HIGHLANDS COUNTY
BOARD OF COUNTY COMMISSIONERS
(HCBCC)
PURCHASING DIVISION

DATE: February 2, 2018

BID NO. ITB 18-011 ADDENDUM No. 1

PROJECT: Construction of Highlands Park Estate Clubhouse

This addendum is being issued to address a questions regarding this ITB.

1. Does Davis Bacon apply to this project?
   Answer: No

2. Has the existing building that will be demolished been tested for asbestos?
   Answer: Highlands County contracted with ACT Environmental & Infrastructure for the asbestos survey. A copy of that report is attached which shows No Asbestos Detected.

3. Is there enough parking spaces?
   Answer: Yes this project has gone through site review and the current stabilized grass parking and the 11 additional spaces added with this project meets the needs.

4. What is the budget for this project?
   Answer: The budget is $409,649.37

5. What is planned for the water and septic?
   Answer: The existing well will be reused. The existing septic will be removed and a new septic and drain field installed.

6. What is the specification on the roofing shingles?
   Answer: Refer to Specifications, Section 07311 - ASPHALT SHINGLES.

7. The walls/ceiling are a drywall with a hard surface applied. How will these be trimmed out?
   Answer: Refer to Specifications, Section 09841 - ACOUSTICAL SURFACE TREATMENT for acoustical panels to be attached to the ceiling.

8. Has geological study been done on the site?
   Answer: A report from Ardaman & Associates, Inc. is attached to this Addendum.

9. Please explain what the Contractor is expected to do with the water softner in the pantry.
   Answer: Relocate the existing water softener to Storage (107) adjacent to the water supply riser. Route incoming water line thru water softener before running to individual plumbing fixtures.

10. What is the address for the building?
    Answer: 91 Deerglen Blvd, Lake Placid, FL

11. I don't seem to find a septic permit or design in the documents. Could you point me in the right direction? Do you have a septic permit for this project?

    Answer: The septic system design calculations are on page 3 of the civil plans.

    No, the County does not have a permit. Since it is less than 1,000 square feet required for the drain field area, the entire system did not have to be redesigned. It is also noted on the plans, that the contractor would be responsible for securing permitting for the septic system and water system.

A·C·T
Environmental & Infrastructure

CORPORATE OFFICE
1875 West Main Street · Bartow, FL 33830
www.A-C-T.com

863.533.2000

July 14, 2015

Highlands County BOCC
Attn: Kenya Anderson
505 South Commerce Avenue
Sebring, Florida 338701

SUBJECT: **ASBESTOS SURVEY REPORT**
HIGHLAND PARK ESTATES CLUBHOUSE
91 DEERGLEN BOULEVARD, LAKE PLACID, FLORIDA
A·C·T PROJECT NO. 16762

Dear Ms. Anderson,

A·C·T Environmental and Infrastructure is pleased to submit our survey to determine the presence, location, and quantity of suspect asbestos-containing materials (ACM) from the Highland Park Estates Clubhouse located at 91 Deerglen Boulevard in Lake Placid, Florida. The survey was performed on Tuesday, November 3, 2015.

We have committed our experienced and trained personnel, our equipment, and our expertise in a manner that has allowed for an environmentally sound, safety conscious, and cost effective plan that successfully completed this project.

Should you have any questions or require additional information regarding the services provided, please call me at our Bartow office at 863-533-2000 ext 238.

We appreciate the opportunity to be of service in this regard.

Respectfully Submitted,

Eric Jonsson, CIH
Licensed Asbestos Consultant
AX-83
Licensed Business Organization
ZA-334

I. Executive Summary

A-C-T Environmental & Infrastructure, Inc. (ACT) was contracted to perform a survey of the Highland Park Estates Clubhouse located at 91 Deerglen Boulevard in Lake Placid, Florida to determine the presence, location, and quantity of suspect asbestos-containing materials (ACM). The asbestos survey was performed in accordance with 29 CFR 1910.1001 the OSHA general industry asbestos standard and the National Emission Standards for Hazardous Air Pollutants (NESHAP). The survey activities were performed on Tuesday, November 3, 2015 by Mr. Eric Jonsson, an AHERA accredited building inspector and Florida-Licensed Asbestos Consultant.

Based upon methods, procedures and limitations described in this report, laboratory results indicate that asbestos-containing material (ACM, greater than one percent asbestos, by definition) was not detected from the sampled materials.

Although ACM was not identified in the survey, wet demolition methods should be employed. In addition, DEP notification is required prior to any demolition activities.

Our findings are presented in detail throughout this report and its attachments.

II. SURVEY AND SAMPLING PROCEDURES

The survey was performed in accordance with 29 CFR 1910.1001 the OSHA standard for general industry. Homogenous sampling areas were delineated in order to randomly obtain representative samples from each type of homogenous material. We must emphasize that it is not possible to survey every aspect or material of the subject property.

Bulk sampling was performed as an integral part of the survey procedure and was performed in accordance with 29 CFR 1910.1001. Following delineation of homogenous sampling areas, determined by visual survey, samples were collected from representative locations within each of the homogenous areas.

Sampling was performed using the following guidelines. The inspection focuses on identifying:

1) Surfacing Material, 2) Thermal System Insulation, 3) flooring Materials, and 4) roofing material, all of which are likely to contain asbestos. Samples were collected in a random manner utilizing the EPA Guidance Document titled “Asbestos in Buildings- Simplified Sampling Scheme for Friable Surfacing Materials” dated October 1985. A homogenous area is considered not to contain ACM only if the analysis results of all samples obtained from the area contained asbestos in amounts of less than one percent.

III. ASSESSMENT PROCEDURES

Physical assessments of asbestos containing materials was performed in coordination with the facility survey and consisted of a multi-step procedure. In order to provide consistent assessments by inspectors, A-C-T has adopted the EPA's "Guidance for Assessing and Managing Exposure to Asbestos in Buildings" as a guideline for assessments. This document is currently used as text in the EPA approved inspector accreditation programs in numerous locations nationwide.

As the first step in assessment, the suspect material was classified as one of three general material types; surfacing material, thermal system insulation, or miscellaneous material.

1) Surfacing Material: ACM sprayed or trowelled on surfaces, such as acoustical plaster on ceilings and fireproofing material on structural members.
2) Thermal System Insulation: ACM applied to pipes, boilers, tanks, ducts, etc. to prevent heat loss or gain or water condensation, and
3) Miscellaneous Material: "other" ACM for example, ceiling and floor tiles, wallboard, and cement pipe.

The material was further categorized as friable or non-friable, based on the EPA's definition of a friable material, "when dry, may be pulverized, crumbled, or reduced to powder by hand pressure". Materials that were categorized as non-friable were not assessed beyond this point.

Next, an estimation of the material's current condition and percent damage would be performed so that the material could be defined as undamaged, damaged, or significantly damaged. The Inspector would assign a relative percent damage to the ACM based on its physical appearance at the time of the survey. This damage estimate would be further defined as being localized damage or distributed damage. The semi-quantitative definitions would then be used to group friable ACM into one of the following categories: damaged friable surfacing ACM, significantly damaged friable surfacing material, damaged or significantly damaged thermal system insulation, damaged friable miscellaneous ACM, significantly damaged friable miscellaneous ACM, and undamaged ACM.

In addition to a relative percent of damage, a further explanation of the type of damage would also be performed by characterizing the damage into one of the following general categories: deterioration,

physical damage, and water damage. At this point a qualitative rating of the material's overall condition; good, fair, or poor; would also be assigned.

Once the damage category is ascertained the material would be rated on the potential for future damage. This would be performed by taking into account the following factors: accessibility, potential for contact, influence of vibration, and potential for air erosion.

Finally these factors are compiled to produce an overall classification for the ACM. The classifications are:

1) Damaged or significantly damaged thermal system insulation.
2) Damaged friable surfacing ACM
3) Significantly damaged friable surfacing ACM
4) Damaged or significantly damaged friable miscellaneous ACM
5) ACM with potential for damage
6) ACM with potential for significant damage
7) Any remaining friable ACM or suspect friable ACM
8) Non-friable ACM or non-friable suspected ACM

IV. SAMPLING EVENT

The purpose of this survey was to identify asbestos-containing materials (ACM) within the Highland Park Estates Clubhouse located at 91 Deerglen Boulevard in Lake Placid, Florida.

Sampling was conducted in accordance with 29CFR 1910.1001. A total of 6 bulk samples were collected from the subject structure (see attached form 1 for a detailed list of samples and analytical results).

Sampling activities at the subject property were performed on Tuesday, November 3, 2015. Sampled materials from the property included; ceiling surfacing material, ceiling joint compound, ceiling drywall, concrete block, terrazzo flooring, and roof material.

Samples collected during the survey were submitted to EMSL Analytical, Inc., located at 5125 Adanson Street, Suite 900, Orlando, Florida for analysis. EMSL is an independent environmental laboratory certified by the National Voluntary Laboratory Accreditation Program (NVLAP accreditation # 101151-0).

Laboratory results indicate that asbestos-containing material (ACM, greater than one percent asbestos, by definition) was not detected from the sampled materials.

V. CONCLUSIONS

Although ACM was not identified in the survey, wet demolition methods should be employed. In addition, DEP notification is required prior to any demolition activities.

DISCLAIMER

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our clients unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

ATTACHMENTS

PHOTOLOG

ASBESTOS SURVEY AND ASSESSMENT FORMS

ASBESTOS CHAIN OF CUSTODY

ASBESTOS ANALYTICAL RESULTS

PERSONNEL AND LABORATORY CERTIFICATIONS

PHOTO # 1: VIEW OF THE HIGHLAND PARK ESTATES CLUBHOUSE LOCATED AT 91 DEERGLEN BOULEVARD IN LAKE PLACID, FLORIDA.

PHOTO # 2: VIEW OF SAMPLED CEILING SURFACING MATERIAL.

PHOTO # 3: VIEW OF SAMPLED CEILING JOINT COMPOUND.

PHOTO # 4: VIEW OF SAMPLED CEILING DRYWALL.

PHOTO # 5: VIEW OF SAMPLED CONCRETE BLOCK.

PHOTO # 6: VIEW OF SAMPLED TERRAZZO FLOOR.

PHOTO # 7: VIEW OF SAMPLED ROOF MATERIAL.

PHOTO # 8: VIEW OF GENERAL INTERIOR CONDITIONS.

PHOTO # 9: VIEW OF GENERAL INTERIOR CONDITIONS.

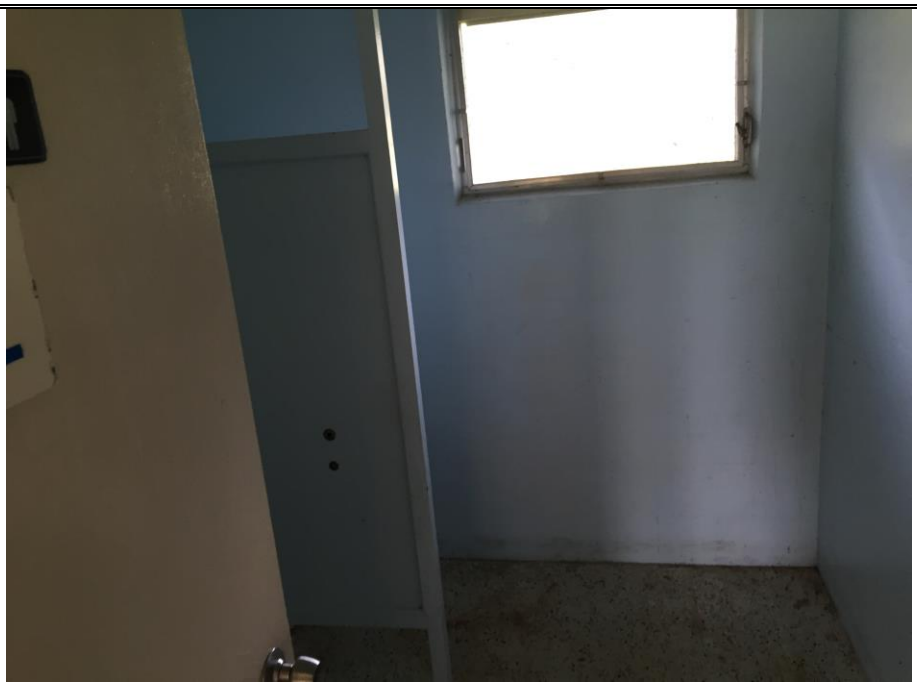


PHOTO # 10: VIEW OF GENERAL INTERIOR CONDITIONS.

ASBESTOS SURVEY AND ASSESSMENT-FORM 1

Sampling Location: 91 Deerglen Boulevard, Lake Placid, Florida
Date of Survey: Tuesday, November 3, 2015

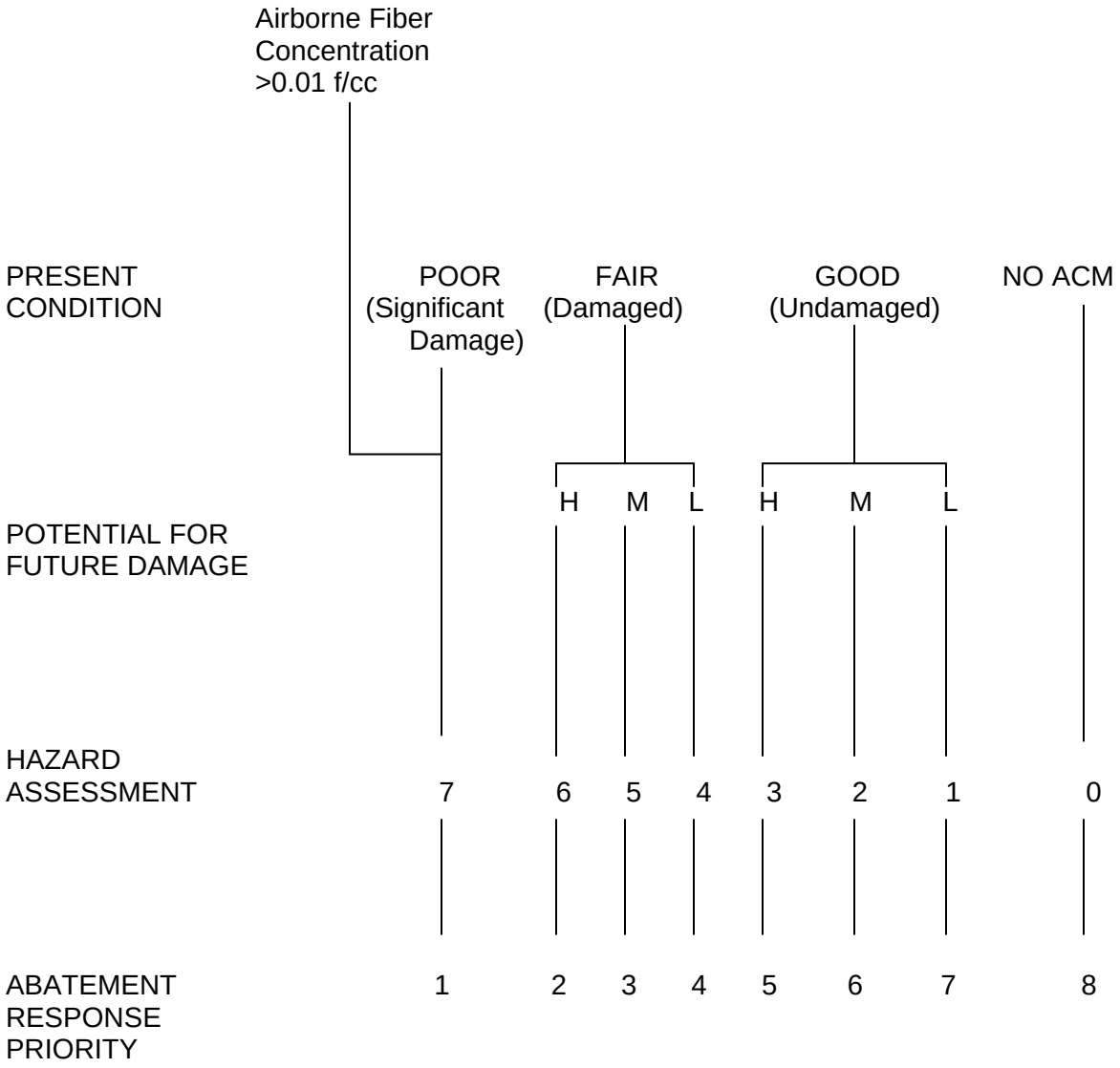
Consultant: American Compliance Technologies, Inc.
Client: Highlands County BOCC

Sample No.	Material Description	HA no.	Area Description	Friable Y/N	Asbestos Type & %	G/F/P	Damage Potential H/M/L	Hazard Assessment	Response Priority	Area Square Feet
1	Surfacing Material	1	Interior Ceiling	Y	NAD	NA	NA	0	8	NA
2	Joint Compound	2	Interior Ceiling	Y	NAD	NA	NA	0	8	NA
3	Drywall	3	Interior Ceiling	Y	NAD	NA	NA	0	8	NA
4	Concrete Block	4	Structure Exterior	N	NAD	NA	NA	0	8	NA
5	Terrazzo Material	5	Interior Floor	N	NAD	NA	NA	0	8	NA
6	Roof Material	6	Exterior Roof	N	NAD	NA	NA	0	8	NA

COMMENTS/NOTES:

HA- Homogenous Area	G-Good	H-High	SF-Square Feet	NAD-No Asbestos Detected
Y-Yes	F-Fair	M-Medium	LF-Lineal Feet	
N-No	P-Poor	L-Low	UNK-Unknown	

ASBESTOS HAZARD ASSESSMENT DECISION TREE



ASBESTOS SURVEY REPORT-TABLE 2

PERSONNEL SUMMARY

Facility Address: Highland Park Estates Clubhouse
91 Deerglen Boulevard, Lake Placid, Florida

Date of Survey: Tuesday, November 3, 2015

Name and Address	Task Performed	License or Certificate
Eric Jonsson	Asbestos Consultant	AX-83
American Compliance Tech, Inc. 1875 West Main Street Bartow, FL 33830	Asbestos Business	ZA-334
EMSL 5125 Adanson Street, Suite 900 Orlando, Florida 32804	Bulk Sample Analysis	NVLAP 101151-0

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

5125 Adanson Street, Suite 9
Orlando, FL 32804
PHONE: (407) 599-5887
FAX: (407) 599-9063

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number *(Lab Use Only)*: 341511552

Company: American Compliance Technologies, Inc.	**EMSL-Bill to:** ☑ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 1875 West Main Street	*Third Party Billing requires written authorization from third party*
City: Bartow **State/Province:** FL	**Zip/Postal Code:** 33830 **Country:** United States
Report To (Name): Eric Jonsson	**Telephone #:** 863-533-2000
Email Address: ejonsson@a-c-t.com	**Fax #:** 863-534-1133 **Purchase Order:** 16762-001
Project Name/Number: HCBCC/16762	**Please Provide Results:** ☐ Fax ☑ Email ☐ Mail
U.S. State Samples Taken: FL	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ■ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PLM - Bulk (reporting limit)

- ■ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NY ELAP Method 198.1 (friable in NY)
- ☐ NY ELAP Method 198.6 NOB (non-friable-NY)
- ☐ OSHA ID-191 Modified
- ☐ Standard Addition Method

TEM – Bulk

- ☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
- ☐ NY ELAP Method 198.4 (TEM)
- ☐ Chatfield Protocol (semi-quantitative)
- ☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
- ☐ TEM Qualitative via Filtration Prep Technique
- ☐ TEM Qualitative via Drop Mount Prep Technique

Other

- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 11-3-15

Samplers Name: Eric Jonsson **Samplers Signature:** [signature]

Sample #	HA #	Sample Location	Material Description
1	1	Ceiling	Surfacing Material
2	2	Ceiling	Joint Compound
3	3	Ceiling	Drywall
4	4	Exterior Wall	Concrete Block
5	5	Slab	Terrazzo Material
6	6	Roof	Roof Material

Client Sample # (s): 1 - 6 **Total # of Samples:** 6

Relinquished (Client): [signature] **Date:** 11-4-15 **Time:** 15:00

Received (Lab): [signature] **Date:** 11-5-15 **Time:** 9:30am

Comments/Special Instructions:
none

EMSL Analytical, Inc.

5125 Adanson Street, Suite 900 Orlando, FL 32804
Tel/Fax: (407) 599-5887 / (407) 599-9063
http://www.EMSL.com / orlandolab@emsl.com

EMSL Order: 341511552
Customer ID: ACTE62
Customer PO: 16762-001
Project ID:

Attention: Eric Jonsson
American Compliance Technologies, Inc.
1875 West Main Street
Bartow, FL 33830

Project: HCBCC/16762

Phone: (863) 559-0188
Fax: (352) 331-1900
Received Date: 11/ 5/2015 9:30 AM
Analysis Date: 11/ 6/2015
Collected Date: 11/ 3/2015

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1 *341511552-0001*	Ceiling - Surfacing Material	White Non-Fibrous Homogeneous		25% Ca Carbonate 75% Non-fibrous (Other)	None Detected
2 *341511552-0002*	Ceiling - Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
3 *341511552-0003*	Ceiling - Drywall	Gray Fibrous Homogeneous	5% Cellulose	85% Gypsum 10% Non-fibrous (Other)	None Detected
4 *341511552-0004* *Inseparable paint / coating layer included in analysis*	Exterior Wall - Concrete Block	Gray/White Non-Fibrous Heterogeneous		55% Quartz 10% Ca Carbonate 35% Non-fibrous (Other)	None Detected
5 *341511552-0005*	Slab - Terrazzo Material	Various Non-Fibrous Heterogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
6 *341511552-0006*	Roof - Roof Material	Various Fibrous Homogeneous	8% Glass	92% Non-fibrous (Other)	None Detected

Analyst(s)
Jonathan Teda (6)

Jonathan Teda, Asbestos Lab Manager
or Other Approved Signatory

Initial Report From: 11/10/2015 07:29:45

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT
1940 NORTH MONROE STREET
TALLAHASSEE FL 32399-0783

(850) 487-1395

JONSSON, ERIC ANDREW
AMERICAN COMPLIANCE TECHNOLOGIES, INC.
1875 WEST MAIN STREET
BARTOW FL 33830

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto **www.myfloridalicense.com**. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

AX83 ISSUED: 10/15/2014

ASBESTOS CONSULTANT
JONSSON, ERIC ANDREW
AMERICAN COMPLIANCE TECHNOLOGIES,

IS LICENSED under the provisions of Ch.469 FS.
Expiration date NOV 30, 2016 L1410150003011

DETACH HERE

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ASBESTOS LICENSING UNIT

LICENSE NUMBER	
AX83	

The ASBESTOS CONSULTANT
Named below IS LICENSED
Under the provisions of Chapter 469 FS.
Expiration date: NOV 30, 2016

JONSSON, ERIC ANDREW
AMERICAN COMPLIANCE TECHNOLOGIES, INC.
1875 WEST MAIN STREET
BARTOW FL 33830

ISSUED: 10/15/2014 DISPLAY AS REQUIRED BY LAW SEQ # L1410150003011

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101151-0

EMSL Analytical, Inc.

Orlando, FL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-04 through 2016-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.
5125 Adanson Street, Suite 900
Orlando, FL 32804
Dr. Blanca Cortes
Phone: 407-599-5887 Fax: 407-599-9063
Email: bcortes@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101151-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

A.D. MORGAN CORPORATION

Report of
Geotechnical Exploration
Proposed
Highlands Park Estates Clubhouse Extension
Lake Placid, Highlands County, Florida

File No.: 15-51-9052

Ardaman & Associates, Inc.

OFFICES

Orlando - 8008 S. Orange Avenue, Orlando, Florida 32809 - Phone (407) 855-3860
Alexandria - 3609 Mac Lee Drive, Alexandria, Louisiana 71302 - Phone (318) 443-2888
Bartow - 1525 Centennial Drive, Bartow, Florida 33830 - Phone (863) 533-0858
Baton Rouge - 316 Highlandia Drive, Baton Rouge, Louisiana 70884 - Phone (225) 752-4790
Cocoa - 1300 N. Cocoa Blvd., Cocoa, Florida 32922 - Phone (321) 632-2503
Fort Myers - 9970 Bavaria Road, Fort Myers, Florida 33913 - Phone (239) 768-6600
Miami - 2608 W. 84th Street, Hialeah, Florida 33016 - Phone (305) 825-2683
Monroe - 1122 Hayes Street, West Monroe, Louisiana 71292 - Phone (318) 387-4103
New Orleans - 1305 Distributors Row, Suite I, Jefferson, Louisiana 70123 - Phone (504) 835-2593
Port St. Lucie - 460 Concourse Place NW, Unit 1, Port St. Lucie, Florida 34986 - Phone (772) 878-0072
Sarasota - 78 Sarasota Center Blvd., Sarasota, Florida 34240 - Phone (941) 922-3526
Shreveport - 7222 Greenwood Road, Shreveport, Louisiana 71119 - Phone (318) 636-3673
Tallahassee - 3175 West Tharpe Street, Tallahassee, Florida 32303 - Phone (850) 576-6131
Tampa - 3925 Coconut Palm Drive, Suite 115, Tampa, Florida 33619 - Phone (813) 620-3389
West Palm Beach - 2200 North Florida Mango Road, Suite 101, West Palm Beach, Florida 33409 - Phone (561) 687-8200

MEMBERS:
A.S.F.E.
American Concrete Institute
ASTM International
Florida Institute of Consulting Engineers

Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

April 8, 2015
File Number: 15-51-9052

A.D. Morgan Corporation
716 N. Renellie Drive
Tampa, FL 33609

Attention: Mr. Dave Wade, Division Manager

Subject: Report of Geotechnical Exploration, Proposed Highlands Park Estates Clubhouse Extension, 91 Deerglen Boulevard, Lake Placid, Highlands County, Florida

Dear Mr. Wade:

Pursuant to your authorization, and in general accordance with our Proposal Number 15-030, dated March 9, 2015, Ardaman & Associates, Inc. (Ardaman) has completed the exploration and evaluation of subsurface soil conditions beneath the proposed Highlands Park Estates Clubhouse Extension project site. Authorization for the services in this study was provided by Purchase Order 3510.P1 dated March 19, 2015. The purposes of this exploration were to delineate the stratification and engineering properties of subsurface soils, and provide recommendations, which provide soil parameters for the proposed storm water retention pond and address the design and construction of a foundation system for the proposed building extension. This study addresses foundation soils which are within the influence of building loads. Deep soils and bedrock conditions were not included in this work.

SCOPE

The scope of our services has included the following items:

1. Review of relevant aerial photography and USDA, NRCS Soil maps.

2. Notification of Sunshine State One-Call Center of the location, date, and nature of our proposed soil drilling operations.

3. Reconnaissance of the site by the drilling staff to document the condition of the site at the time of our exploration.

4. Performance of four, 15-foot deep Standard Penetration Test (SPT) borings to determine the stratification and engineering properties of the soils beneath the proposed development.

5. Review of recovered soil samples by geotechnical engineer in our laboratory for verification of soil classification and estimating soil engineering properties for analysis.

6. Performance of soil sample index tests in our laboratory.

7. Evaluation of the existing soil and ground water conditions as they relate to the proposed development.

8. Preparation of this report to document the results of our field exploration and laboratory test program, engineering evaluation, and provide foundation design and site earthwork recommendations as they relate to the proposed development.

SITE LOCATION AND CONDITIONS

Location

The proposed project site is located as shown on Figure 1 within a tract of land situated in Section 27, Township 36 South, Range 30 East, Highlands County. More specifically, the proposed project site is located within Highlands Park Estates, with a physical address of 91 Deerglen Boulevard, Lake Placid, Florida. Lake Istokpoga is located approximately 300 feet to the east of the site.

Topography, Surface Drainage, and Site Development History

The proposed clubhouse building extension site lies on a relatively flat to slightly sloping open lot with low vegetation. The proposed storm water retention pond is located west of the clubhouse and east of the west boundary line of Tract "C." A barbed wire fence encircles a relatively flat to slightly sloping open lot with low vegetation. The site slopes down gradually from west to east towards Lake Istokpoga.

Published Soil Survey

The website-based Soil Survey for Highlands County was reviewed for general surficial soils information within the project vicinity. The soil survey is dated September 12, 2014, and is available online from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (http://websoilsurvey.nrcs.usda.gov/). As shown on Figure 2, the major soil unit observed at the site is Soil No. 33 with basic characteristics as shown below:

SOIL NO.	SOIL DESCRIPTION	DRAINAGE CLASS	DEPTH TO WATER TABLE	DEPTH TO RESTRICTIVE FEATURE	TYPICAL PROFILE
33	Basinger, St. Johns, and Placid soils (0-2% slopes)	Poorly drained	0 to 6 inches	More than 80 inches	0 to 80 inches sand

SOIL EXPLORATION

Standard Penetration Test (SPT) Borings

Our field operations consisted of conducting four SPT borings (TH-1 through TH-4) using procedures similar to those outlined in ASTM D 1586. A summary of the drilling and testing procedures utilized in the borings is included in the attached Appendix I. The borings were performed at the locations indicated on the attached Figure 1, to determine the stratification and engineering properties of the subsurface soils. The test locations were staked on-site by Ardaman using the drawing provided to us, and by using tape measurements from known structures such as the fence and building. The depths of the borings were specified by Ardaman. Borehole depths were terminated at 15 feet below the existing ground surface. The top 4.5 feet was hand augered to avoid potential buried utilities. A continuous drilling and

sampling procedure was performed from 4.5 to 10.5 feet depth of the SPT boring, and then at 5-foot intervals thereafter to the boring termination depth.

Land surface elevations at the soil boring locations were not measured. The accuracy of the boring locations is that implied by the measurement method used. Upon completion, each borehole was filled in with cut material.

Undisturbed Sampling

The subsurface exploration for the storm water retention pond area included securing one undisturbed Standard Shelby Tube sample at boring location TH-4 from three to 5.5 feet depth using a nominal 3-inch diameter, 30-inch long, thin-walled steel sampler. Procurement of the samples were in general accordance with the procedures contained in ASTM Standard D 1587. A description of the field sampling procedures and methods is found in the attached Appendix I in the section entitled, "Thin-Walled Tube Sampling of Soils." Sampling depth intervals were selected to obtain soils for laboratory determination of the permeability characteristics, as well as their index properties (unit weights, moisture content, void ratio, grain-size distribution). The results of such tests are discussed in the section of this report entitled, "LABORATORY TESTING."

LABORATORY TESTING

Visual Review of Disturbed Soil Samples

The field soil boring logs and recovered soil samples were transported to our Bartow office from the project site. Each soil sample was examined by the project engineer to identify the engineering classification of the soil samples retrieved in the field exploration. The visual classification of the samples was performed in accordance with the current Unified Soil Classification System (ASTM D 2487) method for classification of soils for engineering purposes.

Moisture Content and Percent Fines Tests

Five (5) disturbed soil samples were selected during the visual examination operations and tested to determine their moisture content, using test procedures specified in ASTM Standard D 2216. All of the moisture content test samples were retained following those tests, and then tested to determine the percentage of soil that passed through a U.S. No. 200 sieve (percent fines content), using the soil washing procedures described in ASTM Standard D 1140. The results of these tests are useful in confirming the Engineer's visual classification of the soil. The results of these tests are documented on the attached soil boring logs, each plotted at the position where the sample was retrieved within the soil borings, as well as in Table 1.

Grain-Size Distribution

One grain-size distribution analyses was conducted on sample taken from the storm water retention pond area at boring location TH-4 from three to 5.5 feet depth in general accordance with ASTM test designation D-422. The grain-size analysis test measures the percentage by weight of a dry soil sample passing a series of U.S. standard sieves, including the percentage passing the No. 200 sieve. The grain-size distribution of a soil is presented as a graph of cumulative percent fines plotted against particle diameter. The percentage by weight passing

the No. 200 sieve is the amount of silt and clay sized particles. The gradation of a soil, including the amount of silt and clay affects its engineering properties including: permeability, consolidation rate, and suitability for the intended use. The tests results are presented in Exhibit 1.

Laboratory Permeability Coefficient

One specimen was selected from the thin-walled Shelby Tube sample, and used in testing to determine the vertical coefficient of permeability of the soil specimens. A falling head-rising tailwater test procedure was used to measure the stabilized flow of water through the soil, using procedures in general compliance with those described in ASTM Standard D 5084. The selected soil specimens were trimmed, encased in a flexible membrane, and placed on the test stand in the test chamber. The sample's test chamber and fluid piping were then assembled, the chamber space surrounding the sample was filled with water, and the chamber was then sealed. A selected fluid pressure was then applied on the sample's chamber fluid, to simulate a certain stress condition on the soil sample. The test specimens were then saturated with water, using backpressure methods. Once sample saturation was confirmed, a differential water pressure was applied at the top of the sample. Successive test trials were recorded by measuring the volume of water which passed through each sample in selected time increments. The tests were terminated when it was determined that a steady flow rate was being recorded.

The result of the permeability test for saturated soil is briefly summarized below:

Sample No.	Depth (From – To) feet	Sample Description	Vertical Permeability Coefficient at 20°Celcius	Initial Dry Density pcf	Percent Passing US. No. 200 Sieve
TH-4: US-1	3 – 5.5	SAND (SP)	3.4×10^{-3} cm/sec (4.8 in/hr)	109.1	4.2

Laboratory test results for the undisturbed sample at the stated boring location within the storm water retention pond is given in Table 2.

SOIL CONDITIONS

The delineation of the vertical extent of individual soil strata, and a description of each soil layer discovered in the course of our exploration, is given in the final soil boring logs given in the attached Appendix II, based upon a combination of the technical review of the field soil boring logs, and the visual classification of the recovered soil samples performed for this study. The stratification lines shown are used to indicate a transition from one soil type to another. The actual boundary between the illustrated soil layers may be gradual, or indistinct. Consequently, the stratification boundary lines, shown on the final soil boring logs, represent our best estimate of the location of the transition between distinct geologic layers, and they are in no way intended to designate a depth of exact geological change. Furthermore, the recommendations contained in this report are based on the contents of the final soil boring profiles. While the borings are representative of subsurface conditions at their respective locations and vertical reaches, local variations which are characteristic of the subsurface materials of the region, or which may be due to man-made alteration of the native geologic conditions, may be encountered. A generalized subsurface soil profile, based on the data obtained from four SPT borings, is described below:

Clubhouse Extension Building (SPT Borings TH-1 through TH-3)

DEPTH (FEET)		DESCRIPTION
From	To	
Existing Ground Surface	6	Loose SAND with SILT (SP-SM)
6	15	Medium-dense, SAND (SP) or SAND with SILT (SP-SM), or SILTY SAND (SM)

Storm Water Retention Pond (SPT Boring TH-4)

DEPTH (FEET)		DESCRIPTION
From	To	
Existing Ground Surface	7	Loose SAND with SILT (SP-SM)
7	15	Medium-dense, SAND (SP) or SAND with SILT (SP-SM)

GROUND WATER CONDITIONS

Unconfined Aquifer

The unconfined (surficial) aquifer is a water body within sediments overlying a relatively impermeable boundary (aquiclude) that lies at some depth below the ground surface. The ground water level (water table) in the surficial aquifer is defined as a surface where the water pressure is equal to atmospheric pressure. The water table level can generally follow the contours of the overlying land surface on undeveloped sites. The surficial aquifer is recharged primarily by rainfall. The surficial aquifer discharges water through evapotranspiration, lateral seepage to surface water and ditches, and downward leakage into the underlying confined aquifer. The ground water level is typically measured in the borehole upon completion of the initial part of the borehole, and at the completion of each day's field work, where possible. If encountered, the measured borehole ground water levels are plotted adjacent to the final logs. These water level readings may differ from the actual stable ground water table due to variations in the permeability of soil layers. The degree of accuracy of the reported water levels is also related to the time allowed for the borehole water level to come to equilibrium. Consequently, if a water table is not indicated, it does not necessarily mean that ground water does not exist within the vertical reach of the borehole. It must be noted that fluctuations in the ground water level occur due to variations in rainfall and other environmental or physical factors. The water table level was encountered at a depth of 2.2 to 2.6 feet below land surface at the time of exploration.

Seasonal High Water Table

Based on USGS soil survey for Highlands County, Seasonal high ground water table level for Soil No. 33 (Basinger, St. Johns, and Placid soils) found on the proposed site is reportedly surface to six inches below the ground surface. For design purposes, we recommend a project design high water table level at existing land surface.

EVALUATION & RECOMMENDATIONS

Proposed Development

Based on the project information provided by you, including the Conceptual Site Plan dated March 4, 2014, it is our understanding that the proposed Highlands Park Estates Clubhouse extension will consist of a one-story building structure adjacent to the existing clubhouse building. Loading information from the building is not known to us at this time. The building extension structure is expected to be founded and supported on a monolithic concrete slab foundation with thickened edges or wall footings, and may include individual shallow column footings to support the frame columns.

It is also our understanding that the project involves the construction of a storm water pond west of the existing clubhouse and east of the barbed wire fence area.

Site and Soil Evaluation

Foundation Conditions:

Based on three test borings (TH-1 through TH-3) information, our field exploration encountered loose sand with silt within upper 6 feet below land surface (bls), followed by medium-dense sand and sand with silt and silty sand to the boring termination depth of 15 feet (bls) at the proposed clubhouse extension site. The encountered near-surface soil condition is loose; however, It is our opinion that these soil conditions will be capable of supporting the anticipated loads on a conventionally designed shallow foundation system (wall footing or monolithic slab foundation with thickened edge and column footing) after a program of site preparation recommended in this report.

Ground Water Conditions:

We recommend a project-specific high ground water table at existing land surface for design purposes.

On-Site Fill Source:

Based on the available soil boring information, soils excavated from shallow footing excavation at the project site will typically consist of cohesionless sands at a depth interval of 0.5 and 15 feet below land surface (bls). Recovered sand material may be used as structural fill and backfill, if free of topsoil, roots, organic matter, debris, and any other deleterious unsuitable material. Any excavated clayey sands should not be used as structural fill or backfill. Fill material should be approved by the engineer prior to use.

Dewatering

Ground water control required to achieve the necessary excavation, filling, compaction, and any other earthwork, site work, and/or foundation subgrade preparation operations required for the project, is the responsibility of the Contractor. Dewatering should be performed to lower the ground water level to depths that are adequately below excavations and compaction surfaces. Adequate ground water level depths below excavations and compaction surfaces vary

depending on soil type and construction method, and are usually two feet or more. Dewatering solely with sump pumps will not achieve the desired results.

General Building and Site Preparation Recommendations

The following site preparation recommendations and procedures should be incorporated in the project specifications, and completed prior to construction of the foundation system.

1. The proposed building area, plus a margin of five feet beyond the perimeter of the foundations system, should be cleared and grubbed of any vegetation, stumps, tree root systems. Strippings, debris, and any unsuitable material should be disposed in accordance with the Owner's instructions.

2. After completion of the clearing and grubbing operations, including debris removal, the exposed soils within the building footprint area, plus the margin, should be over-excavated to 18 inches below the bottom of the wall (or thickened edge of monolithic concrete foundation slab) and column footings, and one foot below the bottom of interior slab of the building. The exposed surface should be proof-rolled using a rubber-tired, three cubic-yard capacity front-end loader with full bucket of soil (or equivalent non-vibratory, heavy, rubber-tired roller), to a depth of 12 inches below exposed grade, to a minimum of 98 percent of the Standard Proctor (ASTM D 698) maximum dry density. This density level should be measured by a qualified technician using procedures described by ASTM D 2937, or by using another method that is approved by the Geotechnical Engineer, which, in his sole judgment, is deemed to be equivalent to ASTM D 2937, prior to commencement of subsequent procedures. In the event that any applied water does not penetrate sufficiently deep into natural soils to act as a lubricant in the compaction process, it will be necessary to disk or otherwise break up the soils before and during application of water.

3. After Steps 1 and 2 are completed, fill necessary to raise the grade to the bottom of the foundation slab level in six-inch thick layers. Each layer should be moisture-conditioned, as necessary. The soil should then be compacted to produce an in-place dry density that equals or exceeds 98 percent of the Standard Proctor maximum dry density (ASTM D 698). All fill should consist of clean, natural, deposits of granular soil which are free of roots and other organic debris.

4. Any individual column footing subgrade, plus three-foot margin, should also be prepared in the same manner as described in the Steps 1 to 3 above. A suitable mechanical equipment (e.g., hand guided mechanical plate compactor) is needed to achieve a specified density equivalent to 98 percent or more of the Standard Proctor (ASTM D 698) maximum dry density to a depth of 18 inches below design footing bottom grade.

5. The depth of foundation at edge of slab and individual column footing shall be at least 18 inches below the lowest adjacent ground surface. The adjacent ground surface should be graded in such a way that the surface runoff flows away from the building structure.

6. Ardaman & Associates, Inc. Bartow office, should be engaged by the Owner prior to site preparation to provide field observation of site preparation steps, compaction operations on natural and fill soils, and conduct field in-place density testing to confirm that the specified requirements are met.

Foundation Design Recommendations

Considering successful completion of preparation of subgrade soils as described in this report, the shallow foundations (wall footing or monolithic slab with thickened edges or individual column footing) may be proportioned using the recommended allowable soil bearing pressure of 1,600 psf (pounds per square foot) to support the design dead load plus live load.

A minimum embedment depth of 18 inches, as measured from the bottom of the foundation system to lowest adjacent finished grade, should be provided. A minimum lateral dimension of 18 inches should be provided when proportioning the continuous foundation (wall footing) elements. The recommended value for modulus of subgrade reaction (K_{v1}) is 40 pci (pounds per cubic inch).

Predicted Performance of Foundations

Selection of the recommended soil bearing pressure was based primarily on considerations of limiting the expected settlement to tolerable values for the type of structure. Based on the expected magnitude of the foundation loads, we estimate the proposed shallow foundation (wall footing or monolithic concrete slab with thickened edges or individual column footing) maximum settlement at one inch. Furthermore, it is our opinion that the settlement will occur incrementally as the loads are applied due to the predominantly granular nature of the foundation soils.

Storm Water Retention Pond

The saturated permeability coefficient of the sand specimen extracted from the undisturbed (Shelby Tube) sample taken at boring location TH-4 from three to 5.5 feet below land surface was 3.4×10^{-3} cm/sec (4.8 inch/hour) in the vertical direction. The initial moisture content and dry density of the specimen were 17.5 percent and 109.1 pcf (pounds per cubic foot), respectively. Information from Shelby Tube (undisturbed sample) extrusion and test results is presented in Table 2. The gradation (sieve analysis) test results performed on the undisturbed sample is presented in Exhibit 1 with this report.

CONSTRUCTION PHASE SERVICES

Field Observations

Site earthwork procedures, including preparation of foundation bearing surfaces and compaction of any structural fill, should be observed by a Geotechnical Engineer, or his representative, from Ardaman & Associates, Inc. Observations by our representative are necessary to verify that subsurface conditions, which were revealed during the earthwork operations, are consistent with those found during this study, to confirm that the earthwork procedures are completed in accordance with the recommendations contained in the report.

STUDY LIMITATIONS AND CHANGED CONDITIONS REVIEW

The analyses and recommendations submitted in this report are based, in part, on the data obtained from four SPT borings performed at the locations indicated on the attached Figure 1. This report does not reflect any variation which may occur in-between the borings, the nature and extent of which may not become evident until during the course of construction. If variations

then appear evident, it will be necessary to re-evaluate the recommendations made in this report on the basis of pertinent on-site observations which are made by us during the construction period wherein the characteristics of any variations are noted.

CLOSURE

This report was prepared for the exclusive use of A.D. Morgan Corporation. The conclusions and recommendations made herein are applicable only to those structures and facilities known to us and described herein. This geotechnical study was performed in accordance with commonly accepted procedures consistent with applicable standards of engineering practice. No other warranty, expressed or implied, is made.

Sample Retention

Generally test samples or specimens are consumed and/or substantially altered during the conduct of tests and Ardaman, at its sole discretion, will dispose of any remaining residue immediately upon completion of test unless required in writing by the Client to store or otherwise handle the samples. At Client's written request, Ardaman will maintain preservable test samples and specimens for 30 days after submission of Ardaman's report to Client free of storage charges. After the initial 30 days and upon written request, Ardaman will retain test specimens or samples for a mutually acceptable storage charge and period of time.

We appreciate the opportunity to be of service to you on this project. If there are any questions or when we may be of further assistance, please contact the undersigned at (863) 533-0858.

Sincerely,

ARDAMAN & ASSOCIATES, INC.
Florida Certificate of Authorization No. 5950

4/8/15

Thomas J. Leto, P.E.
Senior Consultant
Florida License No. 12458

Binod R. Chalise, P.E.
Project Engineer

TJL/BRC:tc
Enclosures
Client Copies: (3)
File Copy: (1)

R:\Bartow Jobs\2015 Jobs\15-9052 A D. MORGAN, Highlands Park Estates Clubhouse Extension, Lake Placid, Highlands Co, FL\15-9052 SSE.Docx

TABLE 1

LABORATORY TEST RESULTS SUMMARY

HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION
LAKE PLACID, HIGHLANDS COUNTY, FLORIDA

Disturbed Samples **Project No.: 15-51-9052**

INDEX PROPERTIES						
Test Hole No.	Sample No.	Depth Range BLS (Ft)	Soil Description	USCS	Moisture Content (%)	Fines Content [Passing US No. 200 Sieve] (%)
TH-1	5	7.0 - 7.5	Sand	SP	21.2	4.6
TH-2	7	10.0 - 10.5	Sand	SP	21.1	1.4
TH-3	2	2.0 - 2.5	Sand w/Silt	SP-SM	23.9	10.8
TH-4	2	1.5 - 2.0	Sand w/Silt	SP-SM	10.3	6.1
	5	8.5 - 9.0	Sand w/Silt	SP-SM	23.4	6.0

NOTES:

BLS: Below Land Surface

USCS: Unified Soil Classification System [ASTM D-2487]

TABLE 2

LABORATORY TEST RESULTS SUMMARY

HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION
LAKE PLACID, HIGHLANDS COUNTY, FLORIDA

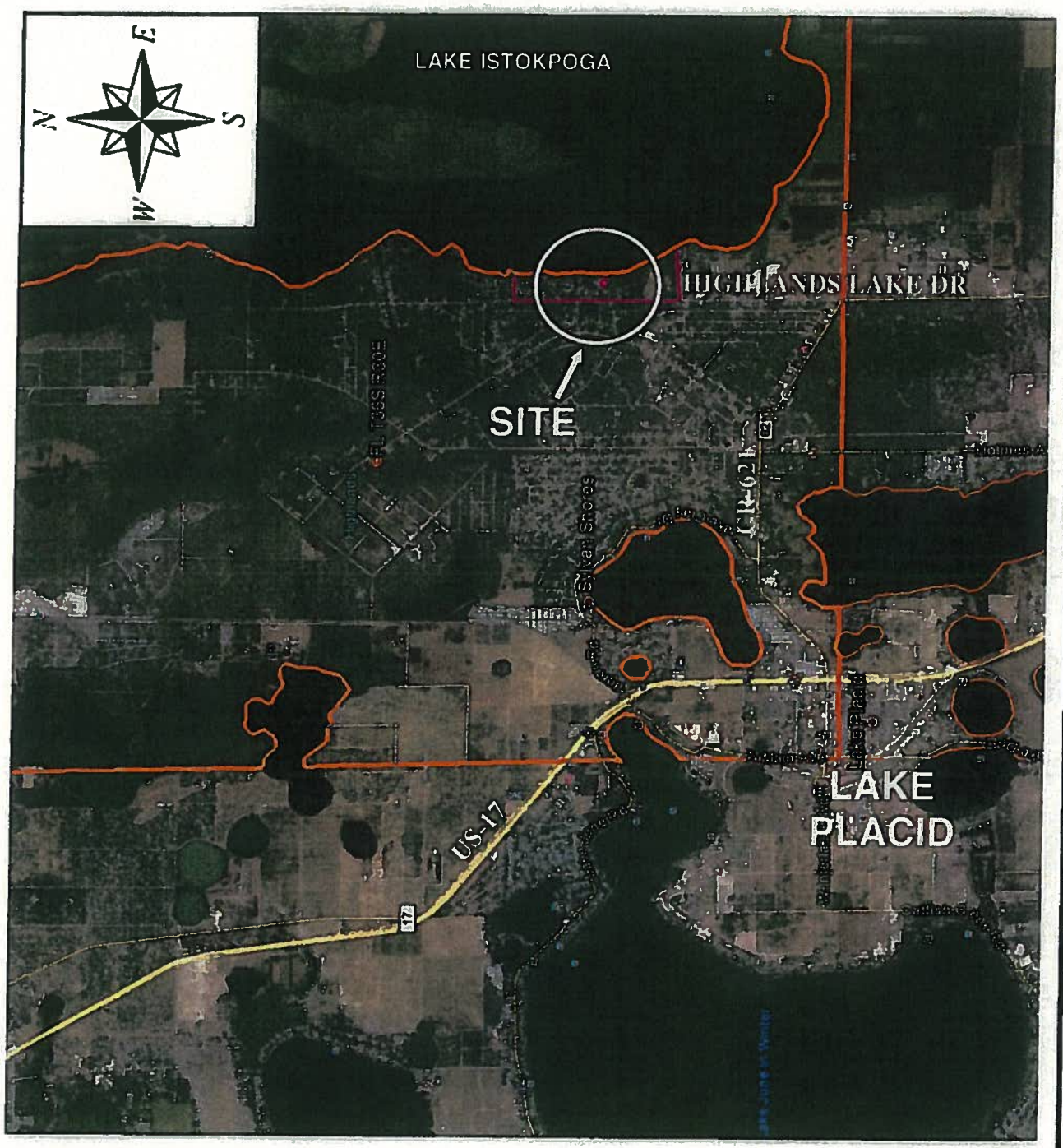
Undisturbed (Shelby Tube) Samples

Project No.: 15-51-9052

SITE/AMENITY -->	STORM WATER RETENTION POND AREA
Test Hole No.	TH-4
Sample No.	US-1
Depth BLS (ft)	3' - 5.5'
Description	SAND
USCS Classification [ASTM D2487]	SP
Average Dry Unit Weight Y_d (pcf)	106.5
Specific Gravity G_s (Assumed)	2.66
Average Moisture Content (%) [ASTM D2216]	18
Fines Content (% Passing US No. 200 Sieve) [ASTM D1140 / ASTM D422] (1)	4.2
Initial Saturation S (%)	89
Initial Porosity n (%)	36
Permeability Coefficient at 20° Celcius (1) [ASTM D2434] Test Method for K Vertical K_v	 FH 3.4×10^{-3} cm/sec (4.8 inch/hour)

Notes: BLS-Below Land Surface N/A- Not Available N/P- Not Performed FH- Falling Head-Rising Tailwater Method CH- Constant Head Method

Footnotes: (1) Tests performed on the same soil type specimen within the shelby tube (with the exception of average dry unit weight and average moisture content), unless otherwise noted.



Source: Google Earth Pro, dated 2/15/14

S/T/R: 27/36S/30E

A. D. MORGAN CORPORATION 716 N. RENELLIE DRIVE TAMPA, FL 33609	**SITE VICINITY MAP** **HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION** **LAKE PLACID, HIGHLANDS COUNTY, FL**	FIGURE NO. **1**

Ardaman & Associates, Inc.	DRAWN BY	APPROVED BY	SCALE	DATE	PROJECT NO.
	BRC	TJL	NTS	April 1, 2015	15-51-9052

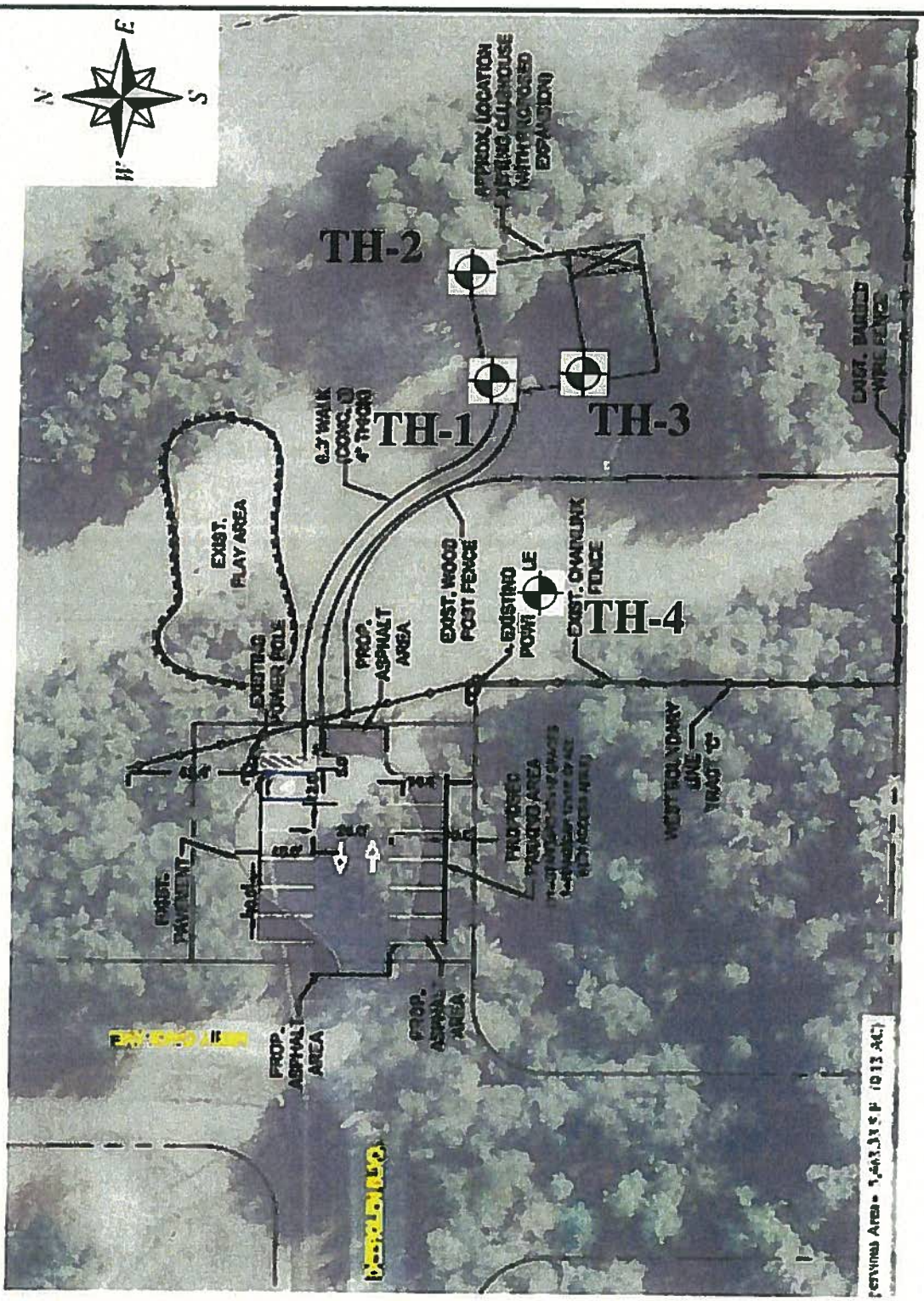
SOIL NO.	SOIL NAME	DEPTH TO WATER TABLE	DEPTH TO RESTRICTIVE FEATURE
33	BASINGER, ST. JOHNS, AND PLACID SOIL	0 TO 6 INCHES	MORE THAN 80 INCHES

SOIL SURVEY DATE: September 12, 2014 (Version 9) for Highlands County, Florida

RESOURCE: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

A. D. MORGAN CORPORATION 716 N. RENELLIE DRIVE TAMPA, FL 33609	**BORING LOCATION MAP** **HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION** **LAKE PLACID, HIGHLANDS COUNTY, FL**	FIGURE NO. **2**

Ardaman & Associates, Inc.	DRAWN BY	APPROVED BY	SCALE	DATE	GC&T PROJECT NO.
	BRC	TJL	NTS	April 1, 2015	15-51-9052



LEGEND

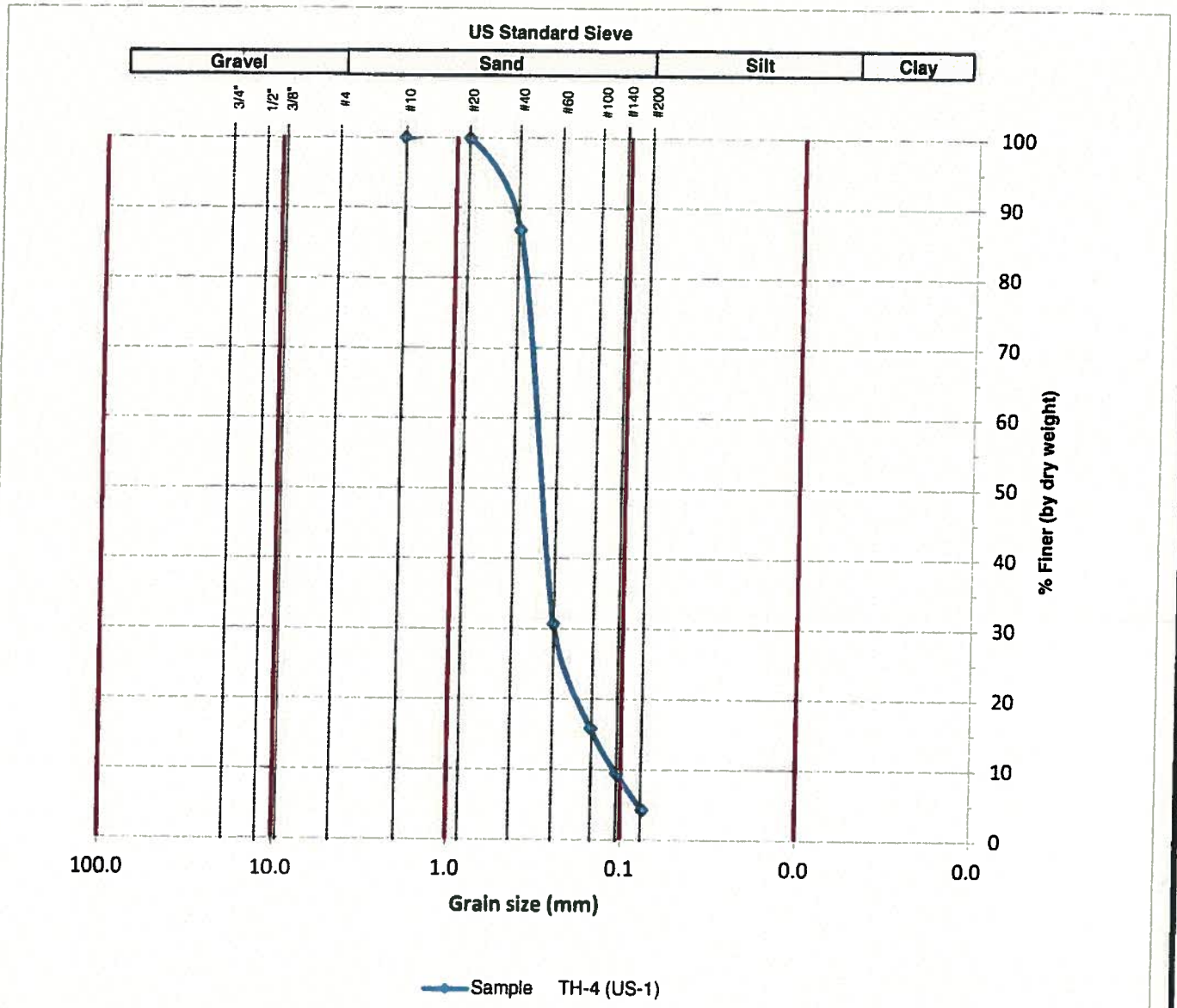
TH-1, Approximate Boring Location

Source: Conceptual Site Plan by Highlands County Engineering Department, dated 03-04-2014

A. D. MORGAN CORPORATION 716 N. RENELLIE DRIVE TAMPA, FL 33609	**BORING LOCATION MAP** **HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION** **LAKE PLACID, HIGHLANDS COUNTY, FL**	FIGURE NO. **3**

Ardaman & Associates, Inc.	DRAWN BY	APPROVED BY	SCALE	DATE	GC&T PROJECT NO.
	BRC	TJL	NTS	April 1, 2015	15-51-9052

GRAIN SIZE DISTRIBUTION CURVES



Grain size (US Sieve)	Grain size (mm)	Sample TH-4 (US-1) (% Passing)
3/4"	19.00	100
3/8"	9.50	100
# 4	4.75	100
# 10	2.0	100
# 20	0.85	99.9
# 40	0.425	86.8
# 60	0.25	30.7
# 100	0.15	15.8
# 140	0.106	9.4
# 200	0.075	4.2
PAN	0.000	0
Uniformity Coefficient, C_u		3

TH-4 (US-1): SAND (SP) @ depth of 3'-5.5'

Uniformity Coefficient, $C_u = D_{60}/D_{10}$

D_{60} = Sieve size that permit passage of 60% material dry weight

D_{10} = Sieve size that permit passage of 10% material dry weight

ARDAMAN & ASSOCIATES, INC.
Geotechnical, Environmental and
Materials Consultants

A. D. MORGAN CORPORATION
HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION
LAKE PLACID, HIGHLANDS COUNTY, FL

Drawn by: BRC	Checked by: TJL	Date: 4/7/15
File no.: 15-51-9052	Approved by:	Exhibit 1

APPENDIX I

FIELD EXPLORATION PROCEDURES

STANDARD PENETRATION TEST

The Standard Penetration Test is a widely accepted method of in-situ testing of foundation soils (ASTM D 1586). A 2-foot long, 2-inch outside diameter split-barrel ("spoon") sampler, attached to the end of drilling rods, is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for each six inches of penetration is recorded. The sum of the blows required for penetration of the second and third, 6-inch increments of penetration constitutes the test result or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value has been empirically correlated with various soil properties allowing a conservative estimate of the behavior of soils under load.

The tests are usually conducted at 5-foot intervals. However, more frequent or continuous testing is done by our firm through depths where a more accurate definition of the soils is required. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. Usually, the circulating fluid, which is a bentonite drilling mud, also serves to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or to prevent the loss of circulating fluid.

Representative split-spoon samples from soil at every five feet of drilled depth and from every different stratum are brought to our laboratory in airtight jars for further evaluation and testing, if necessary. After completion of a test boring, the hole is kept open if necessary, until a steady state ground water level is recorded. The hole is then sealed and backfilled.

THIN-WALLED SHELBY TUBE SAMPLING (TWT) OF SOILS

Thin-walled tube sampling of soils is performed, when it is necessary to secure a relatively undisturbed sample of soil, for subsequent use in the soils laboratory. Undisturbed samples are used to provide test specimens for laboratory shear strength tests, permeability tests, consolidation tests, and other tests where minimum sample disturbance is desired.

The procedure for obtaining thin-walled tube samples is described in ASTM Standard D 1587. Tube samples can be obtained at any desired depth, using appropriate exploration equipment and sampling equipment. Variations in the sampling technique described in ASTM D 1587 may include using an inner piston to create a suction on the sample (useful in retrieving very soft or loose saturated soils), using a spring-loaded mechanism to allow advancement of the tube using a constant pressure, and the use of a water-flushed exterior core barrel to allow penetration of very stiff, or cemented clays.

The above sampling variations are commonly referred to as Shelby Tube, Piston, Picher or Dennison sampling methods. The most common method of sampling is the Shelby Tube method. The Shelby Tube method is used when sampling soft to stiff cohesive soils above or below the water table, or medium-dense, fine to medium-grained sandy soils above the water table. The sample is obtained by pushing a 3-inch diameter, 30-inch long, thin-walled tube through the soil, at the desired depth, a distance of 24 inches.

Following a short "resting period" to allow dissipation of excess pore water pressure in the soil, the sampler is rotated to shear the soil at the base and withdrawn to the surface. Excess hydrostatic pressure, if the sample is below the water table, is dissipated by means of a check valve at the top of the sampler.

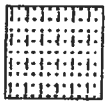
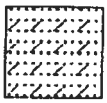
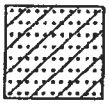
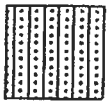
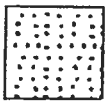
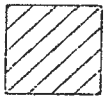
After the sample has been retrieved, the ends of the tube are sealed to prevent the loss of moisture. Preparation for transportation of the sample to the laboratory includes cushioning the tube to prevent impacts which might disturb the sample, and transporting it in the upright orientation, in which it existed in the ground. The sample tube is then transported to the laboratory for visual examination and specified testing.

APPENDIX II

FINAL SOIL BORING LOGS

SOIL DESCRIPTIONS AND PATTERNS FOR BORING LOGS

Project No.: 15-51-9052

SOIL DESCRIPTION	USCS	SYMBOL
SAND W/SILT	SP-SM	
SAND W/CLAY	SP-SC	
CLAYEY SAND	SC	
SILTY SAND	SM	
SILTY CLAYEY SAND	SC-SM	
SAND	SP	
SANDY SILT	ML	
ELASTIC SILT	MH	
SANDY CLAY	CL	
FAT CLAY	CH	

ENGINEERING CLASSIFICATION

COHESIONLESS DESCRIPTION	SAFETY HAMMER BLOW COUNT "N_{60}"	AUTO HAMMER BLOW COUNT "N"
VERY LOOSE	0 TO 4	0 TO 3
LOOSE	4 TO 10	3 TO 8
MEDIUM DENSE	10 TO 30	8 TO 24
DENSE	30 TO 50	24 TO 40
VERY DENSE	ABOVE 50	ABOVE 40

COHESIVE DESCRIPTION	UNCONFINED COMPRESSIVE STRENGTH (TSF)	SAFETY HAMMER BLOW COUNT "N_{60}"	AUTO HAMMER BLOW COUNT "N"
VERY SOFT	BELOW 0.25	0 TO 2	0 TO 1
SOFT	0.25 TO 0.50	2 TO 4	1 TO 3
MEDIUM STIFF	0.50 TO 1.0	4 TO 8	3 TO 6
STIFF	1 TO 2	8 TO 15	6 TO 12
VERY STIFF	2 TO 4	15 TO 30	12 TO 24
HARD	ABOVE 4	ABOVE 30	ABOVE 24

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLERS LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES IN THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS OUR INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED.

GROUNDWATER ELEVATIONS SHOWN ON THE BORING LOGS REPRESENT GROUNDWATER SURFACES ENCOUNTERED ON THE DATES SHOWN. FLUCTUATIONS IN WATER TABLE LEVELS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR. ABSENCE OF WATER DATA ON CERTAIN BORINGS IMPLIES THAT NO GROUNDWATER DATA IS AVAILABLE, BUT DOES NOT NECESSARILY MEAN THAT GROUNDWATER WILL NOT BE ENCOUNTERED AT THOSE LOCATIONS OR WITHIN THE VERTICAL REACHES OF THESE BORINGS IN THE FUTURE.

Miscellaneous Symbols

GROUND WATER TABLE ON DATE INDICATED	GWT	
BORING CONTINUATION		

BORING NO.: TH-1 **GROUND SURFACE ELEVATION:** N/A

BORING LOCATION: see Plan (Figure 1)
NORTHWEST CORNER OF CLUBHOUSE EXT.

DATE DRILLED: 3/30/2015 **START:** _____ **FINISH:** _____

WATER TABLE DEPTH (FT): 2.2 **TIME:** ____ **DATE:** 3/30/2015

CLIENT: A. D. MORGAN CORPORATION

PROJECT: HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION

LOCATION: 91 DEERGLEN BLVD, LAKE PLACID, FL

DRILL CREW: B.T. **LOGGED BY:** B.T. **WEATHER CONDITIONS:** Sunny & Clear

DRILL MAKE & MODEL: CME-45 **DRILL BIT:** 2-7/8" Tricone Roller or Drag Bit

BORE HOLE FILL: Bore Hole Cuttings

DRILLING METHOD: Rotary Wash with drilling mud (SPT)

NOTES: Hand Auger 0'-4.5' and Auto Hammer 4.5'-15'

DEPTH, FT.	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	PERCENT FINES (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLAST. INDEX
0	HA	1		SP-SM	SAND WITH SILT; Dark Gray					
	HA	2								
	HA	3		SP-SM	SAND WITH SILT; Brown					
5	8	4		SP	SAND; Light Grayish-Brown					
	11	5				21.2	4.6			
	12	6								
10	16	7								
15	21	8			BORING TERMINATED AT 15 FEET DEPTH					
20										
25										
30										

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FILE NO: 15-51-9052 **DATE:** 4/8/2015 **BORING NO.:** TH-1

BORING NO.: TH-2 GROUND SURFACE ELEVATION: N/A

BORING LOCATION: see Plan (Figure 1)
NORTHEAST CORNER OF CLUBHOUSE EXT.

DATE DRILLED: 3/30/2015 START: _____ FINISH: _____

WATER TABLE DEPTH (FT): 2.4 TIME: ____ DATE: 3/30/2015

CLIENT: A. D. MORGAN CORPORATION

PROJECT: HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION

LOCATION: 91 DEERGLEN BLVD, LAKE PLACID, FL

DRILL CREW: B.T. LOGGED BY: B.T. WEATHER CONDITIONS: Sunny & Clear

DRILL MAKE & MODEL: CME-45 DRILL BIT: 2-7/8" Tricone Roller or Drag Bit

BORE HOLE FILL: Bore Hole Cuttings

DRILLING METHOD: Rotary Wash with drilling mud (SPT)

NOTES: Hand Auger 0'-4.5' and Auto Hammer 4.5'-15'

DEPTH, FT.	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	PERCENT FINES (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLAST. INDEX
0	HA	1		SP-SM	SAND WITH SILT; Dark Brown					
	HA	2								
	HA	3		SP-SM	SAND WITH SILT; Brown					
5	8	4								
	10	5								
	12	6		SP	SAND; Light Brown					
10	15	7				21.1	1.4			
				SM	SILTY SAND; Dark Brown					
15	19	8			BORING TERMINATED AT 15 FEET DEPTH					
20										
25										
30										

BORING NO.: TH-3 GROUND SURFACE ELEVATION: N/A

BORING LOCATION: see Plan (Figure 1)
SOUTHWEST CORNER OF CLUBHOUSE EXT.

DATE DRILLED: 3/30/2015 START: _____ FINISH: _____

WATER TABLE DEPTH (FT): 2.6 TIME: ____ DATE: 3/30/2015

CLIENT: A. D. MORGAN CORPORATION

PROJECT: HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION

LOCATION: 91 DEERGLEN BLVD, LAKE PLACID, FL

DRILL CREW: B.T. LOGGED BY: B.T. WEATHER CONDITIONS: Sunny & Clear

DRILL MAKE & MODEL: CME-45 DRILL BIT: 2-7/8" Tricone Roller or Drag Bit

BORE HOLE FILL: Bore Hole Cuttings

DRILLING METHOD: Rotary Wash with drilling mud (SPT)

NOTES: Hand Auger 0'-4.5' and Auto Hammer 4.5'-15'

DEPTH, FT.	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	PERCENT FINES (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLAST. INDEX
0	HA	1		SP-SM	SAND WITH SILT; Dark Brown					
	HA	2		SP-SM	SAND WITH SILT; Brown	23.9	10.8			
	HA	3								
5	8	4								
	9	5		SP-SM	SAND WITH SILT; Light Grayish-Brown					
	13	6		SP-SM	SAND WITH SILT; Dark Brown					
10	20	7		SP	SAND; Light Grayish-Brown					
				SM	SILTY SAND; Dark Brown					
15	23	8			BORING TERMINATED AT 15 FEET DEPTH					
20										
25										
30										

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FILE NO: 15-51-9052 DATE: 4/8/2015 BORING NO.: TH-3

BORING NO.: TH-4 GROUND SURFACE ELEVATION: N/A

BORING LOCATION: see Plan (Figure 1)
STORMWATER RETENTION POND AREA

DATE DRILLED: 3/30/2015 START: _____ FINISH: _____

WATER TABLE DEPTH (FT): 2.4 TIME: ____ DATE: 3/30/2015

CLIENT: A. D. MORGAN CORPORATION

PROJECT: HIGHLANDS PARK ESTATES CLUBHOUSE EXTENSION

LOCATION: 91 DEERGLEN BLVD, LAKE PLACID, FL

DRILL CREW: B.T. LOGGED BY: B.T. WEATHER CONDITIONS: Sunny & Clear

DRILL MAKE & MODEL: CME-45 DRILL BIT: 2-7/8" Tricone Roller or Drag Bit

BORE HOLE FILL: Bore Hole Cuttings

DRILLING METHOD: Rotary Wash with drilling mud (SPT)

NOTES: Hand Auger 0'-3', Shelby Tube 3'-5.5', and Auto Hammer 5.5'-15'

DEPTH, FT.	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	PERCENT FINES (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLAST. INDEX
0	HA	1		SP-SM	SAND WITH SILT; Brown					
	HA	2		SP-SM	SAND WITH SILT; Light Gray	10.3	6.1			
		US-1		SP	SAND; Gray	18	4.2			
5					UNDISTURBED SHELBY TUBE (3'-5.5') - Recovery 27.7"					
	9	3		SP	SAND; Gray					
	10	4								
	14	5		SP-SM	SAND WITH SILT; Dark Brown	23.4	6			
10	16	6								
	20	7								
15					BORING TERMINATED AT 15 FEET DEPTH					
20										
25										
30										