-4	1	LOOSE GRAY SILTY FINE SAND
12.5 - 14.0	22	100	100	95	71	53	36	21	21	11		3	SC	A-2-6	3	LOOSE GRAY CLAYEY FINE SAND
15.0 - 16.5	24											15	SC	A-2-6	3	MEDIUM DENSE BROWN AND GRAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-2

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
																CLAYEY FINE SAND
17.5 - 19.0	24	100	100	97	93	86	46	33	28	11		23	SC	A-2-6	3	MEDIUM DENSE BROWN AND GRAY CLAYEY FINE SAND
20.0 - 21.5	30											15	SC	A-2-6	3	MEDIUM DENSE BROWN AND GRAY CLAYEY FINE SAND
22.5 - 24.0	36	100	100	99	98	93	55	36				9	SC	A-6	4	MEDIUM DENSE BROWN CLAYEY SAND
25.0 - 26.5	60											9	CH	A-7-5	6	STIFF GRAY HIGHLY PLASTIC CLAY
27.5 - 29.0	74	100	100	97	94	89	82	69	58	28		6	CH	A-7-5	6	STIFF GRAY HIGHLY PLASTIC CLAY
30.0 - 32.5	82	100	100	100	100	98	95	92	95	63			CH	A-7-5	6	STIFF GRAY HIGHLY PLASTIC CLAY SHELBY TUBE
32.5 - 34.0	62	100	100	97	95	89	75	54				5	CH	A-7-5	6	STIFF GRAY HIGHLY PLASTIC CLAY
35.0 - 36.5	40											WOH	CH	A-7-5	6	VERY SOFT GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE
37.5 - 39.0	44											4	CH	A-7-5	6	FIRM GRAY HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE
40.0 - 41.5	70											5	CH	A-7-5	6	FIRM GRAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: B-2

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
																HIGHLY PLASTIC CLAY W/ HIGHLY WEATHERED LIMESTONE
42.5 - 44.0												5			7	SOFT GRAY HIGHLY WEATHERED LIMESTONE
45.0 - 46.5												50/5"			8	HARD GRAY LIMESTONE
47.5 - 49.0												50/1"			8	VERY HARD GRAY LIMESTONE
50.0 - 51.5												50/1"			8	VERY HARD GRAY LIMESTONE
52.5 - 54.0												63			8	HARD GRAY LIMESTONE
55.0 - 56.5												50/2"			8	VERY HARD GRAY LIMESTONE
57.5 - 59.0												50/3"			8	HARD GRAY LIMESTONE

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-1

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.0																WATER
9.0 - 11.7		100	100	99	91	75	42	15			2.6		SM	A-2-4	S1	DARK GRAY SILTY FINE SAND WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-2

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 8.5																WATER
8.5 - 12.5		100	100	99	91	79	60	41	36	18	5.7		SC	A-6	S3	DARK GRAY CLAYEY SAND WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-3

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 8.0																WATER
8.0 - 9.6		100	100	100	98	88	57	36			1.5		SC	A-6	S3	DARK GRAY CLAYEY SAND WITH ORGANICS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-4

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.2																WATER
9.2 - 13.1		100	100	99	96	89	79	69	40	15	10.0		OH	A-8	S5	DARK GRAY ORGANIC CLAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-5

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.7																WATER
9.7 - 12.9		100	100	96	87	81	76	69	55	20	13.3		OH	A-8	S5	DARK GRAY ORGANIC CLAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-6

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.5																WATER
9.5 - 13.2		100	100	99	98	96	93	88	55	25	9.0		CH	A-7-5	S4	DARK GRAY HIGHLY PLASTIC CLAY WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-7

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 10.1																WATER
10.1 - 12.7		100	100	91	83	78	73	66			13.7		OH	A-8	S5	DARK GRAY ORGANIC CLAY

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-8

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.2																WATER
9.2 - 13.2		100	100	97	94	89	82	70			8.2		CH	A-7-5	S4	DARK GRAY HIGHLY PLASTIC CLAY WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-9

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.3																WATER
9.3 - 11.6		100	100	99	95	91	85	75	51	13			OH	A-8	S5	DARK GRAY ORGANIC CLAY

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-10

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.7																WATER
9.7 - 13.4		100	100	100	98	96	94	90	57	22	12.4		OH	A-8	S5	DARK GRAY ORGANIC CLAY

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-11

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.2																WATER
9.2 - 12.2		100	100	95	87	81	75	55			10.0		OH	A-8	S5	DARK GRAY ORGANIC CLAY

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-12

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 9.3																WATER
9.3 - 13.8		100	100	97	89	83	78	73			10.5		OH	A-8	S5	DARK GRAY ORGANIC CLAY

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-13

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 7.5																WATER
7.5 - 10.3		100	100	99	92	76	48	29	28	11	5.9		SC	A-2-6	S2	DARK GRAY CLAYEY FINE SAND WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

Boring: S-14

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 7.4																WATER
7.4 - 11.2		100	100	96	78	49	26	13			1.5		SM	A-2-4	S1	DARK GRAY SILTY FINE SAND WITH ORGANICS

EGS

SOIL CLASSIFICATION DATA

Project: TIMBER LAKE FLOOD MITIGATION - EXISTING POND INVESTIGATION

Client: PBS&J

Project No.: 22-32-10-03

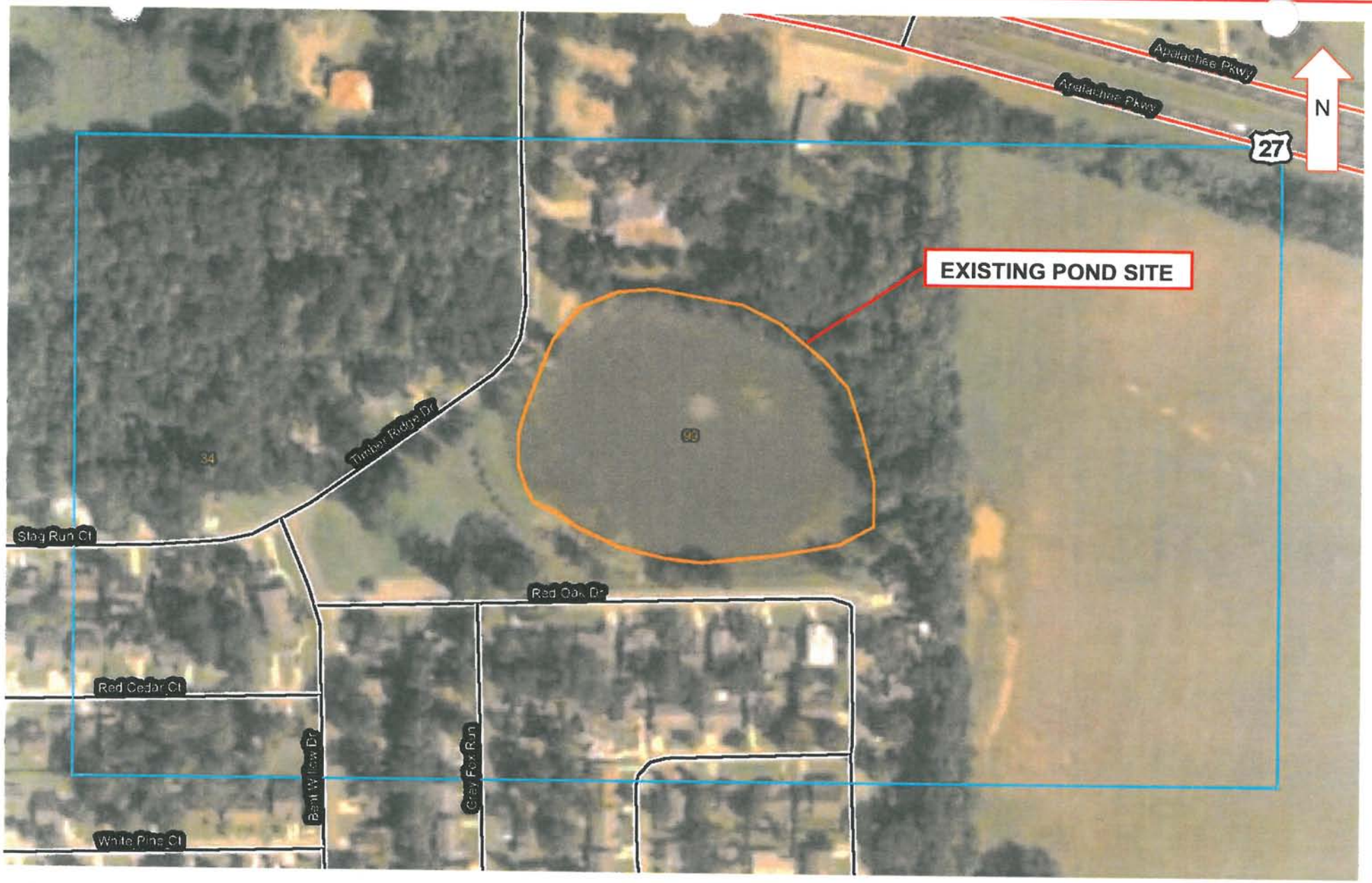
Boring: S-15

Location: LEON COUNTY, FLORIDA

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	USCS	AASHTO	Mat. No.	Description
0.0 - 7.1																WATER
7.1 - 10.7		100	100	100	96	90	72	45			5.1		SC	A-6	S3	DARK GRAY CLAYEY SAND WITH ORGANICS

EGS

APPENDIX D
USDA SOIL SURVEY DATA



DRAWN: M. LANDSCHOOT, E.I.	CHECKED: M. HAYDEN, P.E.	EGS Environmental and Geotechnical Specialists, Inc.	TITLE: USDA SOIL SURVEY FLOOD MITIGATION PROJECT EXISTING SWMF TIMBERLAKE, SUBDIVISION LEON COUNTY, FLORIDA
ENGINEER: T. HAYDEN, P.E.			
CLIENT: PBS&J			
PROJ. NO.: 22-32-10-03	SCALE:		DATE: OCTOBER 2010 / FIGURE NO.: D-1

3154 Eliza Road | Tallahassee, Florida 32308
Office #: (850) 386-1253 | Fax #: (850) 385-8050

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
32----------	0-29	Sand----------	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
Ocilla	29-80	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
33, 34, 35----------	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
Orangeburg	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
36:*											
Orangeburg--------	0-10	Fine sandy loam	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	10-80	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
Urban land.											
37----------	0-10	Sand----------	SP, SP-SM	A-3	0	100	100	90-100	3-8	---	NP
Ortega	10-99	Fine sand, sand	SP, SP-SM	A-3	0	100	100	90-100	2-7	---	NP
38:*											
Pamlico----------	0-32	Muck----------	Pt	---	0	---	---	---	---	---	---
	32-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-20	---	NP
Dorovan----------	0-5	Mucky peat------	Pt	---	0	---	---	---	---	---	---
	5-65	Muck----------	Pt	---	0	---	---	---	---	---	---
	65-80	Sand, loamy sand, loam.	SP-SM, SM-SC, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
39----------	0-26	Fine sand-------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
Pelham	26-80	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
40.*											
Pits											
41----------	0-61	Fine sand-------	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
Plummer	61-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
42----------	0-60	Mucky fine sand	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
Plummer	60-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-2-6	0	100	97-100	76-96	26-35	<31	NP-14
43, 44*----------	0-23	Loamy fine sand	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	<25	NP
Rutlege	23-82	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Initial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
20:*													
Kershaw	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
Urban land.													
21--- Lakeland	A	None	---	---	>6.0	---	---	>72	---	---	---	Low	Moderate.
22--- Leefield	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---	Moderate	High.
23--- Leon	A/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	High	High.
24, 25--- Lucy	A	None	---	---	>6.0	---	---	>60	---	---	---	Low	High.
26--- Lutterloh	C	None	---	---	1.5-2.5	Apparent	Dec-Mar	>60	---	---	---	High	Moderate.
27--- Lynchburg	B/D	None	---	---	0.5-1.5	Apparent	Nov-Apr	>60	---	---	---	High	High.
28*--- Meggett	D	Frequent	Long	Dec-Apr	0-1.0	Apparent	Nov-Apr	>60	---	---	---	High	Moderate.
29, 30--- Norfolk	B	None	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	---	---	Moderate	High.
31--- Norfolk	B	None	---	---	5.0-6.0	Perched	Jan-Apr	>60	---	---	---	Moderate	High.
32--- Ocilla	C	None	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	---	---	High	Moderate.
33, 34, 35--- Orangeburg	B	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
36:*													
Orangeburg	B	None	---	---	>6.0	---	---	>60	---	---	---	Moderate	Moderate.
Urban land.													

See footnote at end of table.

TABLE 17.--PHYSICAL PROPERTIES OF SELECTED SOILS--Continued

Soil series and sample number	Depth	Horizon	Particle size distribution: Sand: Very coarse (2-1 mm)	Sand: Coarse (1-0.5 mm)	Sand: Medium (0.5-0.25 mm)	Sand: Fine (0.25-0.1 mm)	Sand: Very fine (0.1-0.05 mm)	Sand: Total (2-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Hydraulic conductivity	Bulk density (field moist)	Water content: 1/10 bar	Water content: 1/3 bar	Water content: 15 bar
	In		Percent								Cm/hr	Grams/cm	- Percent (wt) -		
Norfolk loamy fine sand:															
S76FL-073-004-1	0-4	A1	0.1	1.8	14.1	49.7	17.2	82.9	10.7	6.4	33.5	1.38	11.7	7.1	3.1
S76FL-073-004-2	4-8	A2	0.1	2.1	14.1	50.9	17.8	85.0	7.1	7.9	21.6	1.42	9.6	6.3	3.0
S76FL-073-004-3	8-15	B21t	0.1	1.8	12.8	48.4	17.7	80.8	7.1	12.1	10.8	1.52	10.8	7.5	4.1
S76FL-073-004-4	15-31	B22t	0.1	1.6	8.8	35.8	14.6	60.9	5.5	33.6	10.8	1.48	20.9	17.6	11.1
S76FL-073-004-5	31-44	B23t	0.1	1.4	8.6	35.9	14.4	60.4	5.6	34.0	1.3	1.64	18.2	15.5	9.7
S76FL-073-004-6	44-58	B24t	0.1	1.8	11.1	38.4	14.1	65.5	3.1	31.4	3.3	1.61	20.7	18.4	11.9
S76FL-073-004-7	58-68	B3	0.2	1.5	10.0	35.0	13.0	59.7	2.6	37.7	0.1	1.67	20.6	18.4	12.2
S76FL-073-004-8	68-80	C	0.1	1.1	8.8	33.3	12.5	55.8	2.5	41.7	0.8	1.66	20.4	18.8	14.4
Norfolk loamy sand clayey substratum															
S76FL-073-009-1	0-7	Ap	0.3	4.3	27.1	43.0	10.2	84.9	6.3	8.8	3.4	1.59	11.9	8.0	5.2
S76FL-073-009-2	7-14	B21t	0.1	2.7	23.8	41.5	10.0	78.1	8.2	13.7	3.9	1.65	10.3	10.2	6.1
S76FL-073-009-3	14-29	B22t	0.1	2.6	20.5	35.9	9.1	68.2	6.8	25.0	1.2	1.58	17.6	14.9	10.9
S76FL-073-009-4	29-51	B23t	0.2	2.6	20.5	36.2	9.0	68.5	5.1	26.4	0.5	1.73	17.3	15.4	10.2
S76FL-073-009-5	51-59	B24t	0.2	2.7	20.0	32.5	7.5	62.9	5.3	31.8	0.0	1.75	18.6	17.1	12.3
S76FL-073-009-6	59-64	B25t	0.2	2.6	20.2	31.2	7.2	61.4	6.7	31.9	0.1	1.76	19.5	18.2	12.5
S76FL-073-009-7	64-80	IIC	0.0	0.2	0.6	3.4	3.4	7.6	20.0	72.4	5.8	1.32	30.0	27.6	24.3
Ocilla fine sand:															
S77FL-073-026-1	0-3	A1	0.1	2.6	13.5	55.2	17.4	88.8	7.5	3.7	---	---	---	---	---
S77FL-073-026-2	3-6	A21	0.2	2.7	13.9	54.2	16.4	87.4	9.0	3.6	25.4	1.38	11.2	7.7	2.4
S77FL-073-026-3	6-22	A22	0.1	2.8	14.0	54.3	15.3	86.5	8.8	4.7	17.5	1.52	10.3	7.2	2.5
S77FL-073-026-4	22-29	B1	0.1	2.4	13.5	51.1	15.2	82.3	9.3	8.4	18.0	1.44	10.6	7.2	2.3
S77FL-073-026-5	29-39	B21t	0.2	2.8	13.0	45.0	7.4	68.4	17.0	14.6	5.4	1.59	15.5	12.6	4.5
S77FL-073-026-6	39-56	B22tg	0.2	2.4	11.4	42.0	12.6	68.6	11.3	20.1	1.7	1.67	17.3	15.5	8.5
S77FL-073-026-7	56-80	B23tg	0.2	1.8	8.8	33.4	11.0	55.2	14.2	30.6	0.7	1.62	21.5	20.8	12.7
Orangeburg fine sandy loam:															
S76FL-073-008-1	0-5	A1	0.3	5.0	21.9	39.3	8.3	75.4	11.0	13.6	27.0	1.42	15.4	12.1	6.6
S76FL-073-008-2	5-10	B1t	0.4	5.7	22.8	38.1	7.6	74.6	8.4	17.0	7.0	1.58	15.0	11.8	7.3
S76FL-073-008-3	10-16	B21t	0.4	5.0	21.3	34.3	7.0	68.0	5.5	26.5	5.9	1.50	22.1	13.7	8.1
S76FL-073-008-4	16-41	B22t	0.3	4.3	17.8	33.3	7.6	63.3	7.6	29.1	3.5	1.53	19.6	15.6	9.2
S76FL-073-008-5	41-62	B23t	0.5	4.5	18.7	30.7	6.1	60.5	2.9	36.6	7.9	1.71	19.2	16.6	11.3
S76FL-073-008-6	62-80	B23t	0.6	5.2	20.3	30.9	5.8	62.8	2.3	34.9	1.8	1.71	18.0	15.5	10.5
Ortega sand:															
S76FL-073-003-1	0-4	A1	0.1	3.6	28.7	46.5	13.9	92.8	4.9	2.3	41.4	1.39	8.4	5.3	2.2
S76FL-073-003-2	4-10	C1	0.2	3.9	30.3	47.4	13.4	99.1	0.5	0.4	16.1	1.55	5.8	3.3	1.3
S76FL-073-003-3	10-28	C2	0.2	3.9	29.0	48.0	14.3	95.4	2.4	2.2	33.5	1.53	5.7	3.0	1.3
S76FL-073-003-4	28-44	C3	0.2	3.7	27.8	49.5	14.5	95.7	1.9	2.4	34.2	1.58	4.7	2.5	0.9
S76FL-073-003-5	44-58	C4	0.2	4.2	28.0	49.9	14.2	96.5	1.9	1.6	35.5	1.52	4.0	2.2	0.7
S76FL-073-003-6	58-72	C5	0.2	4.0	27.8	50.2	14.8	97.0	2.0	1.0	33.5	1.51	5.1	2.7	0.6
S76FL-073-003-7	72-96	C6	0.1	2.9	23.7	54.5	17.1	98.3	1.1	0.6	30.9	1.51	3.5	1.8	0.4

APPENDIX E

ENVIRONMENTAL TESTING RESULTS OF SEDIMENT SAMPLE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 640-30598-1

Job Description: Timberlake Flood Mitigation

For:
Environmental and Geotechnical Specialis
3154 Eliza Road
Tallahassee, FL 32308

Attention: Myron Hayden

Approved for release.
Amy Marks
Project Manager II
11/3/2010 3:38 PM

Amy Marks
Project Manager II
amy.marks@testamericainc.com
11/03/2010

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the TestAmerica Project Manager who signed this test report. Measurement uncertainty data, as referenced in Section 20.12 of the TestAmerica Tallahassee Quality Assurance Manual, are available upon request.

TestAmerica Tallahassee Florida Department of Health Certification No. E81005

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method 8260C: Sample Sediment 1 (640-30598-1) was analyzed from the bulk container using method 5030. Two DI water vials were received; however, one vial was received broken and analysis of the other vial resulted in no surrogate or internal standard recoveries. A methanol preserved vial was also received; however, the sample did not require dilution. Method 5030 was utilized to provide the lowest possible detection limits.

Method 8260C: The matrix spike / matrix spike duplicate (MS/MSD) performed on sample Sediment 1 (640-30598-1) in batch 640-74565 were outside control limits for accuracy and/or precision for multiple analytes. The affected analytes are qualified "J3". The associated laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) met acceptance criteria.

No other analytical or quality issues were noted.

GC Semi VOA
Method 8082: Three surrogates are used for this analysis. The laboratory's SOP allows two of these surrogates to be outside acceptance criteria without performing re-extraction. The following blank contained an allowable number of surrogate compounds outside limits: (MB 640-74204/1-A). The affected surrogate recovery is flagged "J1".

Method 8141A: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 640-74451 were outside control limits for the following analyte: EPN. This analyte was biased high in the LCS/LCSD and was not detected in the associated samples. Associated sample results are qualified "J3".

Method FL-PRO: Surrogate recovery for the following sample was outside control limits: Sediment 1 (640-30598-1), Sediment 1 MS (640-30598-1 MS), Sediment 1 MSD (640-30598-1 MSD). Evidence of matrix interference is present; therefore, re-analysis was not performed. The affected surrogate recoveries are flagged "J1".

Method FL-PRO: The method blank for batch 640-74163, contained TRPH (C8-C40) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction of samples was not performed. Associated sample detections are qualified with a "V".

Method FL-PRO: The matrix spike(MS) performed on sample Sediment 1 (640-30598-1) in batch 640-74163 were outside control limits for C8-C40. The recovery is flagged "J3". The associated laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) met acceptance criteria.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
640-30598-1	**SEDIMENT 1**					
Methylene Chloride		1.8	I	8.4	ug/Kg	8260C
Dichlorprop		5.7	I	16	ug/Kg	8151A
C8-C40		120	V	19	mg/Kg	FL-PRO
TCLP						
Barium		0.29	I	0.50	mg/L	6010B

METHOD SUMMARY

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Volatile Organic Compounds by GC/MS	TAL TAL	SW846 8260C	
Closed System Purge and Trap	TAL TAL		SW846 5035
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	TAL TAL	SW846 8082	
Ultrasonic Extraction	TAL TAL		SW846 3550B
Organophosphorous Pesticides (GC)	TAL TAL	SW846 8141A	
Ultrasonic Extraction	TAL TAL		SW846 3550B
Herbicides (GC)	TAL SAV	SW846 8151A	
Extraction (Herbicides)	TAL SAV		SW846 8151A
Florida - Petroleum Range Organics (GC)	TAL TAL	FL-DEP FL-PRO	
Ultrasonic Extraction	TAL TAL		SW846 3550B
Metals (ICP)	TAL TAM	SW846 6010B	
TCLP Extraction	TAL TAM		SW846 1311
Preparation, Total Metals	TAL TAM		SW846 3010A
Mercury (CVAA)	TAL TAM	SW846 7470A	
TCLP Extraction	TAL TAM		SW846 1311
Preparation, Mercury	TAL TAM		SW846 7470A

Lab References:

TAL SAV = TestAmerica Savannah

TAL TAL = TestAmerica Tallahassee

TAL TAM = TestAmerica Tampa

Method References:

FL-DEP = State Of Florida Department Of Environmental Protection, Florida Administrative Code.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
640-30598-1	Sediment 1	Solid	10/19/2010 1630	10/19/2010 1719

SAMPLE RESULTS

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

8260C Volatile Organic Compounds by GC/MS

Method: 8260C
Preparation: 5035
Dilution: 1.0
Date Analyzed: 11/01/2010 0100
Date Prepared: 10/31/2010 1544

Analysis Batch: 640-74565
Prep Batch: 640-74548

Instrument ID: VMF
Lab File ID: 1F103128.D
Initial Weight/Volume: 5.64 g
Final Weight/Volume: 5 g

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	PQL
Bromoform		1.8	U	1.8	8.4
Bromomethane		4.0	U	4.0	17
Carbon tetrachloride		0.65	U	0.65	8.4
Chlorobenzene		0.94	U	0.94	8.4
Chlorodibromomethane		1.3	U	1.3	8.4
Chloroethane		1.2	U	1.2	17
Chloroform		0.75	U	0.75	8.4
Chloromethane		0.44	U	0.44	17
cis-1,2-Dichloroethene		0.99	U	0.99	8.4
cis-1,3-Dichloropropene		1.1	U	1.1	8.4
1,2-Dichlorobenzene		1.2	U	1.2	8.4
1,3-Dichlorobenzene		1.7	U	1.7	8.4
1,4-Dichlorobenzene		1.2	U	1.2	8.4
Dichlorobromomethane		1.7	U	1.7	8.4
Dichlorodifluoromethane		1.7	U	1.7	8.4
1,1-Dichloroethane		0.65	U	0.65	8.4
1,2-Dichloroethane		1.2	U	1.2	8.4
1,1-Dichloroethene		2.3	U	2.3	8.4
1,2-Dichloropropane		2.5	U	2.5	8.4
Methylene Chloride		1.8	I	1.7	8.4
1,1,2,2-Tetrachloroethane		1.7	U	1.7	8.4
Tetrachloroethene		1.1	U	1.1	8.4
trans-1,2-Dichloroethene		0.75	U J3	0.75	8.4
trans-1,3-Dichloropropene		2.2	U	2.2	8.4
1,1,1-Trichloroethane		1.8	U	1.8	8.4
1,1,2-Trichloroethane		1.5	U	1.5	8.4
Trichloroethene		1.4	U	1.4	8.4
Trichlorofluoromethane		2.3	U	2.3	8.4
Vinyl chloride		1.0	U	1.0	17

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	81		67 - 130
Dibromofluoromethane	95		61 - 130
Toluene-d8 (Surr)	79		70 - 130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 10/27/2010 1655
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204

Instrument ID: SGL
Initial Weight/Volume: 00030.06 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	PQL
PCB-1016		16	U	16	62
PCB-1221		21	U	21	130
PCB-1232		16	U	16	62
PCB-1242		10	U	10	62
PCB-1248		13	U	13	62
PCB-1254		11	U	11	62
PCB-1260		11	U	11	62

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl	67		30 - 138
Dibutylchlorendate	58		30 - 130
Tetrachloro-m-xylene	72		30 - 130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

8141A Organophosphorous Pesticides (GC)

Method: 8141A
Preparation: 3550B
Dilution: 1.0
Date Analyzed: 11/02/2010 1312
Date Prepared: 10/28/2010 1230

Analysis Batch: 640-74704
Prep Batch: 640-74451

Instrument ID: SGF
Initial Weight/Volume: 00030.10 g
Final Weight/Volume: 10.0 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	PQL
Azinphos-methyl		8.3	U	8.3	120
Bolstar		16	U	16	62
Chlorpyrifos		16	U	16	62
Coumaphos		16	U	16	620
Demeton, Total		24	U	24	160
Diazinon		17	U	17	62
Dichlorvos		32	U	32	120
Dimethoate		19	U	19	120
Disulfoton		21	U	21	120
EPN		17	U J3	17	62
Ethoprop		28	U	28	32
Fensulfothion		19	U	19	620
Fenthion		17	U	17	62
Malathion		17	U	17	62
Merphos		16	U	16	62
Mevinphos		21	U	21	120
Monochrotophos		160	U	160	620
Naled		9.8	U	9.8	620
Ethyl Parathion		17	U	17	62
Methyl parathion		10	U	10	32
Phorate		21	U	21	62
Ronnel		15	U	15	62
Sulfotepp		10	U	10	32
Stirophos		17	U	17	62
Tokuthion		15	U	15	62
Trichloronate		15	U	15	620

Surrogate	%Rec	Qualifier	Acceptance Limits
Triphenylphosphate	90		35 - 134

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

8151A Herbicides (GC)

Method: 8151A
Preparation: 8151A
Dilution: 1.0
Date Analyzed: 10/26/2010 0200
Date Prepared: 10/23/2010 0826

Analysis Batch: 680-184068
Prep Batch: 680-183879

Instrument ID: SGS
Initial Weight/Volume: 30.25 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	PQL
2,4,5-T		4.3	U	4.3	16
2,4-D		9.4	U	9.4	16
2,4-DB		5.6	U	5.6	16
Dalapon		5.4	U	5.4	620
Dicamba		3.6	U	3.6	16
Dichlorprop		5.7	I	2.1	16
MCPA		360	U	360	3700
Pentachlorophenol		0.79	U	0.79	16
Silvex (2,4,5-TP)		3.0	U	3.0	16
MCPP		320	U	320	3700
Picloram		3.4	U	3.4	16

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4-Dichlorophenylacetic acid	75		58 - 110

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

8151A Herbicides (GC)

Method:	8151A	Analysis Batch: 680-184068		Instrument ID:	SGS
Preparation:	8151A	Prep Batch: 680-183879		Initial Weight/Volume:	30.25 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Date Analyzed:	10/26/2010 0200			Injection Volume:	1 uL
Date Prepared:	10/23/2010 0826			Result Type:	SECONDARY

Surrogate	%Rec	Qualifier	Acceptance Limits
2,4-Dichlorophenylacetic acid	74		58 - 110

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

% Moisture: 47.1

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

FL-PRO Florida - Petroleum Range Organics (GC)

Method:	FL-PRO	Analysis Batch: 640-74300		Instrument ID:	SGJ
Preparation:	3550B	Prep Batch: 640-74163		Lab File ID:	1J22J44.d
Dilution:	1.0			Initial Weight/Volume:	00030.24 g
Date Analyzed:	10/22/2010 1943			Final Weight/Volume:	2.0 mL
Date Prepared:	10/21/2010 0918			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	PQL
C8-C40		120	V	4.3	19

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	58	J1	62 - 109
n-C39	45	J1	60 - 118

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Client Sample ID: **Sediment 1**

Lab Sample ID: 640-30598-1
Client Matrix: Solid

Date Sampled: 10/19/2010 1630
Date Received: 10/19/2010 1719

6010B Metals (ICP)-TCLP

Method: 6010B
Preparation: 3010A
Dilution: 5.0
Date Analyzed: 10/26/2010 0813
Date Prepared: 10/25/2010 0941
Date Leached: 10/21/2010 1735

Analysis Batch: 660-101805
Prep Batch: 660-101748
Leachate Batch: 660-101741

Instrument ID: ICPA
Lab File ID: 10J26A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	PQL
Silver		0.050	U	0.050	0.50
Arsenic		0.12	U	0.12	1.0
Barium		0.29	I	0.030	0.50
Cadmium		0.018	U	0.018	0.50
Chromium		0.050	U	0.050	1.0
Lead		0.040	U	0.040	1.0
Selenium		0.15	U	0.15	0.50

7470A Mercury (CVAA)-TCLP

Method: 7470A
Preparation: 7470A
Dilution: 1.0
Date Analyzed: 10/25/2010 1612
Date Prepared: 10/25/2010 1100
Date Leached: 10/21/2010 1735

Analysis Batch: 660-101815
Prep Batch: 660-101768
Leachate Batch: 660-101741

Instrument ID: PS200II
Lab File ID: 10J25PS2.PRN
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	PQL
Mercury		0.00036	U	0.00036	0.00050

DATA REPORTING QUALIFIERS

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Section	Qualifier	Description
GC/MS VOA		
	J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
	U	Indicates that the compound was analyzed for but not detected.
	I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
GC Semi VOA		
	J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.
	J1	Estimated value; value may not be accurate. Surrogate recovery outside of criteria.
	U	Indicates that the compound was analyzed for but not detected.
	V	Indicates the analyte was detected in both the sample and the associated method blank.
	I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Metals		
	U	Indicates that the compound was analyzed for but not detected.
	I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

QUALITY CONTROL RESULTS

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Prep Batch: 640-74548					
640-30598-1	Sediment 1	T	Solid	5035	
640-30598-1MS	Matrix Spike	T	Solid	5035	
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	5035	
Analysis Batch:640-74565					
LCS 640-74565/2	Lab Control Sample	T	Solid	8260C	
LCSD 640-74565/4	Lab Control Sample Duplicate	T	Solid	8260C	
MB 640-74565/5	Method Blank	T	Solid	8260C	
640-30598-1	Sediment 1	T	Solid	8260C	640-74548
640-30598-1MS	Matrix Spike	T	Solid	8260C	640-74548
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	8260C	640-74548

Report Basis
T = Total

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 640-74163					
LCS 640-74163/2-A	Lab Control Sample	T	Solid	3550B	
LCSD 640-74163/3-A	Lab Control Sample Duplicate	T	Solid	3550B	
MB 640-74163/1-A	Method Blank	T	Solid	3550B	
640-30598-1	Sediment 1	T	Solid	3550B	
640-30598-1MS	Matrix Spike	T	Solid	3550B	
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
Prep Batch: 640-74204					
LCS 640-74204/20-A	Lab Control Sample	T	Solid	3550B	
LCSD 640-74204/21-A	Lab Control Sample Duplicate	T	Solid	3550B	
MB 640-74204/1-A	Method Blank	T	Solid	3550B	
640-30598-1	Sediment 1	T	Solid	3550B	
640-30598-1MS	Matrix Spike	T	Solid	3550B	
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
Analysis Batch:640-74300					
LCS 640-74163/2-A	Lab Control Sample	T	Solid	FL-PRO	640-74163
LCSD 640-74163/3-A	Lab Control Sample Duplicate	T	Solid	FL-PRO	640-74163
MB 640-74163/1-A	Method Blank	T	Solid	FL-PRO	640-74163
640-30598-1	Sediment 1	T	Solid	FL-PRO	640-74163
640-30598-1MS	Matrix Spike	T	Solid	FL-PRO	640-74163
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	FL-PRO	640-74163
Prep Batch: 640-74451					
LCS 640-74451/6-A	Lab Control Sample	T	Solid	3550B	
LCSD 640-74451/7-A	Lab Control Sample Duplicate	T	Solid	3550B	
MB 640-74451/5-A	Method Blank	T	Solid	3550B	
640-30598-1	Sediment 1	T	Solid	3550B	
Analysis Batch:640-74502					
LCS 640-74204/20-A	Lab Control Sample	T	Solid	8082	640-74204
LCSD 640-74204/21-A	Lab Control Sample Duplicate	T	Solid	8082	640-74204
MB 640-74204/1-A	Method Blank	T	Solid	8082	640-74204
640-30598-1	Sediment 1	T	Solid	8082	640-74204
640-30598-1MS	Matrix Spike	T	Solid	8082	640-74204
640-30598-1MSD	Matrix Spike Duplicate	T	Solid	8082	640-74204
Analysis Batch:640-74704					
LCS 640-74451/6-A	Lab Control Sample	T	Solid	8141A	640-74451
LCSD 640-74451/7-A	Lab Control Sample Duplicate	T	Solid	8141A	640-74451
MB 640-74451/5-A	Method Blank	T	Solid	8141A	640-74451
640-30598-1	Sediment 1	T	Solid	8141A	640-74451

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 680-183879					
LCS 680-183879/17-A	Lab Control Sample	T	Solid	8151A	
MB 680-183879/16-A	Method Blank	T	Solid	8151A	
640-30598-1	Sediment 1	T	Solid	8151A	
Analysis Batch:680-184068					
LCS 680-183879/17-A	Lab Control Sample	T	Solid	8151A	680-183879
MB 680-183879/16-A	Method Blank	T	Solid	8151A	680-183879
640-30598-1	Sediment 1	T	Solid	8151A	680-183879

Report Basis
T = Total

Metals					
Prep Batch: 660-101741					
LB 660-101741/1-B ^5	TCLP SPLPE Leachate Blank	P	Solid	1311	
LB 660-101741/1-C	TCLP SPLPE Leachate Blank	P	Solid	1311	
640-30598-1	Sediment 1	P	Solid	1311	
Prep Batch: 660-101748					
LCS 660-101748/2-A ^5	Lab Control Sample	T	Water	3010A	
LB 660-101741/1-B ^5	TCLP SPLPE Leachate Blank	P	Solid	3010A	660-101741
640-30598-1	Sediment 1	P	Solid	3010A	660-101741
Prep Batch: 660-101768					
LCS 660-101768/2-A	Lab Control Sample	T	Water	7470A	
LB 660-101741/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	660-101741
640-30598-1	Sediment 1	P	Solid	7470A	660-101741
Analysis Batch:660-101805					
LB 660-101741/1-B ^5	TCLP SPLPE Leachate Blank	P	Solid	6010B	660-101748
LCS 660-101748/2-A ^5	Lab Control Sample	T	Water	6010B	660-101748
640-30598-1	Sediment 1	P	Solid	6010B	660-101748
Analysis Batch:660-101815					
LB 660-101741/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	660-101768
LCS 660-101768/2-A	Lab Control Sample	T	Water	7470A	660-101768
640-30598-1	Sediment 1	P	Solid	7470A	660-101768

Report Basis
P = TCLP
T = Total

Surrogate Recovery Report

8260C Volatile Organic Compounds by GC/MS

Client Matrix: Solid

Lab Sample ID	Client Sample ID	BFB %Rec	DBFM %Rec	TOL %Rec
640-30598-1	Sediment 1	81	95	79
MB 640-74565/5		100	104	101
LCS 640-74565/2		102	101	101
LCSD 640-74565/4		101	103	100
640-30598-1 MS	Sediment 1 MS	74	111	90
640-30598-1 MSD	Sediment 1 MSD	79	105	92

Surrogate	Acceptance Limits
BFB = 4-Bromofluorobenzene	67-130
DBFM = Dibromofluoromethane	61-130
TOL = Toluene-d8 (Surr)	70-130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Surrogate Recovery Report

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DCB1 %Rec	DBC1 %Rec	TCX1 %Rec
640-30598-1	Sediment 1	67	58	72
MB 640-74204/1-A		79	81	7J1
LCS 640-74204/20-A		90	94	84
LCSD 640-74204/21-A		92	93	109
640-30598-1 MS	Sediment 1 MS	75	67	84
640-30598-1 MSD	Sediment 1 MSD	68	66	86

Surrogate	Acceptance Limits
DCB = DCB Decachlorobiphenyl	30-138
DBC = Dibutylchlorendate	30-130
TCX = Tetrachloro-m-xylene	30-130

Surrogate Recovery Report

8141A Organophosphorous Pesticides (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	TPP1 %Rec
640-30598-1	Sediment 1	90
MB 640-74451/5-A		86
LCS 640-74451/6-A		85
LCSD 640-74451/7-A		84

Surrogate	Acceptance Limits
TPP = Triphenylphosphate	35-134

Surrogate Recovery Report

FL-PRO Florida - Petroleum Range Organics (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH %Rec	C39 %Rec
640-30598-1	Sediment 1	58J1	45J1
MB 640-74163/1-A		75	86
LCS 640-74163/2-A		81	89
LCSD 640-74163/3-A		84	89
640-30598-1 MS	Sediment 1 MS	74	39J1
640-30598-1 MSD	Sediment 1 MSD	81	49J1

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	62-109
C39 = n-C39	60-118

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Surrogate Recovery Report

8151A Herbicides (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DCPA1 %Rec	DCPA2 %Rec
640-30598-1	Sediment 1	75	74
MB 680-183879/16-A		82	68
LCS 680-183879/17-A		58	62

Surrogate	Acceptance Limits
DCPA = 2,4-Dichlorophenylacetic acid	58-110

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74548

Method: 8260C
Preparation: 5035

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/01/2010 0429
Date Prepared: 10/31/2010 1544

Analysis Batch: 640-74565
Prep Batch: 640-74548

Instrument ID: VMF
Lab File ID: 1F103136.D
Initial Weight/Volume: 6.53 g
Final Weight/Volume: 5 g

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/01/2010 0455
Date Prepared: 10/31/2010 1544

Analysis Batch: 640-74565
Prep Batch: 640-74548

Instrument ID: VMF
Lab File ID: 1F103137.D
Initial Weight/Volume: 4.38 g
Final Weight/Volume: 5 g

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Bromoform	63	84	70 - 130	65	50	J3	J3
Bromomethane	121	100	70 - 130	20	100		
Carbon tetrachloride	109	101	70 - 130	32	50		
Chlorobenzene	100	98	70 - 130	38	50		
Chlorodibromomethane	70	88	70 - 130	60	50		J3
Chloroethane	146	118	70 - 130	19	100	J3	
Chloroform	121	105	70 - 130	26	50		
Chloromethane	143	119	70 - 130	21	100	J3	
cis-1,2-Dichloroethene	124	108	70 - 130	26	50		
cis-1,3-Dichloropropene	54	69	70 - 130	63	50	J3	J3
1,2-Dichlorobenzene	83	88	70 - 130	45	50		
1,3-Dichlorobenzene	99	100	70 - 130	40	50		
1,4-Dichlorobenzene	92	96	70 - 130	44	50		
Dichlorobromomethane	60	76	70 - 130	62	50	J3	J3
Dichlorodifluoromethane	176	128	70 - 130	8	100	J3	
1,1-Dichloroethane	139	117	70 - 130	23	50	J3	
1,2-Dichloroethane	69	83	70 - 130	57	50	J3	J3
1,1-Dichloroethene	156	121	70 - 130	14	50	J3	
1,2-Dichloropropane	84	96	70 - 130	52	50		J3
Methylene Chloride	119	113	68 - 130	34	50		
1,1,2,2-Tetrachloroethane	67	82	70 - 130	58	50	J3	J3
Tetrachloroethene	154	132	59 - 130	25	50	J3	J3
trans-1,2-Dichloroethene	148	0	70 - 130	NC	50	J3	U J3
trans-1,3-Dichloropropene	47	65	70 - 130	69	50	J3	J3
1,1,1-Trichloroethane	106	103	70 - 130	37	50		
1,1,2-Trichloroethane	55	70	70 - 130	63	50	J3	J3
Trichloroethene	91	88	66 - 130	36	50		
Trichlorofluoromethane	168	121	70 - 130	7	100	J3	
Vinyl chloride	161	127	70 - 130	16	100	J3	

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	74	79	67 - 130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Dibromofluoromethane	111	105	61 - 130
Toluene-d8 (Surr)	90	92	70 - 130

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74548

Method: 8260C
Preparation: 5035

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/01/2010 0429
Date Prepared: 10/31/2010 1544

Units: ug/Kg

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/01/2010 0455
Date Prepared: 10/31/2010 1544

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual	
Bromoform	1.8	U	57.9	86.3	36.6	J3	72.2	J3
Bromomethane	4.0	U	57.9	86.3	70.3		86.1	
Carbon tetrachloride	0.65	U	57.9	86.3	63.2		86.8	
Chlorobenzene	0.94	U	57.9	86.3	58.1		84.9	
Chlorodibromomethane	1.3	U	57.9	86.3	40.8		75.7	J3
Chloroethane	1.2	U	57.9	86.3	84.3	J3	102	
Chloroform	0.75	U	57.9	86.3	69.9		91.0	
Chloromethane	0.44	U	57.9	86.3	82.7	J3	102	
cis-1,2-Dichloroethene	0.99	U	57.9	86.3	71.7		93.6	
cis-1,3-Dichloropropene	1.1	U	57.9	86.3	31.1	J3	59.8	J3
1,2-Dichlorobenzene	1.2	U	57.9	86.3	48.2		75.8	
1,3-Dichlorobenzene	1.7	U	57.9	86.3	57.1		85.9	
1,4-Dichlorobenzene	1.2	U	57.9	86.3	53.5		83.2	
Dichlorobromomethane	1.7	U	57.9	86.3	34.6	J3	65.9	J3
Dichlorodifluoromethane	1.7	U	57.9	86.3	102	J3	111	
1,1-Dichloroethane	0.65	U	57.9	86.3	80.3	J3	101	
1,2-Dichloroethane	1.2	U	57.9	86.3	39.9	J3	71.9	J3
1,1-Dichloroethene	2.3	U	57.9	86.3	90.1	J3	104	
1,2-Dichloropropane	2.5	U	57.9	86.3	48.8		83.1	J3
Methylene Chloride	1.8	I	57.9	86.3	70.6		99.4	
1,1,2,2-Tetrachloroethane	1.7	U	57.9	86.3	38.6	J3	70.5	J3
Tetrachloroethene	1.1	U	57.9	86.3	88.9	J3	114	J3
trans-1,2-Dichloroethene	0.75	U	57.9	86.3	85.7	J3	0.97	U J3
trans-1,3-Dichloropropene	2.2	U	57.9	86.3	27.5	J3	56.5	J3
1,1,1-Trichloroethane	1.8	U	57.9	86.3	61.5		89.2	
1,1,2-Trichloroethane	1.5	U	57.9	86.3	31.7	J3	60.7	J3
Trichloroethene	1.4	U	57.9	86.3	52.9		76.3	
Trichlorofluoromethane	2.3	U	57.9	86.3	97.4	J3	104	
Vinyl chloride	1.0	U	57.9	86.3	93.3	J3	110	

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Method Blank - Batch: 640-74565

Method: 8260C
Preparation: N/A

Lab Sample ID: MB 640-74565/5
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2010 2157
Date Prepared: N/A

Analysis Batch: 640-74565
Prep Batch: N/A
Units: ug/Kg

Instrument ID: VMF
Lab File ID: 1F103121.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL

Analyte	Result	Qual	MDL	PQL
Bromoform	1.1	U	1.1	5.0
Bromomethane	2.4	U	2.4	10
Carbon tetrachloride	0.39	U	0.39	5.0
Chlorobenzene	0.56	U	0.56	5.0
Chlorodibromomethane	0.76	U	0.76	5.0
Chloroethane	0.73	U	0.73	10
Chloroform	0.45	U	0.45	5.0
Chloromethane	0.26	U	0.26	10
cis-1,2-Dichloroethene	0.59	U	0.59	5.0
cis-1,3-Dichloropropene	0.68	U	0.68	5.0
1,2-Dichlorobenzene	0.69	U	0.69	5.0
1,3-Dichlorobenzene	1.0	U	1.0	5.0
1,4-Dichlorobenzene	0.73	U	0.73	5.0
Dichlorobromomethane	1.0	U	1.0	5.0
Dichlorodifluoromethane	1.0	U	1.0	5.0
1,1-Dichloroethane	0.39	U	0.39	5.0
1,2-Dichloroethane	0.72	U	0.72	5.0
1,1-Dichloroethene	1.4	U	1.4	5.0
1,2-Dichloropropane	1.5	U	1.5	5.0
Methylene Chloride	1.0	U	1.0	5.0
1,1,2,2-Tetrachloroethane	1.0	U	1.0	5.0
Tetrachloroethene	0.63	U	0.63	5.0
trans-1,2-Dichloroethene	0.45	U	0.45	5.0
trans-1,3-Dichloropropene	1.3	U	1.3	5.0
1,1,1-Trichloroethane	1.1	U	1.1	5.0
1,1,2-Trichloroethane	0.88	U	0.88	5.0
Trichloroethene	0.86	U	0.86	5.0
Trichlorofluoromethane	1.4	U	1.4	5.0
Vinyl chloride	0.60	U	0.60	10

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	100	67 - 130
Dibromofluoromethane	104	61 - 130
Toluene-d8 (Surr)	101	70 - 130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 640-74565

Method: 8260C
Preparation: N/A

LCS Lab Sample ID: LCS 640-74565/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2010 2038
Date Prepared: N/A

Analysis Batch: 640-74565
Prep Batch: N/A
Units: ug/Kg

Instrument ID: VMF
Lab File ID: 1F103118.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL

LCSD Lab Sample ID: LCSD 640-74565/4
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2010 2104
Date Prepared: N/A

Analysis Batch: 640-74565
Prep Batch: N/A
Units: ug/Kg

Instrument ID: VMF
Lab File ID: 1F103119.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 5 mL

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qua
Bromoform	98	98	70 - 130	0	50		
Bromomethane	85	89	70 - 130	4	100		
Carbon tetrachloride	97	100	70 - 130	3	50		
Chlorobenzene	105	108	70 - 130	3	50		
Chlorodibromomethane	95	100	70 - 130	4	50		
Chloroethane	99	104	70 - 130	6	100		
Chloroform	95	97	70 - 130	3	50		
Chloromethane	106	110	70 - 130	5	100		
cis-1,2-Dichloroethene	91	95	70 - 130	5	50		
cis-1,3-Dichloropropene	94	95	70 - 130	1	50		
1,2-Dichlorobenzene	102	103	70 - 130	1	50		
1,3-Dichlorobenzene	104	104	70 - 130	0	50		
1,4-Dichlorobenzene	103	107	70 - 130	4	50		
Dichlorobromomethane	92	96	70 - 130	5	50		
Dichlorodifluoromethane	98	101	70 - 130	3	100		
1,1-Dichloroethane	95	99	70 - 130	3	50		
1,2-Dichloroethane	91	94	70 - 130	4	50		
1,1-Dichloroethene	101	107	70 - 130	6	50		
1,2-Dichloropropane	95	96	70 - 130	1	50		
Methylene Chloride	105	105	68 - 130	0	50		
1,1,2,2-Tetrachloroethane	86	89	70 - 130	4	50		
Tetrachloroethene	119	112	59 - 130	6	50		
trans-1,2-Dichloroethene	94	97	70 - 130	3	50		
trans-1,3-Dichloropropene	93	96	70 - 130	4	50		
1,1,1-Trichloroethane	94	100	70 - 130	6	50		
1,1,2-Trichloroethane	105	104	70 - 130	1	50		
Trichloroethene	93	95	66 - 130	2	50		
Trichlorofluoromethane	104	110	70 - 130	6	100		
Vinyl chloride	107	113	70 - 130	6	100		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	102	101	67 - 130
Dibromofluoromethane	101	103	61 - 130
Toluene-d8 (Surr)	101	100	70 - 130

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 640-74565

Method: 8260C
Preparation: N/A

LCS Lab Sample ID: LCS 640-74565/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2010 2038
Date Prepared: N/A

Units: ug/Kg

LCSD Lab Sample ID: LCSD 640-74565/4
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2010 2104
Date Prepared: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Bromoform	40.0	40.0	39.3	39.3
Bromomethane	40.0	40.0	34.1	35.4
Carbon tetrachloride	40.0	40.0	38.7	40.0
Chlorobenzene	40.0	40.0	42.0	43.1
Chlorodibromomethane	40.0	40.0	38.1	39.8
Chloroethane	40.0	40.0	39.5	41.8
Chloroform	40.0	40.0	37.9	38.9
Chloromethane	40.0	40.0	42.2	44.2
cis-1,2-Dichloroethene	40.0	40.0	36.3	38.1
cis-1,3-Dichloropropene	40.0	40.0	37.6	38.0
1,2-Dichlorobenzene	40.0	40.0	40.8	41.2
1,3-Dichlorobenzene	40.0	40.0	41.7	41.6
1,4-Dichlorobenzene	40.0	40.0	41.2	42.7
Dichlorobromomethane	40.0	40.0	36.8	38.5
Dichlorodifluoromethane	40.0	40.0	39.3	40.4
1,1-Dichloroethane	40.0	40.0	38.2	39.4
1,2-Dichloroethane	40.0	40.0	36.4	37.8
1,1-Dichloroethene	40.0	40.0	40.3	42.9
1,2-Dichloropropane	40.0	40.0	37.9	38.4
Methylene Chloride	40.0	40.0	41.8	42.0
1,1,2,2-Tetrachloroethane	40.0	40.0	34.3	35.6
Tetrachloroethene	40.0	40.0	47.4	44.7
trans-1,2-Dichloroethene	40.0	40.0	37.8	38.9
trans-1,3-Dichloropropene	40.0	40.0	37.2	38.5
1,1,1-Trichloroethane	40.0	40.0	37.4	39.9
1,1,2-Trichloroethane	40.0	40.0	41.9	41.4
Trichloroethene	40.0	40.0	37.3	38.2
Trichlorofluoromethane	40.0	40.0	41.5	43.9
Vinyl chloride	40.0	40.0	42.7	45.2

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Method Blank - Batch: 640-74204

Method: 8082
Preparation: 3550B

Lab Sample ID: MB 640-74204/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1543
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204
Units: ug/Kg

Instrument ID: SGL
Lab File ID: 1J27L006.D
Initial Weight/Volume: 00030.24 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	PQL
PCB-1016	8.2	U	8.2	33
PCB-1221	11	U	11	66
PCB-1232	8.5	U	8.5	33
PCB-1242	5.5	U	5.5	33
PCB-1248	6.9	U	6.9	33
PCB-1254	5.6	U	5.6	33
PCB-1260	5.9	U	5.9	33

Surrogate	% Rec		Acceptance Limits
DCB Decachlorobiphenyl	79		30 - 138
Dibutylchlorendate	81		30 - 130
Tetrachloro-m-xylene	7	J1	30 - 130

Lab Control Sample/ Lab Control Sample Duplicate Recovery Report - Batch: 640-74204

Method: 8082
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74204/20-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1558
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204
Units: ug/Kg

Instrument ID: SGL
Lab File ID: 1J27L007.D
Initial Weight/Volume: 00030.24 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 640-74204/21-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1612
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204
Units: ug/Kg

Instrument ID: SGL
Lab File ID: 1J27L008.D
Initial Weight/Volume: 00030.09 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qua
PCB-1016	79	84	25 - 139	7	50		
PCB-1260	81	79	50 - 130	2	50		

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 640-74204

Method: 8082
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74204/20-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1558
Date Prepared: 10/22/2010 1255

Units: ug/Kg

LCSD Lab Sample ID: LCSD 640-74204/21-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1612
Date Prepared: 10/22/2010 1255

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
PCB-1016	165	166	130	139
PCB-1260	165	166	134	131

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74204

Method: 8082
Preparation: 3550B

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1626
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204

Instrument ID: SGL
Lab File ID: 1J27L009.D
Initial Weight/Volume: 00030.34 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Column ID: PRIMARY

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1641
Date Prepared: 10/22/2010 1255

Analysis Batch: 640-74502
Prep Batch: 640-74204

Instrument ID: SGL
Lab File ID: 1J27L010.D
Initial Weight/Volume: 00030.26 g
Final Weight/Volume: 10.0 mL
Injection Volume: 2 uL
Column ID: PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
PCB-1016	84	78	25 - 139	7	50		
PCB-1260	68	65	50 - 130	3	50		

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74204

Method: 8082
Preparation: 3550B

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1626
Date Prepared: 10/22/2010 1255

Units: ug/Kg

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/27/2010 1641
Date Prepared: 10/22/2010 1255

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
PCB-1016	16	U	312	312	261	244
PCB-1260	11	U	312	312	211	204

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Method Blank - Batch: 640-74451

Method: 8141A
Preparation: 3550B

Lab Sample ID: MB 640-74451/5-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1244
Date Prepared: 10/28/2010 1230

Analysis Batch: 640-74704
Prep Batch: 640-74451
Units: ug/Kg

Instrument ID: SGF
Lab File ID: 1K02F8.d
Initial Weight/Volume: 00030.03 g
Final Weight/Volume: 10.0 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	PQL
Azinphos-methyl	4.4	U	4.4	66
Bolstar	8.5	U	8.5	33
Chlorpyrifos	8.4	U	8.4	33
Coumaphos	8.6	U	8.6	330
Demeton, Total	13	U	13	83
Diazinon	8.8	U	8.8	33
Dichlorvos	17	U	17	66
Dimethoate	10	U	10	66
Disulfoton	11	U	11	66
EPN	9.1	U	9.1	33
Ethoprop	15	U	15	17
Fensulfothion	10	U	10	330
Fenthion	8.9	U	8.9	33
Malathion	9.0	U	9.0	33
Merphos	8.3	U	8.3	33
Mevinphos	11	U	11	66
Monochrotophos	85	U	85	330
Naled	5.2	U	5.2	330
Ethyl Parathion	8.8	U	8.8	33
Methyl parathion	5.4	U	5.4	17
Phorate	11	U	11	33
Ronnel	8.0	U	8.0	33
Sulfotepp	5.3	U	5.3	17
Stirophos	8.9	U	8.9	33
Tokuthion	7.7	U	7.7	33
Trichloronate	8.2	U	8.2	330

Surrogate	% Rec	Acceptance Limits
Triphenylphosphate	86	35 - 134

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 640-74451

Method: 8141A
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74451/6-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1704
Date Prepared: 10/28/2010 1230

Analysis Batch: 640-74704
Prep Batch: 640-74451
Units: ug/Kg

Instrument ID: SGF
Lab File ID: 1K02F26.d
Initial Weight/Volume: 00030.25 g
Final Weight/Volume: 10.0 mL
Injection Volume: 1 uL
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 640-74451/7-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1718
Date Prepared: 10/28/2010 1230

Analysis Batch: 640-74704
Prep Batch: 640-74451
Units: ug/Kg

Instrument ID: SGF
Lab File ID: 1K02F27.d
Initial Weight/Volume: 00030.23 g
Final Weight/Volume: 10.0 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qua
Diazinon	79	82	20 - 100	4	50		
Ethyl Parathion	86	95	22 - 116	10	50		
Methyl parathion	76	82	20 - 107	7	50		
Ronnel	98	103	38 - 130	5	50		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 640-74451

Method: 8141A
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74451/6-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1704
Date Prepared: 10/28/2010 1230

Units: ug/Kg

LCSD Lab Sample ID: LCSD 640-74451/7-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2010 1718
Date Prepared: 10/28/2010 1230

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Diazinon	165	165	131	136
Ethyl Parathion	165	165	143	157
Methyl parathion	165	165	126	136
Ronnel	165	165	162	171

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Method Blank - Batch: 680-183879

Method: 8151A
Preparation: 8151A

Lab Sample ID: MB 680-183879/16-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/26/2010 0129
Date Prepared: 10/23/2010 0826

Analysis Batch: 680-184068
Prep Batch: 680-183879
Units: ug/Kg

Instrument ID: SGS
Lab File ID: sj25045.d
Initial Weight/Volume: 30.22 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Result	Qual	MDL	PQL
2,4,5-T	2.3	U	2.3	8.2
2,4-D	5.0	U	5.0	8.2
2,4-DB	3.0	U	3.0	8.2
Dalapon	2.9	U	2.9	330
Dicamba	1.9	U	1.9	8.2
Dichlorprop	1.1	U	1.1	8.2
MCPA	190	U	190	2000
Pentachlorophenol	0.42	U	0.42	8.2
Silvex (2,4,5-TP)	1.6	U	1.6	8.2
MCPP	170	U	170	2000
Picloram	1.8	U	1.8	8.2

Surrogate	% Rec	Acceptance Limits
2,4-Dichlorophenylacetic acid	82	58 - 110

Surrogate	% Rec	Acceptance Limits
2,4-Dichlorophenylacetic acid	68	58 - 110

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Lab Control Sample - Batch: 680-183879

Method: 8151A
Preparation: 8151A

Lab Sample ID: LCS 680-183879/17-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/26/2010 0145
Date Prepared: 10/23/2010 0826

Analysis Batch: 680-184068
Prep Batch: 680-183879
Units: ug/Kg

Instrument ID: SGS
Lab File ID: sj25046.d
Initial Weight/Volume: 30.09 g
Final Weight/Volume: 10 mL
Injection Volume: 1 uL
Column ID: PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
2,4,5-T	66.5	30.8	46	19 - 130	
2,4-D	66.5	49.0	74	62 - 148	
2,4-DB	66.5	14.4	22	17 - 148	
Dalapon	332	175	53	18 - 133	I
Dicamba	66.5	37.7	57	51 - 130	
Dichlorprop	66.5	32.7	49	22 - 130	
MCPA	6650	3910	59	48 - 169	
Pentachlorophenol	44.5	26.6	60	12 - 130	
Silvex (2,4,5-TP)	66.5	30.8	46	22 - 130	
MCPP	6650	3230	49	10 - 158	
Picloram	66.5	41.3	62	15 - 130	

Surrogate	% Rec	Acceptance Limits
2,4-Dichlorophenylacetic acid	62	58 - 110

Surrogate	% Rec	Acceptance Limits
2,4-Dichlorophenylacetic acid	58	58 - 110

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Method Blank - Batch: 640-74163

Method: FL-PRO
Preparation: 3550B

Lab Sample ID: MB 640-74163/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1652
Date Prepared: 10/21/2010 0918

Analysis Batch: 640-74300
Prep Batch: 640-74163
Units: mg/Kg

Instrument ID: SGJ
Lab File ID: 1J22J30.d
Initial Weight/Volume: 00030.12 g
Final Weight/Volume: 2.0 mL
Injection Volume: 1 uL

Analyte	Result	Qual	MDL	PQL
C8-C40	5.31	I	2.3	10

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	75	62 - 109
n-C39	86	60 - 118

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 640-74163

Method: FL-PRO
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74163/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1703
Date Prepared: 10/21/2010 0918

Analysis Batch: 640-74300
Prep Batch: 640-74163
Units: mg/Kg

Instrument ID: SGJ
Lab File ID: 1J22J31.d
Initial Weight/Volume: 00030.37 g
Final Weight/Volume: 2.0 mL
Injection Volume: 1 uL

LCSD Lab Sample ID: LCSD 640-74163/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1714
Date Prepared: 10/21/2010 0918

Analysis Batch: 640-74300
Prep Batch: 640-74163
Units: mg/Kg

Instrument ID: SGJ
Lab File ID: 1J22J32.d
Initial Weight/Volume: 00030.10 g
Final Weight/Volume: 2.0 mL
Injection Volume: 1 uL

Analyte	% Rec. LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qua
C8-C40	84	91	63 - 153	8	25		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
o-Terphenyl	81	84	62 - 109
n-C39	89	89	60 - 118

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 640-74163

Method: FL-PRO
Preparation: 3550B

LCS Lab Sample ID: LCS 640-74163/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1703
Date Prepared: 10/21/2010 0918

Units: mg/Kg

LCSD Lab Sample ID: LCSD 640-74163/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1714
Date Prepared: 10/21/2010 0918

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
C8-C40	89.6	90.4	75.6	82.0

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74163

Method: FL-PRO
Preparation: 3550B

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1956
Date Prepared: 10/21/2010 0918

Analysis Batch: 640-74300
Prep Batch: 640-74163

Instrument ID: SGJ
Lab File ID: 1J22J45.d
Initial Weight/Volume: 00030.26 g
Final Weight/Volume: 2.0 mL
Injection Volume: 1 uL

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 2010
Date Prepared: 10/21/2010 0918

Analysis Batch: 640-74300
Prep Batch: 640-74163

Instrument ID: SGJ
Lab File ID: 1J22J46.d
Initial Weight/Volume: 00030.18 g
Final Weight/Volume: 2.0 mL
Injection Volume: 1 uL

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C8-C40	214	156	62 - 204	22	25	J3	

Surrogate	MS % Rec		MSD % Rec		Acceptance Limits
o-Terphenyl	74		81		62 - 109
n-C39	39	J1	49	J1	60 - 118

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 640-74163

Method: FL-PRO
Preparation: 3550B

MS Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 1956
Date Prepared: 10/21/2010 0918

Units: mg/Kg

MSD Lab Sample ID: 640-30598-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/22/2010 2010
Date Prepared: 10/21/2010 0918

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual		MSD Result/Qual
C8-C40	120	170	170	486	J3	389

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

TCLP SPLPE Leachate Blank - Batch: 660-101748

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID: LB 660-101741/1-B ^5
Client Matrix: Solid
Dilution: 5.0
Date Analyzed: 10/26/2010 0755
Date Prepared: 10/25/2010 0941
Date Leached: 10/21/2010 1735

Analysis Batch: 660-101805
Prep Batch: 660-101748
Units: mg/L

Instrument ID: ICPA
Lab File ID: 10J26A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Result	Qual	MDL	PQL
Silver	0.050	U	0.050	0.50
Arsenic	0.12	U	0.12	1.0
Barium	0.030	U	0.030	0.50
Cadmium	0.018	U	0.018	0.50
Chromium	0.050	U	0.050	1.0
Lead	0.040	U	0.040	1.0
Selenium	0.15	U	0.15	0.50

Lab Control Sample - Batch: 660-101748

Method: 6010B
Preparation: 3010A

Lab Sample ID: LCS 660-101748/2-A ^5
Client Matrix: Water
Dilution: 5.0
Date Analyzed: 10/26/2010 0706
Date Prepared: 10/25/2010 0941

Analysis Batch: 660-101805
Prep Batch: 660-101748
Units: mg/L

Instrument ID: ICPA
Lab File ID: 10J26A
Initial Weight/Volume: 50 mL
Final Weight/Volume: 50 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Silver	1.00	0.970	97	75 - 125	
Arsenic	1.00	0.961	96	75 - 125	
Barium	1.00	0.918	92	75 - 125	
Cadmium	1.00	1.02	102	75 - 125	
Chromium	0.990	1.01	102	75 - 125	
Lead	1.00	1.00	100	75 - 125	
Selenium	1.00	0.978	98	75 - 125	

Client: Environmental and Geotechnical Specialis

Job Number: 640-30598-1

TCLP SPLPE Leachate Blank - Batch: 660-101768

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID: LB 660-101741/1-C
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/25/2010 1610
Date Prepared: 10/25/2010 1100
Date Leached: 10/21/2010 1735

Analysis Batch: 660-101815
Prep Batch: 660-101768
Units: mg/L

Instrument ID: PS200II
Lab File ID: 10J25PS2.PRN
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Result	Qual	MDL	PQL
Mercury	0.00036	U	0.00036	0.00050

Lab Control Sample - Batch: 660-101768

Method: 7470A
Preparation: 7470A

Lab Sample ID: LCS 660-101768/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 10/25/2010 1547
Date Prepared: 10/25/2010 1100

Analysis Batch: 660-101815
Prep Batch: 660-101768
Units: mg/L

Instrument ID: PS200II
Lab File ID: 10J25PS2.PRN
Initial Weight/Volume: 25 mL
Final Weight/Volume: 25 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00100	0.00102	102	80 - 120	

TestAmerica Tallahassee
2846 Industrial Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: M. Landscheot	Lab PM: Marks, Amy	Carrier Tracking No(s):	COC No: 640-24120.1
Client Contact: Myron Hayden	Phone: (850)386-1253	E-Mail: amy.marks@testamericainc.com		Page: Page 1 of 1
Company: Environmental and Geotechnical Specialists				Job #: 640-30598
Address: 3154 Eliza Road	Due Date Requested:			
City: Tallahassee	TAT Requested (days):			
State, Zip: FL, 32308				
Phone: 850-386-1253(Tel)	PO #: O-1021			
Email: myron.hayden@egs-us.com	WO #: EGS Project 22-32-09-03			
Project Name: Timberlake Flood Mitigation	Project #: 64004012			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	8082, 8141A, FL_PRO	8260C - Purgeable Halocarbons	8151A - Chlorinated Herbicides (TAM)	6010B, 7470A - TCLP Metals (TAM)
Sediment 1	10/19	4:30	C	S	1	1	1	1

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Special Instructions/Note:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: TM Date: 10/20/10 Time: 12:50 Method of Shipment: Pick-up

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	10/19/10 6:19	EGS	[signature]	10-19-10 17:19	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.1

APPENDIX F
ADVANCED SOIL TESTING RESULTS

SHELBY TUBE DATA

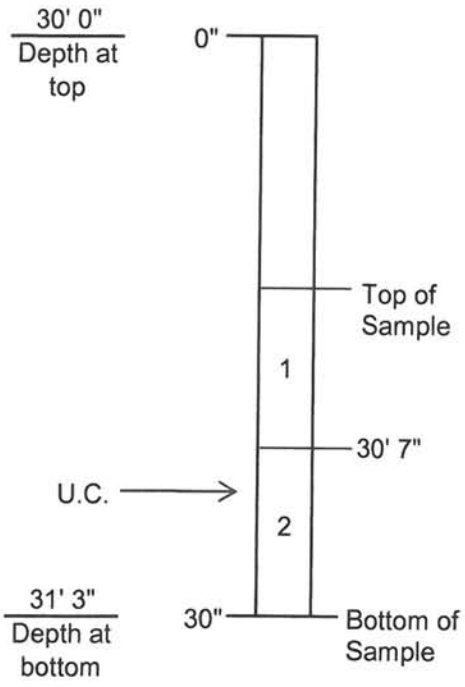
SHELBY TUBE LABORATORY DATA SHEET

EGS

Environmental & Geotechnical Specialists, Inc.
3154 Eliza Road
Tallahassee, Florida 32308
Office: (850) 386-1253 Fax: (850) 385-8050

DATE:	9/15/2010
PROJECT:	TIMBERLAKE EXISTING POND
PROJECT NO.:	22-32-10-03
BORING NO.:	B-2
DEPTH:	30' 0" - 32' 6"

SAMPLE DIAGRAM



SOIL IDENTIFICATION

1) GRAY HIGHLY PLASTIC CLAY (CH A-7-5)
2) GRAY HIGHLY PLASTIC CLAY (CH A-7-5)
3)
4)
5)

GRAIN SIZE ANALYSIS (%) PASSING					
SAMPLE NO.	1	2			
4		100			
10		100			
20		100			
40		100			
60		98			
100		95			
200		92			

MOISTURE CONTENT					
SAMPLE NO.	1	2			
TARE NO.	A	B			
WT. TARE	0.45	0.45			
WWS + TARE	15.57	17.78			
WDS + TARE	8.67	10.15			
MS%	84	79			

ATTERBERG LIMITS					
SAMPLE NO.	1	2			
LIQUID LIMIT		95			
PLASTIC LIMIT		32			
PLASTICITY INDEX		63			

UNIT WEIGHTS					
SAMPLE NO.	1	2			
LENGTH (IN)		5.6			
DIAMETER (IN)		2.8			
NATURAL DENSITY (LB/CU FT)		104.8			
DRY DENSITY (LB/CU FT)		59.5			

ORGANIC CONTENT					
SAMPLE NO.	1	2	3		
ORG %					
ORG %					
ORG %					

UCC TEST RESULTS

DATA SHEET

COMPRESSIVE STRENGTH
STRESS - STRAIN

TEST IDENTIFICATION:

DATE: 9/9/2010 **TIME:** 8:00 AM

PROJECT NO: 22-32-10-03 **BORING NO:** B-2

DEPTH: 30' 0" - 32' 6" SEC 2 **TESTED BY:** JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5

TEST DATA:

INITIAL SOIL DENSITY:

WEIGHT OF SAMPLE	948.4	gm		
DIAMETER OF SAMPLE	2.80	in	7.11	cm
HEIGHT OF SAMPLE	5.60	in	14.22	cm
VOLUME OF SAMPLE	34.46	in^3	564.77	cm^3
WET DENSITY OF SAMPLE	1.68	gm/cc		
WET DENSITY OF SAMPLE	104.8	lb/cu ft		
DRY DENSITY OF SAMPLE	**0.95**	**gm/cc**		
DRY DENSITY OF SAMPLE	**59.5**	**lb/cu ft**		

WATER CONTENT:

TARE NUMBER	1	2	3
WEIGHT OF TARE (gm)	0.45	0.45	0.45
WET WEIGHT OF SOIL + TARE (gm)	15.65	10.78	15.64
DRY WEIGHT OF SOIL + TARE (gm)	9.04	6.41	8.98
WATER CONTENT (%)	76.9	73.3	78.1

AVERAGE WATER CONTENT **76.1** **%**

INITIAL VOID RATIO:

DRY MASS OF SOIL	538.5	gm		
SPECIFIC GRAVITY OF SOLIDS	2.75			
UNIT WEIGHT OF WATER	62.4	lb/cu ft	1.00	gm/cm^3
VOLUME OF SOLIDS	11.950	in^3	195.821	cm^3
VOLUME OF VOIDS	22.515	in^3	368.953	cm^3
VOID RATIO	**1.884**			

DATA SHEET

UNCONFINED COMPRESSION
STRESS - STRAIN

TEST IDENTIFICATION:

DATE: 9/9/2010 **TIME:** 8:00 AM

PROJECT NO: 22-32-10-03 **BORING NO:** B-2

DEPTH: 30' 0" - 32' 6" SEC 2 **TESTED BY:** JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5

TEST DATA:

VERTICAL LOAD (LBS)	VERTICAL DIAL READING (INCHES)	VERTICAL DEFLECTION (INCHES)	VERTICAL STRAIN (INCHES/INCH)	UNCONFINED COMPRESSION (LB/SQ FT)
		INITIAL READING		
50	0.010	0.010	0.0018	1,170
93	0.020	0.020	0.0036	2,176
108	0.030	0.030	0.0054	2,527
123	0.040	0.040	0.0071	2,878
129	0.050	0.050	0.0089	3,018
127	0.060	0.060	0.0107	2,972
112	0.070	0.070	0.0125	2,621

DATA SHEET

UNCONFINED COMPRESSION
STRESS - STRAIN

TEST IDENTIFICATION:

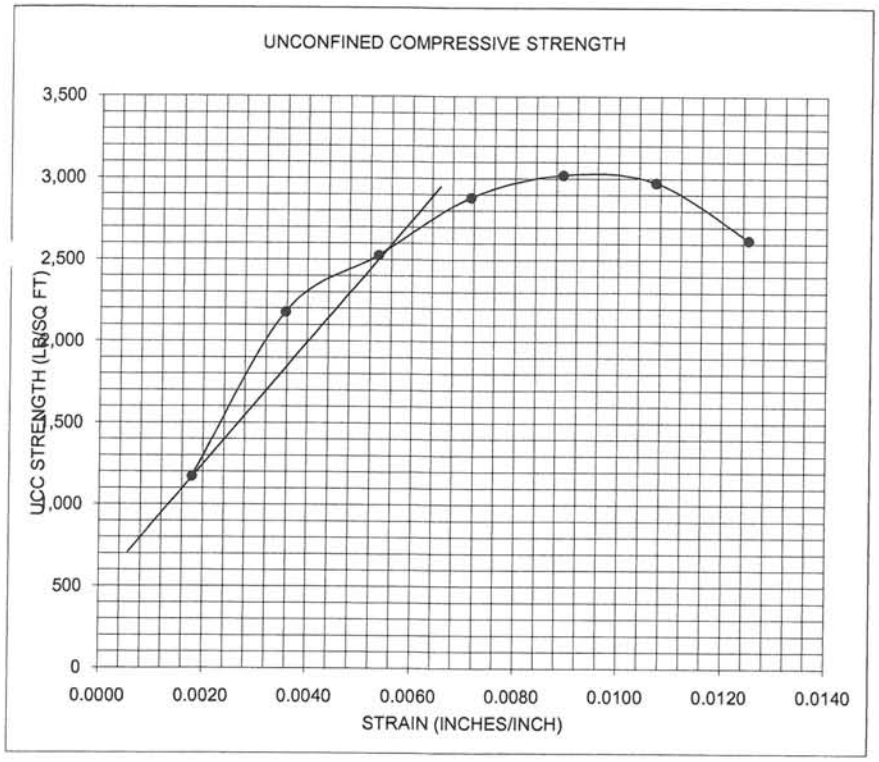
DATE: 9/9/2010 **TIME:** 8:00 AM

PROJECT NO: 22-32-10-03 **TEST NO:** B-2

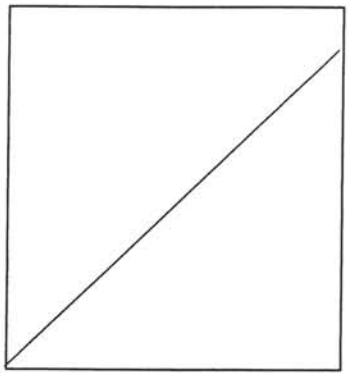
DEPTH: 30' 0" - 32' 6" SEC 2 **TESTED BY:** JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5

TEST DATA:



FAILURE DIAGRAM



FAILURE ANGLE

65°

COMPRESSION MODULUS (LB/SQ FT)

379,982

NOTES: COMPRESSION LOAD RATE: 0.05 IN/MIN

VANE SHEAR = (0.4) (2.5) = 1.0 TSF

HYDROMETER TEST RESULTS

DATA SHEET

HYDROMETER ANALYSIS

(AASHTO T88 / FM-T88 / ASTM D422)

TEST IDENTIFICATION:

DATE: 9/16/2010 **TIME:** 9:00 AM

PROJECT NO: 22-32-10-03 **BORING NO:** B-1

DEPTH: 7' 6" - 9' 0" **TESTED BY:** JM

SOIL DESCRIPTION: GRAY AND BROWN CLAYEY SAND
SC A-2-6

TEST DATA:

HYDROMETER H151 NUMBER: #2 **CYLINDER NUMBER:** A

TEST VOLUME 1000 cm^3 **SAMPLE WEIGHT (W):** 93.0 gm

SPECIFIC GRAVITY OF SOILIDS (G) : 2.7

TEST DATA: **K CONSTANT:** 0.0042

TEMP (^0C)	TIME	ELAPSED TIME (T) (MIN)	HYDROMETER READING			DIAMETER IN SUSPENSION (mm)	EFFECTIVE DEPTH (L) (mm)	PERCENT BY WEIGHT IN SUSPENSION (%)
			SUSPENSION	CONTROL (G_1)	CORRECTED (R)			
FIRST READING								
21.2	6 SEC	0.10	1.026	1.004	1.022	-	-	-
21.2	15 SEC	0.25	1.025	1.004	1.021	-	-	-
21.2	30 SEC	0.50	1.024	1.004	1.020	-	-	-
21.2	60 SEC	1.00	1.023	1.004	1.019	-	-	-
21.2	2 MIN	2.00	1.023	1.004	1.019	-	-	-
SECOND READING								
21.2	6 SEC	0.10	1.026	1.004	1.022	**0.12877**	94	**37.6**
21.2	15 SEC	0.25	1.025	1.004	1.021	**0.08273**	97	**35.9**
21.2	30 SEC	0.50	1.024	1.004	1.020	**0.05940**	100	**34.2**
21.2	60 SEC	1.00	1.023	1.004	1.019	**0.04242**	102	**32.4**
21.2	2 MIN	2.00	1.023	1.004	1.019	**0.02999**	102	**32.4**
21.2	5 MIN	5.00	1.023	1.004	1.019	**0.01897**	102	**32.4**
21.2	15 MIN	15.00	1.023	1.004	1.019	**0.01095**	102	**32.4**
21.2	30 MIN	30.00	1.022	1.004	1.018	**0.00786**	105	**30.7**
21.3	1 HR	60.00	1.022	1.004	1.018	**0.00556**	105	**30.7**
21.3	2 HR	120.00	1.021	1.004	1.017	**0.00397**	107	**29.0**
21.3	4 HR	240.00	1.021	1.004	1.017	**0.00280**	107	**29.0**
21.3	24 HR	1440.00	1.021	1.004	1.017	**0.00114**	107	**29.0**

EQUATIONS
(OBTAINED FROM AASHTO T88)

EFFECTIVE DEPTH: FROM TABLE 2 OF AASHTO T-88
K CONSTANT: FROM TABLE 3 OF AASHTO T-88

DIAMETER IN SUSPENSION: $(K)(^{L}/_{T})^{.5}$

PERCENT BY WEIGHT IN SUSPENSION (P): $\frac{(100)\,(1606)\,(R-1)\,a}{W}$ WHERE (a): $\frac{(0.62264)\,G}{G-1}$

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 9/16/2010 TIME: 9:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-1

DEPTH: 7' 6" - 9' 0" TESTED BY: JM

SOIL DESCRIPTION: GRAY AND BROWN CLAYEY SAND
SC A-2-6

INITIAL DRY MASS OF SOIL: 93.0 gm

SIEVE NO.	SIEVE OPENING SIZE (mm)	CUMULATIVE MASS RETAINED (gm)	PERCENT RETAINED %	PERCENT PASSING %
4	4.750			100.0
10	2.000			100.0
20	0.840			99.0
40	0.425	4.0	4.3	94.0
60	0.250	14.0	15.1	84.0
100	0.150	38.0	40.9	56.0
200	0.075	58.0	62.4	34.0

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

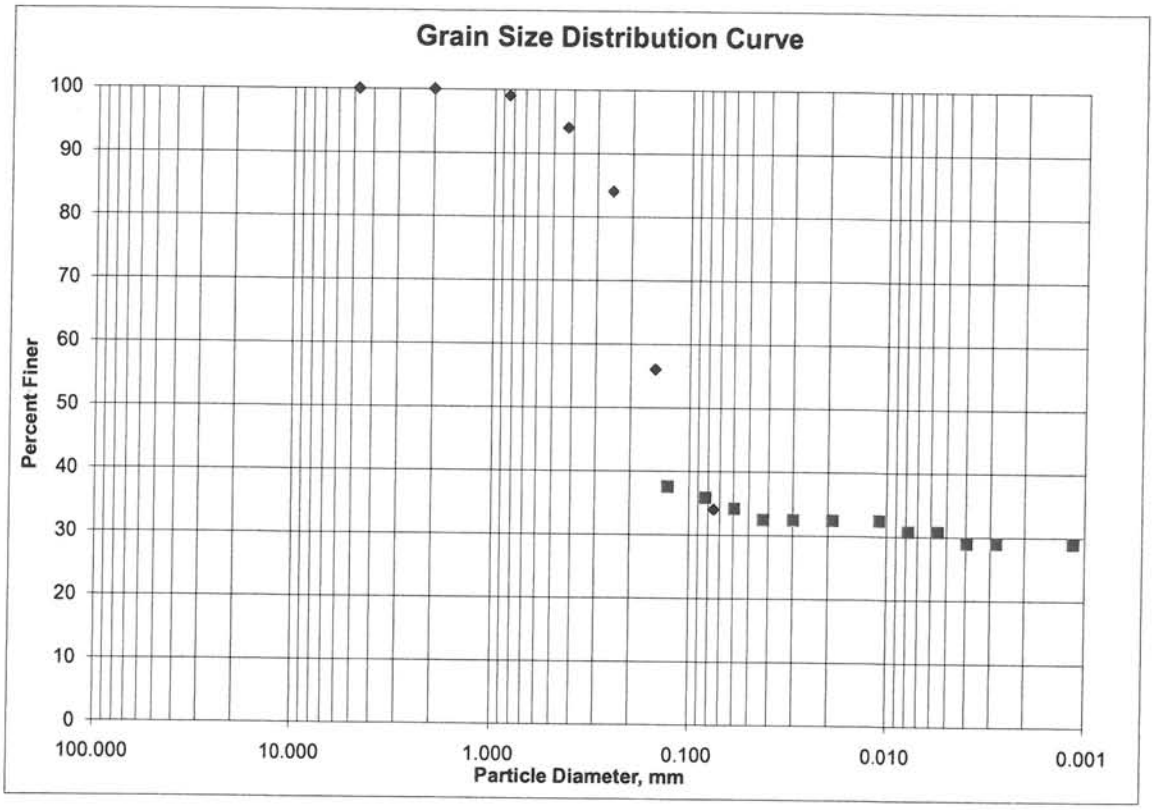
DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 9/16/2010 TIME: 9:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-1

DEPTH: 7' 6" - 9' 0" TESTED BY: JM

SOIL DESCRIPTION: GRAY AND BROWN CLAYEY SAND
SC A-2-6



DATA SHEET

HYDROMETER ANALYSIS

(AASHTO T88 / FM-T88 / ASTM D422)

TEST IDENTIFICATION:

DATE: 10/21/2010 **TIME:** 10:00 AM

PROJECT NO: 22-32-10-03 **BORING NO:** B-1

DEPTH: 32' 6" - 34' 0" **TESTED BY:** JM

SOIL DESCRIPTION: SC A-2-6
BROWN CLAYEY FINE SAND

TEST DATA:

HYDROMETER H151 NUMBER: #2 **CYLINDER NUMBER:** A

TEST VOLUME 1000 cm^3 **SAMPLE WEIGHT (W):** 100.0 gm

SPECIFIC GRAVITY OF SOILIDS (G) : 2.7

TEST DATA: **K CONSTANT:** 0.0042

TEMP (^0C)	TIME	ELAPSED TIME (T) (MIN)	HYDROMETER READING			DIAMETER IN SUSPENSION (mm)	EFFECTIVE DEPTH (L) (mm)	PERCENT BY WEIGHT IN SUSPENSION (%)
			SUSPENSION	CONTROL (G_1)	CORRECTED (R)			
FIRST READING								
21.0	6 SEC	0.10				-	-	-
21.0	15 SEC	0.25	1.022	1.004	1.018	-	-	-
21.0	30 SEC	0.50	1.020	1.004	1.016	-	-	-
21.0	60 SEC	1.00	1.019	1.004	1.015	-	-	-
21.0	2 MIN	2.00	1.018	1.004	1.014	-	-	-
SECOND READING								
21.0	6 SEC	0.10						
21.0	15 SEC	0.25	1.022	1.004	1.018	**0.08810**	110	**28.6**
21.0	30 SEC	0.50	1.020	1.004	1.016	**0.06314**	113	**25.4**
21.0	60 SEC	1.00	1.019	1.004	1.015	**0.04504**	115	**23.8**
21.0	2 MIN	2.00	1.018	1.004	1.014	**0.03185**	115	**22.2**
21.0	5 MIN	5.00	1.018	1.004	1.014	**0.02014**	115	**22.2**
21.0	15 MIN	15.00	1.018	1.004	1.014	**0.01163**	115	**22.2**
21.0	30 MIN	30.00	1.018	1.004	1.014	**0.00833**	118	**22.2**
21.0	1 HR	60.00	1.017	1.004	1.013	**0.00589**	118	**20.6**
21.0	2 HR	120.00	1.017	1.004	1.013	**0.00416**	118	**20.6**
21.0	4 HR	240.00	1.017	1.004	1.013	**0.00294**	118	**20.6**
20.0	24 HR	1440.00	1.016	1.004	1.012	**0.00122**	121	**19.1**

EQUATIONS
(OBTAINED FROM AASHTO T88)

EFFECTIVE DEPTH: FROM TABLE 2 OF AASHTO T-88
K CONSTANT: FROM TABLE 3 OF AASHTO T-88

DIAMETER IN SUSPENSION: $(K)(^{L}/_{T})^{.5}$

PERCENT BY WEIGHT IN SUSPENSION (P): $\frac{(100)\,(1606)\,(R-1)\,a}{W}$ WHERE (a): $\frac{(0.62264)\,G}{G-1}$

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 10/21/2010 TIME: 10:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-1

DEPTH: 32' 6" - 34' 0" TESTED BY: JM

SOIL DESCRIPTION: SC A-2-6
BROWN CLAYEY FINE SAND

INITIAL DRY MASS OF SOIL: 100.0 gm

SIEVE NO.	SIEVE OPENING SIZE (mm)	CUMULATIVE MASS RETAINED (gm)	PERCENT RETAINED %	PERCENT PASSING %
4	4.750			100.0
10	2.000			100.0
20	0.840			100.0
40	0.425			100.0
60	0.250	2.0	2.0	98.0
100	0.150	41.0	41.0	59.0
200	0.075	75.0	75.0	25.0

ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

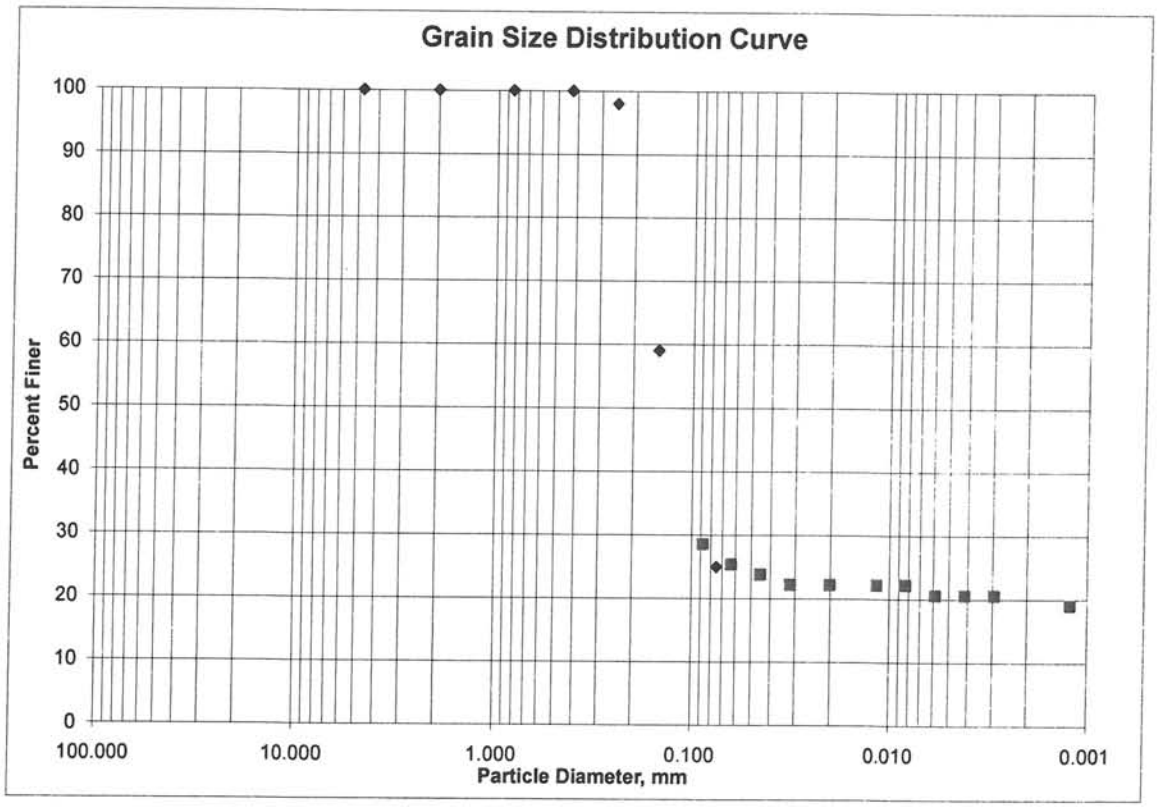
DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 10/21/2010 TIME: 10:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-1

DEPTH: 32' 6" - 34' 0" TESTED BY: JM

SOIL DESCRIPTION: SC A-2-6
BROWN CLAYEY FINE SAND



ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC.

DATA SHEET

HYDROMETER ANALYSIS

(AASHTO T88 / FM-T88 / ASTM D422)

TEST IDENTIFICATION:

DATE: 9/16/2010 **TIME:** 10:00 AM

PROJECT NO: 22-32-10-03 **BORING NO:** B-2

DEPTH: 25' 0" - 26' 6" **TESTED BY:** JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5

TEST DATA:

HYDROMETER H151 NUMBER: #2 **CYLINDER NUMBER:** B

TEST VOLUME 1000 cm^3 **SAMPLE WEIGHT (W):** 50.0 gm

SPECIFIC GRAVITY OF SOILIDS (G) : 2.7

TEST DATA: **K CONSTANT:** 0.004149

TEMP (^{0}C)	TIME	ELAPSED TIME (T) (MIN)	HYDROMETER READING			DIAMETER IN SUSPENSION (mm)	EFFECTIVE DEPTH (L) (mm)	PERCENT BY WEIGHT IN SUSPENSION (%)
			SUSPENSION	CONTROL (G_1)	CORRECTED (R)			
FIRST READING								
22.0	6 SEC	0.10	1.031	1.004	1.027	-	-	-
22.0	15 SEC	0.25	1.030	1.004	1.026	-	-	-
22.0	30 SEC	0.50	1.030	1.004	1.026	-	-	-
22.0	60 SEC	1.00	1.030	1.004	1.026	-	-	-
22.0	2 MIN	2.00	1.029	1.004	1.025	-	-	-
SECOND READING								
22.0	6 SEC	0.10	1.031	1.004	1.027	**0.11808**	81	**85.8**
22.0	15 SEC	0.25	1.030	1.004	1.026	**0.07605**	84	**82.6**
22.0	30 SEC	0.50	1.030	1.004	1.026	**0.05378**	84	**82.6**
22.0	60 SEC	1.00	1.030	1.004	1.026	**0.03803**	84	**82.6**
22.0	2 MIN	2.00	1.029	1.004	1.025	**0.02721**	86	**79.4**
22.0	5 MIN	5.00	1.029	1.004	1.025	**0.01721**	86	**79.4**
22.0	15 MIN	15.00	1.029	1.004	1.025	**0.00993**	86	**79.4**
22.1	30 MIN	30.00	1.029	1.004	1.025	**0.00702**	86	**79.4**
22.1	1 HR	60.00	1.029	1.004	1.025	**0.00497**	86	**79.4**
22.1	2 HR	120.00	1.028	1.004	1.024	**0.00357**	89	**76.2**
22.1	4 HR	240.00	1.028	1.004	1.024	**0.00253**	89	**76.2**
22.1	24.5 HR	1470.00	1.027	1.004	1.023	**0.00104**	92	**73.1**

EQUATIONS
(OBTAINED FROM AASHTO T88)

EFFECTIVE DEPTH: FROM TABLE 2 OF AASHTO T-88
K CONSTANT: FROM TABLE 3 OF AASHTO T-88

DIAMETER IN SUSPENSION: $(K)(^{L}/_{T})^{.5}$

PERCENT BY WEIGHT IN SUSPENSION (P): $\frac{(100)\,(1606)\,(R-1)\,a}{W}$ WHERE (a): $\frac{(0.62264)\,G}{G-1}$

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 9/16/2010 TIME: 10:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-2

DEPTH: 25' 0" - 26' 6" TESTED BY: JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5

INITIAL DRY MASS OF SOIL: 50.0 gm

SIEVE NO.	SIEVE OPENING SIZE (mm)	CUMULATIVE MASS RETAINED (gm)	PERCENT RETAINED %	PERCENT PASSING %
4	4.750			100.0
10	2.000			100.0
20	0.840			100.0
40	0.425	1.0	2.0	98.0
60	0.250	2.0	4.0	96.0
100	0.150	2.0	4.0	96.0
200	0.075	10.0	20.0	80.0

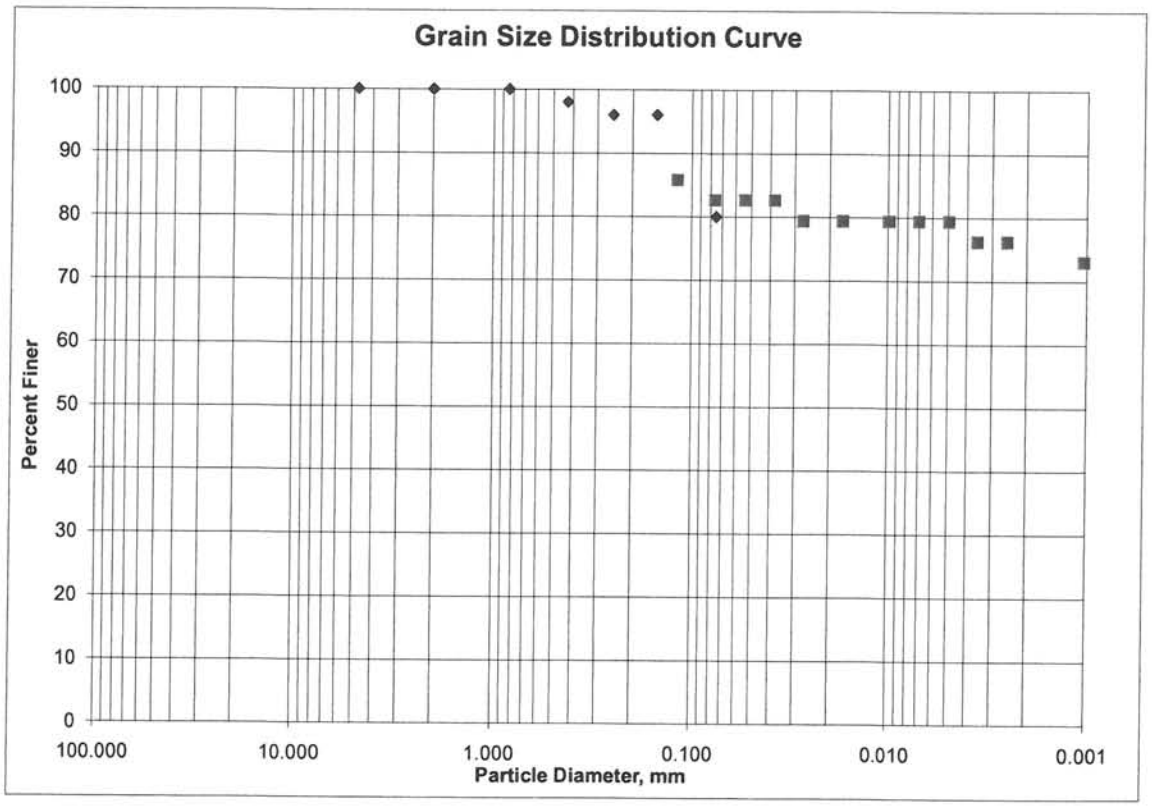
DATA SHEET
PARTICLE ANALYSIS OF SOILS - FULL SET
(AASHTO T88 / FM-T88 / ASTM D422)

DATE: 9/16/2010 TIME: 10:00 AM

PROJECT #: 22-32-10-03 BORING NO.: B-2

DEPTH: 25' 0" - 26' 6" TESTED BY: JM

SOIL DESCRIPTION: GRAY HIGHLY PLASTIC CLAY
CH A-7-5



APPENDIX G
SEDIMENT DRYING STUDY RESULTS

DATA SHEET

SEDIMENT DRYING TEST

TEST IDENTIFICATION:

DATE: 10/20/2010 - 11/1/2010 **START TIME:** 8:30 AM

PROJECT NO: 22-32-10-03 **BORING NO:** COMPOSITE SAMPLE

DEPTH: "VARIES" - SURFICIAL POND SEDIMENT **TESTED BY:** ML

SOIL DESCRIPTION: POND SEDIMENT - ORGANIC CLAY (OH/A-8)

SOIL CLASSIFICATION DATA: PERCENT (%) PASSING 200 SIEVE: 52

LIQUID LIMIT (%): 42

PLASTICITY INDEX (%): 21

ORGANIC CONTENT (%): 10.5

TEST NOTES: TEST SAMPLE AVERAGE THICKNESS: 8.0 INCHES

TEST DATA:

TEST NUMBER	DATE	TIME	ELAPSED TIME (HOURS)	MEASURED MOISTURE CONTENT (%)
1	10-20-2010	8:30 AM	0.0	99
2		4:00 PM	7.5	90
3	10-21-2010	9:00 AM	24.5	78
4		4:00 PM	31.5	69
5	10-22-2010	7:45 AM	47.3	58
6		5:00 PM	56.6	54
7	10-23-2010	9:00 AM	72.6	46
8		5:30 PM	81.1	40
9	10-24-2010	9:00 AM	96.6	34
10		5:00 PM	104.6	30
11	10-29-2010	9:00 AM	217.6	11
12		5:00 PM	225.6	10
13	11-1-2010	9:00 AM	241.6	9

NOTE: 1. MOISTURE CONTENT RECORDED BASED ON AVERAGE OF TEST SAMPLE.

SEDIMENT DRYING TEST (CONT.)

TEST IDENTIFICATION:

DATE:	10/20/2010 - 11/1/2010	**START TIME:**	8:30 AM
PROJECT NO:	22-32-10-03	**BORING NO:**	COMPOSITE SAMPLE
DEPTH:	"VARIES" - SURFICIAL POND SEDIMENT	**TESTED BY:**	ML

SUMMARY GRAPH: