



PRELIMINARY GEOTECHNICAL EXPLORATION

**PROPOSED RESIDENTIAL DEVELOPMENT
7900 64TH AVENUE EAST
PALMETTO, MANATEE COUNTY; FLORIDA**

**UES PROJECT NO.: 1130.2400295.0000
UES REPORT NO.: 240295**

Prepared For:

US Real Estate Group, LLC
4837 Swift Road, Ste. 211
Sarasota, FL 34231

Prepared By:

Universal Engineering Sciences, LLC
1748 Independence Boulevard, Ste. B-1
Sarasota, FL 34234
(941) 358-7410

May 6, 2024



Materials Testing
Geotechnical Engineering
Environmental
Building Sciences & Safety
Inspections & Code Compliance
Virtual Design Consulting

May 6, 2024

US Real Estate Group, LLC
4837 Swift Road, Ste. 211
Sarasota, FL 34231

Attention: Tim Beach

Reference: **PRELIMINARY GEOTECHNICAL EXPLORATION**
Proposed Residential Development
7900 64th Avenue East
Palmetto, Manatee County; Florida
UES Project No.: 1130.2400295.0000
UES Report No.: 240295

Universal Engineering Sciences, LLC. (UES) has completed the preliminary subsurface exploration for the above referenced project. The scope of our exploration was planned in conjunction with and authorized by you.

This report contains the results of our exploration, an engineering interpretation of these results with respect to the project characteristics described to us, and provide preliminary foundation recommendations.

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, LLC.
Certificate of Authorization Number 549

A handwritten signature in blue ink, appearing to read "Akhil Reddy Lebaka".

Akhil Reddy Lebaka
Staff Engineer

Surendra Sagi, M.S., P.E. #74096
Principal Engineer



TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION.....	1
1.1 GENERAL.....	1
2.0 SCOPE OF SERVICES.....	1
2.1 PROJECT DESCRIPTION.....	1
2.2 PURPOSE.....	1
2.3 FIELD EXPLORATION.....	2
2.4 LABORATORY EXPLORATION.....	2
3.0 FINDINGS.....	3
3.1 SURFACE CONDITIONS.....	3
3.2 SOIL SURVEY-PUBLISHED INFORMATION.....	3
3.3 SUBSURFACE CONDITIONS.....	4
3.4 GROUNDWATER CONDITIONS.....	4
3.4.1 Existing Groundwater Level.....	4
3.4.2 Seasonal High Groundwater Level.....	5
4.0 RECOMMENDATIONS.....	6
4.1 GENERAL.....	6
4.2 PRELIMINARY BUILDING FOUNDATIONS (ONE-STORY).....	6
4.3 PRELIMINARY BUILDING FOUNDATIONS (FOUR-STORY).....	6
4.3.1 Bearing Pressure.....	6
4.4 PRELIMINARY PAVEMENT DESIGN.....	7
4.5 PRELIMINARY SITE PREPARATION.....	7
4.6 FILL SUITABILITY.....	7
4.7 EXCAVATION CONSIDERATIONS.....	8
5.0 LIMITATIONS.....	9



LIST OF APPENDICES

APPENDIX A

SITE LOCATION PLAN
BORING LOCATION PLAN
SCS SOIL SURVEY MAP
BORING LOGS
SOIL CLASSIFICATION CHART

APPENDIX B

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL
ENGINEERING REPORT
CONSTRAINTS AND RESTRICTIONS
GENERAL CONDITIONS

1.0 INTRODUCTION

1.1 GENERAL

In this report, we present the results of the preliminary subsurface exploration of the proposed residential development. A general location plan of the project appears in Appendix A: Site Location Plans. We have divided this report into the following sections:

- SCOPE OF SERVICES - Defines what we did
- FINDINGS - Describes what we encountered
- RECOMMENDATIONS - Describes what we encourage you to do
- LIMITATIONS - Describes the restrictions inherent in this report
- APPENDICES - Presents support materials referenced in this report.

2.0 SCOPE OF SERVICES

2.1 PROJECT DESCRIPTION

The project under consideration involves the design of a new residential development within approximately 48.46 acres of vacant land located in Palmetto, FL. The development will include four-story residential buildings, single-story amenity buildings, a stormwater management lake, and paved parking/drive areas. A conceptual plan was provided to us. There are multiple wetland areas within the property and a ditch running across the property.

This is a preliminary report, and additional borings will be required as part of the final design-level geotechnical investigation.

Structural details were not provided to UES at this time. We have assumed the following:

- Maximum wall and column loads for single-story amenity buildings (1-story) as 3 Kips per lineal foot, and 30 Kips, respectively.
- Maximum wall and column loads for four-story residential buildings (4-story) as 20 Kips per lineal foot, and 300 Kips, respectively.

Should any of the above information or assumptions made by UES be inconsistent with the planned development and construction, we request that you contact us immediately to allow us the opportunity to review the new information in conjunction with our report and revise or modify our engineering recommendations accordingly, as needed.

No site or project facilities/improvements, other than those described herein, should be designed using the soil information presented in this report. Moreover, UES will not be responsible for the performance of any site improvement so designed and constructed.

2.2 PURPOSE

The purposes of this exploration were:

- To explore the general subsurface conditions at the site;
- To interpret and review the subsurface conditions with respect to the proposed construction; and

- To provide preliminary geotechnical engineering preliminary recommendations to aid in groundwater considerations, foundation design, pavement, fill suitability, and site soils preparation.

This exploration was conducted on a due diligence basis to provide an overview of the geotechnical project considerations and was not intended to develop specific soil related design recommendations for the various construction elements.

Recommendations concerning other soil related considerations were beyond the scope of our exploration. This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. Our work did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards. Universal Engineering Sciences would be pleased to perform these services, if you desire.

2.3 FIELD EXPLORATION

The preliminary subsurface conditions were explored by drilling and sampling three (3) Standard Penetration Test (SPT) borings across the property to a depth of 35 feet below grade.

We performed the Standard Penetration Test using our truck mounted drill rig utilizing mud rotary procedures according to the procedures of ASTM D-1586, with continuous sampling performed above a depth of 10 feet, to detect slight variations in the soil profile at shallow depths, and then at five-foot intervals thereafter. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler 1-foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

The boring locations were located by our drill crew based on the site plan and existing site conditions. The test boring locations are shown on the attached Boring Location Plan in Appendix A.

2.4 LABORATORY EXPLORATION

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. See Appendix A: Boring Logs and Description of Testing Procedures for further data and explanations. Jar samples of the soils will be held in our laboratory for your inspection for sixty days unless we are notified otherwise. A summary of the tests performed is shown in Table 1 on the following page.

TABLE 1
LABORATORY METHODOLOGIES

Test Performed	Number Performed	Reference
Percent of Fines (#200 wash)	5	ASTM D 1140 "Amount of Material in Soils Finer than the No. 200 (75 - μ m) sieve"
Natural Moisture Content	5	ASTM D 2216 "Laboratory Determination of Water (Moisture) Content of Soil by Mass"

3.0 FINDINGS

3.1 SURFACE CONDITIONS

A Universal Engineering Sciences representative performed a visual site observation of the subject property to gain a "hands-on" familiarity of the project area. At the time of our exploration, the site was vacant, and covered with grass areas. There are multiple wetland areas within the property and a ditch running across the property.

A topographic map was not provided, however; according to information obtained from the United States Geologic Survey (USGS) "Parish, Florida" quadrangle map, the native ground surface elevation across the site area is approximately +16 to +19 feet National Geodetic Vertical Datum (NGVD).

3.2 SOIL SURVEY-PUBLISHED INFORMATION

The "Soil Survey of Manatee County, Florida", published by the United States Department of Agriculture (USDA) - Soil Conservation Service (SCS), was reviewed for general near-surface soil information prior to development within the general project vicinity. The USDA, SCS primary soil mapping groups within the proposed project area, and some characteristics and properties are summarized below. The location of these groups can be observed on the SCS Soil Survey Map provided in the Appendix A. ***Please note the soils presented below are the predevelopment soils and may have been altered during the past development of the site.***

Bradenton (Soil Group No. 5): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 13 inches, fine sandy loam from 13 to 47 inches, and **unweathered bedrock** from 47 to 51 inches below grade. Based on the soil survey, the water table is from 0 to 12 inches below grade.

Chobby (Soil Group No. 13): Under natural conditions, this soil group consists of loamy fine sand from the surface to a depth of about 8 inches, sandy clay loam from 8 to 51 inches, and loamy fine sand from 51 to 80 inches below grade. Based on the soil survey, the water table is from 0 to 6 inches below grade.

Felda (Soil Group No. 22): Under natural conditions, this soil group consists of fine sands from the surface to a depth of about 35 inches, fine sandy loam from 35 to 43 inches, and extremely paragravelly fine sand from 43 to 80 inches below grade. Based on the soil survey, the water table is from the ground surface to 12 inches below grade.

3.3 SUBSURFACE CONDITIONS

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 A. The Key to Boring Logs, Soil Classification Chart is also included in Appendix A. 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 II below. For detailed soil profile, please refer to the attached boring logs.

TABLE 2 General Soil Profile			
Typical depth (ft)		Soil Descriptions	Range of SPT "N" Values (blows/ft)
From	To		
0	4	Loose fine sand, fine sand with silt and clay, rock fragments, and roots [SP, SP-SM, SP-SC]	7 to 9
4	12	Loose to medium dense fine sand, fine sand with clay, clayey sand with shell, phosphates, and limestone fragments [SP, SC]	6 to 14
12	17	Dense fine sand with clay, clayey sand with shell, phosphates, limestone fragments, and very hard limestone rock [SP, SC, ROCK]	34 to 50+
17	22	Very stiff clay [CL]	16 to 23
22	35*	Very hard clay [CL]	50+
Termination Depth of Deepest Boring Bracketed Text Indicates: Unified Soil Classification			

Variations in the depth, thickness and consistency of the aforementioned soil strata occurred at the individual test boring locations.

A notable feature is the presence of dense sands, very hard soils, and very hard limestone **rock** encountered in the borings below a depth of approximately 12 feet with N-values ranging from 34 to more than 50 blows per foot. The Manatee County Soil Survey also indicated **unweathered bedrock** from 47 to 51 inches below grade. **This soil and rock material may vary across the site in depth and consistency, and may be difficult to excavate, if encountered in excavations.**

3.4 GROUNDWATER CONDITIONS

3.4.1 Existing Groundwater Level

We encountered groundwater at depths ranging from 7.5 to 8.0 feet below existing grade at the time of our exploration. The variations in the measured water levels are attributed to the variation in the ground surface elevation at this site as well as the soil type encountered. The encountered groundwater level at each of the boring locations is shown on the attached boring logs in Appendix A.

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.

3.4.2 Seasonal High Groundwater Level

The groundwater table will fluctuate seasonally depending upon local rainfall. The normal seasonal high groundwater level typically occurs in the August-September period at the end of the rainy season. 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.)
- Redoximorphic features (mottling, stripping, etc.)

Based upon our visual inspection of the recovered soil samples and existing site conditions, our best estimate is that the seasonal high groundwater level could be 3.5 to 4.0 feet below existing grade. Water could be temporarily ponded in the ditches and other low lying areas of the overall site especially during periods of heavy rainfall.

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 the 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 may exceed our seasonal high estimates.

We recommend sufficient quantities of fill will be placed in the building and pavement areas to mitigate the effect of groundwater on shallow excavations, such as foundations. Further, we recommend the bottom of the base course used in pavement construction be maintained at least 18 inches above the seasonal high water levels.

Temporary dewatering may be required during site preparation, especially if construction proceeds during the wet season or periods of heavy rainfall. Temporary dewatering may also be required for deeper excavations, such as utility trenches, the backfilling of the drainfield area and other excavations. We recommend that the contract documents provide for determining the groundwater level just prior to construction and for any dewatering measures which might be required. We recommend that the groundwater table be maintained at least 24 inches below all earthwork and compaction surfaces.

4.0 RECOMMENDATIONS

4.1 GENERAL

The following preliminary recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the project characteristics change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

Our field exploratory program consisted of performing three (3) test borings across the property. The actual subsurface conditions may differ between test boring locations. The following recommendations should be considered general in nature and are intended to aid in a due diligence evaluation of the site soil conditions and are not specific to the earthwork related design of the individual components (pavements, foundations, etc.) of the planned development.

Additional borings will have to be performed as part of a final geotechnical exploration once the project characteristics are more clearly defined. Additionally, if subsurface conditions are encountered during construction which was not encountered in the borings, report those conditions immediately to us for observation and recommendations.

4.2 PRELIMINARY BUILDING FOUNDATIONS (ONE-STORY)

In general, the soil conditions encountered at this site appear suitable for conventional, shallow foundations to support typical single-story amenity buildings provided the site is properly prepared. On a preliminary basis, provided the loads are not in excess of those mentioned earlier in this report, we anticipate an allowable bearing pressure of 2,000 pounds per square foot could be achieved through proper site preparation. A more detailed engineering evaluation and additional explorations would be required at the individual building sites once more detailed project characteristics become available.

4.3 PRELIMINARY BUILDING FOUNDATIONS (FOUR-STORY)

We believe the proposed structure can be supported on conventional shallow foundation provided the site is properly prepared is performed and the foundation loading conditions do not exceed the values outlined earlier in this report.

4.3.1 Bearing Pressure

Provided our suggested site preparation procedures are followed, we recommend designing shallow footing foundations for a **maximum allowable net soil bearing pressure of 2,500 pounds per square foot (psf)**. Net bearing pressure is defined as the soil bearing pressure at the base of the foundation in excess of the natural overburden pressure. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

Further, **we recommend that the foundation footings be stiffened with more reinforcement and designed with top and bottom steel, or equivalent design such as post tension slabs.**

4.4 PRELIMINARY PAVEMENT DESIGN

The surficial soils generally appear suitable for the support of typical light duty pavement sections for the roadways and access drive improvements. We recommend using a flexible pavement section for the design of light and moderate duty, roadways and driveways. Flexible pavements should be a three-layer pavement section consisting of stabilized subgrade, base course, and surface course.

In the roadway areas, the three-layer pavement may be placed on existing, prepared subgrade or compacted embankment fill. Stabilization of the subgrade may be required due to the relatively clean nature of the surficial sands in some areas. The thickness of the various pavement components should be based on the anticipated traffic type, traffic volume and economic considerations. Detailed pavement design recommendations will need to be developed as part of the final geotechnical exploration for this site.

Groundwater Considerations for Pavement Design

One of the most critical influences affecting long-term pavement performance is separation between the pavement base course and the seasonal high groundwater level. Based on our experience with pavement/groundwater relationships, we preliminarily recommend that site planning incorporate a separation between the seasonal high groundwater and the bottom of the base course of at least 18 inches for flexible pavement and 12 inches for concrete pavement.

4.5 PRELIMINARY SITE PREPARATION

It appears only normal, good practice site preparation procedures would be required to develop the site for slab-on-grade, foundation and pavement support based on the type of construction planned for this site. These procedures include: stripping the site of vegetation, roots, topsoil, and other deleterious material or debris; proof-rolling and proof-compacting the existing subgrade soils with a minimum 10 tons vibratory compactor; and filling to grade with engineering fill. On a preliminary basis, we would recommend the existing soils to a depth of 2 feet in the building pads and pavement areas and any additional fill be compacted to at least 95 percent of the Modified Proctor maximum dry density.

4.6 FILL SUITABILITY

In general, the typical criteria for determining the acceptability of a material for use as structural fill is based on the percent "fines" in the soil matrix (e.g. material passing the No. 200 sieve). The following grouping system explains more fully the suitability of various soil types with respect to the amount of fines.

Group "A"

These soils consist of clean sands which have less than 5% soil fines (Unified Soil Classification: SP, SW). These soils are the most desirable for use as engineering fill because they drain freely when excavated from beneath the groundwater table and are not as susceptible to moisture related instability.

Group "B"

These soils consist of sand with silt which contains between 5% and 12% soil fines (Unified Soil Classification: SP-SM, SP-SC). These soils are good sources of engineered fill, but require some extra care during placement and compaction. The moisture content of these soils should not be higher than 2% above optimum during placement and compaction in order to reduce the potential for

moisture related instability. These soils drain fairly well, but will require some stockpiling and aeration time when excavated from below the groundwater table.

Group “C”

These soils consist of silty and clayey sands which contain between 12% and 20% soil fines (Unified Soil Classification: SM, SC). These soils are more difficult to use because they are moisture sensitive. The moisture content of these soils should be maintained at or below optimum in order to help mitigate the potential for moisture related instability during placement and compaction. Further, these soils will require significant stockpiling and aeration periods in order to reduce the moisture content if the soils are excavated from below the groundwater table. For similar reasons, we caution the use of these soils during the wet season in areas where groundwater might be encountered.

Group “D”

These soils consist of silty and clayey sands which have greater than 20% soil fines (Unified Soil Classification: SM, SC, CL, CH, ML, and MH). These soils are not recommended for use as engineered fill because they will be too difficult to dry and work.

Onsite Soils

Table No. 3 Fill Suitability			
Boring	Approximate Suitable Depth (ft.)	Unified Soil Classification	Soil Group
B-1	0 to 8	SP, SP-SM, SP-SC	A, B
B-2	0 to 17	SP, SP-SM, SP-SC	A, B
B-3	0 to 8	SP, SP-SM, SP-SC	A, B

Confining Layer

Based on the tests performed, the confining layer begins at depths ranging from 12 to 17 feet due to the presence of clay soils, and limestone rock layers.

4.7 EXCAVATION CONSIDERATIONS

Dense sands, very hard soils, and very hard limestone **rock** encountered in the borings below a depth of approximately 12 feet with N-values ranging from 34 to more than 50 blows per foot. **If deep excavations encounter this material, it may require specialized equipment to excavate.** Soils excavated below the water table will require stockpile and drying. Areas not drilled for this report may encounter different soil types.

It has been our experience that soils/rock with SPT “N” blows counts in excess of about 25-30 bpf may prove to be difficult to excavate through with smaller sized equipment. With SPT “N” blow counts exceeding 30 bpf, difficult excavations should be expected on this site for the installation of underground utilities, fuel tanks, and possibly for foundation excavations. The contract documents should stipulate that the site contractor is solely responsible for selecting their excavation equipment appropriately without resource for a change order.

We suggest the gradation of the excavated material be periodically checked to determine their suitability as fill. General mixing of the materials can be expected to result in material gradations different from the gradations obtained from our test samples.

It should be noted that other excavation considerations, such as temporary and long term slope stability, erosion control, etc. were beyond the scope of this study.

5.0 LIMITATIONS

This report has been prepared for the exclusive use of ***US Real Estate Group, LLC*** 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 UES. Unauthorized third parties that rely upon the information contained herein without the expressed written consent of UES 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. 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.

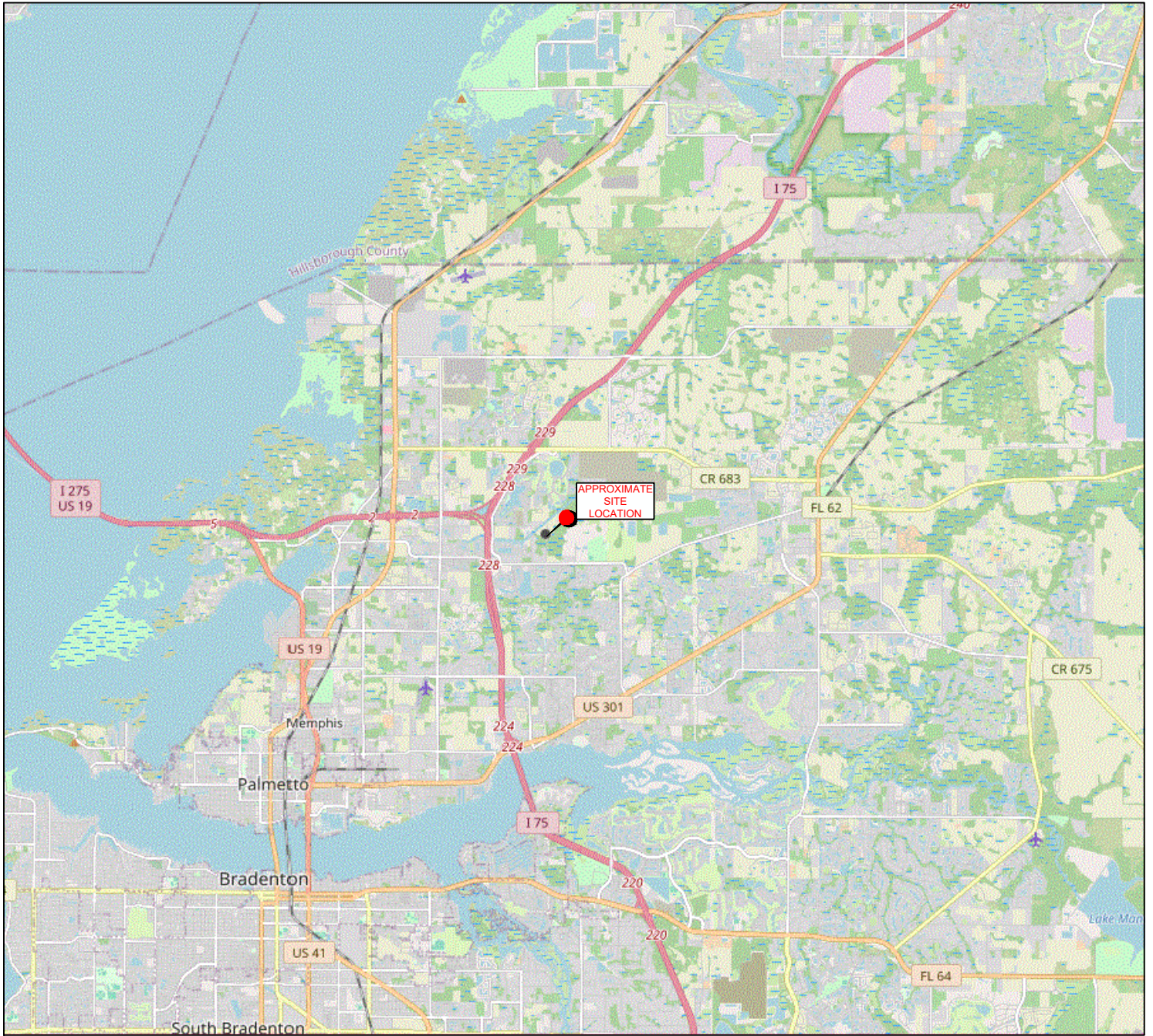
Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring 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 UES 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 UES to locate or identify such concerns. UES 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 Geoprosessional Business Association (GBA), "Important Information About Your Geotechnical Engineering Report" appears in Appendix B, and will help explain the nature of geotechnical issues.

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

APPENDIX A




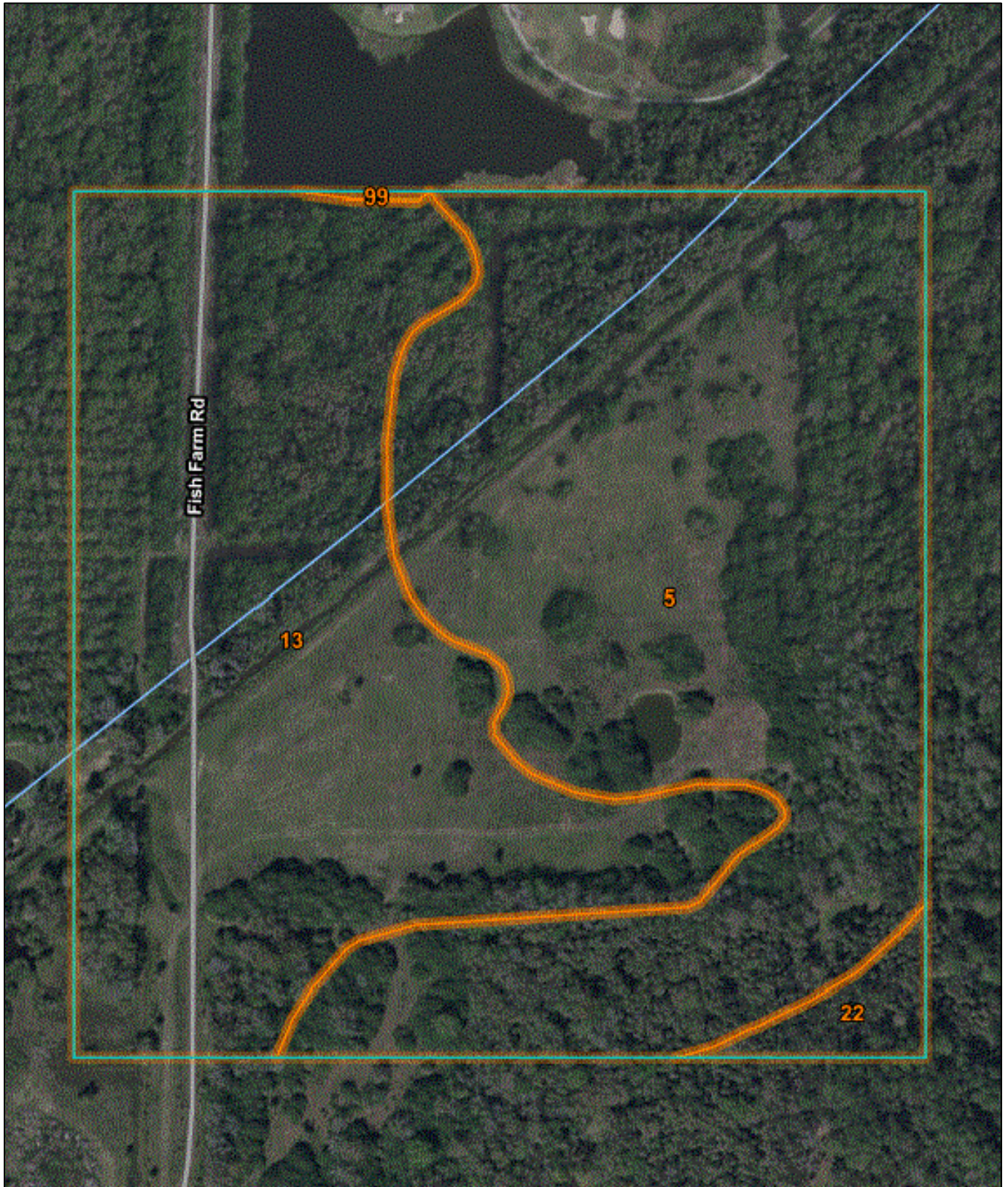
A-1	SITE LOCATION PLAN	PROPOSED RESIDENTIAL DEVELOPMENT 7900 64TH AVENUE EAST PALMETTO, FL	PROJECT NO:	1130.2400295.0000	 <small>1748 INDEPENDENCE BLVD. SARASOTA, FL. 941-358-7410</small>
			REPORT NO:	240295	
	OBTAINED FROM USGS 2023		SCALE	NOT TO SCALE	




LEGEND	
APPROXIMATE LOCATION	
	SPT BORING



A-2	BORING LOCATION PLAN	PROPOSED RESIDENTIAL DEVELOPMENT 7900 64TH AVENUE EAST PALMETTO, FL	PROJECT NO:	1130.2400295.0000	 UES 1748 INDEPENDENCE BLVD. SARASOTA, FL. 941-358-7410
	THIS MAP SHOWS APPROXIMATE LOCATION		REPORT NO:	240295	
			SCALE	NOT TO SCALE	



A-3	SCS SOIL SURVEY MAP	PROPOSED RESIDENTIAL DEVELOPMENT 7900 64TH AVENUE EAST PALMETTO, FL	PROJECT NO:	1130.2400295.0000	 1748 INDEPENDENCE BLVD. SARASOTA, FL. 941-358-7410
			REPORT NO:	240295	
	OBTAINED FROM WEB SOIL SURVEY 2023		SCALE	NOT TO SCALE	



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.2400295.0000

REPORT NO.: 240295

PAGE: 1

PROJECT: Proposed Residential Development
7900 64th Ave East
Palmetto, FL

BORING DESIGNATION: **B-1**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: US Real Estate Group, LLC

G.S. ELEVATION (ft):

DATE STARTED: 4/27/24

LOCATION: See Boring Location Plan

WATER TABLE (ft): 7.5

DATE FINISHED: 4/27/24

REMARKS:

DATE OF READING: 4/27/24

DRILLED BY: JM/JL

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

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		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Dark brown fine sand with trace silt and roots (SP)						
			7			Dark brown fine sand with silt and rock fragments (SP-SM)	2.2	4.0				
			8			Light tan fine sand with trace silt (SP)						
5			9			Grayish-brown fine sand with clay and shell (SP-SC)						
			10			Gray clayey sand with shell, phosphates, and limestone fragments (SC)	10.9	20.7				
10			6									
						Light brown limestone rock (ROCK)						
15			50/2"									
						Gray clay (CL)						
20			16									
25			50/2"									
30			62									
35			50/4"			Boring terminated at 35 feet below grade						

BORING LOG 295.GPJ UNIENGSC.GDT 5/6/24



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.2400295.0000

REPORT NO.: 240295

PAGE: 2

PROJECT: Proposed Residential Development
7900 64th Ave East
Palmetto, FL

BORING DESIGNATION: **B-2**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: US Real Estate Group, LLC

G.S. ELEVATION (ft):

DATE STARTED: 4/29/24

LOCATION: See Boring Location Plan

WATER TABLE (ft): 8.0

DATE FINISHED: 4/29/24

REMARKS:

DATE OF READING: 4/29/24

DRILLED BY: JM/JL

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

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		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Dark brown fine sand with silt (SP-SM)						
			8			Brown fine sand with clay (SP-SC)						
			9			Light brown fine sand (SP)						
5			11			Tan to gray fine sand with clay and shell (SP-SC)						
			14	▼								
10			13									
						Gray fine sand with clay, shell, and limestone fragments (SP-SC)						
15			34									
						Gray clay (CL)						
20			23				60.2	30.7				
25			50/1"									
30			58									
35			50/5"			Boring terminated at 35 feet below grade						

BORING LOG 295.GPJ UNIENGSC.GDT 5/6/24



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 1130.2400295.0000

REPORT NO.: 240295

PAGE: 3

PROJECT: Proposed Residential Development
7900 64th Ave East
Palmetto, FL

BORING DESIGNATION: **B-3**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: US Real Estate Group, LLC

G.S. ELEVATION (ft):

DATE STARTED: 4/27/24

LOCATION: See Boring Location Plan

WATER TABLE (ft): 8.0

DATE FINISHED: 4/27/24

REMARKS:

DATE OF READING: 4/27/24

DRILLED BY: JM/JL

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

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		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Brown fine sand with trace silt and roots (SP)						
			8			Dark brown fine sand with silt and roots (SP-SM)						
			8			Light tan fine sand with trace silt (SP)						
5			9			Brown fine sand with clay and shell (SP-SC)						
			11	▼		Gray clayey sand with shell (SC)						
10			12				13.5	25.4				
						Gray clayey sand with shell, phosphates, and limestone fragments (SC)						
15			35									
						Gray clay (CL)						
20			20				76.9	38.3				
25			50/2"									
30			75									
35			50/5"			Boring terminated at 35 feet below grade						

BORING LOG 295.GPJ UNIENGSC.GDT 5/6/24



SOIL CLASSIFICATION CHART

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Descriptive Terms	Unconfined Compressive Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

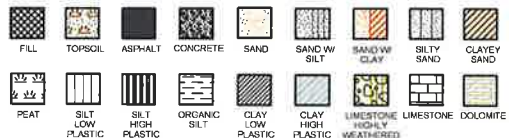
GENERAL NOTES

1. Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.

2. Surface elevations are based on topographic maps and estimated locations.

3. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

SOIL SYMBOLS



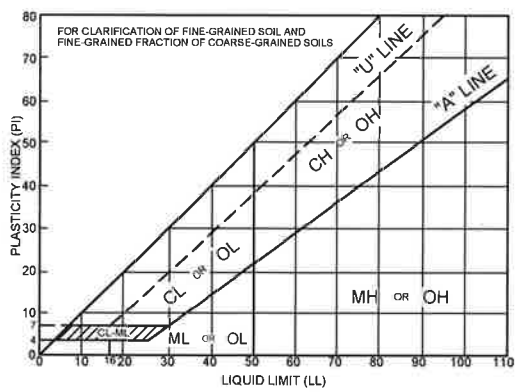
OTHER SYMBOLS

Measured Water Table
Estimated Seasonal High Water Table

Major Divisions	Group Symbols	Typical Names	Laboratory Classification Criteria	Particle Size	Material
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Particle Size mm Sieve sizes < #200 0.075 to 0.425 0.425 to 2.0 2.0 to 4.75	Material Silt or clay Sand Fine Medium Coarse
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines		
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	GM	Silty gravels, gravel-sand-silt mixtures		
		GC	Clayey gravels, gravel-sand-silt mixtures		
	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines		
		SP	Poorly-graded sands, gravelly sands, little or no fines		
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures	Particle Size mm Sieve #4 to 3/4 in. 3/4 in. to 3 in. 3 in. to 12 in. 12 in. to 36 in.	Material Gravel Fine Coarse Cobble Boulders
		SC	Clayey sands, sand-clay mixtures		
	Silty and Clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
		OL	Organic silts and organic silty clays of low plasticity		
	Silty and Clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts		
		CH	Inorganic clays of high plasticity, fat clays		
Highly Organic Soils	OH	OH	Organic clays of medium to high plasticity, organic silts		
		Pt	Peat and other highly organic soils		

Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:
Less than 5 percent GW, GP, SW, SP
More than 12 percent GM, GC, SM, SC
5 to 12 percent Borderline cases requiring dual symbols*

$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
Not meeting all gradation requirements for GW
Atterberg limits below "A" line or P.I. less than 4
Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
Atterberg limits above "A" line or P.I. greater than 7
 $C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
Not meeting all gradation requirements for SW
Atterberg limits below "A" line or P.I. less than 4
Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
Atterberg limits above "A" line or P.I. greater than 7



Plasticity Chart

* When the percent passing a No. 200 sieve is between 5% and 12%, a dual symbol is used to denote the soil. For example; SP-SC, poorly-graded sand with clay content between 5% and 12%.

APPENDIX B

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.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in 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.

Geotechnical-Engineering 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 given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives 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 this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- 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. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only from the design drawings and specifications*. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include 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.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering 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 subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



**GEOPROFESSIONAL
BUSINESS
ASSOCIATION**

Telephone: 301/565-2733

e-mail: info@geoprosfessional.org www.geoprosfessional.org

Copyright 2016 by Geoprosfessional Business Association (GBA). Duplication, reproduction, or copying of this document, in whole or in part, by any means whatsoever, is strictly prohibited, except with GBA's specific written permission. Excerpting, quoting, or otherwise extracting wording from this document is permitted only with the express written permission of GBA, and only for purposes of scholarly research or book review. Only members of GBA may use this document or its wording as a complement to or as an element of a report of any kind. Any other firm, individual, or other entity that so uses this document without being a GBA member could be committing negligent

CONSTRAINTS AND RESTRICTIONS

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 construction 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 explorations 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.

Universal Engineering Sciences, LLC
GENERAL CONDITIONS

SECTION 1: RESPONSIBILITIES **1.1** Universal Engineering Sciences, LLC, and its subsidiaries and affiliated companies ("UES"), is responsible for providing the services described under the Scope of Services. The term "UES" as used herein includes all of UES's agents, employees, professional staff, and subcontractors. **1.2** The Client or a duly authorized representative is responsible for providing UES with a clear understanding of the project nature and scope. The Client shall supply UES with sufficient and adequate information, including, but not limited to, maps, site plans, reports, surveys, plans and specifications, and designs, to allow UES to properly complete the specified services. The Client shall also communicate changes in the nature and scope of the project as soon as possible during performance of the work so that the changes can be incorporated into the work product. **1.3** The Client acknowledges that UES's responsibilities in providing the services described under the Scope of Services section is limited to those services described therein, and the Client hereby assumes any collateral or affiliated duties necessitated by or for those services. Such duties may include, but are not limited to, reporting requirements imposed by any third party such as federal, state, or local entities, the provision of any required notices to any third party, or the securing of necessary permits or permissions from any third parties required for UES's provision of the services so described, unless otherwise agreed upon by both parties in writing.

SECTION 2: STANDARD OF CARE **2.1** Services performed by UES under this Agreement will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of UES's profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, express or implied, is made. **2.2** Execution of this document by UES is not a representation that UES has visited the site, become generally familiar with local conditions under which the work is to be performed, or correlated personal observations with the requirements of the Scope of Services. It is the Client's responsibility to provide UES with all information necessary for UES to provide the services described under the Scope of Services, and the Client assumes all liability for information not provided to UES that may affect the quality or sufficiency of the services so described.

SECTION 3: SITE ACCESS AND SITE CONDITIONS **3.1** Client will grant or obtain free access to the site for all equipment and personnel necessary for UES to perform the work set forth in this Agreement. The Client will notify any possessors of the project site that Client has granted UES free access to the site. UES will take reasonable precautions to minimize damage to the site, but it is understood by Client that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this Agreement unless so specified in the Scope of Services. **3.2** The Client is responsible for the accuracy of locations for all subterranean structures and utilities. UES will take reasonable precautions to avoid known subterranean structures, and the Client waives any claim against UES, and agrees to defend, indemnify, and hold UES harmless from any claim or liability for injury or loss, including costs of defense, arising from damage done to subterranean structures and utilities not identified or accurately located. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

SECTION 4: BILLING AND PAYMENT **4.1** UES will submit invoices to Client monthly or upon completion of services. Invoices will show charges for different personnel and expense classifications. **4.2** Payment is due 30 days after presentation of invoice and is past due 31 days from invoice date. Client agrees to pay a finance charge of one and one-half percent (1 ½ %) per month, or the maximum rate allowed by law, on past due accounts. **4.3** If UES incurs any expenses to collect overdue billings on invoices, the sums paid by UES for reasonable attorneys' fees, court costs, UES's time, UES's expenses, and interest will be due and owing by the Client.

SECTION 5: OWNERSHIP AND USE OF DOCUMENTS **5.1** All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, as instruments of service, shall remain the property of UES. Neither Client nor any other entity shall change or modify UES's instruments of service. **5.2** Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose. **5.3** UES will retain all pertinent records relating to the services performed for a period of five years following submission of the report or completion of the Scope of Services, during which period the records will be made available to the Client in a reasonable time and manner. **5.4** All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by UES, are prepared for the sole and exclusive use of Client, and may not be given to any other entity, or used or relied upon by any other entity, without the express written consent of UES. Client is the only entity to which UES owes any duty or duties, in contract or tort, pursuant to or under this Agreement.

SECTION 6: DISCOVERY OF UNANTICIPATED HAZARDOUS MATERIALS **6.1** Client represents that a reasonable effort has been made to inform UES of known or suspected hazardous materials on or near the project site. **6.2** Under this agreement, the term hazardous materials include hazardous materials, hazardous wastes, hazardous substances (40 CFR 261.31, 261.32, 261.33), petroleum products, polychlorinated biphenyls, asbestos, and any other material defined by the U.S. EPA as a hazardous material. **6.3** Hazardous materials may exist at a site where there is no reason to believe they are present. The discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work. The discovery of unanticipated hazardous materials may make it necessary for UES to take immediate measures to protect health and safety. Client agrees to compensate UES for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous materials. **6.4** UES will notify Client when unanticipated hazardous materials or suspected hazardous materials are encountered. Client will make any disclosures required by law to the appropriate governing agencies. Client will hold UES harmless for all consequences of disclosures made by UES which are required by governing law. In the event the project site is not owned by Client, Client it is the Client's responsibility to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials. **6.5** Notwithstanding any other provision of the Agreement, Client waives any claim against UES, and to the maximum extent permitted by law, agrees to defend, indemnify, and save UES harmless from any claim, liability, and/or defense costs for injury or loss arising from UES's discovery of unanticipated hazardous materials or suspected hazardous materials including any costs created by delay of the project and any cost associated with possible reduction of the property's value. Client will be responsible for ultimate disposal of any samples secured by UES which are found to be contaminated.

SECTION 7: RISK ALLOCATION **7.1** Client agrees that UES's liability for any damage on account of any breach of contract, error, omission, or professional negligence will be limited to a sum not to exceed \$50,000 or UES's fee, whichever is greater. If Client prefers to have higher limits on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$1,000,000.00 upon Client's written request at the time of accepting UES's proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$400.00, whichever is greater. If Client prefers a \$2,000,000.00 limit on contractual or professional liability, UES agrees to increase the limits up to a maximum of \$2,000,000.00 upon Client's written request at the time of accepting UES's proposal provided that Client agrees to pay an additional consideration of four percent of the total fee, or \$800.00, whichever is greater. The additional charge for the higher liability limits is because of the greater risk assumed and is not strictly a charge for additional professional liability insurance. **7.2** Client shall not be liable to UES and UES shall not be liable to Client for any incidental, special, or consequential damages (including lost profits, loss of use, and lost savings) incurred by either party due to the fault of the other, regardless of the nature of the fault, or whether it was committed by Client or UES, their employees, agents, or subcontractors; or whether such liability arises in breach of contract or warranty, tort (including negligence), statutory, or any other cause of action. **7.3** As used in this Agreement, the terms "claim" or "claims" mean any claim in contract, tort, or statute alleging negligence, errors, omissions, strict liability, statutory liability, breach of contract, breach of warranty, negligent misrepresentation, or any other act giving rise to liability.

SECTION 8: INSURANCE **8.1** UES represents it and its agents, staff and consultants employed by UES, is and are protected by worker's compensation insurance and that UES has such coverage under public liability and property damage insurance policies which UES deems to be adequate. Certificates for all such policies of insurance shall be provided to Client upon request in writing. Within the limits and conditions of such insurance, UES agrees to indemnify and save Client harmless from and against loss, damage, or liability arising from negligent acts by UES, its agents, staff, and consultants employed by it. UES shall not be responsible for any loss, damage or liability beyond the amounts, limits, and conditions of such insurance or the limits described in Section 7, whichever is less. The Client agrees to defend, indemnify, and save UES harmless for loss, damage or liability arising from acts by Client, Client's agents, staff, and others employed by Client. **8.2** Under no circumstances will UES indemnify Client from or for Client's own actions, negligence, or breaches of contract. **8.3**

To the extent damages are covered by property insurance, Client and UES waive all rights against each other and against the contractors, consultants, agents, and employees of the other for damages, except such rights as they may have to the proceeds of such insurance.

SECTION 9: DISPUTE RESOLUTION **9.1** All claims, disputes, and other matters in controversy between UES and Client arising out of or in any way related to this Agreement will be submitted to mediation or non-binding arbitration, before and as a condition precedent to other remedies provided by law. **9.2** If a dispute arises and that dispute is not resolved by mediation or non-binding arbitration, then: (a) the claim will be brought in the state or federal courts having jurisdiction where the UES office which provided the service is located; and (b) the prevailing party will be entitled to recovery of all reasonable costs incurred, including staff time, court costs, attorneys' fees, expert witness fees, and other claim related expenses.

SECTION 10: TERMINATION **10.1** This agreement may be terminated by either party upon seven (7) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof, or in the case of a force majeure event such as terrorism, act of war, public health or other emergency. Such termination shall not be effective if such substantial failure or force majeure has been remedied before expiration of the period specified in the written notice. In the event of termination, UES shall be paid for services performed to the termination notice date plus reasonable termination expenses. **10.2** In the event of termination, or suspension for more than three (3) months, prior to completion of all reports contemplated by the Agreement, UES may complete such analyses and records as are necessary to complete its files and may also complete a report on the services performed to the date of notice of termination or suspension. The expense of termination or suspension shall include all direct costs of UES in completing such analyses, records, and reports.

SECTION 11: REVIEWS, INSPECTIONS, TESTING, AND OBSERVATIONS **11.1** Plan review, private provider inspections, and building inspections are performed for the purpose of observing compliance with applicable building codes. Threshold inspections are performed for the purpose of observing compliance with an approved threshold inspection plan. Construction materials testing ("CMT") is performed to document compliance of certain materials or components with applicable testing standards. UES's performance of plan reviews, private provider inspections, building inspections, threshold inspections, or CMT, or UES's presence on the site of Client's project while performing any of the foregoing activities, is not a representation or warranty by UES that Client's project is free of errors in either design or construction. **11.2** If UES is retained to provide construction monitoring or observation, UES will report to Client any observed work which, in UES's opinion, does not conform to the plans and specifications provided to UES. UES shall have no authority to reject or terminate the work of any agent or contractor of Client. No action, statements, or communications of UES, or UES's site representative, can be construed as modifying any agreement between Client and others. UES's performance of construction monitoring or observation is not a representation or warranty by UES that Client's project is free of errors in either design or construction. **11.3** Neither the activities of UES pursuant to this Agreement, nor the presence of UES or its employees, representatives, or subcontractors on the project site, shall be construed to impose upon UES any responsibility for means or methods of work performance, superintendence, sequencing of construction, or safety conditions at the project site. Client acknowledges that Client or its contractor is solely responsible for project jobsite safety. **11.4** Client is responsible for scheduling all inspections and CMT activities of UES. All testing and inspection services will be performed on a will-call basis. UES will not be responsible for tests and inspections that are not performed due to Client's failure to schedule UES's services on the project, or for any claims or damages arising from tests and inspections that are not scheduled or performed.

SECTION 12: ENVIRONMENTAL ASSESSMENTS Client acknowledges that an Environmental Site Assessment ("ESA") is conducted solely to permit UES to render a professional opinion about the likelihood or extent of regulated contaminants being present on, in, or beneath the site in question at the time services were conducted. No matter how thorough an ESA study may be, findings derived from the study are limited and UES cannot know or state for a fact that a site is unaffected by reportable quantities of regulated contaminants as a result of conducting the ESA study. Even if UES states that reportable quantities of regulated contaminants are not present, Client still bears the risk that such contaminants may be present or may migrate to the site after the ESA study is complete.

SECTION 13: SUBSURFACE EXPLORATIONS **13.1** Client acknowledges that subsurface conditions may vary from those observed at locations where borings, surveys, samples, or other explorations are made, and that site conditions may change with time. Data, interpretations, and recommendations by UES will be based solely on information available to UES at the time of service. UES is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed or provided by UES. **13.2** Subsurface explorations may result in unavoidable cross-contamination of certain subsurface areas, as when a probe or boring device moves through a contaminated zone and links it to an aquifer, underground stream, or other hydrous body not previously contaminated. UES is unable to eliminate totally cross-contamination risk despite use of due care. Since subsurface explorations may be an essential element of UES's services indicated herein, Client shall, to the fullest extent permitted by law, waive any claim against UES, and indemnify, defend, and hold UES harmless from any claim or liability for injury or loss arising from cross-contamination allegedly caused by UES's subsurface explorations. In addition, Client agrees to compensate UES for any time spent or expenses incurred by UES in defense of any such claim with compensation to be based upon UES's prevailing fee schedule and expense reimbursement policy.

SECTION 14: SOLICITATION OF EMPLOYEES Client agrees not to hire UES's employees except through UES. In the event Client hires a UES employee within one year following any project through which Client had contact with said employee, Client shall pay UES an amount equal to one-half of the employee's annualized salary, as liquidated damages, without UES waiving other remedies it may have.

SECTION 15: ASSIGNS Neither Client nor UES may delegate, assign, sublet, or transfer its duties or interest in this Agreement without the written consent of the other party.

SECTION 16: GOVERNING LAW AND SURVIVAL **16.1** This Agreement shall be governed by and construed in accordance with the laws of the jurisdiction in which the UES office performing the services hereunder is located. **16.2** In any of the provisions of this Agreement are held illegal, invalid, or unenforceable, the enforceability of the remaining provisions will not be impaired and will survive. Limitations of liability and indemnities will survive termination of this agreement for any cause.

SECTION 17: INTEGRATION CLAUSE **17.1** This Agreement represents and contains the entire and only agreement and understanding among the parties with respect to the subject matter of this Agreement, and supersedes any and all prior and contemporaneous oral and written agreements, understandings, representations, inducements, promises, warranties, and conditions among the parties. No agreement, understanding, representation, inducement, promise, warranty, or condition of any kind with respect to the subject matter of this Agreement shall be relied upon by the parties unless expressly incorporated herein. **17.2** This Agreement may not be amended or modified except by an agreement in writing signed by the party against whom the enforcement of any modification or amendment is sought.

SECTION 18: WAIVER OF JURY TRIAL Both Client and UES waive trial by jury in any action arising out of or related to this Agreement.

SECTION 19: INDIVIDUAL LIABILITY PURSUANT TO FLORIDA STAT. 558.0035, AN INDIVIDUAL EMPLOYEE OR AGENT OF UES MAY NOT BE HELD INDIVIDUALLY LIABLE FOR NEGLIGENCE.