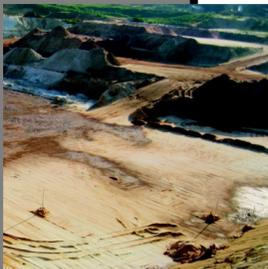


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GEOTECHNICAL INVESTIGATION REPORT 177- ACRE FORMER NTC ORLANDO  
TRADEPORT SITE NTC ORLANDO FL  
8/1/2015  
HSA GOLDEN



## **Geotechnical Investigation Report**

**177-Acre Former NTC Orlando Tradeport Site  
Orlando, Orange County, Florida  
HSA Golden Project No. 08-513.002**

*Prepared for:*

**Bogey Boggy Creek 08, LLC  
20 North Division Avenue  
Orlando, Florida 32801**

**August 2015**

**hsagolden**  
engineering environmental solutions

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Orlando, FL 32806  
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August 12, 2015

**VIA UPS/ELECTRONIC MAIL**

Mr. Brian Mulvaney  
**Bogey Boggy Creek 08, LLC**  
20 North Division Avenue  
Orlando, FL 32801

Subject: Geotechnical Investigation Report  
**177-Acre Former NTC Orlando Tradeport Site**  
Orlando, Orange County, Florida  
HSA Golden Project No. 08-513.002

Dear Mr. Mulvaney:

HSA Golden is pleased to present the findings from our geotechnical investigations completed at the Former Naval Training Center (NTC) Orlando Tradeport Site (hereafter referred to as site or subject property) located in Orlando, Orange County, Florida. The location of the subject property is shown on Figure 1. The purpose of the geotechnical investigations was to generally delineate the horizontal and vertical limits of the ±114-acre McCoy Annex Landfill and to determine the development constraints on the subject property. We note that the size of the landfill (±114 acres) was previously estimated and reported by the Navy. As discussed in Section 2.3, we estimate that the size of the landfill appears to be much smaller, at approximately 33.94 acres. Our proposed geotechnical investigations plan was previously submitted in the form of a letter (Recommendations for Geotechnical Exploration for Industrial Developments) to and approved by Mr. Art Sanford, Remedial Project Manager with the United States Navy BRAC Program Management Office SE and Mr. David Grabka at the Florida Department of Environmental Protection (FDEP) in 2009.

The geotechnical investigations were accomplished via the advancement of standard penetration test (SPT) and auger borings, as well as the excavation of test pits at strategic locations across the site. The locations of these borings and test pits are shown on Figure 2. Our investigative methods and results are detailed in the following sections of this report.

## 1.0 BACKGROUND

In 2008, HSA Golden reviewed documents available through the Orlando Tradeport Virtual Due Diligence Library (<http://www.orlandotradeport.com/library/index.php>) and the Tetra Tech Document Warehouse System for McCoy Landfill ([http://dws.navy-env.com/Orlando\\_OU.aspx](http://dws.navy-env.com/Orlando_OU.aspx)). Based on the information we reviewed, the subject property consists of approximately 177 acres, of which 125 acres of land was formerly used as a nine-hole municipal golf course, with the remaining 52 acres consisting of cleared and wooded land. The site formerly operated as the NTC - McCoy Annex and is also referred to as Operable Unit 2 and Orlando Tradeport site. According to the Navy, approximately 114 acres of the land occupied by the golf course was formerly used as the



McCoy Annex Landfill, which operated from 1960 to 1978. Landfill operations reportedly consisted of excavating ditches (100 to 200 feet long by 20 to 25 feet wide by 10 to 15 feet deep). The ditches were filled with wastes, which occasionally were burned. This information was used to develop the geotechnical investigations that are described in this report. As discussed in Section 2.3, we estimate that the size of the landfill appears to be much less in aerial extent than what the Navy estimated.

## **2.0 GEOTECHNICAL INVESTIGATION**

Geotechnical investigative activities at the site commenced on June 9, 2015 and were completed on June 24, 2015. During this time period, HSA Golden directed the advancement of SPT and auger borings, as well as the excavation of test pits across the site. All drilling activities were performed by Universal Engineering Sciences, Inc. (UES), Orlando, Florida, while test pit excavations were performed by Lake Environmental Resources, LLC personnel.

### **2.1 Health and Safety**

A Health and Safety Plan (HASP) was developed for use on the site during all times of field activities. This HASP was previously submitted to and approved by Mr. Sanford and Mr. Grabka in 2009. All field personnel were briefed by HSA Golden's Site Safety Officer (SSO) on the contents of the HASP and the geotechnical testing at the closed landfill prior to initiating all investigative activities. Personnel donned Level D (standard fieldwork clothing) personal protective equipment (PPE) during the investigation. Additional safety briefings were performed as site conditions changed or new personnel entered the site. Because proposed drilling and test pit excavations would involve disturbing landfilled waste associated with the McCoy Annex Landfill, HSA Golden continuously monitored ambient air at each location using a MultiRAE meter manufactured by RAE Systems. The MultiRAE measured typical landfill gases of hydrogen sulfide, carbon monoxide, methane as expressed as % Lower Explosive Limit (LEL), and oxygen. The meter was also equipped with a photoionization detector (PID) for detection of petroleum-related and volatile organic vapors. Because no landfill gas or potential hazardous waste was encountered, personnel remained in Level D PPE throughout the entirety of field investigations.

### **2.2 SPT and Auger Boring Installation**

UES installed a total of 44 auger borings (AB-1 through AB-44) and 17 SPT borings (SPT-1 through SPT-17). Of these 44 auger borings, nine borings were converted to SPT borings (AB-8, AB-12, AB-17, AB-29, AB-32, AB-35, AB-39, AB-41, and AB-43). Landfilled debris (mostly construction, demolition, and industrial type debris - no hazardous waste) was encountered in 11 auger borings (AB-10, AB-11, AB-19, AB-23, AB-25, AB-27, AB-28, AB-30, AB-31, AB-33, and AB-44) and four SPT borings (SPT-12, SPT-13, SPT-14, and SPT-15). The depths and thickness of waste in these borings varied between one and five feet thick, and beginning of landfill debris ranged between land surface and nine feet below land surface. Specific lithological details regarding UES's borings is summarized in their report provided as Appendix A. Investigation derived waste was returned to each borehole.

### 2.2.1 Geotechnical Investigation

Based on UES's preliminary exploration, they have identified the following potential geotechnical constraints that could affect the schedule and costs associated with this project including:

- The presence of deleterious materials including landfill waste and construction debris (historic construction and demolition (C&D) landfill) at various borings and test pit locations. In order to reduce the potential for distress and extend the useful life of the pavements and roadways, we recommend that a surcharging program in conjunction with a geogrid reinforced subgrade be implemented within the landfill limits.
- Building structures constructed over landfill areas may require deep foundation support (pilings) combined with structural floor slab to support the building loads adequately.
- It should be acknowledged by the end user/owner that the proposed development over an existing landfill will contain some uncertainty and risk associated with this project. There are still some unknown and potentially significant factors that will affect the long-term performance of the improvements including, but not limited to, the variability of the landfill's composition.

Although we have identified the preceding potential constraints due to subsurface conditions, we believe these issues with realistic performance expectations can be addressed through project specific geotechnical investigations, planning, and design (see Appendix A for full Geotechnical Report).

### 2.3 Test Pit Excavation

From June 9, 2015 through June 19, 2015, HSA Golden directed the excavation of 97 test pits across the site (Figure 2). At each test pit location, HSA Golden noted generalized geology and whether landfilled debris was present. Test pit logs describing geology and waste (if applicable) encountered as well as representative photos for each test pit (if available) are provided in Appendix B. As indicated by the logs, landfilled debris was encountered in 35 of the 97 test pits installed, or approximately 36%. As shown on Figure 2, those test pits where no landfilled debris was encountered are indicated by a blue symbol. Red symbols indicate that the test pit location contained landfill debris. Landfill debris generally consisted of C&D/industrial debris with some municipal solid waste noted. The depth at which the debris was first encountered as well as the thickness of the debris varied. Generally speaking, the percentage of waste was less than that of soil in each test pit. Existing two-feet of soil cover material was replaced at the completion of each test pit.

No suspect hazardous waste was encountered; however, part of a dummy fuse container was encountered at the location of test pit TP-27. Because of this discovery, the test pit excavation was terminated at this location and a supplemental geophysical investigation was completed (refer to Section 2.4). Each test pit was backfilled with material that was excavated prior to moving onto the next test pit, and the two foot landfill cap was restored (i.e. no waste was placed within two feet of land surface). No investigative derived waste was disposed offsite, nor was any fill material brought onto the site to backfill test pit excavations.

The dashed area in red on Figure 2 represents the approximate limits of landfilled debris, based upon observations recorded during our investigations. The area included within this red dashed area was estimated to be approximately 33.94 acres, or a little over three times smaller than the landfill area calculated by the Navy. Outlined areas on the map represent preliminary wetlands and ponds respectively, that were mapped by UES. The wetland areas account for 20.13 acres of the site, while the ponds account for 7.45 acres of the site.

### **2.3.1 Landfill Gas**

Landfill gases of hydrogen sulfide, carbon monoxide, methane as expressed as % LEL, and oxygen were monitored at each boring and test pit. The meter was also equipped with a PID for detection of petroleum-related and volatile organic vapors. None of the readings were elevated above background levels during the excavation of test pits and drilling of borings, i.e. no elevated ambient detections of volatile organic vapors.

## **2.4 Geophysical Investigation**

Because of the dummy fuse container that was encountered while excavating test pit TP-27, HSA Golden subcontracted Geoview of St. Petersburg, Florida to perform a geophysical investigation. The purpose of the geophysical investigation was to evaluate the subsurface further for the presence of buried metallic debris in the area of TP-27. The geophysical investigation was conducted using time domain electromagnetics (TDEM). The results of the geophysical investigation indicated 43 areas of anomalous elevated responses within the survey area. Geoview's report, which details their methodology and findings is provided in Appendix C. A relatively small amount of metallic wastes were identified by the TDEM study. Further investigation in the area of TP-27 is recommended and would include GPR guided test pits to determine the depth, extent, and type of buried metallic debris.

## **3.0 CONCLUSIONS**

HSA Golden has completed a geotechnical investigation at the NTC Orlando Tradeport site. The purpose of the geotechnical investigations was to generally delineate the horizontal and vertical limits of the McCoy Annex Landfill and to determine the amount and type of development possible on the subject property. The investigation included the installation of 44 auger borings, 17 SPT borings, and excavation of 97 test pits across the site. Based upon our findings we note the following:

- Landfill debris was identified in four areas of the property, with the largest two areas occupying the central northern and central western parts of the property (Figure 2). A smaller area exists around boring SPT-15 and boring AB-14. In total, we estimate that approximately 33.94 acres of the subject property consists of landfilled debris, or approximately three times smaller than what was previously reported by the Navy.
- Surficial trash and concrete debris was noted at the southwestern part of the property and surficial C&D debris on the northern/eastern part of the property.

- Landfilled debris encountered in the auger and SPT borings ranged in thickness from one to five feet, with the thickest waste located at auger borings AB-10 (five feet), AB-11 (four feet), AB-33 (five feet), and AB-44 (four feet).
- The presence of deleterious materials including landfill waste and construction debris (historic C&D landfill) at various borings and test pit locations. In order to reduce the potential for distress and extend the useful life of the pavements and roadways, we recommend that a surcharging program in conjunction with a geogrid reinforced subgrade be implemented within the landfill limits.
- Building structures constructed over landfill areas may require deep foundation support (i.e. pilings) combined with structural floor slab to support the building loads adequately.
- It should be acknowledged by the end user/owner that the proposed development over an existing landfill will contain some uncertainty and risk associated with this project. There are still some unknown and potentially significant factors that will affect the long-term performance of the improvements including, but not limited to, the variability of the landfill's composition. Project specific geotechnical investigations, planning, and design can be used to mitigate these risks.

#### **4.0 LIMITATIONS**

The findings of this report represent our professional judgement; no other warranty is expressed or implied. These findings are relevant to the date(s) and locations of the site work and the information cited herein. This report should not be relied upon to represent site conditions on other dates or at locations other than those specifically cited within the report.

\* \* \* \* \*

We trust that the contents of this report are adequate for your purposes. Please call us at 407.649.5475 if additional information or clarification is necessary.

Sincerely,

**HSA GOLDEN**



William Jacobs  
Senior Project Manager



James E. Golden, P.G.  
Vice President, Principal Hydrogeologist

Attachments

- cc: Mr. Art Sanford, BRAC  
Mr. David Grabka, FDEP  
Mr. Michael Stuart, Fusilier Realty  
Mr. Richard Bazinet, Lake Environmental Resources





SITE LOCATION

8TH STREET

BOGGY CREEK ROAD

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AERIAL SOURCE: ESRI, PINECASTLE, QUADRANGLE, 2011

FORMER NTC ORLANDO TRADEPORT SITE  
 ORLANDO, ORANGE COUNTY, FLORIDA

SITE LOCATION MAP

PROJECT #	08-513.002
FIGURE	1







# **UNIVERSAL**

## **ENGINEERING SCIENCES**

### **PRELIMINARY GEOTECHNICAL EXPLORATION**

**177-ACRE FORMER NAVAL TRAINING CENTER LANDFILL  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA**

**UES PROJECT NO. 0130.1500185.0000  
UES REPORT NO. 1251100**

#### **PREPARED FOR:**

**HSA Golden  
11 Lake Gatlin Road  
Orlando, Florida 32806**

#### **PREPARED BY:**

**Universal Engineering Sciences  
3532 Maggie Boulevard  
Orlando, Florida 32811  
(407) 423-0504**

**July 23, 2015**

Consultants in: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing • Threshold Inspection  
Offices in: Orlando • Daytona Beach • Fort Myers • Gainesville • Jacksonville • Ocala • Palm Coast • Rockledge • Sarasota • Miami  
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  - Panama City
  - Pensacola
  - Rockledge
  - Sarasota
  - Tampa
  - West Palm Beach

July 23, 2015

HSA Golden  
11 Lake Gatlin Road  
Orlando, Florida 32806

Attention: Mr. James E. Golden, P.G.  
[jgolden@hsagolden.com](mailto:jgolden@hsagolden.com)

**Reference: Preliminary Geotechnical Exploration**  
177-Acre Former Naval Training Center Landfill - Tradeport Drive  
Industrial Development Assessment  
Orlando, Orange County, Florida  
UES Project No. 0130.1500185.0000  
UES Report No. 1251100

Dear Mr. Golden:

Universal Engineering Sciences, Inc. (Universal) has completed a preliminary geotechnical exploration at the referenced site in Orange County, Florida. Our exploration was planned in conjunction with and authorized by you. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

The following report presents the results of our field exploration with a geotechnical engineering interpretation of those results with respect to the project characteristics as provided to us. We have included soil and groundwater conditions at the boring locations, potential constraints to site development, and a preliminary geotechnical assessment regarding the planned construction.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Respectfully Submitted,  
**UNIVERSAL ENGINEERING SCIENCES, INC.**  
Certificate of Authorization No. 549

Gautham S. Pillappa, P.E. [TX]  
Senior Geotechnical Engineer



2 - Client

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## 1.0 PROJECT DESCRIPTION

We understand your client purchased the approximately 177 acre, former NTC Orlando Tradeport, industrial landfill site, located near the Orlando international Airport on Tradeport Drive, in Orlando, Orange County, Florida. UES has been requested to perform a preliminary assessment of the property for commercial development. The objectives of the preliminary geotechnical study were to determine whether the former NTC landfill site is suitable for commercial/industrial developments from a geotechnical perspective and provide recommendations to assess and further assess the techniques available for developing this property. Our study provides preliminary subsurface data for the planning and for future site explorations once the locations and designs of specific structures/facilities have been determined, and provide preliminary foundation design guidance so that the preliminary development costs can be determined.

Please note that our exploration was preliminary in nature and conducted to acquire general subsurface information only. Once final site configuration, building detail and structural/grading information is available, a comprehensive geotechnical exploration will be required to provide final design recommendations.

## 2.0 PURPOSE

The purposes of this preliminary exploration were:

- to explore the subsurface conditions at general locations and depths as directed by the client,
- to identify potential constraints to development and provide a preliminary geotechnical assessment regarding the planned construction for due diligence concerns.

This report presents an evaluation of site conditions on the basis of geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards.

Our exploration was not designed to specifically address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. This evaluation requires a more extensive range of field services than those performed in this study. We would be pleased to conduct an exploration to evaluate the probable effect of the regional geology upon the proposed construction, if you so desire.

## 3.0 SITE DESCRIPTION

The subject site is located within Section 05, Township 24 South, Range 30 East in Orange County, Florida. More specifically, the site is located on the west side of Tradeport Drive and west of the Orlando Airport, as shown on the attached Figures A-1 and B-1. At the time of drilling, the subject parcel was vacant with vegetative cover consisting mostly of grass, trees, some water bodies, wetland areas and weeds.



### 3.1 SOIL SURVEY

There are ten (10) designated soil types mapped within the project boundary according to the USDA NRCS Soil Survey of Orange County. A brief summary of the mapped surficial soil type(s) is presented in Table I.

**TABLE I  
SUMMARY OF PUBLISHED SOIL DATA**

Soil Symbol	Soil Type	Hydrologic Group	Drainage Characteristics	Depth of Published Seasonal High GWT (feet)
1	Arents, nearly level	B	Poorly drained	2 to 3
3	Basinger fine sand, 0 to 1 percent depressional	D	Very poorly drained	+2 to 0
27	Ona-Urban land complex	B/D	Very poorly drained	0.5 to 1
33	Pits	~~~	~~~	~~~
34	Pomello fine sand, 0 to 5 percent slopes	C	Moderately well drained	2 to 3.5
37	St. Johns fine sand	B/D	Poorly drained	0 to 1
42	Sanibel Muck	D	Very poorly drained	+1 to 0
44	Smyrna-Smyrna, wet, fine sand, 0 to 2 percent slopes	B/D	Poorly drained	0 to 1.5
45	Smyrna-Urban land complex	B/D	Poorly drained	0 to 1.5
99	Water	~~~	~~~	~~~

Please note that the subsurface conditions depicted on the soil survey have been altered during previous use of the site as a landfill and are not necessarily representative of the current subsurface conditions encountered during our exploration.

### 3.2 TOPOGRAPHY

Site specific topographic information was not provided by the client for our review at the time of this report preparation. According to information obtained from the United States Geologic Survey (USGS) Pine Castle, Florida quadrangle map, the ground surface elevation across the site area ranges from approximately +90 to +110 feet National Geodetic Vertical Datum (NGVD). A copy of a portion of the USGS Map is included in Appendix A. The USGS map



indicates a normal high water elevation of about +90 feet NGVD for the wetland features located in the vicinity of the subject site.

#### **4.0 SCOPE OF SERVICES**

Universal was provided with a requested boring layout by the client prior to our exploration which included forty four (44) auger borings to a depth of 20 feet bls and five (5) SPT borings to a depth of 50 feet each bls. However, this scope of work was revised during fieldwork operations. In addition, fifty two (52) test pits were performed under the direct supervision of your field representative.

The revised services conducted by Universal during our preliminary geotechnical exploration are as follows:

- Drill seventeen (17) Standard Penetration Test (SPT) borings to a depth of 25 feet below existing land surface (bls) and thirty five (35) flight auger borings to a depth of 20 feet bls. The boring locations were selected by your field representative.
- Secure samples of representative soils encountered in the soil borings for review, laboratory analysis and classification by a Geotechnical Engineer.
- Conduct laboratory testing on selected soil samples obtained in the field to determine their engineering properties.
- Preparing a report which documents the results of our preliminary exploration and laboratory testing program with analysis.

#### **5.0 FIELD EXPLORATION**

The SPT soil borings were performed with an ATV mounted drilling rig. The boring locations were staked in the field by the client, however, horizontal and vertical survey control was not provided for the test locations prior to our field exploration program. The approximate boring locations are shown in Appendix B.

The SPT borings, designated SPT-1 through SPT-17 on the attached Boring Location Plan in Appendix B, were performed in general accordance with the procedures of ASTM D 1586 "Standard Method for Penetration Test and Split-Barrel Sampling of Soils". SPT sampling was performed continuously in the top 10 feet to detect variations in the near surface soil profile and on 5 feet centers thereafter.

The auger borings were performed using a flight auger in general accordance with ASTM D 1452, Standard Practice for Soil Investigation and Sampling by Auger Borings. In the flight-auger procedure, the boring was advanced using a drilling-rig to rotate a spiral type auger slowly until the auger blades were filled with representative samples of the soils. Once the blades were filled, the auger assembly was retrieved from the borehole and the sample was removed from the blades, placed in a labeled plastic container, and sealed.

As mentioned previously, fifty two (52) test pits were performed using a backhoe, and the encountered soil profiles were documented during excavation under the direct supervision of



your field representative. It is our understanding that all test pits were backfilled upon completion. The test pit logs, prepared by HSA Golden, are attached in Appendix B.

## 6.0 LABORATORY TESTING

The soil samples recovered from the test borings were returned to our laboratory and visually classified in general accordance with ASTM D 2487 "Standard Classification of Soils for Engineering Purposes" (Unified Soil Classification System). We selected representative soil samples from the borings for laboratory testing to aid in classifying the soils and to help to evaluate the general engineering characteristics of the site soils. The results of these tests are shown on the boring logs in Appendix B. A summary of the tests performed is shown in Table II.

**TABLE II  
LABORATORY METHODOLOGIES**

Test Performed	Number Performed	Reference
Grain Size Analysis (#200 wash only)	37	ASTM D 1140 "Amount of Material in Soils Finer than the No. 200 (75 - $\mu$ m) sieve"
Moisture Content	37	ASTM D 2216 "Laboratory Determination of Water (Moisture) Content of Soil by Mass"
Organic Content	10	ASTM D2974 "Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils"

## 7.0 SUBSURFACE SOIL CONDITIONS

### 7.1 GENERALIZED SOIL PROFILE

The results of our field exploration and laboratory analysis, together with pertinent information obtained from the SPT borings, such as soil profiles, penetration resistance and groundwater levels are shown on the boring logs included in Appendix B. The Key to Boring Logs, Soil Classification Chart is also included in Appendix B. The soil profiles were prepared from field logs after the recovered soil samples were examined by a Geotechnical Engineer. The stratification lines shown on the boring logs represent the approximate boundaries between soil types, and may not depict exact subsurface soil conditions. The actual soil boundaries may be more transitional than depicted. A generalized profile of the soils encountered at our boring locations is presented in Table III. For detailed soil profiles, please refer to the attached boring logs.

**TABLE III  
GENERALIZED SOIL PROFILE**

Typical Depth (feet, bts)		Soil Description
From	To	
Surface	25*	Loose to medium dense fine SAND with varying fines content [SP, SC, SC-SM, SM, SP-SC, SP-SM and SM-OL].

\* denotes maximum termination depth of the boring



## 7.2 NOTABLE FINDINGS – LANDFILL WASTE

Deleterious materials consisting of landfill waste and construction debris were encountered between the depths of 2½ and 11 feet below grade at numerous test pit, SPT and auger boring locations (historic landfill limits). ***The approximate aerial limits of these materials are shown on the attached Boring Location Plan.*** These waste materials are unsuitable for support of structures and other settlement sensitive improvements. In order to help reduce the potential for distress and extend the useful life of any roadway or ground level parking improvements constructed within the landfill limits, we recommend the implementation of a surcharge program in conjunction with a geogrid reinforced subgrade; buildings should not be constructed over the landfill areas unless designed and constructed with structural floor slab and columns supported on deep foundations.

Preliminary recommendations for surcharging and subgrade preparation for construction of the pavements within the landfill limits are included in Section 9.3.

## 7.3 NOTABLE FINDINGS – ORGANIC SOILS

A notable finding at boring locations AB-44 and SPT-13 performed during this exploration program was the presence of surficial and buried organic soils. The organic soils were found at the following depths:

- ***AB-44, 6 feet to 8 feet***
- ***SPT-13, 5½ feet to 8 feet***

Representative soil sample tested had an organic content of about 11 to 17 percent with corresponding moisture content of 40 to 56 percent.

The general state of geotechnical practice is that soils with an organic content greater than about 5 percent are considered unsuitable for foundation support and soils with greater than about 10 percent are considered unsuitable for the support of pavements. Based upon this criterion, the organic soils found on site at boring locations AB-44 and SPT-13 are considered **unsuitable to remain in-place. Failure to completely remove and replace these organic materials from beneath any proposed site improvements may affect their performance.**

***The aerial limits of the buried organic soils on site are currently unknown. Additional areas of the site, as well as variable thicknesses and depths of the organic soils already identified at the test boring locations AB-44 and SPT-13 may exist between the widely spaced test boring locations. We strongly recommend that the horizontal limits of these organic soils around boring locations AB-44 and SPT-13 should be delineated by performing shallow test pits prior to beginning construction to better identify and delineate the presence of this highly organic material under the proposed site improvements. This additional information would also be beneficial to the owner to better estimate the costs associated with the over-excavation and replacement program for this project.***

The removal of organic soils from the site should be performed under the full-time observation of a UES representative to document and ensure that organic soils have been completely removed and properly replaced with compacted, suitable structural fill material. It is anticipated that groundwater control (i.e. dewatering) will be required during the de-mucking process due to



the shallow groundwater levels on site and the fact that the organic soils were found near the groundwater table at the test borings. The groundwater table should be controlled to a depth of at least 2 feet below the bottom of the excavations during the entire demucking operations.

**Also, organic stained soils were found at boring locations AB-2, AB-11 and AB-27.** The organic stained soils were found between the depths of about 1 to 9 feet below the current ground surface. Representative soil samples tested had an organic content ranging between about 4 to 7 percent with corresponding moisture contents of about 11 to 122 percent. Due to the sandy nature and relatively low organic contents, we believe that these soils are suitable to remain in-place and will not require special consideration.

We note that organic soil deposits are often laterally discontinuous and may exist in areas not explored during our geotechnical exploration. The site subgrades should be closely observed during the initial stripping and proof-rolling operations for indications (i.e. pumping and yielding of subgrades) of additional deposits of highly organic soils [PT] onsite. If deposits of highly organics soils are encountered, we recommend that these materials be removed and replaced with suitable fill material under the direction of the Geotechnical Engineer of Record.

## 8.0 GROUNDWATER CONDITIONS

### 8.1 EXISTING GROUNDWATER LEVEL

Groundwater was encountered between the depths of 2 and 14 feet at our boring locations at the time of our exploration. Fluctuations in groundwater levels should be anticipated throughout the year, primarily due to seasonal variations in rainfall, surface runoff, and other factors that may vary from the time the borings were conducted.

### 8.2 SEASONAL HIGH GROUNDWATER LEVEL

Based on historical data, the rainy season in Central Florida is between June and October of the year. In order to estimate the seasonal high water level at the boring locations, many factors are examined, including the following:

- Measured groundwater level
- Drainage characteristics of existing soil types
- Current & historical rainfall data
- Natural relief points (such as lakes, rivers, wetlands, etc.)
- Man-made drainage systems (ditches, canals, retention basins, etc.)
- On-site types of vegetation
- Review of available data (soil surveys, USGS maps, etc.)

Based on the results of our field exploration and the factors listed above, we estimate that the normal stabilized seasonal high groundwater level at the boring locations will likely form at about the existing ground surface to about 8 feet below grade. However, a transient, perched water condition may form above the hydraulically restrictive clayey sand layer encountered at a few boring locations, especially after periods of heavy rains.

It should be noted that the estimated seasonal high water levels do not provide any assurance that groundwater levels will not exceed these estimated levels during any given year in the



future. Should impediments to surface water drainage be present, or should rainfall intensity and duration, or total rainfall quantities, exceed the normally anticipated rainfall quantities, groundwater levels might exceed our seasonal high estimates. Further, it should be understood that changes in the surface hydrology and subsurface drainage from on-site and/or off-site improvements could have significant effects on the normal and seasonal high groundwater levels.

## 9.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

### 9.1 PRELIMINARY SITE PREPARATION

Based on the results of our exploration, deleterious materials including landfill waste and debris were encountered between the depths of 2½ and 11 feet below grade at numerous test pit, SPT and auger boring locations (landfill limits). These deleterious materials are unsuitable for support of any proposed structures and other settlement sensitive improvements. In order to help reduce the potential for distress and to extend the overall useful life of any proposed improvements constructed within the landfill limits, we recommend that a surcharging program be implemented along with a geogrid reinforced subgrade (See Section 9.3).

For the areas outside of the landfill limits, conventional site preparation is anticipated for typical warehouse construction. Typical site preparation will consist of root raking and stripping procedures to remove surface vegetation, roots, topsoil, debris and other deleterious materials, followed by densification of any loose subgrade soils and placement of compacted fill. Clearing and grubbing depths are anticipated to be about 6 to 12 inches. Deeper clearing and grubbing depths may be encountered in heavily vegetated or depressional areas where major root systems are encountered.

Based on the anticipated groundwater conditions, temporary dewatering may be required in some areas to achieve the necessary excavation, backfilling and compaction requirements at this site.

All fill/backfill should consist of clean sand with less than 12 percent soil fines and be free of organics, debris and other deleterious materials. The fill should be placed in maximum 12-inch loose, uniform lifts with each lift compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557).

### 9.2 PRELIMINARY FOUNDATION DESIGN – OUTSIDE OF LANDFILL LIMITS

We assume that the proposed construction will consist of typical warehouse structures (maximum loadings of 100 kips per column and 6 kips/ft for structural walls) and associated improvements. Assuming that the site is properly prepared, we anticipate that conventional, shallow spread footing or slab-on-grade foundation may be used to support the proposed structures constructed outside of the landfill limits. Based on the results of our preliminary exploration, adequate allowable net bearing pressures are anticipated for foundation design (i.e. 2,500 psf). ***The final design bearing pressure will depend upon loading conditions and the results of our design-level exploration.***

The foundations may bear on either the compacted suitable native soils or compacted structural fill. The bearing level soils should be densified to at least 95 percent of the maximum dry density



as determined by ASTM D 1557 (Modified Proctor) to a depth of at least 2 feet below foundation level.

The minimum width recommended for an isolated column footing is 24 inches. For continuous wall or thickened edge monolithic slab footings, the minimum widths should comply with the current Florida Building Code, but under no circumstances should be less than 12 inches in width. The base of all footings should bear at least 12 inches below finished grade elevation as required under the current Florida Building Code.

### **9.3 PRELIMINARY FOUNDATION DESIGN – WITHIN LANDFILL LIMITS**

As mentioned previously, any building areas proposed within the landfill limits must be designed and constructed with a structural floor slab, a load transfer platform and columns supported on pile foundations.

***Based on the proposed site layout, the final design bearing pressure will depend upon loading conditions and the results of our design-level exploration.***

### **9.4 PRELIMINARY PAVEMENT DESIGN – WITHIN LANDFILL LIMITS**

We assume that any proposed parking lots will consist of a combination of flexible and rigid pavement sections with typical warehouse traffic loadings. For asphaltic pavements, we recommend using a three layer section consisting of a stabilized subgrade (sub-base), base course, and surface course. The pavement areas should be designed and constructed in accordance with applicable local and FDOT standards.

If the pavements were constructed over the landfill waste area without any remediation, significant settlement induced distress including depressions, undulations, bird baths, ponding, cracking, etc. would be expected over the useful life of the project. Therefore, in order to reduce the potential for distress and extend the useful life of the pavements, we recommend that a surcharging program in conjunction with a geogrid reinforced subgrade be implemented within the landfill limits.

From our preliminary analysis, we expect the surcharging for the pavement areas to consist of approximately 5 feet of additional fill (above final grade). We anticipate that a waiting period of 1 to 3 months or more would likely be required.

After surcharging, we recommend reinforcing the pavement subgrade by installing geogrid. We recommend using a Tensar TX-5 geogrid or equivalent. The installation of the geogrid would significantly improve the performance of the pavement section and reduce the amount of maintenance over the design life project. At a minimum, a layer of geogrid should be installed above the stabilized subgrade, immediately below the base course. An additional layer of geogrid may be needed below the stabilized subgrade and compacted fill, depending on the results of the final exploration and final grading.

### **9.5 POTENTIAL CONSTRAINTS TO DEVELOPMENT**

Based on our preliminary exploration, we have identified the following potential geotechnical constraints that could affect the schedule and costs associated with this project including:



- The presence of deleterious materials including landfill waste and construction debris (historic C&D landfill) at various borings and test pit locations. In order to reduce the potential for distress and extend the useful life of the pavements, we recommend that a surcharging program in conjunction with a geogrid reinforced subgrade be implemented within the landfill limits.
- **It should be acknowledged by the end user/owner that the proposed development over an existing landfill is not considered a “generally accepted” engineering practice and as such there will be some uncertainty and risk associated with this project. There are unknown and potentially significant factors that will affect the long-term performance of the improvements including, but not limited to the variability of the landfill’s composition. Despite the best design efforts, it should be anticipated that the on-going maintenance costs will be greater than normal and could be significant compared to similar projects constructed on suitable native soils. The recommended surcharge program and geogrid reinforcement is intended to reduce, but not eliminate the anticipated settlement of the parking lot over the useful design life.**

**Although we have identified the preceding potential constraints due to subsurface conditions, we believe these issues with realistic performance expectations can be addressed through planning and design.**

## 10.0 FINAL GEOTECHNICAL EXPLORATION

Please note that this exploration was preliminary in nature, and was designed to help determine the presence of any near surface constraints which would significantly impact the intended development of the subject site, as well as affect the cost of construction. The information obtained from this exploration is not sufficient to meet the industry standard of care for final design of foundation systems, building and pavement grades, and stormwater ponds.

We strongly recommended that the information obtained from this preliminary exploration be supplemented with a more comprehensive subsurface exploration once the building layouts and the site plan have been finalized. Deeper soil borings are also required if you wish to evaluate the presence of deeper deposits of unsuitable soils on site. The foundations for the building and the pavement grades should be designed based on the information obtained from a comprehensive geotechnical exploration program.

***This report has not been prepared to meet the full needs of design professionals, contractors, or any other parties. Any use of this report without the guidance of the geotechnical engineer who prepared it constitutes improper usage which could lead to erroneous assumptions, faulty conclusions, and other problems.***

## 11.0 LIMITATIONS

This report has been prepared for the exclusive use of **HSA Golden** and other designated members of their design/construction team associated with the proposed construction for the specific project discussed in this report. No other site or project facilities should be designed using the soil information contained in this report. As such, UES will not be responsible for the performance of any other site improvement designed using the data in this report.



This report should not be relied upon for final design recommendations or professional opinions by *unauthorized third parties* without the expressed written consent of Universal Engineering Sciences. *Unauthorized third parties that rely upon the information contained herein without the expressed written consent of Universal Engineering Sciences, Inc. assume all risk and liability for such reliance.*

The recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the Boring Location Plan and from other information as referenced. This report does not reflect any variations which may occur between the boring locations. The nature and extent of such variations may not become evident until the course of construction or subsequent explorations. If variations become evident, it will then be necessary for a re-evaluation of the recommendations of this report after performing on-site observations during the construction period and noting the characteristics of the variations.

Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information for estimation of material quantities unless our contracted services **specifically** include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible problems. A Geotechnical Business Council (GBC) publication, "Important Information About This Geotechnical Engineering Report" appears in Appendix C, and will help explain the nature of geotechnical issues.

Further, we present documents in Appendix C: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

## 12.0 CLOSURE

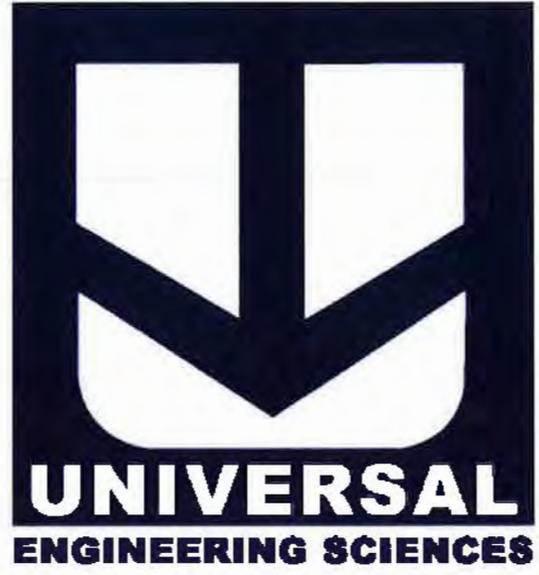
We appreciate this opportunity to be of service as your geotechnical consultant on this phase of the project and look forward to providing follow up explorations and geotechnical engineering analyses as the project progresses through the design phase. If you have any questions concerning this report or when we may be of any further service, please contact us.

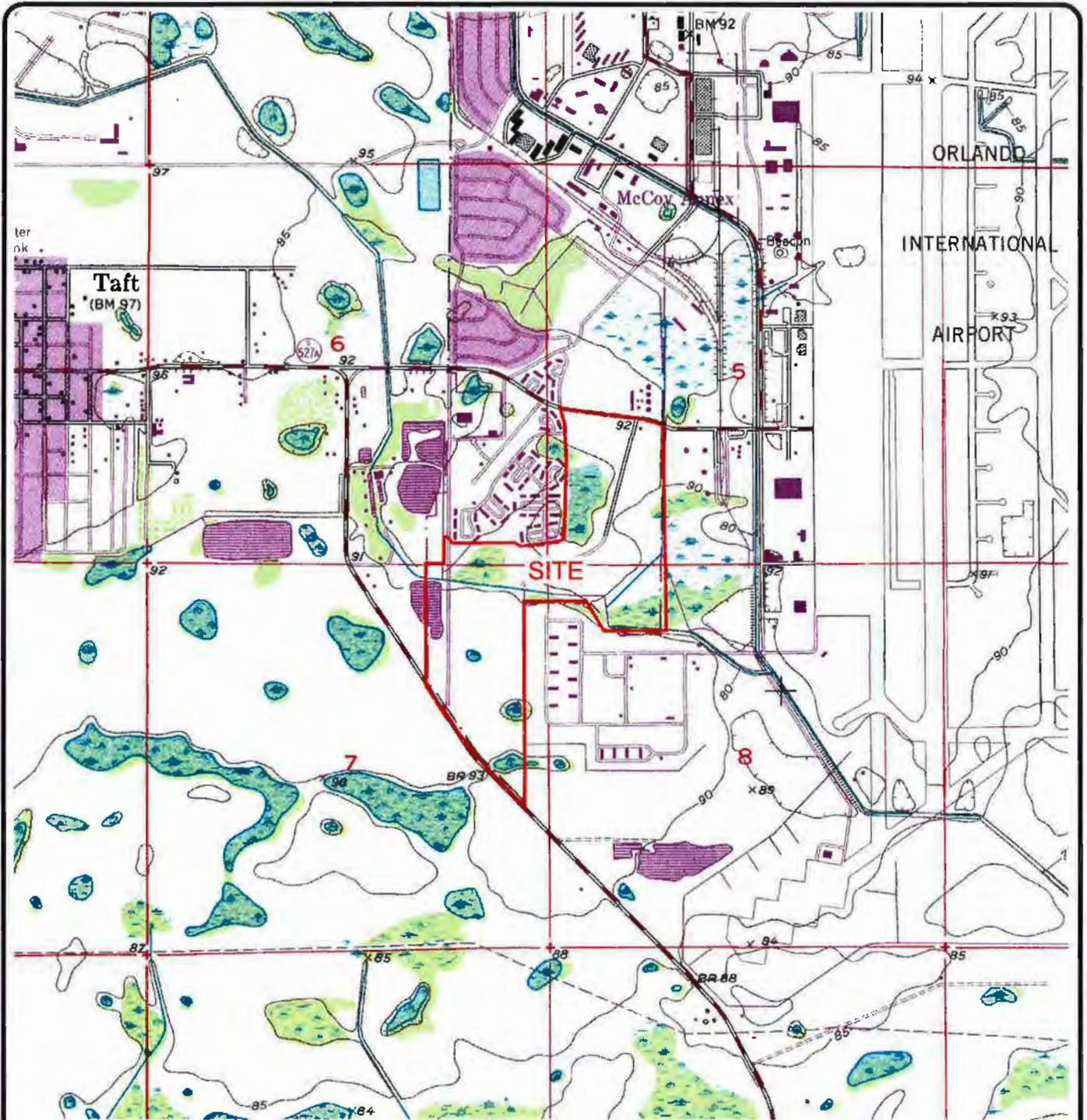


\* \* \* \* \*



# APPENDIX A





15-0270-01

BASE MAP: "PINE CASTLE, FLA." U.S.G.S. QUADRANGLE MAP

0 2000  
SCALE, FEET



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ENGINEERING SCIENCES

PRELIMINARY GEOTECHNICAL STUDY  
177-ACRE FORMER NAVAL TRAINING CENTER LANDFILL - TRADEPORT DRIVE  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

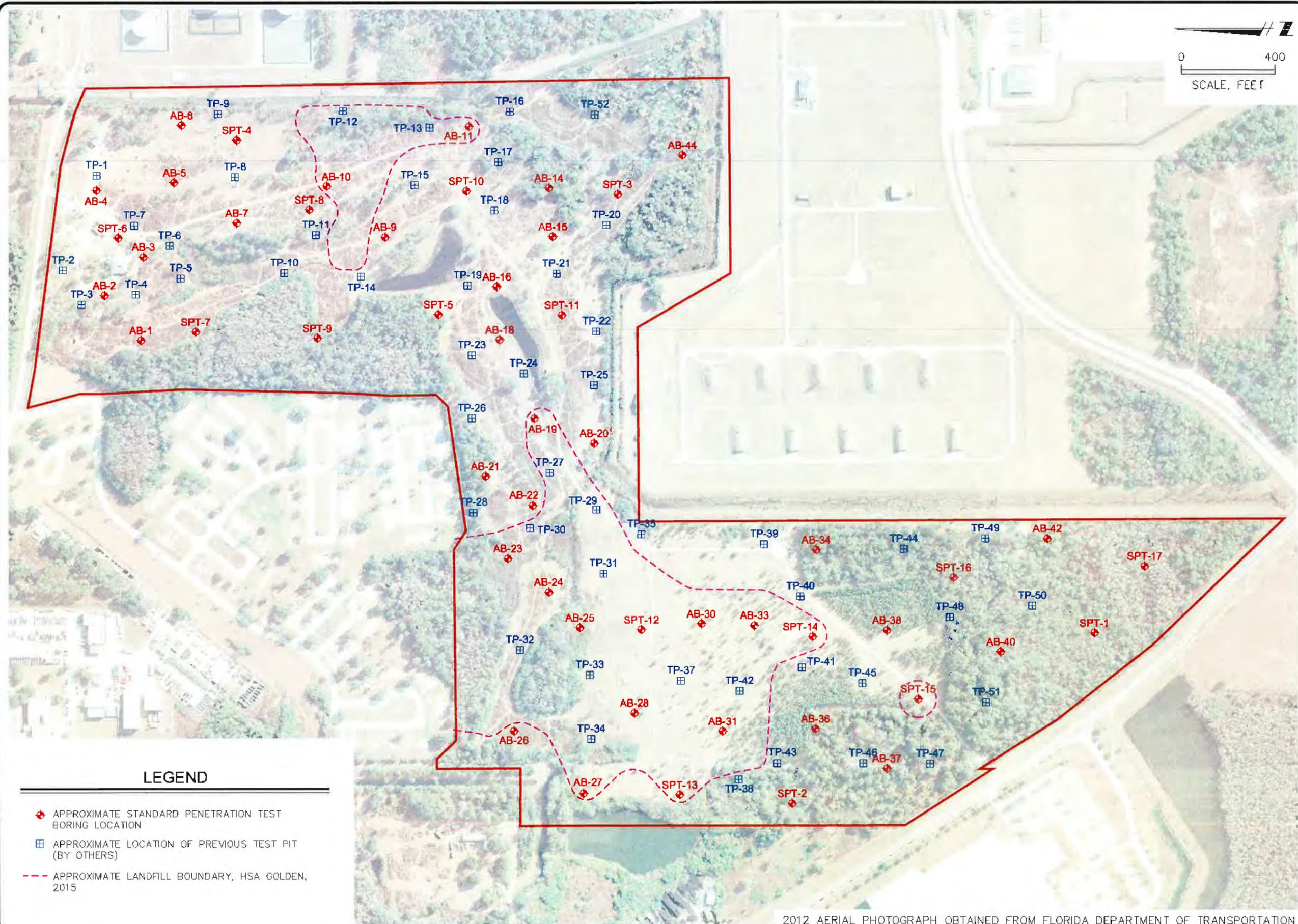
U.S.G.S. SITE LOCATION MAP

DRAWN BY: G.B.	DATE: 7/22/15	CHECKED BY:	DATE:
SCALE: AS SHOWN	PROJECT NO: 0130.1500185.0000	REPORT NO:	PAGE NO: A-1

# APPENDIX B

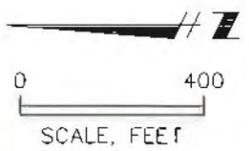


15-0270-01



### LEGEND

- ◆ APPROXIMATE STANDARD PENETRATION TEST BORING LOCATION
- ▣ APPROXIMATE LOCATION OF PREVIOUS TEST PIT (BY OTHERS)
- - - APPROXIMATE LANDFILL BOUNDARY, HSA GOLDEN, 2015



2012 AERIAL PHOTOGRAPH OBTAINED FROM FLORIDA DEPARTMENT OF TRANSPORTATION

FOR: HSA GOLDEN	
DRAWN BY: G.B.	DATE: 7/23/15
CHECKED BY:	DATE:
REPORT NO:	SCALE: AS SHOWN
PROJECT NO:	0130.1500185.0000

PRELIMINARY GEOTECHNICAL STUDY  
 177-ACRE FORMER NAVAL TRAINING CENTER LANDFILL  
 TRADEPORT ROAD, INDUSTRIAL DEVELOPMENT ASSESSMENT  
 ORLANDO, ORANGE COUNTY, FLORIDA

BORING LOCATION PLAN



SHEET NO.: B-1



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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **SPT-1**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/24/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6 0

DATE FINISHED: 6/24/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/24/15

DRILLED BY: ORL - DH/JC/SP

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Dark brown fine SAND [SP] -- loose, brown						
		2-2-3	5									
		5-4-3	7									
5		3-3-3	6			Medium dense dark brown silty fine SAND [SM]	13	11				
		3-4-3	7									
		4-7-5	12			-- brown						
10		4-7-10	17			Medium dense dark brown fine SAND [SP]						
15		4-3-5	8			-- loose						
20		3-3-4	7			Loose brown silty clayey fine SAND [SC-SM]						
						Medium dense brown fine SAND [SP]						
25		4-8-8	16									
						BORING TERMINATED AT 25.0 FT.						
30												

W-08737.GPJ



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO :	0130 1500185.0000
REPORT NO :	1251100
PAGE :	B-2 2

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **SPT-2** SHEET: **1 of 1**  
SECTION: 5 TOWNSHIP: 24 S RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N.S DATE STARTED: 8/24/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 8.0 DATE FINISHED: 6/24/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DATE OF READING: 6/24/15 DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Gray brown fine SAND with silt [SP-SM] -- medium dense, dark red brown						
		5-6-10	16			-- dense						
		5-10-35	45			-- very dense						
5		25-27-26	53			-- dense, red brown						
		15-14-18	32			-- medium dense, light brown						
		8-11-14	25	▼		-- light gray brown	8	17				
10		8-8-9	17									
						Loose light brown silty fine SAND [SM]						
15		3-3-4	7									
						Loose gray brown fine SAND [SP]						
20		3-3-3	6									
						Loose gray brown fine SAND with silt [SP-SM]						
25		2-3-4	7			BORING TERMINATED AT 25.0 FT.						
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-3**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S. DATE STARTED: 6/23/15  
WATER TABLE (ft): 7.0 DATE FINISHED: 6/23/15  
DATE OF READING: 6/23/15 DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	Pl		
0						Medium dense mixed brown fine SAND [SP]						
		5-6-11	17			-- dark red brown						
		4-5-7	12									
5		7-4-5	9			- loose						
		3-4-4	8	▼		-- medium dense, gray brown	6	15				
		4-6-7	13			-- light gray brown						
10		4-6-10	16									
15		3-4-3	7			Loose brown silty fine SAND [SM]						
20		7-8-9	17			Medium dense light brown fine SAND with silt [SP-SM]						
25		2-3-2	5			-- loose	11	24				
						BORING TERMINATED AT 25.0 FT.						
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO.: 1251100

PAGE: B-2.4

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **SPT-4**  
SECTION: 6

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S DATE STARTED: 6/23/15  
WATER TABLE (ft): 7.5 DATE FINISHED: 6/23/15  
DATE OF READING: 6/23/15 DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT. (%)
									LL	PI		
0						Loose dark brown fine SAND [SP]						
		3-4-4	8			-- light brown						
		5-4-6	10			-- medium dense						
5		3-5-6	11			-- light gray brown						
		7-8-9	17	▼								
		8-8-10	18			Medium Dense light brown silty fine SAND [SM]	15	18				
10		5-6-5	11									
		5-5-4	9			Loose brown fine SAND [SP]						
15												
		6-9-10	19			-- medium dense, light gray brown						
20												
		8-7-6	13									
25						BORING TERMINATED AT 25.0 FT.						
30												

W-08737 GPJ



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **SPT-5**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N S DATE STARTED: 6/23/15  
WATER TABLE (ft): 10.0 DATE FINISHED: 6/23/15  
DATE OF READING: 6/23/15 DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Medium dense mixed brown fine SAND [SP]						
		6-6-5	11									
		5-5-7	12			-- red brown						
5		5-5-6	11			-- dark brown						
		5-5-6	11									
		4-5-7	12									
10		3-2-3	5	▼		-- loose	4	22				
						-- medium dense, red brown						
15		6-7-9	16									
						Loose light brown silty fine SAND [SM]						
20		2-2-3	5									
						Medium dense light brown fine SAND [SP]						
25		4-7-8	15			BORING TERMINATED AT 25.0 FT.						
30												

W-08737 GPJ



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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **SPT-6**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6 0

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N. S. = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC/DP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 8" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Gray fine SAND [SP] -- loose, dark brown -- light brown						
		3-3-4	7									
		4-4-4	8									
5		4-3-4	7			Medium dense very light brown gray fine SAND with silt [SP-SM]	8	11				
		4-5-6	11									
		5-6-5	11									
10		5-6-7	13									
						Loose light brown fine SAND [SP]						
15		4-4-5	9									
						-- medium dense						
20		6-7-8	15									
25		9-8-5	13			BORING TERMINATED AT 25.0 FT.						
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-7**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 4.5

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC/DP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Loose dark brown silty fine SAND [SM]						
		4-4-5	9			-- light brown						
		5-4-3	7			-- light brown gray	13	18				
5		3-5-7	12			-- medium dense, brown gray						
		5-4-7	11			-- very light brown gray						
		5-5-6	11									
10		3-3-4	7			-- loose, light brown						
15		2-2-2	4			-- very loose	15	26				
20		3-3-4	7			-- loose						
25		3-4-4	8			BORING TERMINATED AT 25.0 FT.						
30												

W-08737 GPU



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-8**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.0

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC/DP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT. (%)
									LL	PI		
0						Loose mixed brown & gray fine silty SAND [SM]						
		3-4-5	9			-- medium dense						
		5-9-8	17			-- brown						
5		6-5-6	11	▼		-- loose, light brown	14	13				
		5-4-6	10			-- medium dense						
		5-6-8	14									
10		7-10-15	25									
						Loose very light brown gray fine SAND with silt [SP-SM]						
15		5-5-5	10									
						-- medium dense						
20		6-8-9	17									
						-- green brown						
25		4-5-10	15			BORING TERMINATED AT 25.0 FT.						
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-9**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/23/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.3

DATE FINISHED: 6/23/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/23/15

DRILLED BY: ORL - DH/JC/SP

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Loose light gray brown fine SAND [SP] -- light brown						
4-4-5		9					11	14				
4-4-5		9				Loose dark brown fine SAND with silt [SP-SM] -- medium dense						
5		7-8-7	15									
9-9-13		22		▼		Medium dense gray brown fine SAND [SP] -- brown						
6-6-7		13										
10		8-8-8	16									
15		6-5-4	9			-- loose						
20		6-6-8	14			-- medium dense, gray brown						
25		2-2-1	3			-- very loose						
						BORING TERMINATED AT 25.0 FT.						
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-10**  
SECTION: 5

SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S.      DATE STARTED: 6/23/15  
WATER TABLE (ft): 8.0      DATE FINISHED: 6/23/15  
DATE OF READING: 6/23/15      DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft):      TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT.)	SAMPLER	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Medium dense dark brown fine SAND [SP]						
		6-8-9	17									
		5-7-9	16									
5		6-6-7	13				6	11				
		10-13-11	24			-- dark red brown						
		10-11-14	25	▼								
10		12-13-17	30									
						-- light brown						
15		7-9-12	21									
		8-13-16	29									
						-- loose, shade lighter						
25		3-3-4	7			BORING TERMINATED AT 25.0 FT						
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-11**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/23/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 9.0

DATE FINISHED: 6/23/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/23/15

DRILLED BY: ORL - DH/JC/SP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT)	SAMPLE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Medium dense dark brown fine SAND [SP]						
		7-7-6	13									
		5-5-7	12			-- brown						
5		9-8-7	15				5	13				
		4-3-3	6			-- loose, dark brown						
		5-5-5	10									
10		6-6-7	13			-- medium dense						
						-- dark red brown						
15		11-10-11	21									
						-- light brown						
20		10-11-12	23									
25		9-10-15	25			BORING TERMINATED AT 25.0 FT.						
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-12**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N.S

DATE STARTED: 6/23/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 8.5

DATE FINISHED: 6/23/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DATE OF READING: 6/23/15

DRILLED BY: ORL - DH/JC/SP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Medium dense mixed brown fine SAND [SP]						
		5-8-9	17			-- loose, dark brown						
		6-4-6	10			-- very loose, mixed, brown, with trash						
5		2-2-2	4			50% LOSS OF CIRCULATION AT 4 FT.	5	13				
		3-4-6	10			-- loose						
		5-8-11	19	▼		-- medium dense, light brown						
10		5-7-8	15									
						Loose light brown fine SAND with silt [SP-SM]						
15		4-4-3	7			-- shade lighter						
20		3-2-5	7									
25		6-8-10	18			-- medium dense						
						BORING TERMINATED AT 25.0 FT.						
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **SPT-13**  
SECTION: 5

SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N S  
DATE STARTED: 6/24/15  
WATER TABLE (ft): 6.0  
DATE FINISHED: 6/24/15  
DATE OF READING: 6/24/15  
DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft):  
TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Medium dense mixed brown silty fine SAND with some organics [SM-OL]						
		6-6-5	11			-- loose						
		4-5-5	10			-- mixed, brown, with some old clay pipe fragments						
5		7-6-4	10			-- dark brown, with wood & trace organics, no clay pipe fragments	13	40				11
		3-4-4	8			-- very loose	13	54				
		2-2-2	4			-- loose	14	44				8
10		3-2-3	5									
						Loose brown silty fine SAND [SM]						
15		5-4-5	9									
						Loose brown fine SAND with silt [SP-SM]						
20		2-2-3	5									
						-- gray brown						
25		4-4-6	10									
						BORING TERMINATED AT 25.0 FT.						
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-14**  
SECTION: 5

TOWNSHIP: 24 S  
SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S  
DATE STARTED: 6/24/15  
WATER TABLE (ft): 8.5  
DATE FINISHED: 6/24/15  
DATE OF READING: 6/24/15  
DRILLED BY: ORL - DH/JC/SP  
EST SHGWT (ft):  
TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DEPTH (FT)	SAMPLER	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Gray brown fine SAND [SP] -- loose, dark brown						
		4-4-5	9									
		3-4-6	10			50% LOSS OF CIRCULATION AT 4 FT. -- dark brown, with concrete, asphalt & wood						
5		3-2-5	7			-- medium dense, dark brown	5	11				
		2-4-9	13			-- dark red brown						
		20-15-12	27	▼		-- red brown						
10		14-12-10	22									
		6-7-7	14			Medium dense light brown fine SAND with silt [SP-SM]  -- loose, shade lighter						
15												
		3-3-3	6				11	25				
20												
		9-10-14	24			-- medium dense						
25						BORING TERMINATED AT 25.0 FT						
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-15**  
SECTION: 5

TOWNSHIP: 24 S  
SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N S  
DATE STARTED: 6/24/15  
WATER TABLE (ft): 11.0  
DATE FINISHED: 6/24/15  
DATE OF READING: 6/24/15  
DRILLED BY: ORL - DH/JC/SP  
EST. SHGWT (ft):  
TYPE OF SAMPLING: ASTM D 1586

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Gray brown fine SAND [SP] -- medium dense, mixed, brown, with concrete & asphalt -- loose, gray brown, no concrete or asphalt -- red brown						
		8-6-5	11									
		3-4-3	7									
5		3-3-3	6				4	4				
		5-7-9	16			-- medium dense, dark brown -- dense, dark red brown						
		12-18-21	39									
10		13-21-16	37									
				▼								
15		6-6-8	14			Medium dense brown silty fine SAND [SM]  -- loose, shade lighter						
20		3-3-4	7									
25		5-6-10	16			Medium dense light brown fine SAND [SP]						
						BORING TERMINATED AT 25.0 FT.						
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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REPORT NO.:	1251100
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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-16**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/24/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.5

DATE FINISHED: 6/24/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/24/15

DRILLED BY: ORL - DH/JC/SP

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/ DAY)	ORG CONT (%)
									LL	PI		
0						Loose brown fine SAND with silt [SP-SM]						
		2-3-4	7			-- dark brown						
		6-5-3	8									
5		7-5-6	11			-- medium dense						
		4-3-6	9	▼		-- loose						
		6-7-7	14			-- medium dense, brown						
10		1-2-3	5			-- loose	9	19				
15		3-3-3	6			Loose light brown silty fine SAND [SM]						
20		3-3-3	6									
25		5-8-10	18			-- medium dense						
						BORING TERMINATED AT 25.0 FT.						
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **SPT-17**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S. ELEVATION (ft): N S

DATE STARTED: 6/24/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 5.0

DATE FINISHED: 6/24/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/24/15

DRILLED BY: ORL - DH/JC/SP

EST. SHGWT (ft):

TYPE OF SAMPLING ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Dark brown fine SAND [SP] -- medium dense, light brown						
		4-5-7	12			-- shade lighter						
		10-10-8	18									
5		7-5-4	9	▼		Loose dark brown silty fine SAND [SM]	12	23				
		3-4-4	8			-- medium dense -- brown						
		2-5-7	12									
10		6-6-8	14									
15		4-5-6	11			Medium dense brown clayey fine SAND [SC]						
20		5-5-6	11			Medium dense light brown silty fine SAND [SM]						
25		4-4-6	10			-- loose						
						BORING TERMINATED AT 25.0 FT.						
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-1**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S. ELEVATION (ft): N.S.

DATE STARTED: 6/16/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 7.0

DATE FINISHED: 6/16/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/16/15

DRILLED BY: ORL - DH/JC

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Dark brown fine SAND [SP]						
						-- light brown						
5						-- dark brown						
				▼		Gray brown clayey fine SAND [SC]	20	17				
10						Red brown silty fine SAND [SM]						
15						-- light brown						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-2**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/16/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 8.5

DATE FINISHED: 6/18/15

REMARKS SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DATE OF READING: 6/16/15

DRILLED BY: ORL - DH/JC

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Dark brown fine SAND with silt [SP-SM]	10	12				5
						-- brown						
5						-- dark red brown						
				▼		Brown clayey fine SAND [SC]						
10						Brown silty fine SAND [SM]						
15						Light brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-3**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S DATE STARTED: 6/16/15  
WATER TABLE (ft): 6 6 DATE FINISHED: 6/16/15  
DATE OF READING: 6/16/15 DRILLED BY: ORL - DH/JC  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S. = NOT SURVEYED

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Brown fine SAND [SP]						
						-- light brown						
5						-- light gray brown						
						-- dark brown						
15						Light gray brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **AB-4**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S

DATE STARTED: 6/18/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.5

DATE FINISHED: 6/16/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 8/16/15

DRILLED BY: ORL - DH/JC

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
5				▼		Dark red brown fine SAND with silt [SP-SM]						
10						Light gray brown fine SAND [SP]						
15						Brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING ID: **AB-5**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N S DATE STARTED: 6/16/15  
WATER TABLE (ft): 6.3 DATE FINISHED: 6/16/15  
DATE OF READING: 6/16/15 DRILLED BY: ORL - DH/JC  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT.)	SAMPLING	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed dark brown fine SAND, trace organics [SP]						
5				▼		Light red brown silty fine SAND [SM]  -- light brown						
10					/ / / / /	Light brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-6**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S.

DATE STARTED: 6/16/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): N R

DATE FINISHED: 6/16/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED, N R = NOT RECORDED

DATE OF READING: 8/18/15

DRILLED BY: ORL - DH/JC

EST. SHGWT (ft):

TYPE OF SAMPLING ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
						Brown clayey fine SAND [SC]						
						Light gray fine SAND [SP]						
5						Brown silty clayey fine SAND [SC-SM]						
10												
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-7**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/17/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.6

DATE FINISHED: 6/17/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/17/15

DRILLED BY: ORL - DH/JC

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Mixed brown fine SAND, trace organics [SP]						
						-- with wood, no organics						
5						Brown silty fine SAND [SM]						
10												
15						Brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-9** SHEET: **1 of 1**  
SECTION: 5 TOWNSHIP: 24 S RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S. DATE STARTED: 6/17/15  
WATER TABLE (ft): 9.0 DATE FINISHED: 8/17/15  
DATE OF READING: 6/17/15 DRILLED BY: ORL - DH/JC/DP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Dark brown fine SAND, trace organics [SP]						
5						-- light brown, no organics						
10				▼		-- brown						
15						Light gray brown silty clayey fine SAND [SC-SM]	15	20				
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-10**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S

DATE STARTED: 6/17/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): N.R.

DATE FINISHED: 6/17/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED, N R. = NOT RECORDED

DATE OF READING: 6/17/15

DRILLED BY: ORL - DH/JC/DP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT. (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
5						TRASH						
10						Brown silty clayey fine SAND [SC-SM]						
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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ORLANDO, ORANGE COUNTY, FLORIDA

BORING ID: **AB-11**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S. ELEVATION (ft): N S.

DATE STARTED: 6/17/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 14.0

DATE FINISHED: 6/17/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/17/15

DRILLED BY: ORL - DH/JC/DP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	SAMP LE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	SY MB OL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/ DAY)	ORG CONT (%)
									LL	PI		
0						Brown fine SAND with silt [SP-SM] -- mixed, dark brown & light brown						
5						-- dark brown  -- with debris						
10							8	38				5
15						Light brown clayey fine SAND [SC]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **AB-13** SHEET: **1 of 1**  
SECTION: 5 TOWNSHIP: 24 S RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N.S DATE STARTED: 6/17/15  
WATER TABLE (ft): 5.5 DATE FINISHED: 6/17/15  
DATE OF READING: 6/17/15 DRILLED BY: ORL - DH/JC/DP  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Brown fine SAND [SP]						
5				▼		-- light brown						
10												
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-14**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N.S DATE STARTED: 6/17/15  
WATER TABLE (ft): 8.0 DATE FINISHED: 6/17/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/17/15 DRILLED BY: ORL - DH/JC  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Dark brown fine SAND [SP] -- brown & light brown  -- very dark red brown						
10					/	Brown silty clayey fine SAND [SC-SM]  -- light brown	13	18				
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-15**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN

G S. ELEVATION (R): N S

DATE STARTED: 6/17/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (R): 8.5

DATE FINISHED: 6/17/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/17/15

DRILLED BY: ORL - DH/JC/DP

EST SHGWT (R):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Dark brown fine SAND [SP]						
						PINE STUMP & ORGANICS [PT]						
5						Dark brown fine SAND [SP]						
				▼								
10						Brown fine SAND with clay [SP-SC]						
15						-- light brown						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-16**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S. DATE STARTED: 6/17/15  
WATER TABLE (ft): 7.0 DATE FINISHED: 6/17/15  
DATE OF READING: 6/17/15 DRILLED BY: ORL - DH/JC/DP  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Gray brown fine SAND [SP] -- brown						
5				▼		Very dark brown fine SAND with silt [SP-SM] -- red brown						
10						Light brown silty clayey fine SAND [SC-SM]						
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												





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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-19**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft) N S DATE STARTED: 8/17/15  
WATER TABLE (ft): 6.0 DATE FINISHED: 8/17/15  
DATE OF READING: 8/17/15 DRILLED BY: ORL - DH/JC/DP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						TRASH						
5				▼		Very dark brown fine SAND [SP]  -- light brown						
15						Very light gray brown fine SAND with silt [SP-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-20**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S DATE STARTED: 6/22/15  
WATER TABLE (ft): 7.5 DATE FINISHED: 6/22/15  
DATE OF READING: 6/22/15 DRILLED BY: ORL - DH/JC  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

REMARKS SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
5						-- light brown						
10												
15						Brown sandy CLAY [CL]	50	27				
15						Brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-21**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N.S.

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 8.7

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC

EST. SHGWT (ft):

TYPE OF SAMPLING ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Dark brown fine SAND [SP]						
						-- light brown						
5												
				▼								
10						Light brown silty clayey fine SAND [SC-SM]						
					▨	-- gray brown						
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-22**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N.S DATE STARTED: 6/22/15

WATER TABLE (ft): 2.0 DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/22/15 DRILLED BY: ORL - DH/JC

EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
				▼								
5						Dark brown silty fine SAND [SM]						
10												
15						Brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-23**  
SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/18/15

WATER TABLE (ft): 8.1

DATE FINISHED: 6/18/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/18/15

DRILLED BY: ORL - DH/JC

EST. SHGWT (ft):

TYPE OF SAMPLING ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Brown fine SAND [SP]						
						TRASH						
5				▼		Light brown fine SAND [SP]						
15						Light brown clayey fine SAND [SC]	12	20				
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-24**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S. ELEVATION (ft): N S DATE STARTED: 6/18/15  
WATER TABLE (ft): 6.0 DATE FINISHED: 6/18/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/18/15 DRILLED BY: ORL - DH/JC  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
5				▼		-- dark brown						
10						-- light gray brown						
15					▨	Brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-25**  
SECTION: 5

TOWNSHIP: 24 S  
SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N S  
DATE STARTED: 6/19/15  
WATER TABLE (ft): 4.5  
DATE FINISHED: 6/19/15  
DATE OF READING: 6/19/15  
DRILLED BY: ORL - DP/JC  
EST SHGWT (ft):  
TYPE OF SAMPLING: ASTM D 1452

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown & gray fine SAND [SP] -- brown, with debris  -- no debris  -- very light gray						
5				▼		Brown gray silty fine SAND [SM]						
10						Brown silty clayey fine SAND [SC-SM]						
15						Light brown clayey fine SAND [SC]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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REPORT NO : 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-26**  
SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G S ELEVATION (ft): N.S.

DATE STARTED: 6/18/15

WATER TABLE (ft): 13.0

DATE FINISHED: 6/18/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DATE OF READING: 6/19/15

DRILLED BY: ORL - DH/JC

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown fine SAND [SP]						
5												
10					/	Brown silty clayey fine SAND [SC-SM]	23	13				
15				▼	/	Brown clayey fine SAND [SC]						
20					/	BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO : 0130 1500185.0000

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-27**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S

DATE STARTED: 6/18/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 6.0

DATE FINISHED: 6/18/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S. = NOT SURVEYED

DATE OF READING: 6/18/15

DRILLED BY: ORL - DH/JC

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Orange brown clayey fine SAND [SC]						
						Dark red brown fine SAND with old clay pipe fragments [SP]						
5				▼		Dark brown fine SAND with some organics [SM-OL]	11	33				7
10							7	123				8
15												
20						Dark brown silty fine SAND [SM]						
						BORING TERMINATED AT 20.0 FT.						
25												
30												



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D.: **AB-28**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N S DATE STARTED: 6/18/15  
WATER TABLE (ft): N R. DATE FINISHED: 6/18/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT  
SURVEYED, N.R. = NOT RECORDED

DATE OF READING: 6/18/15 DRILLED BY: ORL - DH/JC  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/ DAY)	ORG CONT. (%)
									LL	PI		
0						Mixed brown fine SAND, trace organics [SP]						
						TRASH						
5						Brown silty fine SAND [SM]						
10												
15						-- light brown						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-30**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S DATE STARTED: 6/19/15  
WATER TABLE (ft): 11.0 DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S = NOT SURVEYED

DATE OF READING: 6/19/15 DRILLED BY: ORL - DP/JC  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Orange brown fine SAND [SP]						
						-- dark brown						
5						-- with debris						
						-- very dark brown, no debris						
10						Brown clayey fine SAND [SC]						
						-- light brown						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130.1500185.0000

REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING ID: **AB-31**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/19/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 9.0

DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/19/15

DRILLED BY: ORL - DP/JC/DN/BP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT. (%)
									LL	PI		
0						Orange brown fine SAND [SP]						
						-- dark brown						
5						-- trace debris						
						-- dark brown, no debris						
10				▼								
						Brown silty clayey fine SAND [SC-SM]						
15						-- light brown						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO : 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D : **AB-33**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S. DATE STARTED: 6/19/15  
WATER TABLE (ft): 11.0 DATE FINISHED: 6/19/15  
DATE OF READING: 6/19/15 DRILLED BY: ORL - DP/JC/DN/BP  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1462

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DEPTH (FT.)	SAMPLER	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Orange gray brown fine SAND [SP]						
						-- very dark brown						
5						-- with debris						
10				▼		-- dark brown, no debris						
15					▨	Brown clayey fine SAND [SC]						
						Light brown fine SAND [SP]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185.0000

REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D: **AB-34**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S ELEVATION (ft): N S DATE STARTED: 6/19/15

WATER TABLE (ft): 9.7 DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/19/15

DRILLED BY: ORL - DP/JC/DN/BP

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Gray brown fine SAND [SP]  -- dark brown						
5												
10				▼		Brown fine SAND with silt [SP-SM]						
15						Light brown fine SAND [SP]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO.: 1251100

PAGE: B-2 47

PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-36**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft): N S.

DATE STARTED: 6/19/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 10.0

DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S. = NOT SURVEYED

DATE OF READING: 6/19/15

DRILLED BY: ORL - DP/JC

EST. SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Red brown fine SAND [SP]						
						-- dark brown						
5												
10						Brown clayey fine SAND [SC]						
						-- light brown						
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-37**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N.S.

DATE STARTED: 6/19/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 11.5

DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/19/15

DRILLED BY: ORL - DP/JC

EST. SHGWT (ft):

TYPE OF SAMPLING ASTM D 1452

DEPTH (FT.)	SAMP LE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	SYM BOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/ DAY)	ORG CONT (%)
									LL	PI		
0						Gray fine SAND [SP]  -- light gray -- dark brown						
5						Red brown fine SAND with clay [SP-SC]						
						Mixed brown to light brown fine SAND [SP]						
10				▼		Brown fine SAND with clay [SP-SC]						
						Light brown clayey fine SAND [SC]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-38**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft) N S. DATE STARTED: 6/19/15  
WATER TABLE (ft): 11.5 DATE FINISHED: 6/19/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/19/15 DRILLED BY: ORL - DP/JC  
EST SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT. (%)
									LL	PI		
0						Mixed gray brown fine SAND [SP]						
						-- light gray						
5						Very dark brown fine SAND with silt [SP-SM]	9	7				
						-- brown						
15						Light brown clayey fine SAND [SC]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR. LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-40**  
SECTION: 5

TOWNSHIP: 24 S SHEET: **1 of 1**  
RANGE: 30 E

CLIENT: HSA GOLDEN  
LOCATION: SEE BORING LOCATION PLAN

G.S. ELEVATION (ft): N.S. DATE STARTED: 6/22/15  
WATER TABLE (ft): 10.0 DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N.S. = NOT SURVEYED

DATE OF READING: 6/22/15 DRILLED BY: ORL - DH/JC  
EST. SHGWT (ft): TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	SAMP PLE	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/ DAY)	ORG CONT. (%)
									LL	PI		
0						Light brown fine SAND [SP]  -- red brown						
5												
10				▼		Red brown clayey fine SAND [SC]						
15						Light brown silty clayey fine SAND [SC-SM]						
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

W-08737 GPJ



# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO : 0130.1500185.0000

REPORT NO.: 1251100

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I.D: **AB-42**

SECTION: 5

TOWNSHIP: 24 S

SHEET: **1 of 1**

RANGE: 30 E

CLIENT: HSA GOLDEN

G S ELEVATION (ft) N S

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 10.0

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC/DP

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG. CONT (%)
									LL	PI		
0						Gray brown fine SAND [SP]						
						Dark red brown fine SAND with silt [SP-SM]						
5						Brown to dark brown clayey fine SAND [SC]						
10				▼		Light brown silty clayey fine SAND [SC-SM]						
15												
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

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# UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0130 1500185 0000

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PROJECT: 177-ACRE FORMER NAVAL TRAINING CTR LANDFILL, TRADEPORT DR.  
INDUSTRIAL DEVELOPMENT ASSESSMENT  
ORLANDO, ORANGE COUNTY, FLORIDA

BORING I D : **AB-44**

SHEET: **1 of 1**

SECTION: 5

TOWNSHIP: 24 S

RANGE: 30 E

CLIENT: HSA GOLDEN

G.S. ELEVATION (ft): N S

DATE STARTED: 6/22/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 7.0

DATE FINISHED: 6/22/15

REMARKS: SHGWT = SEASONAL HIGH GROUNDWATER TABLE, N S = NOT SURVEYED

DATE OF READING: 6/22/15

DRILLED BY: ORL - DH/JC/DP

EST SHGWT (ft):

TYPE OF SAMPLING: ASTM D 1452

DEPTH (FT)	S A M P L E	BLOWS PER 6" INCREMENT	N BLOWS / FT	W.T	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT/DAY)	ORG CONT (%)
									LL	PI		
0						Mixed brown & gray fine SAND [SP]						
5												
						Dark brown organic sand [SP-OL]	35	56				17
						Very dark brown gray silty fine SAND with trace plastics & roots [SM]	40	23				2
10						-- very light brown gray, no plastics or roots	21	17				2
15												
							17	14				1
20						BORING TERMINATED AT 20.0 FT.						
25												
30												

W-08737 GPJ



**KEY TO BORING LOGS**

**SYMBOLS AND ABBREVIATIONS**

<u>SYMBOL</u>	<u>DESCRIPTION</u>
N-Value	No. of Blows of a 140-lb. Weight Falling 30 Inches Required to Drive a Standard Spoon 1 Foot
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
	Sample from Auger Cuttings
	Standard Penetration Test Sample
	Thin-wall Shelby Tube Sample (Undisturbed Sampler Used)
RQD	Rock Quality Designation
	Stabilized Groundwater Level
	Seasonal High Groundwater Level (also referred to as the W.S.W.T.)
NE	Not Encountered
GNE	Groundwater Not Encountered
BT	Boring Terminated
-200 (%)	Fines Content or % Passing No. 200 Sieve
MC (%)	Moisture Content
LL	Liquid Limit (Atterberg Limits Test)
PI	Plasticity Index (Atterberg Limits Test)
NP	Non-Plastic (Atterberg Limits Test)
K	Coefficient of Permeability
Org. Cont.	Organic Content
G.S. Elevation	Ground Surface Elevation

**UNIFIED SOIL CLASSIFICATION SYSTEM**

MAJOR DIVISIONS		GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS More than 50% retained on the No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW Well-graded gravels and gravel-sand mixtures, little or no fines
			GP Poorly graded gravels and gravel-sand mixtures, little or no fines
	GRAVELS WITH FINES	GM Silty gravels and gravel-sand-silt mixtures	
		GC Clayey gravels and gravel-sand-clay mixtures	
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS 5% or less passing No. 200 sieve	SW** Well-graded sands and gravelly sands, little or no fines
			SP** Poorly graded sands and gravelly sands, little or no fines
SANDS with 12% or more passing No. 200 sieve		SM** Silty sands sand-silt mixtures	
		SC** Clayey sands, sand-clay mixtures	
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less	ML Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	
		CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays	
		OL Organic silts and organic silty clays of low plasticity	
	SILTS AND CLAYS Liquid limit greater than 50%	MH Inorganic silts, micaceous or diamicaceous fine sands or silts, elastic silts	
		CH Inorganic clays or clays of high plasticity, fat clays	
		OH Organic clays of medium to high plasticity	
		PT Peat, muck and other highly organic soils	

\*Based on the material passing the 3-inch (75 mm) sieve  
\*\* Use dual symbol (such as SP-SM and SP-SC) for soils with more than 5% but less than 12% passing the No. 200 sieve

**RELATIVE DENSITY**

(Sands and Gravels)

- Very loose – Less than 4 Blows/Foot
- Loose – 4 to 10 Blows/Foot
- Medium Dense – 11 to 30 Blows/Foot
- Dense – 31 to 50 Blows/Foot
- Very Dense – More than 50 Blows/Foot

**CONSISTENCY**

(Sils and Clays)

- Very Soft – Less than 2 Blows/Foot
- Soft – 2 to 4 Blows/Foot
- Firm – 5 to 8 Blows/Foot
- Stiff – 9 to 15 Blows/Foot
- Very Stiff – 16 to 30 Blows/Foot
- Hard – More than 30 Blows/Foot

**RELATIVE HARDNESS**

(Limestone)

- Soft – 100 Blows for more than 2 Inches
- Hard – 100 Blows for less than 2 Inches

**MODIFIERS**

These modifiers Provide Our Estimate of the Amount of Minor Constituents (Silt or Clay Size Particles) in the Soil Sample

- Trace – 5% or less
- With Silt or With Clay – 6% to 11%
- Silty or Clayey – 12% to 30%
- Very Silty or Very Clayey – 31% to 50%

These Modifiers Provide Our Estimate of the Amount of Organic Components in the Soil Sample

- Trace – Less than 3%
- Few – 3% to 4%
- Some – 5% to 8%
- Many – Greater than 8%

These Modifiers Provide Our Estimate of the Amount of Other Components (Shell, Gravel, Etc.) in the Soil Sample

- Trace – 5% or less
- Few – 6% to 12%
- Some – 13% to 30%
- Many – 31% to 50%

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-001 <b>NO WASTE</b>	6/9/2015	0-4 4-9 9-	FILL MATERIAL with four inch PVC irrigation pipe NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-002 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-003 <b>NO WASTE</b>	6/9/2015	0-7 7-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-004 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-005 <b>NO WASTE</b>	6/9/2015	0-2 2-7 7-	FILL MATERIAL - Mixed green fine SAND, slight organic NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-006 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL with four inch irrigation line Test pit terminus - water from irrigation line present  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-007 <b>NO WASTE</b>	6/9/2015	0-3 3-8 8-	FILL MATERIAL - Green mix fine SAND (tee box) NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-008 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-009 <b>NO WASTE</b>	6/9/2015	0-8 8-	NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-009/7 <b>NO WASTE</b>	6/9/2015	0-1.5 1.5-3 3-6 6-	NATIVE SOIL - gray fine SAND Dark brown fine SAND (HARDPAN) Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-010 <b>NO WASTE</b>	6/9/2015	0-2.5 2.5-3.5 3.5-7 7-	FILL MATERIAL - mixed clay and fine SAND NATIVE SOIL - brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-011 <b>NO WASTE</b>	6/9/2015	0-1.5 1.5-2 2-7 7-	NATIVE SOIL - gray fine SAND Dark brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-014 NO WASTE	6/9/2015	0-1.5 1.5-2 2-7 7-	NATIVE SOIL - mix fine SAND Brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-011/014 WASTE	6/9/2015	0-4.5 4.5-6 6-	FILL MATERIAL - brown fine SAND  Municipal solid waste (rubber pipe, wood, plastic sheet, six-pack rings, soda bottles, glass, plywood) Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-012/014 NO WASTE	6/9/2015	0-1.5 1.5-4.5 4.5-12 12-	FILL MATERIAL - orange fine SAND Light brown fine SAND Brown/gray silty fine SAND Test pit terminus - groundwater at 7'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-011/015 <b>WASTE</b>	6/9/2015	0-1.5 1.5-6	FILL MATERIAL - mix brown fine SAND WASTE - plastic, aluminum, chairs, rubber, glass bottles, plastic bags, aluminum cans Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-014/015/019 <b>NO WASTE</b>	6/9/2015	0-5	NATIVE SOIL- brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-015 <b>NO WASTE</b>	6/9/2015	0-2 2-4 4-6 6-	NATIVE SOIL- mix gray/brown fine SAND Light gray fine SAND and tree stumps Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types
TP-013 WASTE	6/9/2015	0-1 1-2 2-6 6-	FILL MATERIAL - mixed fine SAND WASTE - six-pack rings, Barbicide jug, beer cans FILL MATERIAL - brown mixed fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels
			
TP-012 WASTE	6/9/2015	0-8 8-	Mostly dirt with concrete, wood, and asphalt, approx. 20% WASTE Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels
			
TP-016 NO WASTE	6/9/2015	0-3 3-5 5-8 8-	FILL MATERIAL - brown mix fine SAND, irrigation pipe, wire NATIVE SOIL- dark brown/brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels
			

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-052 <b>NO WASTE</b>	6/9/2015	0-4 4-10 10-	FILL MATERIAL - mixed brown/light brown fine SAND NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-052/020 <b>NO WASTE</b>	6/9/2015	0-8	NATIVE SOIL - brown to light brown fine SAND  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-020 <b>NO WASTE</b>	6/9/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown mix fine SAND NATIVE SOIL - Light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-018 NO WASTE	6/9/2015	0-3 3-7 7-8 8-	FILL MATERIAL - brown mix fine SAND FILL MATERIAL Dark gray/brown fine SAND mix NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-017 NO WASTE	6/9/2015	0-1 1-2 2-7 7-	NATIVE SOIL - light gray fine SAND Brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-021 NO WASTE	6/10/2015	0-7 7-	FILL MATERIAL - mix brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-019 NO WASTE	6/10/2015	0-1 1-6 6-	FILL MATERIAL - mix brown fine SAND NATIVE SOIL - dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-023 NO WASTE	6/10/2015	0-4 4-7.5 7.5-	FILL MATERIAL - mix brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-024 NO WASTE	6/10/2015	0-4 4-8 8-	FILL MATERIAL - mix dark brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-026 <b>NO WASTE</b>	6/10/2015	0-1 1-3 3-8 8-	FILL MATERIAL - brown fine SAND mix NATIVE SOIL - gray fine SAND Brown/light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-022 <b>WASTE</b>	6/10/2015	0-7 7-11 11-	FILL MATERIAL - brown mix fine SAND Trees, pines, roots, some mixed concrete Test pit terminus - groundwater at approx. 8'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels Ambient hydrogen sulfide noted	
TP-025 <b>NO WASTE</b>	6/10/2015	0-4 4-12 12-	FILL MATERIAL - brown mix fine SAND NATIVE SOIL - brown/light brown fine SAND Test pit terminus - groundwater at approx. 8'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types
TP-027 WASTE	6/10/2015	0-3 3-8 8-	FILL MATERIAL - Brown mix fine SAND WASTE - carpet, metal, 4x4" dummy fuse container, steel trash can Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels
TP-051 NO WASTE	6/10/2015	0-3 3-7 7-	NATIVE SOIL - green fine SAND Brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels



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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-050 NO WASTE	6/11/2015	0-3 3-7 7-	Native soil - light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-048 NO WASTE	6/11/2015	0-1 1-2 2-7 7-	NATIVE SOIL - green fine SAND Dark brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-049 NO WASTE	6/11/2015	0-2 2-4.5 4.5-7 7-	NATIVE SOIL - dark green fine SAND Light brown fine SAND Dark brown damp fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-044 NO WASTE	6/11/2015	0-1.5 1.5-4.5 4.5-7 7-	NATIVE SOIL - green fine SAND Light brown fine SAND Dark brown fine HARDPAN Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-040 NO WASTE	6/11/2015	0-1.5 1.5-3 3-7 7-	FILL MATERIAL - Light brown clayey fine SAND NATIVE SOIL - green fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-039 NO WASTE	6/11/2015	0-2 2-5 5-7 7-	NATIVE SOIL - gray fine SAND Brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-036 NO WASTE	6/11/2015	0-1.5 1.5-4 4-8 8-	FILL MATERIAL - brown fine SAND with 2" PVC pipe NATIVE SOIL - Gray fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-037 NO WASTE	6/11/2015	0-2 2-2.5 2.5-5 5-8 8-	Light brown fine SAND NATIVE SOIL - gray fine SAND Brown to light brown fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 WASTE	6/11/2015	0-2 2-2.5 2.5-6 6-	FILL MATERIAL - brown mix fine SAND FILL MATERIAL - LIMEROCK Steel sheet, metal, fiberglass pipe insulation, one-gallon jug, wood Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-041 NO WASTE	6/11/2015	0-2.5 2.5-4.5 4.5-7 7-	FILL MATERIAL - brown fine SAND NATIVE SOIL - brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-045 NO WASTE	6/11/2015	0-1.5 1.5-3 3-4.5 4.5-7 7-	FILL MATERIAL - brown fine SAND NATIVE SOIL - brown fine SAND Light gray fine SAND Dark brown fiine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-047 NO WASTE	6/11/2015	0-2 2-4.5 4.5-7 7-	NATIVE SOIL- light gray fine SAND Light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-046 NO WASTE	6/11/2015	0-1 1-2 2-7 7-	NATIVE SOIL - brown fine SAND Light brown fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-043 NO WASTE	6/11/2015	0-7 7-	NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-038 NO WASTE	6/11/2015	0-7 7-	NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-029 WASTE	6/12/2015	0-1.5 1.5-4 4-	FILL MATERIAL - Brown mix fine SAND WASTE - Steel, plastic, and glass Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-035 NO WASTE	6/12/2015	0-7 7-	FILL MATERIAL - dark brown to brown SAND and concrete Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-031 WASTE	6/12/2015	0-1 1-4.5 4.5-6 6-7 7-	FILL MATERIAL - dark brown mixed fine SAND FILL MATERIAL - very light gray fine SAND WASTE - glass, plastic, wood, bottles, cans NATIVE SOIL - dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

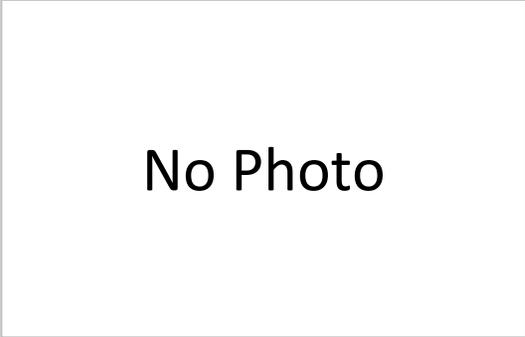
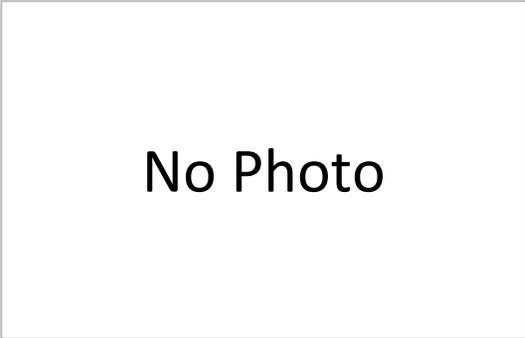
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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-033 WASTE	6/12/2015	0-4 4-5.5 5.5-7 7-	FILL MATERIAL - mixed brown fine SAND WASTE - glass, plastic, hose NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-034 WASTE	6/12/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown fine SAND WASTE - plastic sheeting, metal, wood NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-032 WASTE	6/12/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown fine SAND mix WASTE - plastic, wire, glass NATIVE SOIL - light gray fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-030 WASTE	6/12/2015	0-5 5-7 7-8 8-	FILL MATERIAL - mix brown fine SAND WASTE - tire, glass, plastic, slight petroleum odor NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-028 NO WASTE	6/12/2015	0-8	NATIVE SOIL - light brown fine SAND	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 @ 100' North NO WASTE	6/12/2015	0-2 2-6	FILL MATERIAL NATIVE SOIL	<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p style="font-size: 2em; margin: 0;">No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-042 @ 100' East WASTE	6/12/2015	0-4.5 4.5-	FILL MATERIAL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-042 @ 200' East WASTE	6/12/2015	0-4 4-	FILL MATERIAL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-042 @ 300' East WASTE	6/12/2015	0-3 3-	FILL MATERIAL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-042 @ 400' East WASTE	6/12/2015	0-3 3-9 9-	FILL MATERIAL WASTE Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 100' South WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 200' South WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-036 @ 100' West WASTE	6/12/2015	0-2 2-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 200' West WASTE	6/12/2015	0-2 2-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 300' West WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-037/33 WASTE	6/12/2015	0-2 2-5 5-	FILL MATERIAL - brown mix fine SAND WASTE WASTE - Test pit terminus	
Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels				
TP-033/37 WASTE	6/12/2015	0-2 2-3.5 3.5-12 12-	FILL MATERIAL - brown mix fine SAND WASTE FILL MATERIAL - brown mix fine SAND Test pit terminus - no groundwater encountered	
Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels				
TP-018/019/021 NO WASTE	6/15/2015	0-4 4-7 7-	FILL - mix brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels				

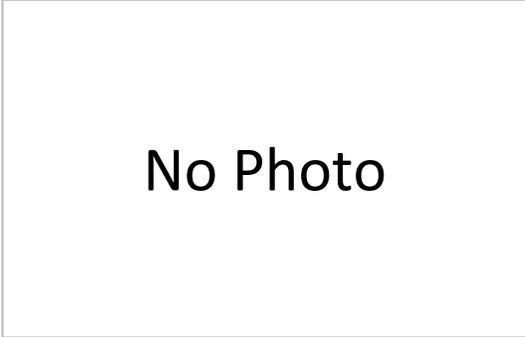
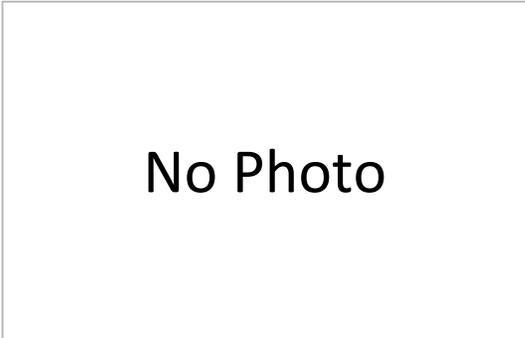
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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-11/14 @ 100' South WASTE	6/15/2015	0-6 6-	FILL WASTE - Test pit terminus	<p align="center">No Photo</p>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 200' South NO WASTE	6/15/2015	0-5 5-	FILL - tree roots Test pit terminus - no groundwater encountered	<p align="center">No Photo</p>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 100' West NO WASTE	6/15/2015	0-1.5 1.5-	FILL Test pit terminus - no groundwater encountered	<p align="center">No Photo</p>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/14 @ 100' North NO WASTE	6/15/2015	0-3 3-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 100' East WASTE	6/15/2015	0-2 2-	FILL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 200' East NO WASTE	6/15/2015	0-2 2-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/15 @ 100' West WASTE	6/15/2015	0-2 2-	FILL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/15 @ 100' East NO WASTE	6/15/2015	0-4 4-	FILL Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/15 @ 200' East WASTE	6/15/2015	0-6 6-	FILL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/15 @ 300' East NO WASTE	6/15/2015	0-1 1-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-15/14 NO WASTE	6/15/2015	0-1 1-7 7-	FILL - brown mix fine SAND NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-14/15 NO WASTE	6/15/2015	0-2 2-7 7-	FILL - brown mix fine SAND NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-32/34 WASTE	6/15/2015	0-2 2-3 3-7 7-	FILL - brown mix fine SAND WASTE FILL - dark brown fine SAND Test pit terminus - groundwater at approx. 6'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-34/38 NO WASTE	6/15/2015	0-3 3-4 4-	FILL - light brown fine SAND FILL - roots/tree debris Native soil	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-33/38 WASTE	6/15/2015	0-5.5 5.5-6.5 6.5-9 9-	FILL - brown fine SAND Minor WASTE, decomposing trash odor Native soil - light brown Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-36/31 WASTE	6/15/2015	0-3 3-5 5-	FILL - brown mix fine SAND WASTE WASTE - Test pit terminus	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/15 NO WASTE	6/19/2015	0-9 9-	FILL - brown fine SAND Test pit terminus - no groundwater encountered	<div style="border: 1px solid black; padding: 20px; text-align: center;"> <p>No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-16/17 NO WASTE	6/19/2015	0-4 4-7 7-	FILL - brown fine SAND NATIVE SOIL- brown fine SAND Test pit terminus - no groundwater encountered	<div style="border: 1px solid black; padding: 20px; text-align: center;"> <p>No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

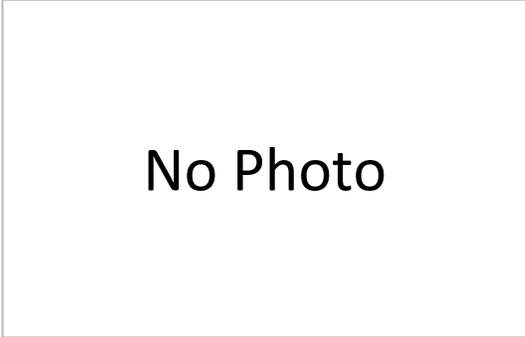
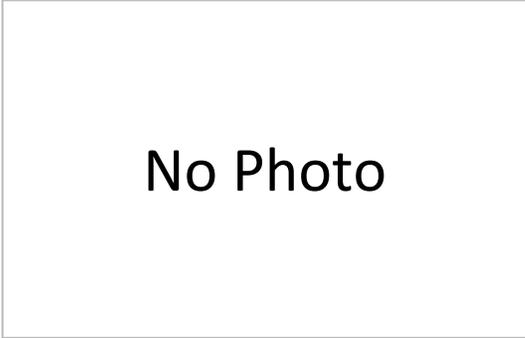
Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-13/17 NO WASTE	6/19/2015	0-5 5-8 8-	FILL - brown fine SAND mix NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-013 @ 100' NW WASTE	6/19/2015	0-2 2-4 4-	FILL WASTE with dirt WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-013 @ 100' N WASTE	6/19/2015	0-8 8-9 9-	FILL WASTE WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-13/16 NO WASTE	6/19/2015	0-6' 6-10' 10-	FILL - brown mix fine SAND NATIVE SOIL - brown Test pit terminus - groundwater at approx. 8'	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/14/13 WASTE	6/19/2015	0-2' 2-5' 5-	Brown mix fine SAND WASTE WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/14/13 @ 100' North NO WASTE	6/19/2015	0-11' 11-	NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-12 @ 100' North WASTE	6/19/2015	0-2 2-7 7-	FILL NATIVE SOIL Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-12 @ 150' Northeast NO WASTE	6/19/2015	0-7 7-	NATIVE SOIL Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 

# APPENDIX C



## Important Information about This

# Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

### Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

### Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

### Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

### Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

### Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

### A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

### A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

### **Do Not Redraw the Engineer's Logs**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

### **Give Constructors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time to perform additional study.* Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

### **Read Responsibility Provisions Closely**

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### **Environmental Concerns Are Not Covered**

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

### **Obtain Professional Assistance To Deal with Mold**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention.* Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.

### **Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance**

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.



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# CONSTRAINTS & RESTRICTIONS

The intent of this document is to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.

## WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

## UNANTICIPATED SOIL CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the Boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

## CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

## MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

## CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

## USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations to determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

## STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

## OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

## WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicate normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

## LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects. Universal Engineering Sciences cannot be responsible for any buried man-made objects which are subsequently encountered during construction that are not discussed within the text of this report.

## TIME

This report reflects the soil conditions at the time of exploration. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.





**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-001 <b>NO WASTE</b>	6/9/2015	0-4 4-9 9-	FILL MATERIAL with four inch PVC irrigation pipe NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-002 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-003 <b>NO WASTE</b>	6/9/2015	0-7 7-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-004 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-005 <b>NO WASTE</b>	6/9/2015	0-2 2-7 7-	FILL MATERIAL - Mixed green fine SAND, slight organic NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-006 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL with four inch irrigation line Test pit terminus - water from irrigation line present  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-007 <b>NO WASTE</b>	6/9/2015	0-3 3-8 8-	FILL MATERIAL - Green mix fine SAND (tee box) NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-008 <b>NO WASTE</b>	6/9/2015	0-6 6-	NATIVE SOIL - brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-009 <b>NO WASTE</b>	6/9/2015	0-8 8-	NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-009/7 <b>NO WASTE</b>	6/9/2015	0-1.5 1.5-3 3-6 6-	NATIVE SOIL - gray fine SAND Dark brown fine SAND (HARDPAN) Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-010 <b>NO WASTE</b>	6/9/2015	0-2.5 2.5-3.5 3.5-7 7-	FILL MATERIAL - mixed clay and fine SAND NATIVE SOIL - brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-011 <b>NO WASTE</b>	6/9/2015	0-1.5 1.5-2 2-7 7-	NATIVE SOIL - gray fine SAND Dark brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-014 NO WASTE	6/9/2015	0-1.5 1.5-2 2-7 7-	NATIVE SOIL - mix fine SAND Brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-011/014 WASTE	6/9/2015	0-4.5 4.5-6 6-	FILL MATERIAL - brown fine SAND  Municipal solid waste (rubber pipe, wood, plastic sheet, six-pack rings, soda bottles, glass, plywood) Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-012/014 NO WASTE	6/9/2015	0-1.5 1.5-4.5 4.5-12 12-	FILL MATERIAL - orange fine SAND Light brown fine SAND Brown/gray silty fine SAND Test pit terminus - groundwater at 7'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

**Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015**

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-011/015 <b>WASTE</b>	6/9/2015	0-1.5 1.5-6	FILL MATERIAL - mix brown fine SAND WASTE - plastic, aluminum, chairs, rubber, glass bottles, plastic bags, aluminum cans Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-014/015/019 <b>NO WASTE</b>	6/9/2015	0-5	NATIVE SOIL- brown to light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-015 <b>NO WASTE</b>	6/9/2015	0-2 2-4 4-6 6-	NATIVE SOIL- mix gray/brown fine SAND Light gray fine SAND and tree stumps Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-013 WASTE	6/9/2015	0-1 1-2 2-6 6-	FILL MATERIAL - mixed fine SAND WASTE - six-pack rings, Barbicide jug, beer cans FILL MATERIAL - brown mixed fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-012 WASTE	6/9/2015	0-8 8-	Mostly dirt with concrete, wood, and asphalt, approx. 20% WASTE Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-016 NO WASTE	6/9/2015	0-3 3-5 5-8 8-	FILL MATERIAL - brown mix fine SAND, irrigation pipe, wire NATIVE SOIL- dark brown/brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-052 <b>NO WASTE</b>	6/9/2015	0-4 4-10 10-	FILL MATERIAL - mixed brown/light brown fine SAND NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-052/020 <b>NO WASTE</b>	6/9/2015	0-8	NATIVE SOIL - brown to light brown fine SAND  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-020 <b>NO WASTE</b>	6/9/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown mix fine SAND NATIVE SOIL - Light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered  Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-018 NO WASTE	6/9/2015	0-3 3-7 7-8 8-	FILL MATERIAL - brown mix fine SAND FILL MATERIAL Dark gray/brown fine SAND mix NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-017 NO WASTE	6/9/2015	0-1 1-2 2-7 7-	NATIVE SOIL - light gray fine SAND Brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-021 NO WASTE	6/10/2015	0-7 7-	FILL MATERIAL - mix brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-019 NO WASTE	6/10/2015	0-1 1-6 6-	FILL MATERIAL - mix brown fine SAND NATIVE SOIL - dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-023 NO WASTE	6/10/2015	0-4 4-7.5 7.5-	FILL MATERIAL - mix brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-024 NO WASTE	6/10/2015	0-4 4-8 8-	FILL MATERIAL - mix dark brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-026 <b>NO WASTE</b>	6/10/2015	0-1 1-3 3-8 8-	FILL MATERIAL - brown fine SAND mix NATIVE SOIL - gray fine SAND Brown/light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-022 <b>WASTE</b>	6/10/2015	0-7 7-11 11-	FILL MATERIAL - brown mix fine SAND Trees, pines, roots, some mixed concrete Test pit terminus - groundwater at approx. 8'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels Ambient hydrogen sulfide noted	
TP-025 <b>NO WASTE</b>	6/10/2015	0-4 4-12 12-	FILL MATERIAL - brown mix fine SAND NATIVE SOIL - brown/light brown fine SAND Test pit terminus - groundwater at approx. 8'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types
TP-027 WASTE	6/10/2015	0-3 3-8 8-	<p>FILL MATERIAL - Brown mix fine SAND                      WASTE - carpet, metal, 4x4" dummy fuse container, steel trash can                      Test pit terminus - no groundwater encountered</p> <p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p>
TP-051 NO WASTE	6/10/2015	0-3 3-7 7-	<p>NATIVE SOIL - green fine SAND                      Brown fine SAND                      Test pit terminus - no groundwater encountered</p> <p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p>



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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-050 NO WASTE	6/11/2015	0-3 3-7 7-	Native soil - light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-048 NO WASTE	6/11/2015	0-1 1-2 2-7 7-	NATIVE SOIL - green fine SAND Dark brown fine SAND Light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-049 NO WASTE	6/11/2015	0-2 2-4.5 4.5-7 7-	NATIVE SOIL - dark green fine SAND Light brown fine SAND Dark brown damp fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-044 NO WASTE	6/11/2015	0-1.5 1.5-4.5 4.5-7 7-	NATIVE SOIL - green fine SAND Light brown fine SAND Dark brown fine HARDPAN Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-040 NO WASTE	6/11/2015	0-1.5 1.5-3 3-7 7-	FILL MATERIAL - Light brown clayey fine SAND NATIVE SOIL - green fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-039 NO WASTE	6/11/2015	0-2 2-5 5-7 7-	NATIVE SOIL - gray fine SAND Brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-036 NO WASTE	6/11/2015	0-1.5 1.5-4 4-8 8-	FILL MATERIAL - brown fine SAND with 2" PVC pipe NATIVE SOIL - Gray fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-037 NO WASTE	6/11/2015	0-2 2-2.5 2.5-5 5-8 8-	Light brown fine SAND NATIVE SOIL - gray fine SAND Brown to light brown fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 WASTE	6/11/2015	0-2 2-2.5 2.5-6 6-	FILL MATERIAL - brown mix fine SAND FILL MATERIAL - LIMEROCK Steel sheet, metal, fiberglass pipe insulation, one-gallon jug, wood Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-041 NO WASTE	6/11/2015	0-2.5 2.5-4.5 4.5-7 7-	FILL MATERIAL - brown fine SAND NATIVE SOIL - brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-045 NO WASTE	6/11/2015	0-1.5 1.5-3 3-4.5 4.5-7 7-	FILL MATERIAL - brown fine SAND NATIVE SOIL - brown fine SAND Light gray fine SAND Dark brown fiine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-047 NO WASTE	6/11/2015	0-2 2-4.5 4.5-7 7-	NATIVE SOIL- light gray fine SAND Light brown fine SAND Dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-046 NO WASTE	6/11/2015	0-1 1-2 2-7 7-	NATIVE SOIL - brown fine SAND Light brown fine SAND Brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-043 NO WASTE	6/11/2015	0-7 7-	NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-038 NO WASTE	6/11/2015	0-7 7-	NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-029 WASTE	6/12/2015	0-1.5 1.5-4 4-	FILL MATERIAL - Brown mix fine SAND WASTE - Steel, plastic, and glass Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-035 NO WASTE	6/12/2015	0-7 7-	FILL MATERIAL - dark brown to brown SAND and concrete Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-031 WASTE	6/12/2015	0-1 1-4.5 4.5-6 6-7 7-	FILL MATERIAL - dark brown mixed fine SAND FILL MATERIAL - very light gray fine SAND WASTE - glass, plastic, wood, bottles, cans NATIVE SOIL - dark brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-033 WASTE	6/12/2015	0-4 4-5.5 5.5-7 7-	FILL MATERIAL - mixed brown fine SAND WASTE - glass, plastic, hose NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-034 WASTE	6/12/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown fine SAND WASTE - plastic sheeting, metal, wood NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-032 WASTE	6/12/2015	0-2 2-4 4-7 7-	FILL MATERIAL - brown fine SAND mix WASTE - plastic, wire, glass NATIVE SOIL - light gray fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-030 WASTE	6/12/2015	0-5 5-7 7-8 8-	FILL MATERIAL - mix brown fine SAND WASTE - tire, glass, plastic, slight petroleum odor NATIVE SOIL - light brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-028 NO WASTE	6/12/2015	0-8	NATIVE SOIL - light brown fine SAND	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 @ 100' North NO WASTE	6/12/2015	0-2 2-6	FILL MATERIAL NATIVE SOIL	<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <p style="font-size: 2em; margin: 0;">No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-042 @ 100' East WASTE	6/12/2015	0-4.5 4.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 @ 200' East WASTE	6/12/2015	0-4 4-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-042 @ 300' East WASTE	6/12/2015	0-3 3-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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<b>Test Pit ID</b>	<b>Date Excavated</b>	<b>Depth (feet)</b>	<b>Lithology/Waste Types</b>	
TP-042 @ 400' East WASTE	6/12/2015	0-3 3-9 9-	FILL MATERIAL WASTE Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 100' South WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 200' South WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

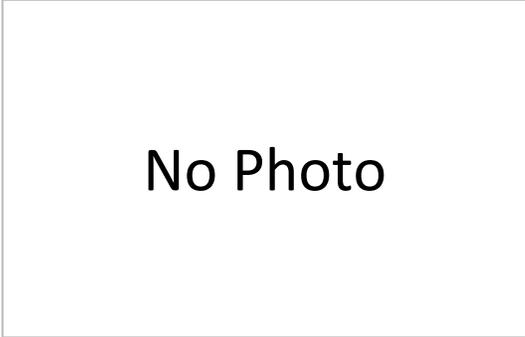
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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-036 @ 100' West WASTE	6/12/2015	0-2 2-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 200' West WASTE	6/12/2015	0-2 2-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-036 @ 300' West WASTE	6/12/2015	0-1.5 1.5-	FILL MATERIAL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-037/33 WASTE	6/12/2015	0-2 2-5 5-	FILL MATERIAL - brown mix fine SAND WASTE WASTE - Test pit terminus	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-033/37 WASTE	6/12/2015	0-2 2-3.5 3.5-12 12-	FILL MATERIAL - brown mix fine SAND WASTE FILL MATERIAL - brown mix fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-018/019/021 NO WASTE	6/15/2015	0-4 4-7 7-	FILL - mix brown fine SAND NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

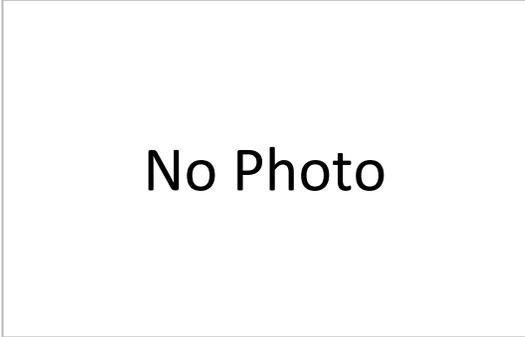
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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/14 @ 100' South WASTE	6/15/2015	0-6 6-	FILL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/14 @ 200' South NO WASTE	6/15/2015	0-5 5-	FILL - tree roots Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/14 @ 100' West NO WASTE	6/15/2015	0-1.5 1.5-	FILL Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/14 @ 100' North NO WASTE	6/15/2015	0-3 3-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 100' East WASTE	6/15/2015	0-2 2-	FILL WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-11/14 @ 200' East NO WASTE	6/15/2015	0-2 2-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/15 @ 100' West WASTE	6/15/2015	0-2 2-	FILL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/15 @ 100' East NO WASTE	6/15/2015	0-4 4-	FILL Test pit terminus - no groundwater encountered	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 
TP-11/15 @ 200' East WASTE	6/15/2015	0-6 6-	FILL WASTE - Test pit terminus	<p>Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels</p> 

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-11/15 @ 300' East NO WASTE	6/15/2015	0-1 1-	FILL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-15/14 NO WASTE	6/15/2015	0-1 1-7 7-	FILL - brown mix fine SAND NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-14/15 NO WASTE	6/15/2015	0-2 2-7 7-	FILL - brown mix fine SAND NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-32/34 WASTE	6/15/2015	0-2 2-3 3-7 7-	FILL - brown mix fine SAND WASTE FILL - dark brown fine SAND Test pit terminus - groundwater at approx. 6'	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-34/38 NO WASTE	6/15/2015	0-3 3-4 4-	FILL - light brown fine SAND FILL - roots/tree debris Native soil	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-33/38 WASTE	6/15/2015	0-5.5 5.5-6.5 6.5-9 9-	FILL - brown fine SAND Minor WASTE, decomposing trash odor Native soil - light brown Test pit terminus - no groundwater encountered	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-36/31 WASTE	6/15/2015	0-3 3-5 5-	FILL - brown mix fine SAND WASTE WASTE - Test pit terminus	
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/15 NO WASTE	6/19/2015	0-9 9-	FILL - brown fine SAND Test pit terminus - no groundwater encountered	<div style="border: 1px solid black; padding: 20px; text-align: center;"> <p>No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-16/17 NO WASTE	6/19/2015	0-4 4-7 7-	FILL - brown fine SAND NATIVE SOIL- brown fine SAND Test pit terminus - no groundwater encountered	<div style="border: 1px solid black; padding: 20px; text-align: center;"> <p>No Photo</p> </div>
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

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Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-13/17 NO WASTE	6/19/2015	0-5 5-8 8-	FILL - brown fine SAND mix NATIVE SOIL - brown fine SAND Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-013 @ 100' NW WASTE	6/19/2015	0-2 2-4 4-	FILL WASTE with dirt WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-013 @ 100' N WASTE	6/19/2015	0-8 8-9 9-	FILL WASTE WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-13/16 NO WASTE	6/19/2015	0-6' 6-10' 10-	FILL - brown mix fine SAND NATIVE SOIL - brown Test pit terminus - groundwater at approx. 8'	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/14/13 WASTE	6/19/2015	0-2' 2-5' 5-	Brown mix fine SAND WASTE WASTE - Test pit terminus	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12/14/13 @ 100' North NO WASTE	6/19/2015	0-11' 11-	NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	

Geotechnical Investigation - Former NTC Orlando Tradeport Site - Operable Unit 2 - Orlando, Florida - June 2015

Test Pit ID	Date Excavated	Depth (feet)	Lithology/Waste Types	
TP-12 @ 100' North WASTE	6/19/2015	0-2 2-7 7-	FILL NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	
TP-12 @ 150' Northeast NO WASTE	6/19/2015	0-7 7-	NATIVE SOIL Test pit terminus - no groundwater encountered	No Photo
			Landfill Gas Readings: H2S, CO, LEL, O2, and PID: Not Detected Above Background Levels	



**FINAL REPORT  
GEOPHYSICAL INVESTIGATION  
TRADEPORT LANDFILL SITE  
ORLANDO, FL**

Prepared for HSA Golden  
Orlando, FL

Prepared by GeoView, Inc.  
St. Petersburg, FL



June 24, 2105

Mr. James E. Golden, P.G.  
HSA Golden  
11 Lake Gatlin Road  
Orlando, FLorida 32806

**Subject: Transmittal of Final Report for Geophysical Investigation  
Tradeport Landfill Site  
Orlando, FL  
GeoView Project Number 22529**

Dear Mr. Golden,

GeoView, Inc. (GeoView) is pleased to submit the final report that summarizes and presents the results of the geophysical investigation performed at the above referenced site. Time domain electromagnetics was used to help determine the presence of suspected buried metallic debris that may be present within the project site. GeoView appreciates the opportunity to have assisted you on this project. If you have any questions or comments about the report, please contact us.

Sincerely,

**GEOVIEW, INC.**

Chris Taylor, P.G.  
Vice President  
Florida Professional Geologist Number 2256

*A Geophysical Services Company*

*4610 Central Avenue  
St. Petersburg, FL 33711*

*Tel.: (727) 209-2334  
Fax: (727) 328-2477*

## **1.0 Introduction**

A geophysical investigation was conducted at the Tradeport Landfill Site in Orlando, Florida. The site was located near 3650 Express Street. Prior to the investigation, a metal ammunition box was encountered in a test pit at the site. Of concern was the possible presence of buried metallic debris that may be present within the survey area. The geophysical investigation was conducted using time domain electromagnetics (TDEM). Mr. Merritt McLean performed the investigation on June 15, 2015.

## **2.0 Site Description**

The site was approximately 200 feet (ft) by 200 ft in size and centered about the former test pit (Figure 1). The majority of the site was an open field. Minor areas were inaccessible due to dense vegetation. Objects of potential magnetic interference, which did influence the EM-61 instrument response, were located within the survey area. These objects included a metal trash can and a partially buried metal computer board.

## **3.0 Description of Geophysical Investigation**

The survey grids for the geophysical investigation were established along transect lines spaced 2.5 ft apart. A discussion of the limitations of the survey grid is provided in Appendix A2.1.

The TDEM survey was conducted using a Geonics EM61-MK2 Buried Metal Detector (EM-61). The EM-61 survey was conducted by towing the EM-61 throughout accessible areas of the project site. The EM-61 data was collected on transect lines spaced 2.5 ft apart and data readings were collected every 0.6 ft along each transect line.

The lateral sensitivity of the EM equipment to surficial metallic debris is usually 4 feet or less. In such areas, it is not possible to discriminate which portion of the instrument response is being caused by the surficial debris and which portion (if any) is being caused by buried metallic debris. Accordingly, it is usually not possible to determine if lesser quantities of buried metallic debris are present within 4 ft of areas where surficial metallic debris is present. A description of the EM-61 technique and the methods employed for buried debris studies is provided in Appendix A2.2.

#### **4.0 Survey Results**

The results of the geophysical investigation are presented in Figure 1. The EM-61 survey identified 43 areas of anomalous elevated EM-61 response within the survey area. These 43 areas did not have a visible cause (surface metal). Therefore these 43 areas are suspected to be associated with areas of buried metallic debris. The areas of suspected metallic debris indicated with a blue X on Figure 1. The coordinates of the anomalies are provided in Table 1. A discussion of the limitations of the geophysical methods used in this investigation is provided in Appendix 2.

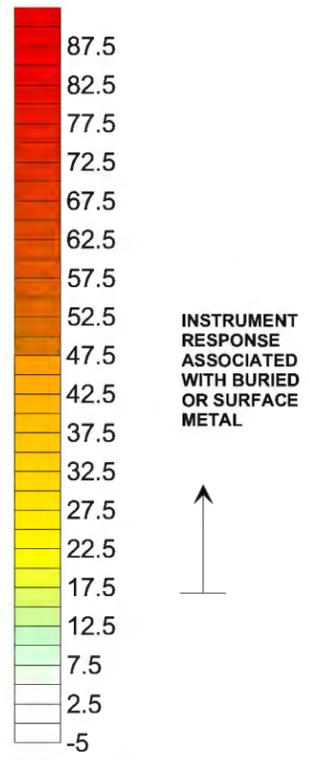
Tradeport Landfill Site  
 GeoView Project Number  
 22529

EM-61 Study Conducted on June 18, 2015

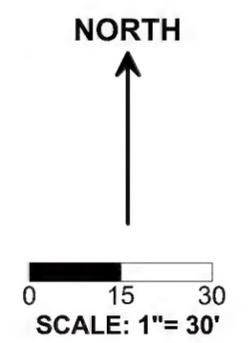
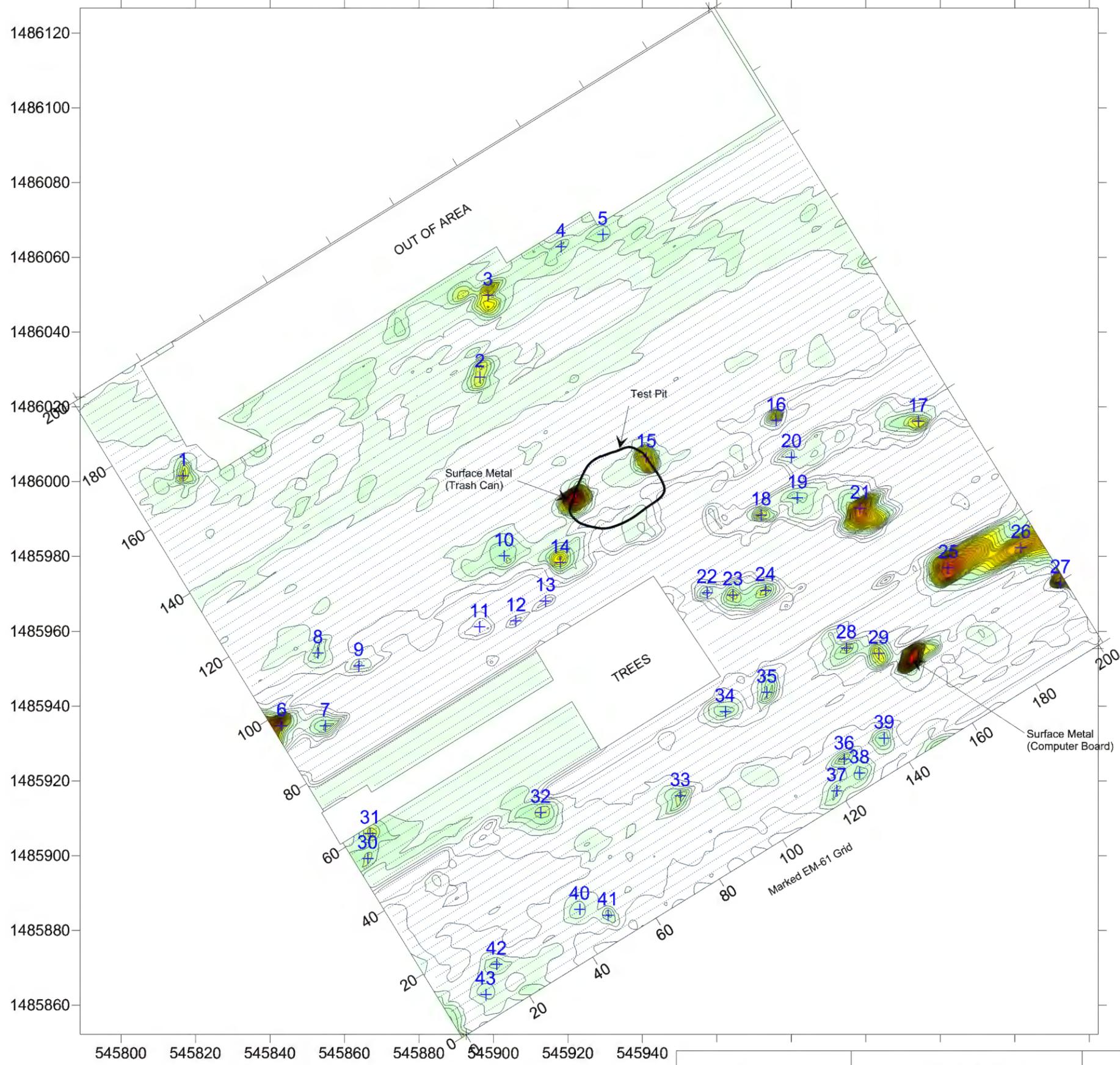
<b>Easting</b>	<b>Northing</b>	<b>Anomaly</b>
545816.7	1486001.5	1
545896.4	1486028.0	2
545898.6	1486049.8	3
545918.2	1486062.8	4
545929.4	1486066.1	5
545843.2	1485934.7	6
545854.9	1485934.7	7
545852.9	1485954.2	8
545863.9	1485950.8	9
545902.9	1485980.1	10
545896.3	1485961.2	11
545906.1	1485962.8	12
545914.0	1485968.1	13
545918.0	1485978.3	14
545941.1	1486006.5	15
545975.9	1486016.3	16
546014.1	1486016.1	17
545971.9	1485991.0	18
545981.7	1485995.6	19
545980.1	1486006.5	20
545998.6	1485992.8	21
545957.4	1485970.3	22
545964.3	1485969.7	23
545973.1	1485970.9	24
546022.2	1485976.9	25
546041.7	1485982.3	26
546052.3	1485972.9	27
545994.8	1485955.5	28
546003.5	1485954.1	29
545866.3	1485899.2	30
545866.9	1485905.9	31
545912.7	1485911.5	32
545950.2	1485916.0	33
545962.3	1485938.5	34
545973.4	1485943.7	35
545994.2	1485925.8	36
545992.2	1485917.3	37
545998.3	1485922.1	38
546004.9	1485931.4	39
545923.2	1485885.6	40
545930.8	1485884.1	41
545900.9	1485870.9	42
545898.0	1485862.9	43

US State Plane, Florida East, NAD 83 (Conus) (ft)

**APPENDIX 1**  
**FIGURE**



SQUARE ROOT OF EM-61 RESPONSE (IN MILLI-VOLTS)



**EXPLANATION**

-  CONTOUR OF SQUARE ROOT OF EM-61 RESPONSE (IN MILLI-VOLTS)
- +++++ TDEM DATA STATIONS
- 12 + AREA OF SUSPECTED BURIED METALLIC DEBRIS (WITH DESIGNATION)

Coordinate System: US State Plane, Florida East NAD83 (Conus), Feet



**FIGURE 1**  
COLOR CONTOUR MAP OF EM-61 RESPONSE

**TRADEPORT LANDFILL SITE**  
ORANGE COUNTY, FLORIDA

**HSA GOLDEN**  
ORLANDO, FLORIDA

PROJECT:  
22529  
DATE:  
06/24/15

## **APPENDIX 2**

### **DESCRIPTION OF GEOPHYSICAL METHODS, SURVEY METHODOLOGIES AND LIMITATIONS**

#### **A2.1 On Site Measurements**

The measurements that were collected and used to create the site map were made using a fiberglass measuring tape. The corner points of the grid were recorded using a Trimble GeoXH GPS system.

#### **A2.2 Time Domain Electromagnetics**

The TDEM (EM-61) method evaluates the magnitude of an induced (secondary) electromagnetic (EM) field caused by a primary EM field after that primary field is suddenly shut off.

During a TDEM (EM-61) sounding, an electrical current is caused to flow in a horizontal transmitter coil located near the ground. The current is maintained until a static magnetic field is established. The current in that coil is then rapidly terminated. This produces a strong electromotive force that induces eddy (secondary) currents in the ground. The eddy currents are caused by the presence of subsurface conductors. With increasing time, the strength of the eddy currents diminishes. The eddy currents, when they are still present induce a voltage in the receiver coil that is proportional to eddy current strength. The eddy current strength also depends on the amount of metal in the subsurface. The more metal present, the longer the eddy currents persist. Field measurement consists of reading the output voltage from the receiver coil registered at a particular time after field shut-off. If no metal is present near the coil, then there are no eddy currents at a late time and the reading is near zero. If metal is present near the coil, then the eddy currents persist for a longer time, and the reading is some positive number. By sensing only the response from the buried metal, the method is capable of detecting targets in highly conductive environments. For TDEM surveys the Geonics Ltd. Model EM-61 metal detection (EM-61) system is used. The EM-61 instrument response is recorded on field-portable computerized data logger (Juniper Allegro, Digital Data Logger) for subsequent data processing and contouring.

The EM-61 survey is performed along predetermined transect lines. The transect lines are typically uni-directional and oriented parallel to the long axis of the site. The spacing between transects ranges from 2 to 20 ft, depending upon the

desired size of the target to be identified. Approach is typically +/-5% for both lengths and angles in degrees.

GeoView can make no warranties or representations of the conditions that may be present beyond the depth of investigation or resolving capability of the TDEM equipment or in areas that were not accessible to the geophysical investigation.