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Report of Geotechnical Exploration

Proposed Three Oaks Pkwy. Extension Phase 2 – Mast Arms

Fort Myers, Lee County, Florida

October 23, 2023
UES Project No.: 0530.2300329.0000

Prepared For:

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Attention: Mr. Albert Martes-Rodriguez
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Prepared By:

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October 23, 2023

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Subject: **Geotechnical Exploration**
Proposed Mast Arms
Three Oaks Parkway Extension Phase 2
Fort Myers, Lee County, Florida
UES Project No. 0530.2300329.0000

Dear Mr. Albert Martes-Rodriguez:

UES has completed the subsurface exploration and geotechnical engineering evaluation for the above-referenced project in accordance with the geotechnical and engineering service agreement for this project. The scope of UES's exploration was planned in conjunction with and authorized by you. This exploration was performed in accordance with generally accepted soil and foundation engineering practices.

The purpose of subsurface exploration was to classify the nature of the subsurface soils and general geomorphic conditions and evaluate their impact upon the proposed construction. This report contains and provides the findings and conclusions. It has been prepared for the exclusive use of Avalon Engineering, Inc. and their consultants for specific application to the subject project in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

1.0 SCOPE OF SERVICES

The objective of UES's geotechnical services was to collect subsurface data for the subject project, summarize the test results, and discuss any apparent site conditions that may have geotechnical significance for construction. The following scope of service is provided within this report:

1. Conduct sixteen Standard Penetration Test (SPT) borings to determine the nature and condition of the subsurface soils and preparing record logs of these soil borings depicting the subsurface soil conditions encountered during our field exploration.

2. Review each soil sample obtained during our field exploration for classification and additional testing, if necessary.

3. Evaluate the existing soil conditions found during our exploration with respect to foundation support for the proposed mast arm signalizations and sign boards.

4. Prepare this report to document the results of our field exploration, engineering analysis and our recommended soil parameters for foundation design.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

UES understands that the project will consist of the construction of two traffic signal lights with single mast arms in the median of the intersection of Daniels Pkwy. & Apaloosa Ln. /Powers Ct., four traffic signal lights with single mast arms on each side of the intersection of Daniels Pkwy. & Fiddlesticks Blvd./Palomino Ln., four traffic signal lights with single mast arms on each side of the intersection of Daniels Pkwy. & Danport Blvd., four traffic signal lights with single mast arms and on each side of the proposed intersection of Three Oaks Pkwy. & Fiddlesticks Blvd., one sign board on the east of Palomino Ln. and South of Kings Crossing Road and one sign board at the proposed intersection of Three Oaks Pkwy. & Fiddlesticks Blvd. in Fort Myers, Lee County, Florida. The recommendations provided herein are based upon the above considerations. If the project description has been revised, please inform UES so that we may review the recommendations with respect to any modifications.

3.0 FIELD EXPLORATION

A total of sixteen standard penetration test (SPT) borings to depths of approximately 40 to 55 feet below ground surface (BGS) were completed for this study. The locations of the borings performed are illustrated in Appendix B: "Report of Core Borings". The Standard Penetration Test (SPT) boring method was used as the investigative tool within the borings. SPT tests were performed in substantial accordance with ASTM Procedure D-1586, "Penetration Test and Split-Barrel Sampling of Soils". This test procedure consists of driving a 1.4-inch I.D. split-tube sampler into the soil profile using a 140-pound hammer falling 30 inches. The number of blows per foot for the second and third 6-inch increments, is an indication of soil strength.

The soil samples recovered from the soil borings were visually classified and their stratification is illustrated in Appendix B: "Report of Core Borings". It should be noted that soil conditions might vary between the strata interfaces, which are shown. The soil boring data reflect information from a specific test location only. Site specific survey staking for the test locations was not provided for our field exploration. The indicated depth and location of each test was approximated based upon existing grade and estimated distances and relationships to obvious landmarks. The boring depths were selected based on our knowledge of vicinity soils and to include the zone of soil likely to be stressed by the proposed construction.

4.0 LABATORY TESTING PROGRAM

Soil samples recovered from our field exploration were returned to UES's laboratory where they were visually classified in general accordance with ASTM D-2488. Samples were evaluated to obtain an accurate understanding of the soil properties and site geomorphic conditions. After performing a review of the recovered site soils, eleven soil samples were pulled for additional classification. The results of these tests are presented in Appendix D: "Laboratory Testing Results".. Bag samples of the soil encountered during the field exploration will be held in UES's laboratory for your inspection.

5.0 GENERAL SUBSURFACE CONDITIONS

Boring logs derived from the field exploration are presented in Appendix B: "Report of Core Borings". The boring logs depict the observed soils in graphic detail. The Standard Penetration Test borings indicate the penetration resistance, or N-values, logged during the drilling and sampling activities. The classifications and descriptions shown on the logs are generally based upon visual characterizations of the recovered soil samples. All soil samples reviewed have been depicted and classified in general accordance with the Unified Soil Classification System, modified as necessary to describe typical southwest Florida conditions. See Appendix C: "Discussion of Soil Groups", for a detailed description of various soil groups.

The subsurface soil conditions encountered at this site generally consists of very loose to very dense sands (SP), medium dense slightly silty sands (SP-SM), very loose to medium dense silty sands (SM), very soft to stiff silts (ML), very loose to medium dense clayey sands (SC), very soft to stiff clays (CL) and soft weathered limestone (WLS) to the boring termination depths. Please refer to Appendix B: "Report of Core Borings" for a detailed account of each boring.

On the dates of the field exploration, the groundwater table was encountered at depths of approximately 2 to 5 feet below the existing ground surface. The groundwater table will fluctuate seasonally depending upon local rainfall and other site specific and/or local influences such as tidal events. Brief ponding of stormwater may occur across the site after heavy rains.

No additional investigation was included in our scope of work in relation to the wet seasonal high groundwater table or any existing well fields in the vicinity. Well fields may influence water table levels and cause significant fluctuations. If a more comprehensive water table analysis is necessary, please contact UES for additional guidance.

6.0 ENGINEERING PROPERTIES

The soil properties, based on the samples obtained and the recorded N-values, were averaged and are presented on the boring logs corresponding to the soils and rock types encountered. The soil properties presented include: cohesive strength, c, in pounds per square foot (psf); the angle of internal friction, ø, in degrees; the total unit weight, γt, in pounds per cubic foot (pcf) and the soil buoyant unit weight, γb, in pcf. The following tables present generalized conditions for each boring. These tables are also presented in Appendix B: "Report of Core Borings".

Soil Design Parameters: Soil Boring A-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 4	6 - 7	102	48	30	---
4 - 6 & 8 - 13	13 - 16	104	50	32	---
6 - 8	9	103	49	31	---
13 - 18 & 23 - 38	2 - 3	105	51	27	---
18 - 23	5	107	53	30	---
38 - 45	5 - 7	106	52	28	---

Soil Design Parameters: Soil Boring B-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 4	6 - 7	102	48	30	---
4 - 8	9	103	49	31	---
8 - 13	17	105	51	33	---
13 - 18 & 33 - 38	3 - 4	106	52	27	---
18 - 33	WOH	104	50	26	---
38 -43	9	105	51	30	---
43 - 48	10	108	54	30	---
48 - 50	8	106	51	---	1285

Soil Design Parameters: Soil Boring C-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2 & 18 - 23	5 - 6	101	47	30	---
2 - 4 & 8 - 13	11 - 13	103	49	32	---
4 - 6	21	106	52	34	---
6 - 8	35	110	56	38	---
13 - 18	1	105	51	29	---
23 - 38 & 48 - 55	2 – 3	105	51	27	
38 - 43	10	105	51	30	---

43 - 45	7	107	53	30	---

SOIL DESIGN PARAMETERS: SOIL BORING D-1

DEPTH BELOW GROUND SURFACE (FEET)	SPT RANGE (N-VALUE)	APPROX. SOIL UNIT WT.		ANGLE OF INTERNAL FRICTION (DEGREES)	COHESION (PSF)
		γt (pcf)	γb (pcf)		
0 - 2 & 4 - 6	62	101	47	29	---
4 - 6	27	103	51	31	---
6 - 18	27	100	46	28	---
18 - 38	26	104	50	26	---
38 - 45	20	107	53	28	

SOIL DESIGN PARAMETERS: SOIL BORING E-1

DEPTH BELOW GROUND SURFACE (FEET)	SPT RANGE (N-VALUE)	APPROX. SOIL UNIT WT.		ANGLE OF INTERNAL FRICTION (DEGREES)	COHESION (PSF)
		γt (pcf)	γb (pcf)		
0 - 6	6 - 7	102	50	102	---
6 - 13	12	103	49	103	---
13 - 18	3	106	52	106	---
18 - 23	10	109	55	109	---
23 - 28	3	105	51	105	---
28 - 40	7 - 8	107	53	107	---

SOIL DESIGN PARAMETERS: SOIL BORING DA-1

DEPTH BELOW GROUND SURFACE (FEET)	SPT RANGE (N-VALUE)	APPROX. SOIL UNIT WT.		ANGLE OF INTERNAL FRICTION (DEGREES)	COHESION (PSF)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 - 8	17	105	51	33	---
8 - 13	21	103	49	31	---
13 - 23	35	108	54	31	---
23 - 28	1	114	60	36	---
28 - 33	2 – 3	100	46	26	---
33 - 40	10	102	47	---	500

Soil Design Parameters: Soil Boring DA-2					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	---	---	---	---	---
2 - 4	17	108	54	32	---
4 - 8	39 - 43	112	58	38	---
8 - 13	7	102	48	30	---
13 - 18	22	106	52	35	---
18 - 23	4	106	52	30	---
23 - 28	8	108	54	31	---
28 - 33	1	104	50	26	---
33 - 40	2	101	46	---	250

Soil Design Parameters: Soil Boring DP-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 - 13	7 - 8	102	48	30	---
13 - 18	6	106	52	28	---
18 - 28	1	104	50	28	---
28 - 38	3	105	51	27	---
38 - 40	7	104	49	---	1000

Soil Design Parameters: Soil Boring DP-2					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 4	---	---	---	---	---
4 - 6 & 8 -13	11 - 12	103	49	31	---
13 - 18	6	102	48	30	---
18 - 23	5	107	53	30	---
23 - 38	1 - 2	104	50	26	---
38 - 40	3	102	47	---	400

Soil Design Parameters: Soil Boring DP-3					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	---	---	---	---	---
2 - 6	6 - 8	103	49	31	---
6 - 8	2	102	48	30	---
8 - 13	14	107	53	30	---
13 - 18	1	104	50	28	---
18 - 23 & 38 - 40	5 - 7	106	52	28	---
23 - 28	WOH	104	50	26	---
28 - 38	2	105	51	27	---

Soil Design Parameters: Soil Boring DP-4					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 - 8	21	106	52	34	---
8 - 13	15	104	50	33	---
13 - 23	3 - 4	105	51	27	---
23 - 28	WOH	104	50	26	---
28 - 38	3 - 4	102	47	---	500
38 - 40	7	104	49	---	1000

Soil Design Parameters: Soil Boring PJ-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 -8 & 13 -18	9 - 10	103	49	31	---
8 - 13	18	105	51	33	---
18 - 23	5	107	53	30	---
23 - 28	WOH	104	48	26	---
28 - 38	1 - 2	105	51	27	---
38 - 40	1	101	46	---	100

Soil Design Parameters: Soil Boring DD-1					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	---	---	---	---	---
2 - 4 & 6 - 8	13	106	52	34	---
4 - 6 & 8 - 13	20	104	50	32	---
13 - 33	2 - 4	105	51	27	---
33 - 40	8 - 9	108	53	29	---

Soil Design Parameters: Soil Boring DD-2					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 - 13	1 - 2	100	46	29	---
13 - 28	WHO - 1	104	50	26	---
28 - 33	2	102	46	---	400
33 - 38	3	105	51	27	---
38 - 43	7	107	53	28	---
43 - 45	12	108	54	30	---

Soil Design Parameters: Soil Boring DD-3					
Depth Below Ground Surface (feet)	SPT Range (N-value)	Approx. Soil Unit Wt.		Angle of Internal Friction (degrees)	Cohesion (psf)
		γt (pcf)	γb (pcf)		
0 - 2	---	---	---	---	---
2 - 4	21	112	55	32	---
4 - 8	22	106	57	35	---
8 - 13	30	109	55	37	---
13 - 23	7 - 8	108	54	31	---
23 - 28 & 33 - 40	1 - 2	104	50	26	---
28 - 33	3	105	51	27	---

SOIL DESIGN PARAMETERS: SOIL BORING DD-4					
DEPTH BELOW GROUND SURFACE (FEET)	SPT RANGE (N-VALUE)	APPROX. SOIL UNIT WT.		ANGLE OF INTERNAL FRICTION (DEGREES)	COHESION (PSF)
		γt (pcf)	γb (pcf)		
0 - 6	---	---	---	---	---
6 - 8	17	105	51	33	---
8 - 13	12	103	49	32	---
13 - 18 & 23 - 28	1 - 2	104	50	26	---
18 - 23 & 28 - 33	3	105	51	27	---
33 - 40	6 - 7	106	52	28	---

7.0 REPORT LIMITATIONS

This consulting report has been prepared for the exclusive use of the current project owners and other members of the design team the construction of a two traffic signal lights with single mast arms in the median of the intersection of Daniels Pkwy. & Apaloosa Ln. /Powers Ct., four traffic signal lights with single mast arms on each side of the intersection of Daniels Pkwy. & Fiddlesticks Blvd./Palomino Ln., four traffic signal lights with single mast arms on each side of the intersection of Daniels Pkwy. & Danport Blvd., four traffic signal lights with single mast arms and on each side of the proposed intersection of Three Oaks Pkwy. & Fiddlesticks Blvd., one sign board on the east of Palomino Ln. and South of Kings Crossing Road and one sign board at the proposed intersection of Three Oaks Pkwy. & Fiddlesticks Blvd. in Fort Myers, Lee County, Florida. This report has been prepared in accordance with generally accepted local geotechnical engineering practices; no other warranty is expressed or implied. The evaluation submitted in this report, is based in part upon the data collected during a field exploration, however, the nature and extent of variations throughout the subsurface profile may not become evident until the time of construction. If variations then appear evident, it may be necessary to reevaluate information and professional opinions as provided in this report. In the event changes are made in the nature, design, or locations of the proposed structure, the evaluation and opinions contained in this report shall not be considered valid, unless the changes are reviewed and conclusions modified or verified in writing by UES.

UES is not responsible for damage caused by soil improvement and/or construction activity vibrations related to this project. UES is also not responsible for damage concerning drainage or moisture related issues for the proposed or nearby structures.

UES should be provided the opportunity to review the final foundation design drawings and specifications to determine whether UES's recommendations have been properly interpreted, communicated and implemented. If UES is not afforded the opportunity to participate in construction related aspects of foundation installation as recommended in this report or any report addendum, UES will accept no responsibility for the interpretation of the recommendations made in this report or on a report addendum for foundation performance.

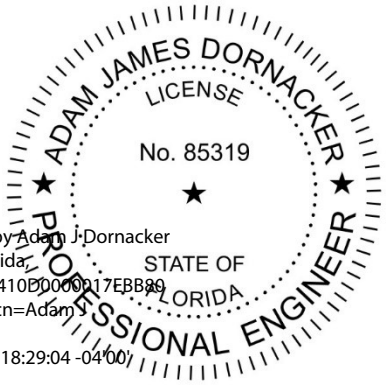
8.0 BASIS FOR RECOMMENDATIONS

The analysis and recommendations submitted in this report are based on the data obtained from the tests performed at the locations indicated on the attached figure in Appendix B. This report does not reflect any variations, which may occur between borings. While the borings are representative of the subsurface conditions at their respective locations and for their vertical reaches, local variations characteristic of the subsurface soils of the region are anticipated and may be encountered. The delineation between soil types shown on the soil logs is approximate and the description represents UES's interpretation of the subsurface conditions at the designated boring locations on the particular date drilled.

Any third party reliance of our geotechnical report or parts thereof is strictly prohibited without the expressed written consent of UES. The methodology (ASTM D-1586) used in performing our borings and for determining penetration resistance is specific to the sampling tools utilized and does not reflect the ease or difficulty of advancing other tools or materials.

UES appreciates the opportunity to be of service to you on this project and look forward to a continued association. Please do not hesitate to contact UES if you have any questions or comments, or if UES may further assist you as your plans proceed.

Respectfully Submitted,
UES
Registry Number 4930



This document has been digitally signed and sealed by

Adam J Dornacker

Digitally signed by Adam J Dornacker
DN: c=US, o=Florida, dnQualifier=A01410D000001 7EBB89B92A0006C1E6, cn=Adam J Dornacker
Date: 2023.10.31 18:29:04 -04'00'

on the date adjacent to the seal.

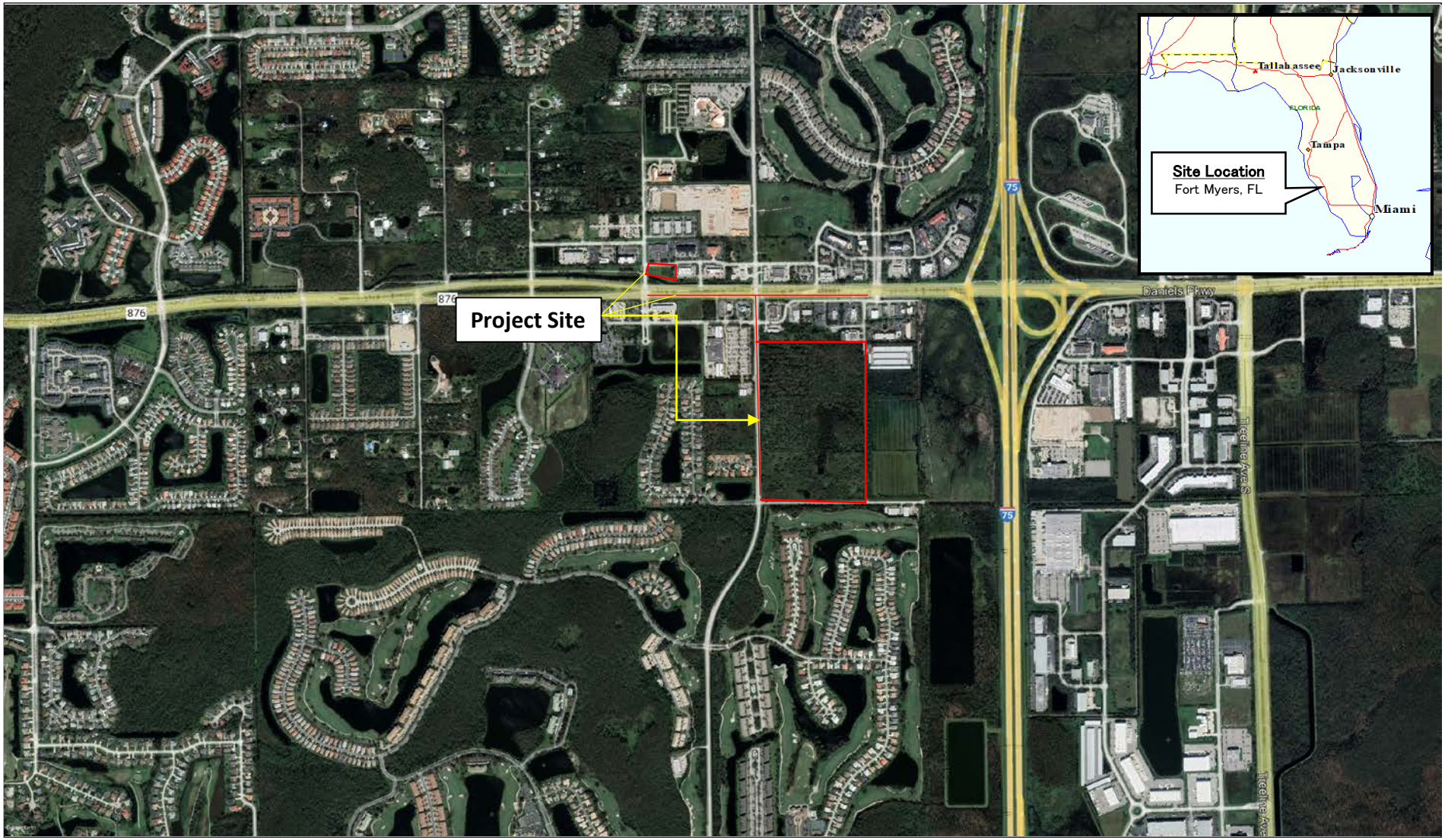
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Ashok Neela
Staff Engineer

Adam J. Dornacker, P.E. No. 85319
State of Florida
Geotechnical Department Manager

Appendix A - Vicinity Map
Appendix B - Report of Core Borings
Appendix C - Discussion of Soil Groups
Appendix D - Laboratory Testing Results

Appendix A - Vicinity Map



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VICINITY MAP

SOURCE: GOOGLE EARTH PRO©

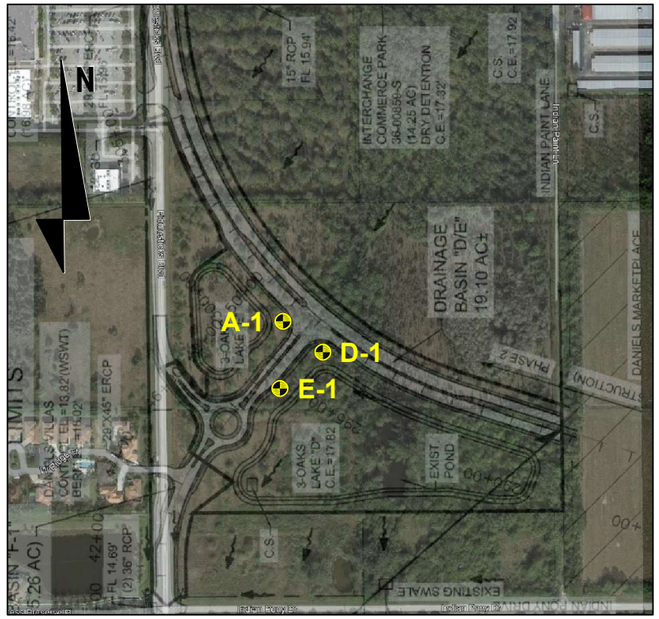
UES™

Three Oaks Parkway Extension
Fort Myers, Lee County, FL

Drawn By:	Checked By:	Date:
Ashok Neela	AJD	10/03/2023

Project No.:	Approved By:
0530.2300329.0000	Adam Dornacker, P.E.

Appendix B – Report of Core Borings



Source: Google Earth Pro

NOTES: SPT BORING LOCATION

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)
A-1	0 - 4	102	48	30
	4 - 6 & 8 - 13	104	50	32
	6 - 8	103	49	31
	13 - 18 & 23 - 38	105	51	27
	18 - 23	107	53	30
	38 - 45	106	52	28
D-1	0 - 2 & 4 - 6	101	47	29
	4 - 6	103	51	31
	6 - 18	100	46	28
	18 - 38	104	50	26
	38 - 45	107	53	28

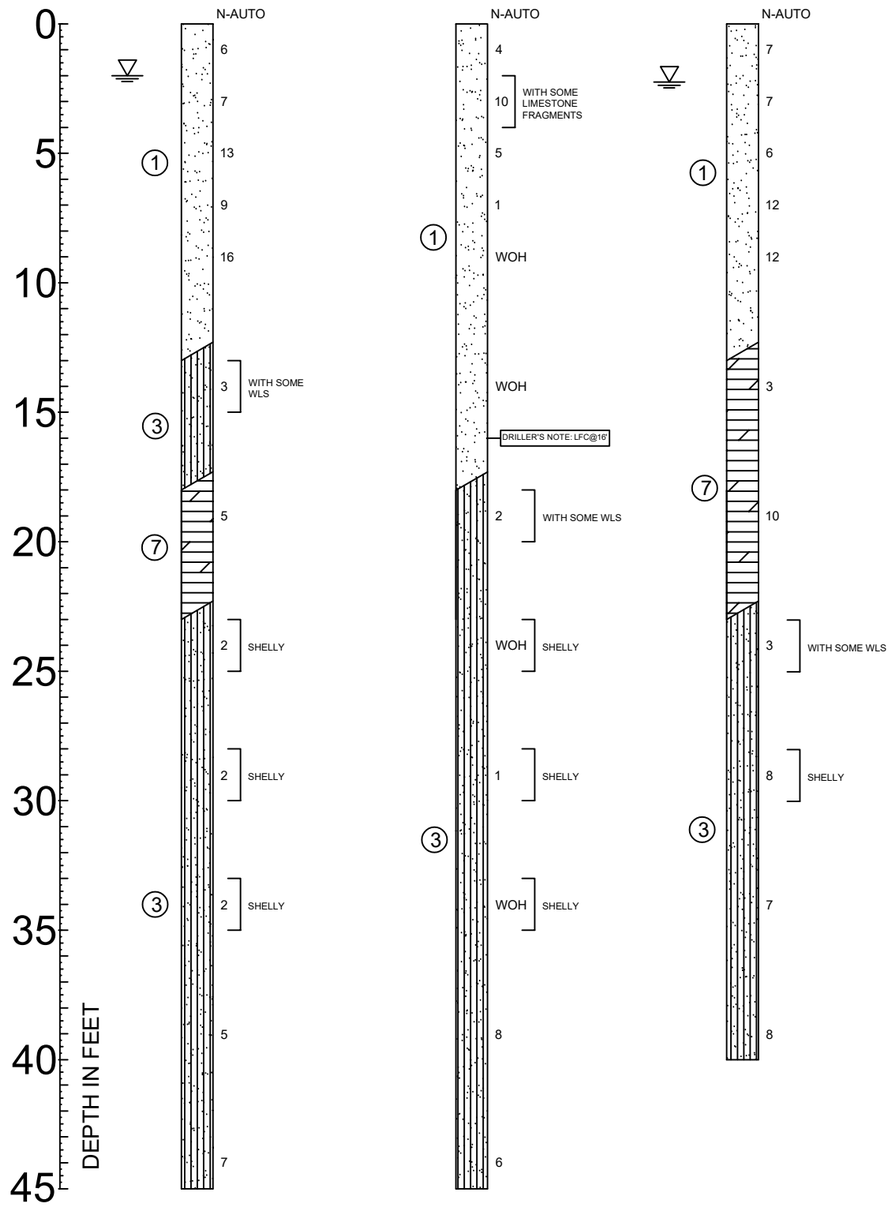
SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

SOIL PROFILES

BOR #: A-1
DATE: 09/15/2023
DRILLER: Xavier
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'33.26"N
LONG: 81°48'10.75"W

BOR #: D-1
DATE: 09/13/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'32.28"N
LONG: 81°48'9.29"W

BOR #: E-1
DATE: 09/16/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'30.98"N
LONG: 81°48'10.96"W



SOIL PROFILE LEGEND

B-X = BORING NUMBER

SOIL TYPE (X) — N = SPT TEST VALUE

GROUND WATER LEVEL

SOIL SYMBOL

INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT

= INDICATES GRADUAL TRANSITION IN SOIL TYPES

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.
GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

WLS - WEATHERED LIMESTONE

LFC - LOSS OF DRILLING FLUID CIRCULATION

HD - HARD DRILLING

SOIL LEGEND

1. Dark to Light Brown, Gray, Light Gray SAND (SP) Very Loose to Dense
2. Light Gray, Tan Slightly Silty SAND (SP-SM) Medium Dense
3. Gray, Light Gray, Tan Silty SAND (SM) Very Loose to Loose
4. Gray, Tan SILT (ML) Very Soft
5. Gray, Light Gray Clayey SAND (SC) Very Loose to Medium Dense
6. Green CLAY (CL) Stiff
7. Light Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 5	SOFT
11 - 30	MEDIUM DENSE	6 - 7	FIRM
31 - 50	DENSE	8 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)
E-1	0 - 6	102	50	30
	6 - 13	103	49	32
	13 - 18	106	52	29
	18 - 23	109	55	32
	23 - 28	105	51	27
	28 - 40	107	53	28

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

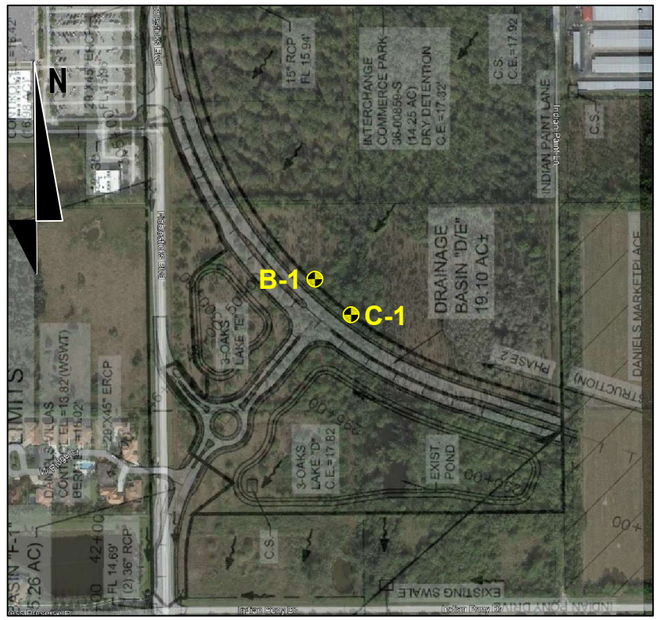
Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
THREE OAKS PKWY./FIDDLESTICKS BLVD.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
THREE OAKS PKWY./FIDDLESTICKS BLVD.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.



Source: Google Earth Pro

NOTES: SPT BORING LOCATION

SOIL PARAMETERS

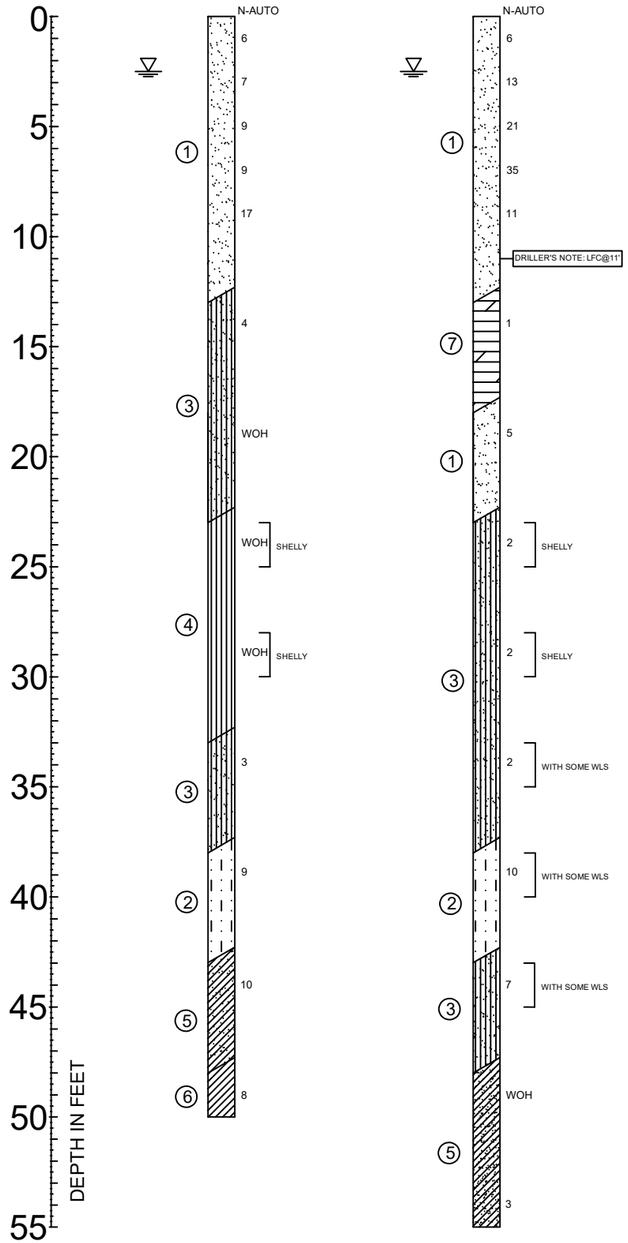
Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
B-1	0 - 4	102	48	30	-
	4 - 8	103	49	31	-
	8 - 13	105	51	33	-
	13 - 18 & 33 - 38	106	52	27	-
	18 - 33	104	50	26	-
	38 -43	105	51	30	-
	43 - 48	108	54	30	-
	48 - 50	106	51	-	1285
C-1	0 - 2 & 18 - 23	101	47	30	-
	2 - 4 & 8 - 13	103	49	32	-
	4 - 6	106	52	34	-
	6 - 8	110	56	38	-
	13 - 18	105	51	29	-
	23 - 38 & 48 - 55	105	51	27	-
	38 - 43	105	51	30	-
	43 - 45	107	53	30	-

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

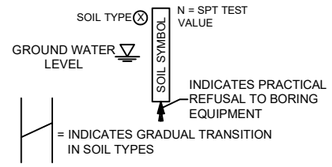
SOIL PROFILES

BOR #: B-1
DATE: 09/14/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'34.56"N
LONG: 81°48'9.83"W

BOR #: C-1
DATE: 09/13/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'33.57"N
LONG: 81°48'8.46"W



SOIL PROFILE LEGEND



N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.
GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

WLS - WEATHERED LIMESTONE

LFC - LOSS OF DRILLING FLUID CIRCULATION

HD - HARD DRILLING

SOIL LEGEND

1. Dark to Light Brown, Gray, Light Gray SAND (SP) Very Loose to Dense
2. Light Gray, Tan Slightly Silty SAND (SP-SM) Medium Dense
3. Gray, Light Gray, Tan Silty SAND (SM) Very Loose to Loose
4. Gray, Tan SILT (ML) Very Soft
5. Gray, Light Gray Clayey SAND (SC) Very Loose to Medium Dense
6. Green CLAY (CL) Stiff
7. Light Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 5	SOFT
11 - 30	MEDIUM DENSE	6 - 7	FIRM
31 - 50	DENSE	8 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

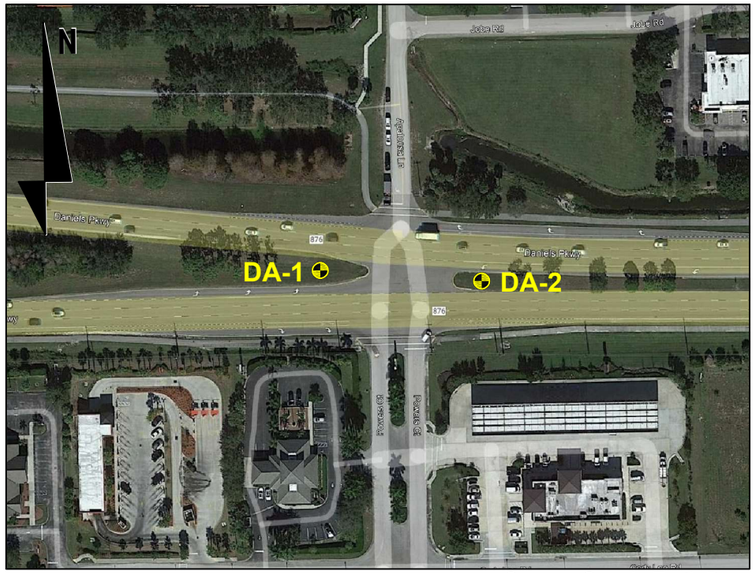
Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
THREE OAKS PKWY./FIDDLESTICKS BLVD.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
THREE OAKS PKWY./FIDDLESTICKS BLVD.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.



NOTES: SPT BORING LOCATION

SOIL PARAMETERS

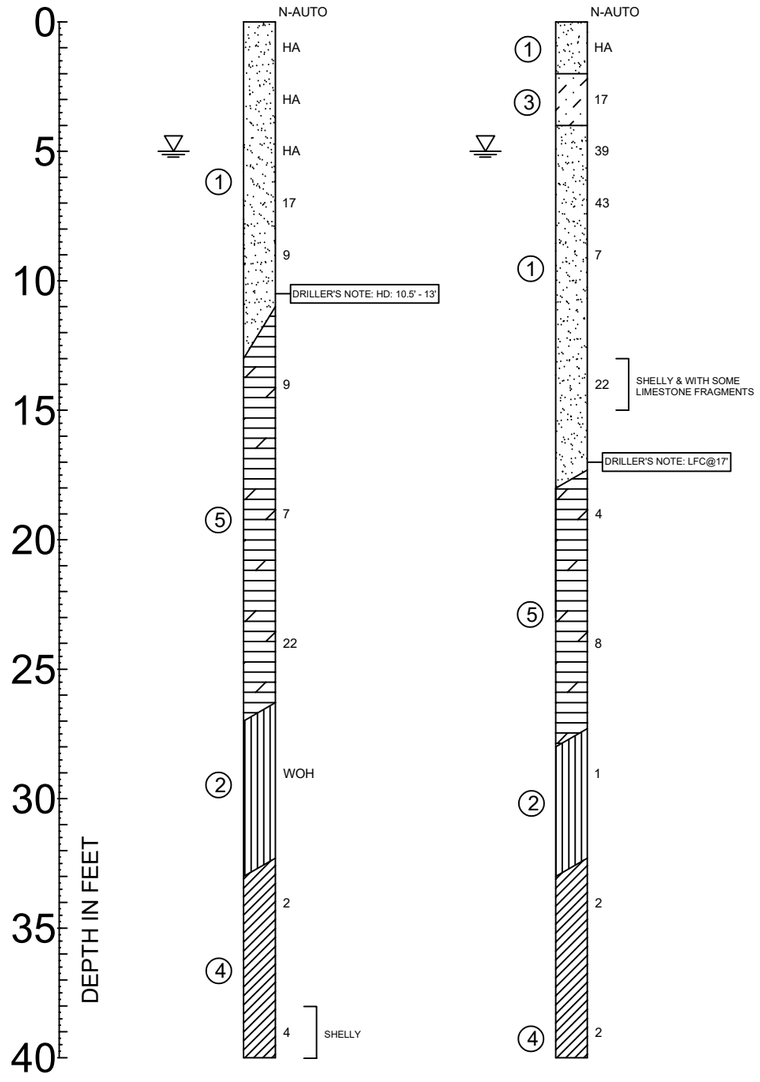
Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
DA-1	0 - 6	-	-	-	-
	6 - 8	105	51	33	-
	8 - 13	103	49	31	-
	13 - 23	108	54	31	-
	23 - 28	114	60	36	-
	28 - 33	100	46	26	-
	33 - 40	102	47	-	500
DA-2	0 - 2	-	-	-	-
	2 - 4	108	54	32	-
	4 - 8	112	58	38	-
	8 - 13	102	48	30	-
	13 - 18	106	52	35	-
	18 - 23	106	52	30	-
	23 - 28	108	54	31	-
	28 - 33	104	50	26	
	33 - 40	101	46	-	250

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

SOIL PROFILES

BOR #: DA-1
DATE: 09/19/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'50.1"N
LONG: 81°48'31.16"W

BOR #: DA-2
DATE: 09/19/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'49.98"N
LONG: 81°48'28.84"W



SOIL PROFILE LEGEND

B-X = BORING NUMBER

SOIL TYPE (X) — N = SPT TEST VALUE

GROUND WATER LEVEL

SOIL SYMBOL

INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT

= INDICATES GRADUAL TRANSITION IN SOIL TYPES

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.
GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

WLS - WEATHERED LIMESTONE

LFC - LOSS OF DRILLING FLUID CIRCULATION

HD - HARD DRILLING

SOIL LEGEND

1. Brown, Gray, Light Brown SAND (SP) Loose to Very Dense
2. Light Gray SILT (ML) Very Soft
3. Gray Slightly Clayey SAND (SP-SC) Medium Dense
4. Gray CLAY (CL) Very Soft to Soft
5. Gray, Light Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 5	SOFT
11 - 30	MEDIUM DENSE	6 - 7	FIRM
31 - 50	DENSE	8 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

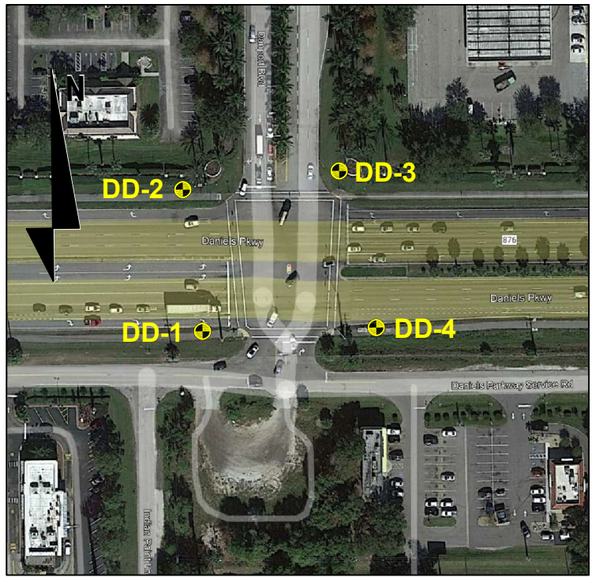
Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
DANIELS PKWY./ APALOOSA LN.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
DANIELS PKWY. & APALOOSA LN.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.



NOTES: SPT BORING LOCATION

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
DD-1	0 - 2	-	-	-	-
	2 - 4 & 6 - 8	106	52	34	-
	4 - 6 & 8 - 13	104	50	32	-
	13 - 33	105	51	27	-
	33 - 40	108	53	29	-
DD-2	0 - 6	-	-	-	-
	6 - 13	100	46	29	-
	13 - 28	104	50	26	-
	28 - 33	102	46	-	400
	33 - 38	105	51	27	-
	38 - 43	107	53	28	-
	43 - 45	108	54	30	-

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

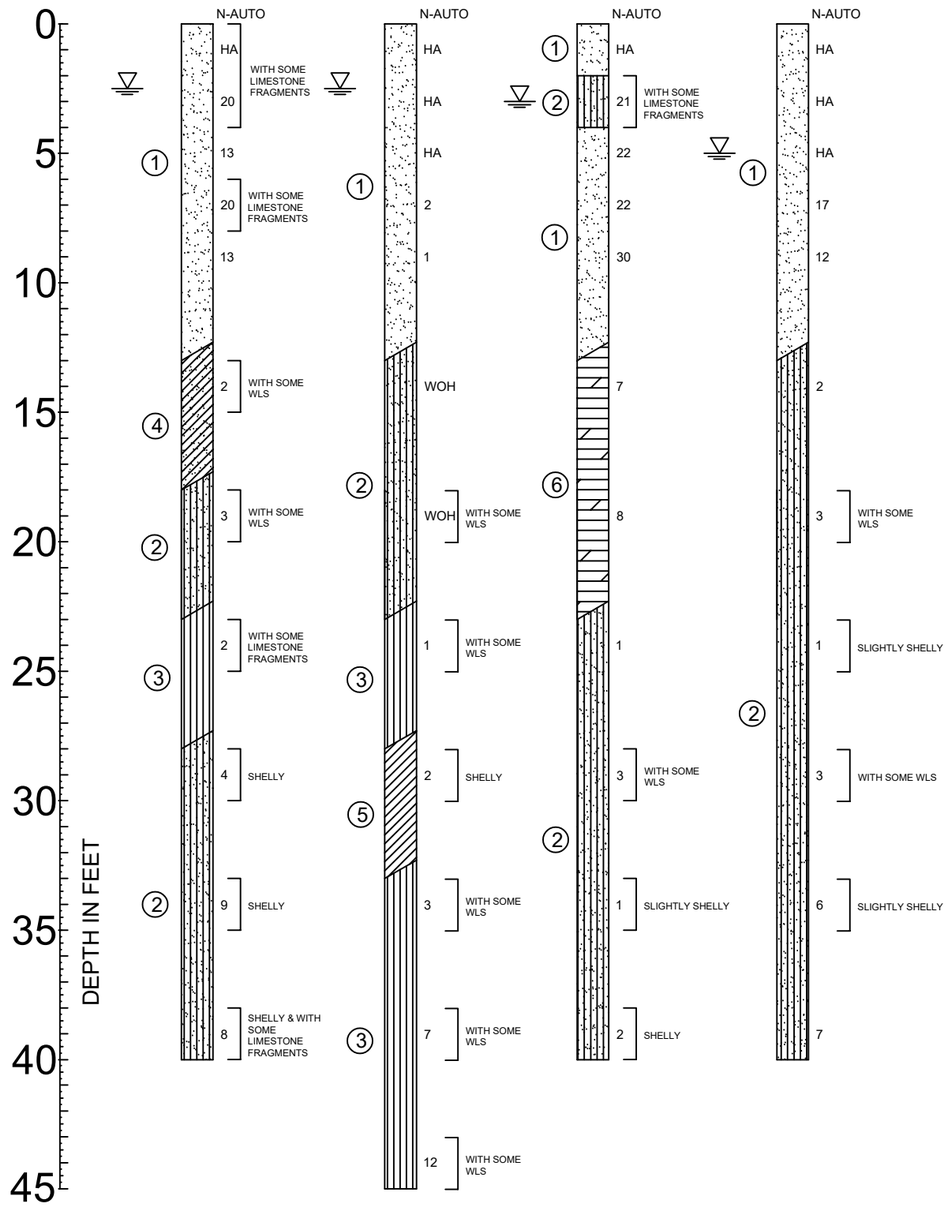
SOIL PROFILES

BOR #: DD-1
DATE: 09/27/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'49.43"N
LONG: 81°48'0.46"W

BOR #: DD-2
DATE: 09/28/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'51.01"N
LONG: 81°48'0.60"W

BOR #: DD-3
DATE: 09/27/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'51.24"N
LONG: 81°47'58.73"W

BOR #: DD-4
DATE: 09/28/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'49.48"N
LONG: 81°47'58.35"W



SOIL PROFILE LEGEND

B-X = BORING NUMBER

SOIL TYPE (X) — N = SPT TEST VALUE

SOIL SYMBOL

GROUND WATER LEVEL

INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT

= INDICATES GRADUAL TRANSITION IN SOIL TYPES

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.
GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

WLS - WEATHERED LIMESTONE

SOIL LEGEND

1. Dark to Light Brown, Gray to Light Gray SAND (SP) Very Loose to Dense
2. Gray, Light Brown, Light Gray Silty SAND (SM) Very Loose to Medium Dense
3. Light Gray SILT (ML) Very Soft to Stiff
4. Gray, Light Gray Clayey SAND (SC) Very Loose
5. Light Gray CLAY (CL) Soft
6. Light Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 5	SOFT
11 - 30	MEDIUM DENSE	6 - 7	FIRM
31 - 50	DENSE	8 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
DD-3	0 - 2	-	-	-	-
	2 - 4	112	55	32	-
	4 - 8	106	57	35	-
	8 - 13	109	55	37	-
	13 - 23	108	54	31	-
	23 - 28 & 33 - 40	104	50	26	-
	28 - 33	105	51	27	-
DD-4	0 - 6	-	-	-	-
	6 - 8	105	51	33	-
	8 - 13	103	49	32	-
	13 - 18 & 23 - 28	104	50	26	-
	18 - 23 & 28 - 33	105	51	27	-
	33 - 40	106	52	28	-

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

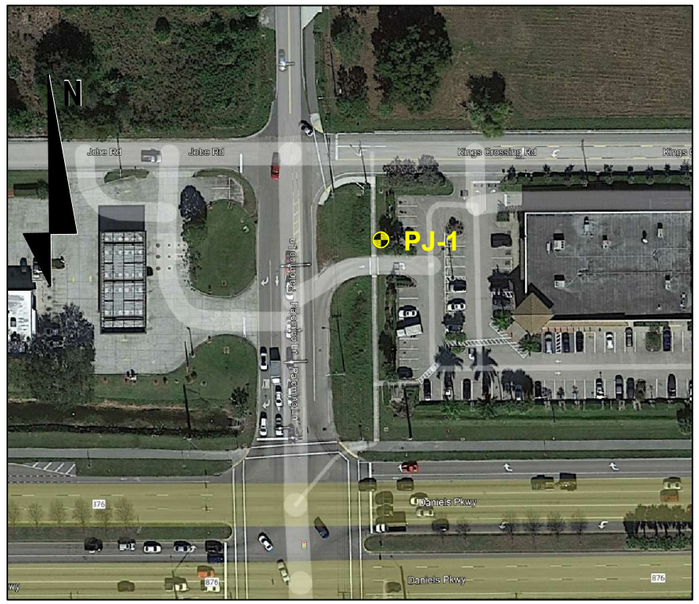
Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
DANIELS PKWY. / DANPORT BLVD.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
DANIELS PKWY. & DANPORT BLVD.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.



Source: Google Earth Pro

NOTES: SPT BORING LOCATION

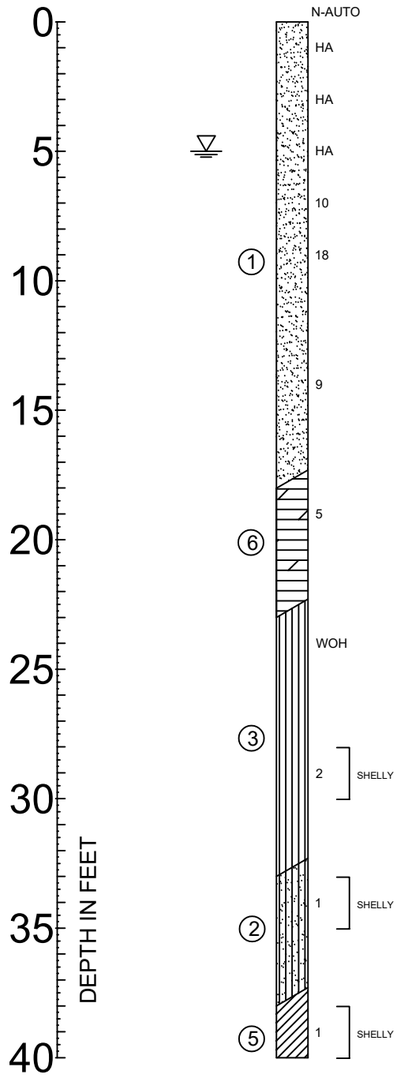
SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
PJ-1	0 - 6	-	-	-	-
	6 -8 & 13 -18	103	49	31	-
	8 - 13	105	51	33	-
	18 - 23	107	53	30	-
	23 - 28	104	48	26	-
	28 - 38	105	51	27	100
	38 - 40	101	46	-	100

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

SOIL PROFILES

BOR #: PJ-1
DATE: 09/20/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'52.61"N
LONG: 81°48'14.58"W



SOIL PROFILE LEGEND

B-X = BORING NUMBER
SOIL TYPE
N = SPT TEST VALUE
GROUND WATER LEVEL
SOIL SYMBOL
INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT
= INDICATES GRADUAL TRANSITION IN SOIL TYPES

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WLS - WEATHERED LIMESTONE

SOIL LEGEND

1. Dark to Light Brown, Dark Gray, Gray SAND (SP) Very Loose to Medium Dense
2. Gray, Light Brown Silty SAND (SM) Very Loose to Loose
3. Light Brown, Light Gray SILT (ML) Very Soft to Soft
4. Gray Clayey SAND (SC) Loose
5. Gray CLAY (CL) Soft to Stiff
6. Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 5	SOFT
11 - 30	MEDIUM DENSE	6 - 7	FIRM
31 - 50	DENSE	8 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK	
N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
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5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

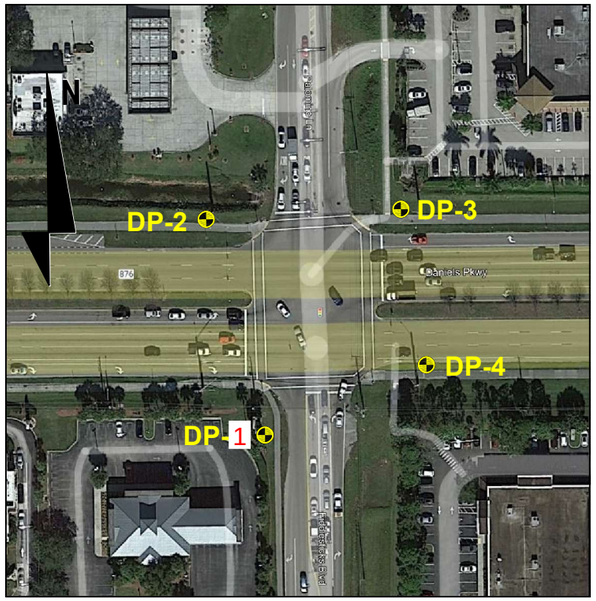
Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
PALOMINO LN / JOBE RD.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
PALOMINO LN. / JOBE RD.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.



Source: Google Earth Pro

NOTES: SPT BORING LOCATION

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
DP-1	0 - 6	-	-	-	-
	6 - 13	102	48	30	-
	13 - 18	106	52	28	-
	18 - 28	104	50	28	-
	28 - 38	105	51	27	-
	38 - 40	104	49	-	1000
DP-2	0 - 4	-	-	-	-
	4 - 6 & 8 -13	103	49	31	-
	13 - 18	102	48	30	-
	18 - 23	107	53	30	-
	23 - 38	104	50	26	-
	38 - 40	102	47	-	400

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

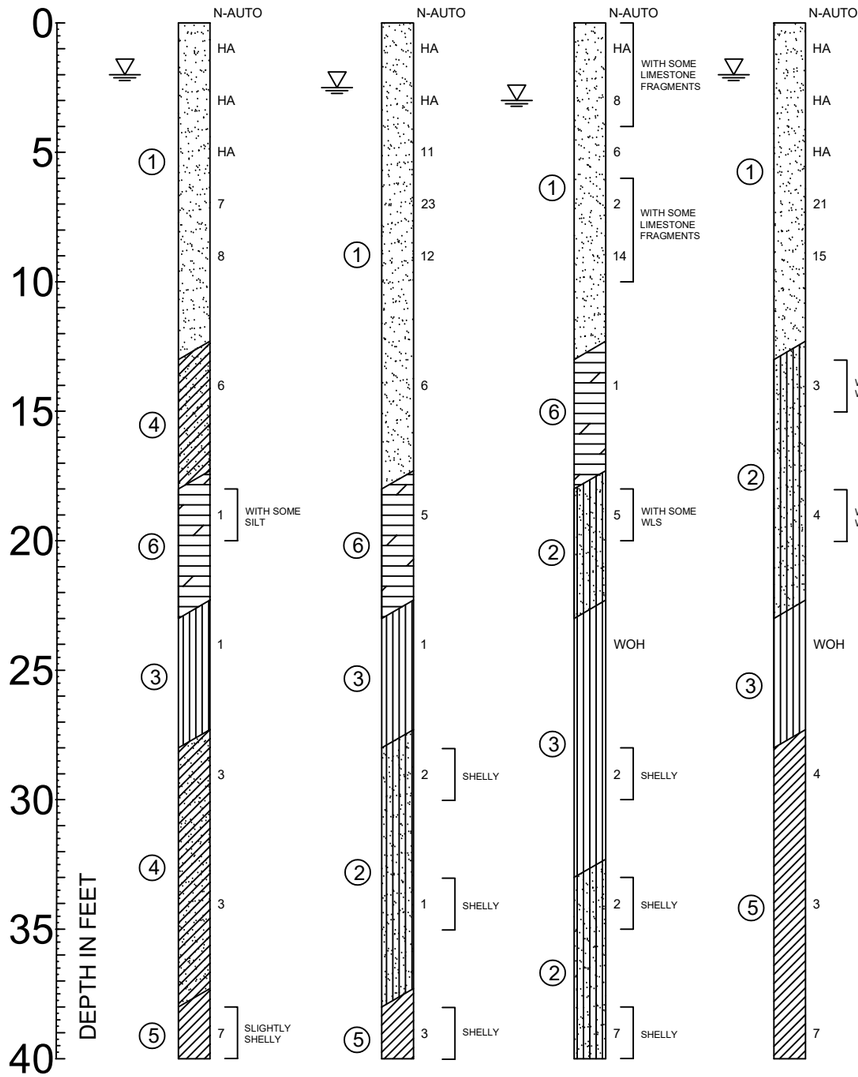
SOIL PROFILES

BOR #: DP-1
DATE: 09/26/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'48.78"N
LONG: 81°48'15.88"W

BOR #: DP-2
DATE: 09/21/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'50.81"N
LONG: 81°48'16.45"W

BOR #: DP-3
DATE: 09/22/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'50.89"N
LONG: 81°48'14.50"W

BOR #: DP-4
DATE: 09/26/2023
DRILLER: L SANCHEZ JR
HAMMER: AUTO
RIG: CME-45
LAT: 26°32'49.42"N
LONG: 81°48'14.22"W



SOIL PROFILE LEGEND

B-X = BORING NUMBER

SOIL TYPE (X) — SOIL SYMBOL — N = SPT TEST VALUE

GROUND WATER LEVEL

INDICATES PRACTICAL REFUSAL TO BORING EQUIPMENT

= INDICATES GRADUAL TRANSITION IN SOIL TYPES

N - NUMBERS TO THE RIGHT OF BORINGS INDICATE SPT VALUE FOR 12-INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

NO ELEVATIONS WERE PROVIDED. DEPTH SHOWN IS FROM EXISTING GROUND SURFACE AT TIME OF SAMPLING.
GEOGRAPHICAL GPS COORDINATE LOCATIONS WERE DETERMINED USING A 4 SATELLITE MINIMUM AUTOMONOUS SOLUTION WAAS ENABLED HAND HELD GPS UNIT.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OF SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

WLS - WEATHERED LIMESTONE

SOIL LEGEND

1. Dark to Light Brown, Dark Gray, Gray SAND (SP) Very Loose to Medium Dense
2. Gray, Light Brown Silty SAND (SM) Very Loose to Loose
3. Light Brown, Light Gray SILT (ML) Very Soft to Soft
4. Gray Clayey SAND (SC) Loose
5. Gray CLAY (CL) Soft to Stiff
6. Gray WEATHERED LIMESTONE (WLS) Soft

SOIL CLASSIFICATION

CORRELATION OF N - VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL

N - VALUE	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 30	MEDIUM DENSE
31 - 50	DENSE
OVER 50	VERY DENSE

SILTS AND CLAYS

N - VALUE	CONSISTENCY
0 - 2	VERY SOFT
3 - 5	SOFT
6 - 7	FIRM
8 - 15	STIFF
16 - 30	VERY STIFF
OVER 30	HARD

CORRELATION OF N - VALUES WITH HARDNESS DESCRIPTION

LIMEROCK

N - VALUE	RELATIVE DENSITY
0 - 50	SOFT
51 - 50 FOR 0"	HARD

APPROXIMATE FINES CONTENT	MODIFIERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAYEY
13% TO 25%	SILTY OR CLAYEY
26% TO 49%	VERY SILTY OR VERY CLAYEY

APPROXIMATE SAND/ GRAVEL CONTENT	MODIFIERS
5% TO 15%	SLIGHTLY SANDY OR SLIGHTLY GRAVELLY
16% TO 25%	SANDY OR GRAVELLY
26% TO 49%	VERY SANDY OR VERY GRAVELLY

APPROXIMATE ROOT CONTENT	MODIFIERS
5% TO 10%	TRACE
11% TO 20%	TRACE TO SOME
21% TO 40%	SOME
41% TO 60%	AND

DEFINITION OF DESCRIPTIVE TERMS OF MODIFIERS FOR SILTS/CLAYS/SHELLS/GRAVELS ARE DESCRIBED AS FOLLOWS:

PERCENTAGE OF MODIFIER MATERIAL	FIRST QUALIFIER	SECOND QUALIFIER
0 - 5	WITH A TRACE OF + MODIFIER	WITH A TRACE
5 - 12	SLIGHTLY + MODIFIER + Y	WITH SOME
12 - 30	MODIFIER + Y	WITH
30 - 50	VERY + MODIFIER + Y	AND

SOIL PARAMETERS

Boring No.	Depth (ft)	Unit Weight (moist) (pcf)	Submerged Unit Weight (moist) (pcf)	Angle of Internal Friction (°)	Cohesion (psf)
DP-3	0 - 2	-	-	-	-
	2 - 6	102	48	30	-
	6 - 8	100	46	29	-
	8 - 13	104	50	32	-
	13 - 18	104	50	30	-
	18 - 23 & 38 - 40	106	52	28	
	23 - 28	104	50	26	-
	28 - 38	105	51	27	-
DP-4	0 - 6	-	-	-	-
	6 - 8	106	52	34	-
	8 - 13	104	50	33	-
	13 - 23	105	51	27	-
	23 - 28	104	50	26	-
	28 - 38	102	47	-	500
	38 - 40	104	49	-	1000

SUBMERGED UNIT WEIGHT SHOULD BE USED BELOW THE WATER TABLE.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

UES
201 WALDO AVENUE NORTH
LEHIGH ACRES, FLORIDA 33971

Adam J. Dornacker, P.E.#85319

ROAD NAME	COUNTY NAME	UES PROJECT ID
DANIELS PKWY. / FIDDLESTICKS BLVD.	LEE	0530.2300329.0000

REPORT OF CORE BORINGS

MAST ARM SIGNALIZATION
DANIELS PKWY. & FIDDLESTICKS BLVD.
FORT MYERS, LEE COUNTY, FLORIDA

SHEET NO.

Appendix C – Discussion of Soil Groups

DISCUSSION OF SOIL GROUPS

COARSE GRAINED SOILS

GW and SW GROUPS. These groups comprise well-graded gravelly and sandy soils having little or no plastic fines (less than 5 percent passing the No. 200 sieve). The presence of the fines must not noticeably change the strength characteristics of the coarse-grained fraction and must not interface with it's free-draining characteristics.

GP and SP GROUPS. Poorly graded gravels and sands containing little of no plastic fines (less than 5 percent passing the No. 200 sieve) are classed in GP and SP groups. The materials may be called uniform gravels, uniform sands or non-uniform mixtures of very coarse material and very fine sands, with intermediate sizes lacking (sometimes called skip-graded, gap-graded or step-graded). This last group often results from borrow pit excavation in which gravel and sand layers are mixed.

GM and SM GROUPS. In general, the GM and SM groups comprise gravels or sands with fines (more than 12 percent passing the No. 200 sieve) having low or no plasticity. The plasticity index and liquid limit of soils in the group should plot below the "A" line on the plasticity chart. The gradation of the material is not considered significant and both well and poorly graded materials are included.

GC and SC GROUPS. In general, the GC and SC groups comprise gravelly or sandy soils with fines (more than 12 percent passing the No. 200 sieve), which have a fairly high plasticity. The liquid limit and plasticity index should plot above the "A" line on the plasticity chart.

FINE GRAINED SOILS

ML and MH GROUPS. In these groups, the symbol M has been used to designate predominantly silty material. The symbols L and H represent low and high liquid limits, respectively, and an arbitrary dividing line between the two is set at a liquid limit of 50. The soils in the ML and MH groups are sandy silts, clayey silts or inorganic silts with relatively low plasticity. Also included are loess type soils and rock flours.

CL and CH GROUPS. In these groups the symbol C stands for clay, with L and H denoting low or high liquid limits, with the dividing line again set at a liquid limit of 50. The soils are primarily inorganic clays. Low plasticity clays are classified as CL and are usually lean clays, sandy clays or silty clays. The medium and high plasticity clays are classified as CH. These include the fat clays, gumbo clays and some volcanic clays.

OL and OH GROUPS. The soil in the OL and OH groups are characterized by the presence of organic odor or color, hence the symbol O. Organic silts and clays are classified in these groups. The materials have a plasticity range that corresponds with the ML and MH groups.

HIGHLY ORGANIC SOILS

The highly organic soils are usually very soft and compressible and have undesirable construction characteristics. Particles of leaves, grasses, branches, or other fibrous vegetable matter are common components of these soils. They are not subdivided and are classified into one group with the symbol PT. Peat humus and swamp soils with a highly organic texture are typical soils of the group.

Appendix D – Laboratory Testing Results

201 Waldo Avenue North • Lehigh Acres, FL 33971 (239) 489-2443 • (239) 489-3438 (Fax)

Standard Test Methods for Determining the Amount of Material Finer Than No. 200 Sieve in Soils by Washing - ASTM D1140

Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	B1
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2317
Material Location:	B-1 (Depth: 18'-20')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Brown to Gray Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
469.9	375.9	20.0

Respectfully Submitted
GFA d/b/a UES
REGISTRY #4930

10/17/2023

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Adam J. Dornacker, P.E
Registered Engineer # 85319
State of Florida

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Standard Test Methods for Determining the Amount of Material Finer Than No. 200 Sieve in Soils by Washing - ASTM D1140

Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	D1
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2318
Material Location:	D-1 (Depth:18'-20')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Gray Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
309.9	179.0	42.2

Respectfully Submitted
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REGISTRY #4930

10/17/2023

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Standard Test Methods for Determining the Amount of Material Finer Than No. 200 Sieve in Soils by Washing - ASTM D1140

Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DD-1
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2323
Material Location:	DD-1 (Depth: 13'-15')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Gray Clayey Sand	**Method:**	B
Material Classification:	SC		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
563.2	348.4	38.1

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Project: Three Oaks Parkway Extension Phase II
Project ID: 0530.2300329.0000
Client: Avalon Engineering
Report ID: DD-2
Client Address: 2503 Del Prado Boulevard South, Suite 200, Cape Cor
Lab/MAC ID: 23-2324
Material Location: DD-2 (Depth: 13'-15')
Sampled By: Luis Jr.
Date Sampled: 10/5/2023
Tested By: K. Sheehan/M. Nallon
Date Tested: 10/9/2023
Material Description: Gray Silty Sand
Method: B
Material Classification: SM

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	Dry Sample Weight After Wash (g)	% Passing No. 200 Sieve
237.7	156.4	34.2

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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DD-2
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2325
Material Location:	DD-2 (Depth: 18'-20')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Gray Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
247.7	127.0	48.7

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Standard Test Methods for Determining the Amount of Material Finer Than No. 200 Sieve in Soils by Washing - ASTM D1140

Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DD-3
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2326
Material Location:	DD-3 (Depth: 2'-4')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Brown Silty Sand	**Method:**	A
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
489.8	377.9	22.9

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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DD-4
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2327
Material Location:	DD4 (Depth:13'-15')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Light Gray Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
425.7	241.8	43.2

Respectfully Submitted
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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DP-1
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2319
Material Location:	DP1 (Depth:13'-15')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Gray Clayey Sand	**Method:**	B
Material Classification:	SC		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
363.4	289.2	20.4

Respectfully Submitted
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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DP-1
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2320
Material Location:	DP1 (Depth: 28'-30')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Gray Clayey Sand	**Method:**	B
Material Classification:	SC		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
293.2	169.6	42.2

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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DP-3
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2321
Material Location:	DP3 (Depth:18'-20')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Tan Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
474.0	340.4	28.2

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Project:	Three Oaks Parkway Extension Phase II	**Project ID:**	0530.2300329.0000
Client:	Avalon Engineering	**Report ID:**	DP-4
Client Address:	2503 Del Prado Boulevard South, Suite 200, Cape Cor	**Lab/MAC ID:**	23-2322
Material Location:	DP4 (Depth:13'-15')		
Sampled By:	Luis Jr.	**Date Sampled:**	10/5/2023
Tested By:	K. Sheehan/M. Nallon	**Date Tested:**	10/9/2023
Material Description:	Light Gray Silty Sand	**Method:**	B
Material Classification:	SM		

A	B	[(A-B)/A]x100
Original Sample Weight Dry (g)	**Dry Sample Weight After Wash (g)**	**% Passing No. 200 Sieve**
406.0	219.5	45.9

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10/17/2023

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