# ECS Florida, LLC

## Subsurface Exploration and Geotechnical Engineering Report

## Windermere Downtown Property

517 Main Street
Windermere, Orange County, Florida 34786

ECS Project No. 24:7045

May 27, 2022
**Revised February 10, 2023**

May 27, 2022
**Revised February 10, 2023**

Keith Silverman
V3 Capital Group, LLC
496 South Hunt Club Boulevard
Apopka, FL 32703

ECS Project No. 24:7059

Reference: Subsurface Exploration and Geotechnical Engineering Report
**Windermere Downtown Property**
517 Main Street
Windermere, Orange County, Florida 34786

Dear Mr. Silverman:

ECS Florida, LLC (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our agreed to scope of work. This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted, and our design and construction recommendations. **The revision to this report consists of updating the surface elevations based on topographic information contained within the Existing Conditions survey prepared by Kimley-Horn, which was provided to ECS on February 9, 2023.**

It has been our pleasure to be of service to V3 Capital Group, LLC. during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify subsurface conditions assumed for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

**ECS Florida, LLC**

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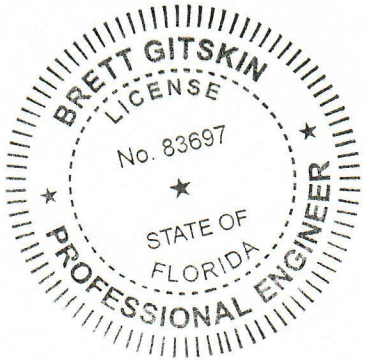

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## APPENDICES

## EXECUTIVE SUMMARY

The following paragraphs provide a brief discussion of our findings and recommendations. Please refer to the complete report for a more detailed discussion.

ECS Florida, LLC (ECS) has completed the subsurface exploration for the proposed retail development located at 517 Main Street in Windermere, Orange County, Florida. The project information summarized below is based exclusively on the information made available to us by Kimley-Horn, at the time of this report. Our findings, conclusions and recommendations are summarized below.

**SUBSURFACE CONDITIONS:**

- Site Conditions: Developed
- Probable Fill: Not Encountered
- Natural Soils: SAND (SP), SAND WITH CLAY (SP-SC), Clayey SAND (SC)
- Refusal Materials: Not encountered within the depths of borings
- Groundwater: Encountered at between 9 ½ feet and greater than 10 feet below existing grade at the boring locations

**GEOTECHNICAL & CONSTRUCTABILITY CONSIDERATIONS:**

- **Loose to Very Loose Soils:** Encountered generally within the upper 10 feet of the soils during this exploration.

- **Current site use:** Existing structures were noted throughout the site. Existing structures and their associated subsurface foundations and utilities should be completely removed prior to the placement of structural fill or foundations for the proposed building areas.

**DESIGN & CONSTRUCTION RECOMMENDATIONS:**

- Shallow foundations:
  Max. Net Allow. Bearing Pressure = 2,500 psf
  Min. Exterior (Unheated) Embedment = 24 inches
  Min. Column/Strip Footing Width = 30 inches/18 inches
- Slab Subgrade Modulus: = 150 pci

This summary should not be considered apart from the entire text of the report with all the qualifications and considerations mentioned herein. Details of our conclusions and recommendations are discussed in the report text.

## 1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for the design of structure foundations and construction consideration and recommendations for the proposed retail development. This report includes recommendations regarding the new buildings, pavements, stormwater management systems, and associated utilities. The scope of services of this report was proposed and performed based on the Boring Location Plan by Kimley-Horn dated October 13, 2021.

Our services were provided in accordance with our Proposal No. 24:14829, dated December 16, 2021, as authorized by V3 Capital Group, LLC on February 9, 2022, which includes our Terms and Conditions of Service.

This report contains the procedures and results of our subsurface exploration and laboratory testing programs, review of existing site conditions, engineering analyses, and recommendations for the design and construction of the project.

The report includes the following items.

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of area and site geologic conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our soil test boring logs.
- Recommendations for site preparation and construction of compacted fills, including an evaluation of on-site soils for use as compacted fills and delineation of potentially unsuitable soils and/or soils exhibiting excessive moisture at the time of sampling.
- Evaluation and recommendations relative to groundwater control.
- Recommended net allowable bearing pressure and anticipated settlements for the proposed foundation construction.
- Recommended slab-on-grade design and construction.
- General recommendations for pavement design.
- Recommendations for site preparation and construction of compacted fills.

## 2.0 PROJECT INFORMATION

### 2.1 PROJECT LOCATION/CURRENT SITE USE/PAST SITE USE

The subject site is located at 517 Main Street in Windermere, Orange County, Florida. The subject property consists of six (6) Orange County parcels (approximately 2.2 acres in size) identified as Parcel Identification Number (PIN) 17-23-28-9336-02-470, 17-23-28-9336-02-430, 17-23-28-9336-02-490, 17-23-28-9336-02-500, 17-23-28-9336-02-510, and 17-23-28-9336-02-520. The site is generally bounded to the north by 5th Avenue, to the south by 6th Avenue, to the west by Main Street, and to the east by Oakland Street. The site is currently developed with two (2) residential structures and two (2) retail structures. A Site Location Drawing is included below and within Appendix A of this report.


**Figure 2.1.1. Site Location**

The site slightly slopes down from the southwestern portion to the northeastern portion with existing grades varying between approximately EL. +121.1 and EL. +125.2. The given surface elevations are interpolated from topographic information contained within the Existing Conditions survey prepared by Kimley-Horn dated February 9, 2023 and should be considered accurate to the nearest tenth of a foot.

Based on review of an aerial photographs dating back to 1952, the site appears to have had single-story structures across the property with the eastern portion of the site consisting of citrus grove prior to 1952. Between 1984 and 1995, the citrus grove was cleared. The site remained in this condition through current day.

## 2.2 PROPOSED CONSTRUCTION

Based on our understanding of the project according to correspondence with your group, the proposed construction would likely consist of two (2) one-story to two-story retail buildings, a septic drain field, and an exfiltration system beneath associated pavement areas is planned.

Based on the existing grades, we assume maximum cuts and fills for the development to be on the order of less than 3 feet.

We estimated structural loads for the structures will be up to approximately 100 kips and wall loads of approximately 10 kip/ft. **If the stated estimated loading is different from the actual loading provided by your structural engineer, please notify ECS immediately.**

## 3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedures. Our scope of work included drilling fifteen (15) borings. Our borings were located with a handheld GPS unit and their approximate locations are shown on the Boring Location Diagram in Appendix A.

### 3.1 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil. Please refer to the boring logs in Appendix B.

Based on the Geologic Map of Florida, Central Florida geologic conditions can generally be described in terms of three basic sedimentary layers. The near-surface layer is primarily composed of sands containing varying amounts of silt and clay fines that are underlain by a layer of clay, clayey sand, locally referred to as the "Hawthorn Group" which is underlain by phosphate, and limestone. The thickness of these strata varies throughout Central Florida. In general, the surficial sands typically extend to depths of 40 feet to 70 feet below the ground surface, while the "Hawthorn Group" ranges from nearly absent in some locations to thicknesses greater than 100 feet. The limestone formation may be several thousand feet thick.

The groundwater hydrogeology of Central Florida can be described in terms of the nature and relationship of the three basic geologic strata. The near surface and upper stratum are fairly permeable and comprise the water table (unconfined) aquifer. The deep limestone formation of the Floridian aquifer is highly permeable due to the presence of large interconnected channels and cavities throughout the rock. The Floridian aquifer is the primary source of drinking water in Central Florida. These two permeable strata are separated by the relatively low permeability clays in the "Hawthorn Group." The amount of groundwater flow between the two aquifer systems is dependent on the thickness and consistency of the "Hawthorn Group" clay confining beds which, as previously stated, varies widely throughout Central Florida.

The soils encountered during this exploration are generally consistent with the Regional Geology and are described within the table below.

| Approximate Depth (ft) | Elevation[(1)] (ft) | Stratum | Description | Ranges of SPT[(2)] N-values (bpf) |
|---|---|---|---|---|
| 0 ft – 25 ft | EL. +124 to EL. +99 | I | SAND (SP) and SAND WITH CLAY (SP-SC) and CLAYEY SAND (SC) | 2 to 36 |

Notes:
(1) Elevations at the boring locations are interpolated from topographic information contained within the Existing Conditions survey prepared by Kimley-Horn dated February 9, 2023 and should be considered accurate to the nearest tenth of a foot.
(2) Standard Penetration Testing using a manual hammer system.

A graphical presentation of the subsurface conditions is shown on the Subsurface Cross Section Diagram(s) included in Appendix A.

### 3.2 GROUNDWATER OBSERVATIONS

Water levels were measured in our boring logs in Appendix B. Groundwater depths measured at the time of drilling ranged from 9 ½ feet and greater than 10 feet below existing grade. Variations in the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors. Based upon our interpretation of the subsurface data, it appears that the seasonal high groundwater level is estimated to be approximately between 8 feet to 9 feet below the existing grade.

### 3.3 KARST GEOLOGY

Areas within Central Florida are known to have karst geology. Karst terrain is characterized by voids, soil domes, soil raveling, interrupted drainage, disappearing streams, and topographical features such as sinkholes and closed depressions. These features are the result of the dissolution of soluble bedrock such as limestone by groundwater and/or the infiltration of surface water.

As water enters fractures, bedding planes, and other bedrock discontinuities within soluble bedrock, it slowly dissolves the rock and enlarges the discontinuities. Over geologic time, this results in the formation of solution channels or underground passages and ravines which may develop into surficial manifestations such as sinkholes and closed depressions. The dissolution of bedrock is generally a very slow process. However, soil may be eroded or raveled into the enlarged bedrock fractures, creating soil domes. Eventually, soil in these features can be lost through groundwater movement, resulting in surface depressions and potential sudden ground subsidence.

The soils derived from and overlying the carbonate bedrock are typically a clayey and silty soil with varying amounts of sand and rock fragments. The bedrock within the general geographic region is characterized by jointed and faulted soluble carbonate lithologies interbedded with non-carbonate lithologies. These carbonate formations are generally moderately to highly solution prone.

The degree of weathering or solutioning is often controlled by lithological variations and structural orientations. Where structural discontinuities intersect or in areas which are highly fractured, solutioning is intensified creating low areas and seams that are typically filled with residual clayey soils. Conversely, more competent, high areas represent slightly- to non-fractured lithologies that are often coarser grained and only slightly solution prone.

The underlying carbonate formations of the project geographic area are susceptible to Karst-related sinkhole development. Contributing characteristics and factors controlling the development include subsurface structural deformation, joint sets, and thick carbonate bedding within the area. Due to the shallow nature of the exploration performed, the borings did not reveal overt signs of soils associated with karst activity or carbonate rocks. The risk of sinkhole formation is low in our opinion based on available data.

### 3.4 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples. The index testing program included natural moisture content tests (ASTM D 2216), organic content (ASTM D2974), falling head permeability (ASTM D 2434), and percent passing the No. 200 sieve (ASTM D 6913).

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual.

## 4.0 DESIGN RECOMMENDATIONS

### 4.1 FOUNDATIONS

Provided subgrades and engineered fills are prepared as recommended in this report, the proposed structure can be supported by shallow foundations including column footings and continuous wall footings. We recommend the foundation design use the following parameters.

Very loose fine sands were encountered in the upper 8 feet below existing ground surface at many borings locations. As outlined in Section 5.1.4, a heavy vibratory roller should be used to compact the surface soils at the site. Dynamic cone penetrometer (DCP) soundings performed by hand, should also be performed subsequent to the surface soil heavy compaction operations within the building areas bearing on natural soil to confirm densification of the very loose soils within upper 10 feet of the proposed finish floor elevation and 4 feet below the footing bearing elevations.

The previously noted existing structures and their associated subsurface foundations, utilities and underground storage tanks should be removed prior to the placement of structural fill or foundations for the proposed building areas.

| Design Parameter | Column Footing | Wall Footing |
|---|---|---|
| Net Allowable Bearing Pressure(1) | 2,500 psf | 2,500 psf |
| Acceptable Bearing Soil Material | SAND (SP) - Stratum I | SAND (SP) - Stratum I |
| Minimum Width | 30 inches | 18 inches |
| Min. Footing Embedment Depth (below slab or finished grade) | 24 inches | 24 inches |
| Estimated Total Settlement (2) | Less than 1- inch | Less than 1- inch |
| Estimated Differential Settlement (3) | Less than ¾ inches between columns | Less than ¾ inches |

Notes:

(1) Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.
(2) Based on estimated structural loads. If final loads are different, ECS must be contacted to update foundation recommendations and settlement calculations.
(3) Based on maximum estimated column/wall loads and variability in borings. Differential settlement can be re-evaluated once the foundation plans are more complete and actual loads are provided.

**Potential Undercuts:** Most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed structure. If soils with excessive organics (> 6%), soft, very loose or unsuitable soils are observed at the footing bearing elevations, the unsuitable soils should be undercut and removed. Any undercut should be backfilled with clean engineered fill placed and compacted as described in Section 5.2 or lean concrete ($f'_c \geq 1{,}000$ psi at 28 days) up to the original design bottom of footing elevation; the original footing shall be constructed on top of the hardened lean concrete.

### 4.2 SLABS ON GRADE

Provided subgrades and engineered fills are prepared as discussed herein, the proposed floor slabs can be constructed as Ground Supported Slabs (or Slabs-On-Grade). Based on an assumed lowest finished floor elevation of EL. +29 feet, it appears that the slabs will bear on either Stratum I – SAND (SP) and SAND WITH SILT (SP-SM) or engineered fill. Soft or yielding soils may be encountered in some areas. Those unsuitable soils should be removed and replaced with compacted Engineered fill in accordance with the recommendations included in this report.

**Subgrade Modulus:** Provided the Engineered fill and Granular Drainage Layer are constructed in accordance with our recommendations, the slab may be designed considering an estimated modulus of subgrade reaction, $k_1$ of 150 pci (lbs./cu. inch). The modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test basis.

**Vapor Barrier:** Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. When a vapor barrier is used, special attention should be given to surface curing of the slab to reduce the potential for uneven drying, curling and/or cracking of the slab. Depending on proposed flooring material types, the structural engineer and/or the architect may choose to eliminate the vapor barrier.

**Slab Isolation:** Soil-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce

excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab such as in a drop down footing/monolithic slab configuration, the slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

### 4.3 PAVEMENTS

**Subgrade Characteristics:** Based on the results of our borings, it appears that the pavement subgrades in cuts will consist mainly of SAND (SP) and SAND WITH SILT (SP-SM) material.

Our scope of services did not include extensive sampling or Limerock Bearing Ratio (LBR) testing of existing subgrade or potential sources of imported fill for the specific purpose of a detailed pavement analysis. Instead, we have estimated pavement-related design parameters that are considered to be typical for the area soil types and roadway type as per the "FDOT Standards & Specifications". It is our understanding that a traffic count is not available at this time. The recommended pavement thicknesses presented in this report section are considered typical and minimum for the assumed parameters in the general site area. We understand that budgetary considerations sometimes warrant thinner pavement sections than those presented. However, the client, the owner, and the project designers should be aware that thinner pavement sections may result in increased maintenance costs and lower than anticipated pavement life.

The preliminary pavement sections below are guidelines that may or may not comply with local jurisdictional minimums.

| PRELIMINARY PAVEMENT SECTIONS | | | | |
|---|---|---|---|---|
| | Asphalt | | Concrete | |
| **Component** | **Standard** | **Heavy** | **Standard** | **Heavy** |
| Stabilized Subgrade (LBR>40) | 12 in. | 12 in. | 12 in. | 12 in. |
| Base Course (Crushed Concrete) | 6 in. | 8 in. | N/A | N/A |
| Surface Course | 1½ in. | 2 in. | 5 in. | 8 in. |

In general, heavy duty sections are areas that will be subjected to trucks and main access drives for the development. Light duty sections are appropriate for vehicular parking areas only.

Large, front loading trash dumpsters frequently impose concentrated front wheel loads on pavements during loading. This type of loading typically results in rutting of asphalt pavement and ultimately pavement failures. For preliminary design purposes, we recommend that the pavement in trash pickup areas consist of a 6-inch thick, 4,000 psi, reinforced concrete slab over 6-inches of dense graded aggregate. When traffic loading becomes available ECS or the Civil Engineer can provide a final design the pavements.

Prior to subbase placement and paving, LBR testing of the subgrade soils (both natural and fill soils) should be performed to determine the soil engineering properties for final pavement design.

In areas where Portland cement concrete pavement is planned, the concrete should be placed upon a minimum of 12 inches of compacted, free draining material and compacted to 98 percent of the Modified Proctor maximum dry density (ASTM D1557).

In areas where asphaltic concrete pavements are used, we suggest stabilizing the subgrade materials to a minimum Florida Bearing Value (FBV) of 75 pounds per square inch (psi). As an alternate for the FBV,

materials can have a LBR of 40 percent. All stabilized subgrade materials should be compacted to 98 percent of the Modified Proctor (ASTM D-1557) maximum dry density and meet specification requirements for Type B or Type C Stabilized Subgrade by the Florida Department of Transportation (FDOT). The stabilized subgrade may consist of imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor performs a mix design to find the optimum mix proportions.

**Base Course:** Based on the groundwater conditions encountered at the subject property, it is our professional opinion that crushed concrete or limerock are likely to be the economical and feasible base course options for this project.

Limerock should follow a minimum LBR of 100 percent and should be mined from an FDOT approved source. Place limerock in maximum six-inch lifts and compact each lift to a minimum density of 95 percent of the Modified Proctor maximum dry density (ASTM D-1557).

Crushed concrete should follow the FDOT specification for material qualifications and placement. Place crushed concrete base in maximum 6-inch lifts and compact to a minimum density of 95 percent of the Modified Proctor (ASTM D-1557) maximum dry density according to their specification. Perform compliance testing for the base course to a depth of one foot at a frequency of one test per 5,000 square feet, or at a minimum of two test locations, whichever is greater.

**Effects of Groundwater:** One of the most critical influences on the pavement performance in Central Florida is the relationship between the pavement subgrade and the seasonal high groundwater level. Roadways and parking areas that have not considered these effects typically exhibit signs of deterioration due to degradation of the base and the base/surface course bond. We recommend that the seasonal high groundwater (SHGWT) and the bottom of the base course be separated by at least 12 inches for crushed concrete. Please note that a higher separation criterion between SHGWT and bottom of the base course may be required based on reviewing agency indication. It may be prudent to plan and install pavement underdrains given the shallow groundwater condition; this is an inexpensive option that can have profound positive impacts on the life of the pavements.

**Landscape Drains and Curbing:** If needed, where landscaped sections are located adjacent to parking lots or driveways, we recommend that drains be installed around these landscaped sections to protect the asphalt pavement from excess rainfall and over irrigation. Migration of irrigation water from the landscape areas to the interface between the asphalt and the base usually occurs unless landscape drains are installed. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration. The underdrains or strip drains should be routed to a positive outfall at the pavement area catch basins.

We recommend that curbing around landscaped sections adjacent to parking lots and driveways be constructed with full-depth curb sections. Using extended curb sections which lie directly on top of the final asphalt level, or eliminating curbing entirely, can allow migration of irrigation water from the landscaped areas to the interface between the asphalt and the base. This migration often causes separation of the wearing surface from the base and subsequent rippling and pavement deterioration.

### 4.4 STORMWATER MANAGEMENT STRUCTURES

We It is our understanding that the proposed facility will include one (1) exfiltration system in the pavement areas of the site. Based on the laboratory test results for samples obtained from the auger borings performed within the system footprint (A-01 through A-03), the upper stratum is classified predominantly as SAND (SP), to the maximum termination of depth of borings (20 feet below existing grades). These soils would be generally considered suitable structural fill, provide our recommendations noted in **Section 5.2.1 Structural Fill** are followed.

The groundwater table was encountered at 9 ½ feet below existing grade at the boring locations A-01 through A-03. The seasonal high groundwater level is estimated to be 8 feet below existing grades within the general vicinity of the proposed exfiltration.

The table below outlines the recommended design parameters for the proposed stormwater exfiltration area.

| Stormwater System ID | Boring ID | Average Estimated Seasonal High Ground Water Table Elevation (ft-datum)* | Average Base of Aquifer Elevation (ft-datum) * | Fillable Porosity | Average Horizontal Saturated Hydraulic Conductivity of Mobilized Surficial Aquifer, Kh (ft/day)** | Average Vertical Unsaturated Hydraulic Conductivity of Mobilized Surficial Aquifer, Kv (ft/day)** |
|---|---|---|---|---|---|---|
| Exfiltration System | A-01 through A-03 | 115.7 | 103.7 | 0.30 | 21.3 | 14.2 |

Notes: * Elevations at the boring locations are interpolated from topographic information contained within the Existing Conditions survey prepared by Kimley-Horn dated February 9, 2023 and should be considered accurate to the nearest tenth of a foot.
** **The Kh and Kv values are laboratory values and are <u>unfactored</u>. The design engineer should take this into consideration for their design and apply an appropriate factor of safety as necessary.**

ECS can perform a baseflow/groundwater seepage analysis once the stormwater system configuration has been established. The stormwater system bottom and side slopes should be stabilized according to applicable Water Management district and local municipality guidelines. **We recommend that the permeability values given above should at a minimum include a factor of safety of 2 for design.**

For exfiltration system bottoms, all fill material used to bring the system to final grades should be clean, inorganic, granular soil (fine sand) with a fines content of no more than 5 percent. Care should be taken not to overcompact the system bottom during excavation and grading of the exfiltration system. The soil encountered at the site may be susceptible to overcompaction which can significantly decrease the infiltration capacity of the system.

In addition, sediment control measures should be employed during the construction process to keep the exfiltration system from receiving significant amounts of stormwater runoff from the surrounding construction site. This runoff is likely to contain suspended fine-grained soil particles that can impede the infiltration capacity of the exfiltration system if allowed to settle out on the system bottom. If dewatering effluent or stormwater runoff from the active construction site is discharged to the system, we

recommend scraping and removal of fine-grained sediments that may have accumulated on the system bottom.

ECS should be present to observe the condition of the exfiltration system upon excavation to confirm the geotechnical recommendations within this report as well as prior to completion of the system to observe that the accumulated sedimentation has been removed as described above. These observations are considered critical with respect to the performance of the exfiltration system. The bottom of the system area should be free of debris and relatively impermeable materials (as evaluated by ECS) and if observed, these materials should be removed and replaced within soils that contain less than 5 percent overall fines content. Finally, the exfiltration system bottom should be carefully surveyed in order to confirm that the graded system bottom is at the appropriate design elevation according to the correct design datum. **ECS is not responsible for the performance of the exfiltration system which are constructed without continuous observations by our group.**

### 4.5 SEPTIC DRAIN FIELD

We It is our understanding that the proposed facility will include a septic field in the northeastern portion of the site. Based on the laboratory test results for samples obtained from the auger borings performed within the system footprint (A-04 through A-05), the upper stratum is classified predominantly as SAND (SP), to the maximum termination of depth of borings (20 feet below existing grades).

The groundwater table was encountered at 9 ½ feet below existing grade at the boring locations A-04 through A-05. The seasonal high groundwater level is estimated to be 8 feet below existing grades within the general vicinity of the proposed exfiltration.

The table below outlines the recommended design parameters for the proposed stormwater exfiltration area.

| System ID | Boring ID | Average Estimated Seasonal High Ground Water Table Elevation (ft-datum)* | Average Horizontal Saturated Hydraulic Conductivity of Mobilized Surficial Aquifer, Kh (ft/day)** | Average Vertical Unsaturated Hydraulic Conductivity of Mobilized Surficial Aquifer, Kv (ft/day)** |
|---|---|---|---|---|
| Septic Drain Field | A-04 through A-05 | 114.8 | 17.0 | 11.3 |

Notes: * Elevations at the boring locations are interpolated from topographic information contained within the Existing Conditions survey prepared by Kimley-Horn dated February 9, 2023 and should be considered accurate to the nearest tenth of a foot.

** **The Kh and Kv values are laboratory values and are <u>unfactored</u>. The design engineer should take this into consideration for their design and apply an appropriate factor of safety as necessary.**

# 5.0 SITE CONSTRUCTION RECOMMENDATIONS

## 5.1 SUBGRADE PREPARATION

### 5.1.1 Stripping and Grubbing

The subgrade preparation should consist of stripping all vegetation, rootmat, topsoil, existing fill, and any soft or unsuitable materials from the 10-foot expanded building and 5-foot expanded pavement limits, and 5 feet beyond the toe of engineered fills. Any encountered topsoil, organics and unsuitable materials (construction debris) should be removed prior to the placement of engineered fill or construction of structures. Additionally, any underground utilities or underground tanks that will not be part of the new construction should be properly capped and abandoned or removed. ECS should be retained to verify the topsoil and unsuitable surface materials have been removed prior to the placement of engineered fill or construction of structures.

### 5.1.2 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be thoroughly proofrolled with construction equipment having a minimum axle load of 20 tons [e.g. fully loaded tandem-axle dump truck]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. Existing fill soils that are stable may remain in place. This procedure is intended to assist in identifying any localized yielding materials.

Where proofrolling identifies areas that are unstable or "pumping" subgrade those areas should be repaired prior to the placement of any subsequent engineered fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in determining the cause of the observed unstable materials, and to assist in the evaluation of appropriate remedial actions to stabilize the subgrade.

### 5.1.3 Site Temporary Dewatering

**Limited Excavation Dewatering:** Based upon our subsurface exploration at this site, as well as significant experience on sites in nearby areas of similar geologic setting, we believe construction dewatering at this site will be mainly limited to removing accumulated rainwater and groundwater.

Deep wells should not be required for the temporary dewatering system. However, the dewatering operations can be handled by the use of conventional submersible pumps directly in the excavation, temporary trenches, or French drains.

If temporary sump pits are used, we recommend they be established at a depth of 3 feet to 5 feet below the bottom of the excavation subgrade or bottom of footing. A perforated 55 gallon drum or other temporary structure could be used to house the pump. We recommend continuous dewatering of the excavations using electric pumps or manned gasoline pumps be used during construction. If utilized, the french drain should consist of a filter fabric lined trench filled with FDOT No. 57 stone or equivalent open

graded stone. A minimum of 4-inch diameter PVC pipe should be placed in the stone bed to enhance water flow. After the installation has been completed, the filter fabric should be wrapped over the top of the gravel and pipe whereupon placement of fill may proceed to grade.

## 5.2 EARTHWORK OPERATIONS

### 5.2.1 Engineered fill

Prior to placement of engineered fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications. Alternatively, Proctor data from other accredited laboratories can be submitted if the test results are within the last 90 days.

**Satisfactory Engineered Fill Materials:** Materials satisfactory for use as engineered fill should consist of inorganic soils with the following engineering properties and compaction requirements.

| ENGINEERED FILL INDEX PROPERTIES | |
|---|---|
| **Subject** | **Property** |
| Building and Pavement Areas | LL < 40, PI<20 |
| Max. Particle Size | 4 inches |
| Fines Content | Max. 25 % > #200 sieve |
| Max. organic content | 5% by dry weight |

| ENGINEERED FILL COMPACTION REQUIREMENTS | |
|---|---|
| **Subject** | **Requirement** |
| Compaction Standard | Modified Proctor, ASTM D1557 |
| Required Compaction, Upper 1 Foot of Fill | 98% of Max. Dry Density |
| Required Compaction | 95% of Max. Dry Density |
| Moisture Content | -2 to +3 % points of the soil's optimum value |
| Loose Thickness | 8 inches prior to compaction |

**On-Site Borrow Suitability:** Deposits of soils (that meet the definition of satisfactory engineered fill) are present on the site. These occur mostly at relatively shallow depth below the surface where residual soils are most weathered.

Materials used as engineered fill for shallow fill areas should consist of approved material classified as SP, SP-SM, SM, SC or more granular, which are free of debris, particles larger than 3 inches in diameter (4-inches for trench/utility backfill), organic inclusions, cinders, ash, or excess moisture.

We recommend that material to be used for engineered fill be analyzed and approved by the Geotechnical Engineer prior to their use on site. Subgrade soils disturbed by contractor operations should be re-compacted to the specifications of this report. Subgrade soils which are excessively wet but otherwise suitable by soil classification (inorganic soil material meeting the specifications above) are not to be considered unsuitable by definition and should be moisture conditioned and re-compacted.

### 5.3 FOUNDATION AND SLAB OBSERVATIONS

**Protection of Foundation Excavations:** Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 1 to 3-inch thick "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

**Footing Subgrade Observations:** Most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed structure. It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated.

**Slab Subgrade Verification:** Prior to placement of a drainage layer, the subgrade should be prepared in accordance with the recommendations found in **Section 5.1.2 Proofrolling**.

### 5.4 UTILITY INSTALLATIONS

**Utility Subgrades:** The soils encountered in our exploration are expected to be generally suitable for support of utility pipes. The pipe subgrades should be observed and probed for stability by ECS. Any loose or unsuitable materials encountered should be removed and replaced with suitable compacted Engineered fill, or pipe stone bedding material.

**Utility Backfilling:** The granular bedding material (often AASHTO #57 stone) should be at least 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should satisfy the requirements for Engineered fill and Fill Placement.

**Excavation Safety:** All excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining stable temporary excavations and slopes. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

## 6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by V3 Capital Group, LLC. If any of this information is inaccurate or changes, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted so we can review our recommendations and provide additional or alternate recommendations that reflect the proposed construction.

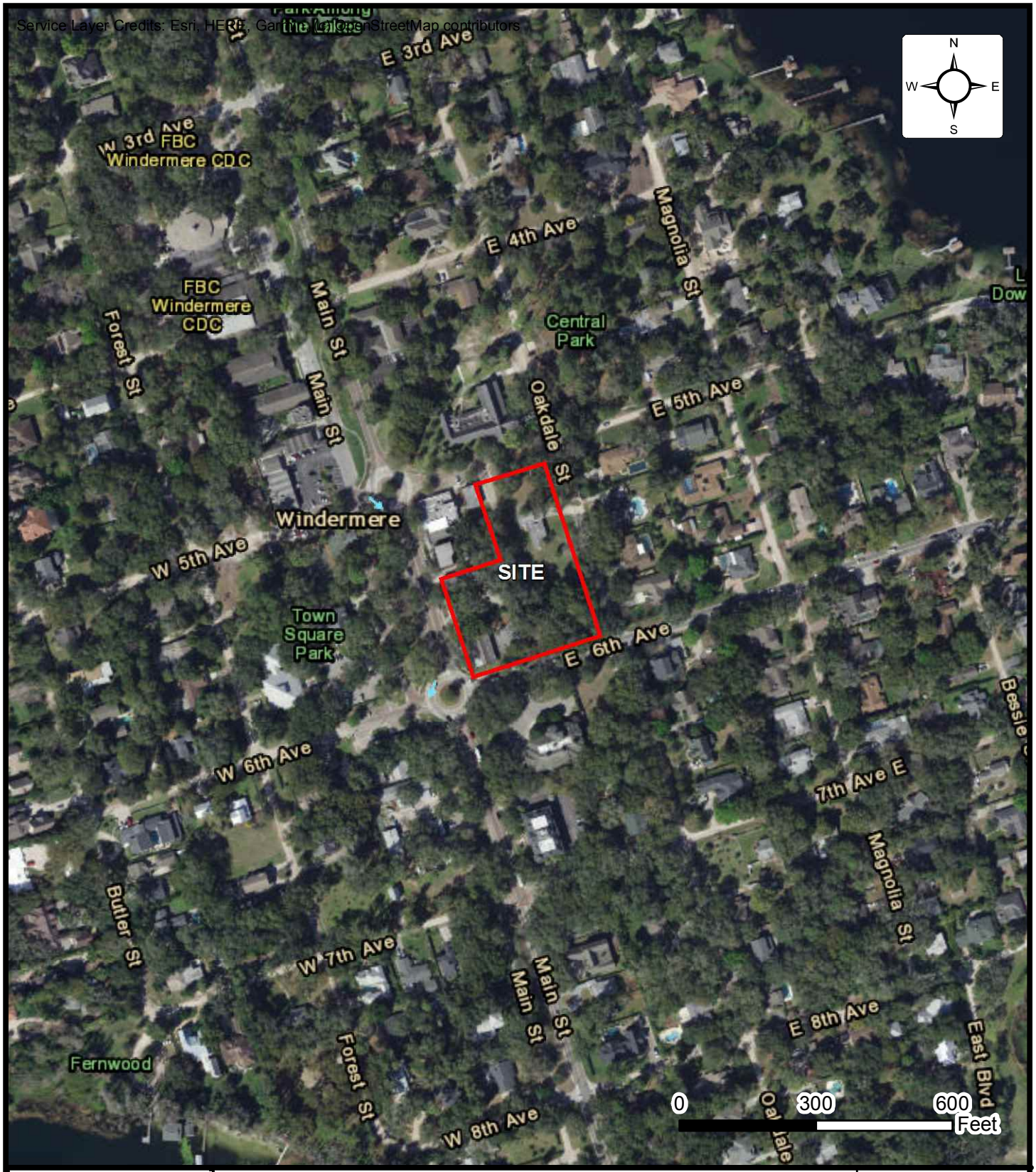
We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

## Appendix A - Drawings and Reports

Site Location Diagram
Boring Location Diagram(s)
Subsurface Cross-Section(s)
Soil Survey Map

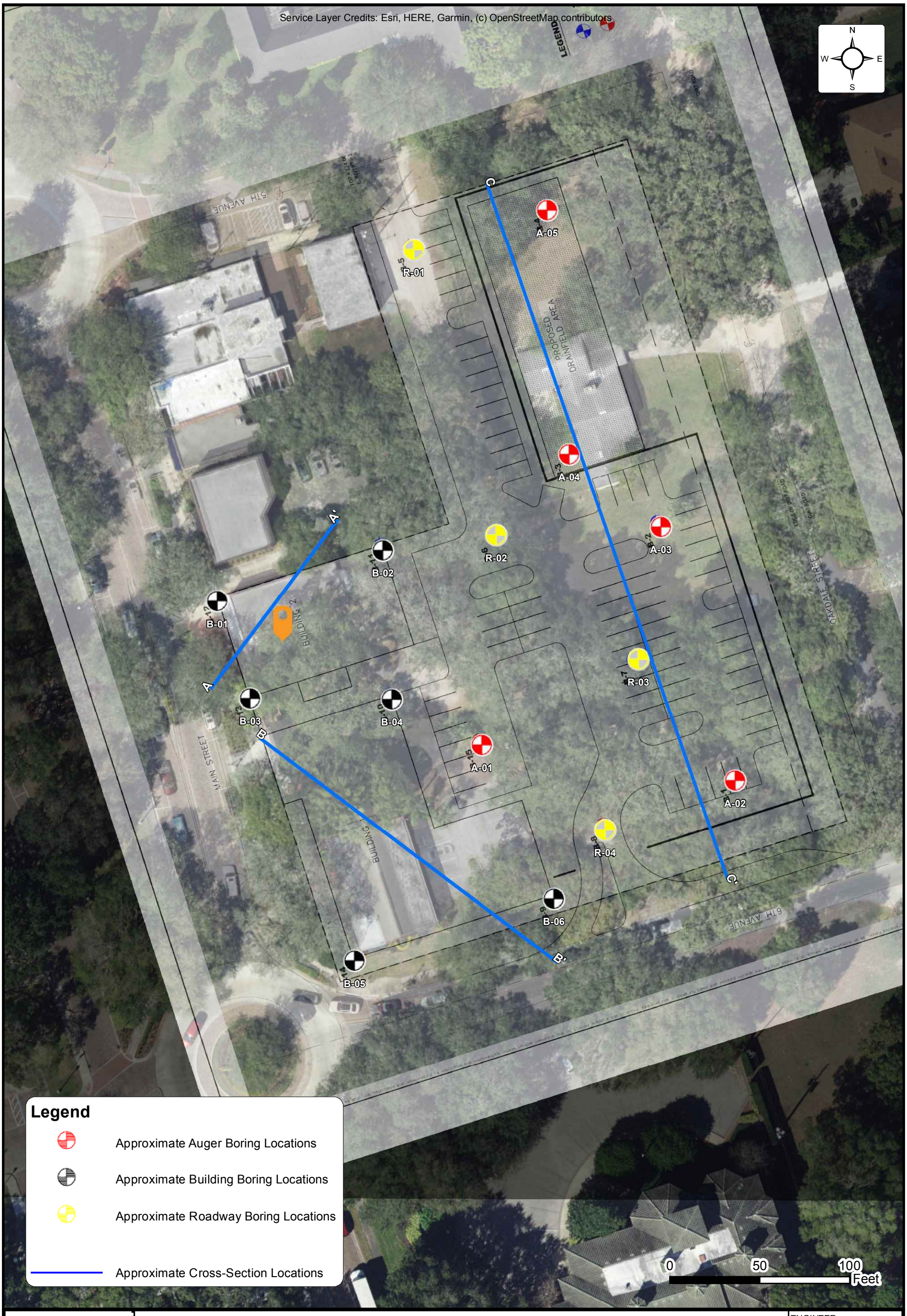



# SITE LOCATION DIAGRAM
# WINDERMERE DOWNTOWN PROPERTY

**517 MAIN STREET, WINDERMERE, FLORIDA**

**KIMLEY-HORN**

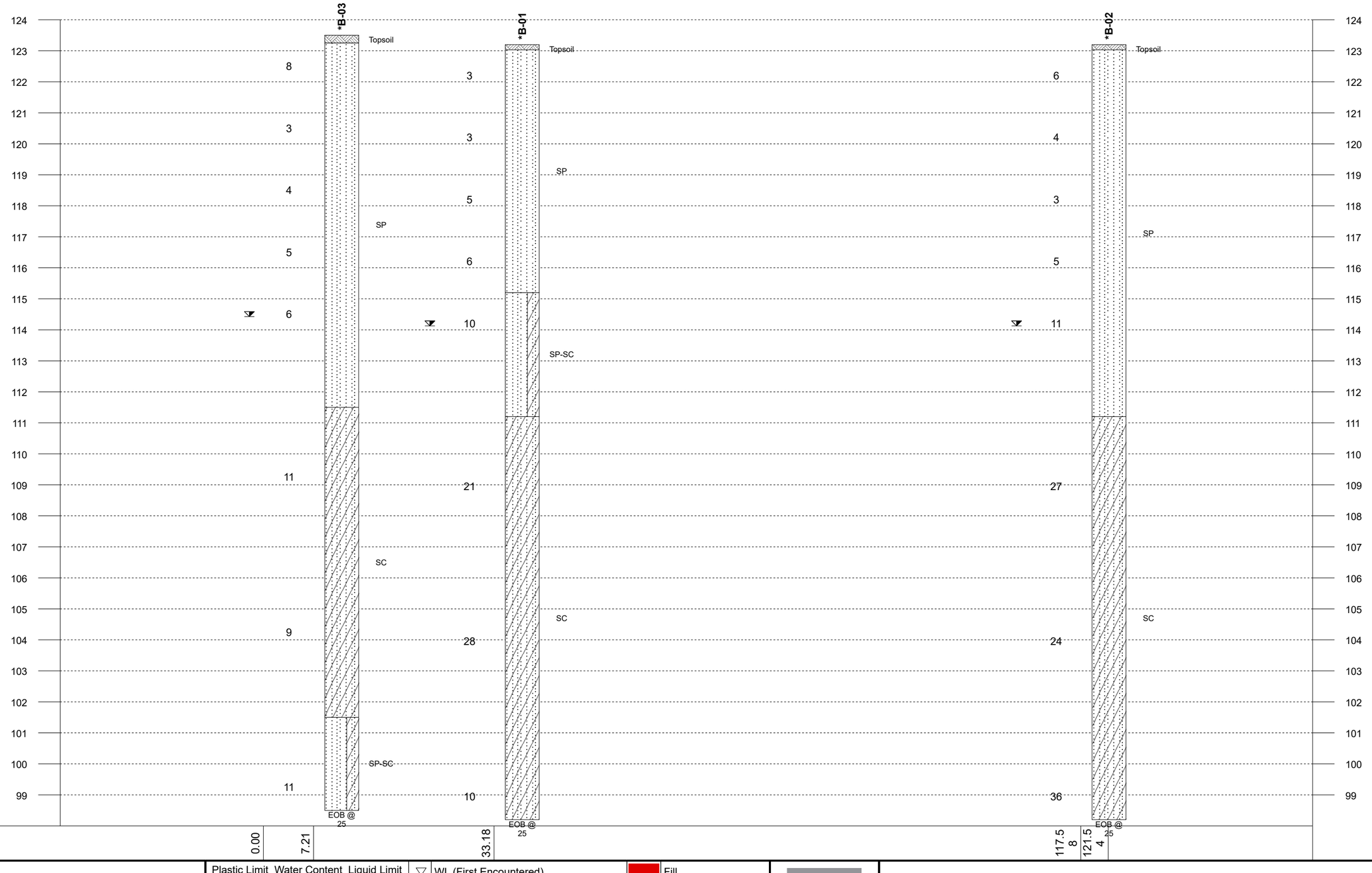
| | |
|---|---|
| ENGINEER | JPH |
| SCALE | AS NOTED |
| PROJECT NO. | 24:7059 |
| SHEET | 1 OF 1 |
| DATE | 5/26/2022 |




# BORING LOCATION DIAGRAM
# WINDERMERE DOWNTOWN PROPERTY

## 517 MAIN STREET, WINDERMERE, FLORIDA
## KIMLEY-HORN

| | |
|---|---|
| ENGINEER | JPH |
| SCALE | AS NOTED |
| PROJECT NO. | 24:7059 |
| SHEET | 1 OF 1 |
| DATE | 5/26/2022 |




## Legend Key

- Topsoil
- Poorly Graded SAND
- Poorly Graded SAND w… CLAYEY SAND

98.00

**Notes:**

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit
X———●———△

[FINES CONTENT%]

BOTTOM OF CASING

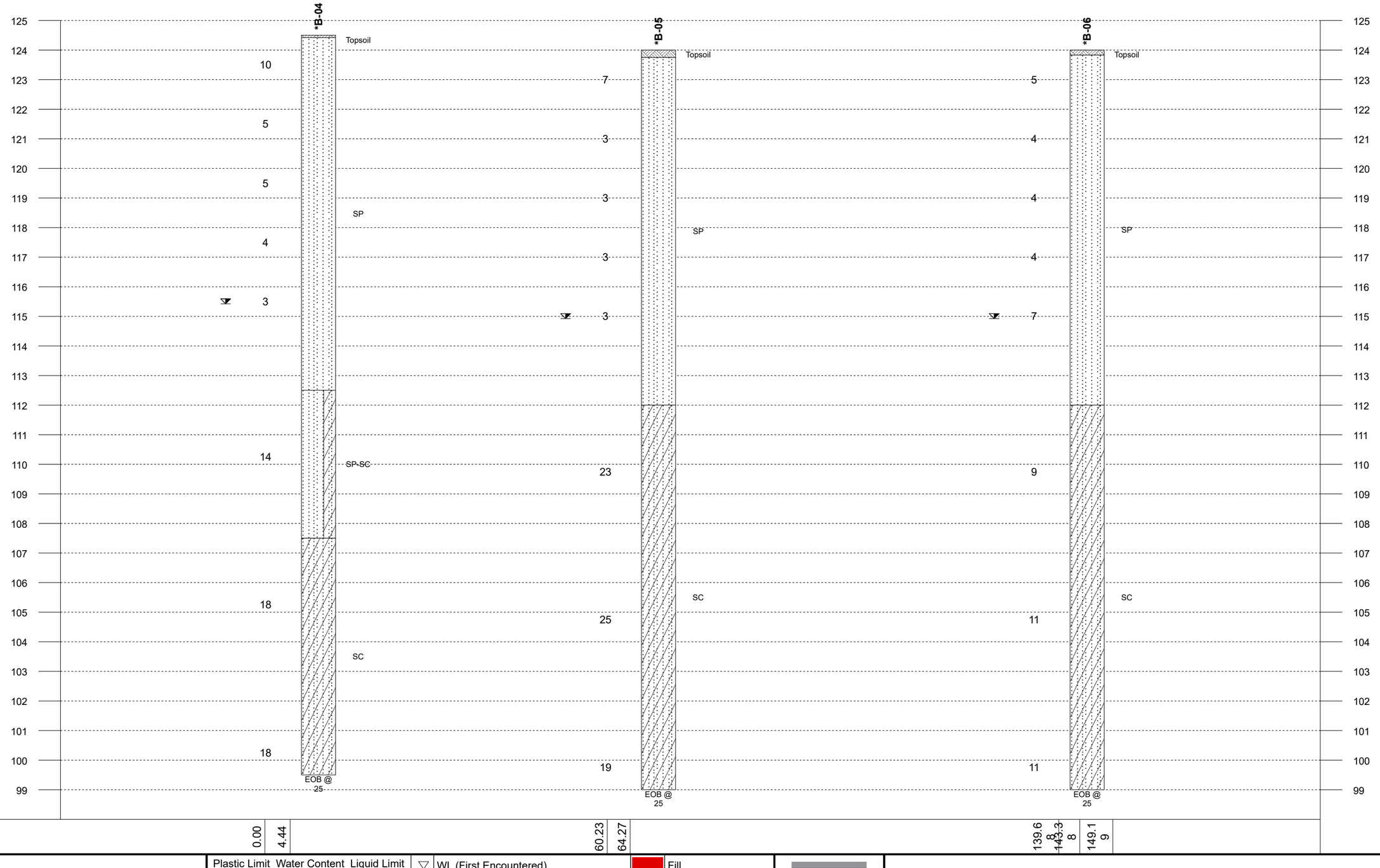
100X LOSS OF CIRCULATION

| | |
|---|---|
| WL (First Encountered) | Fill |
| WL (Completion) | Possible Fill |
| WL (Estimated Seasonal High Water) | Probable Fill |
| WL (Stabilized) | Rock |

# GENERALIZED SUBSURFACE SOIL PROFILE A-A'

**Windermere Downtown Property**
**Kimley-Horn**
**517 Main Street, Windermere, Florida 34786**

Project No: 24:7059 Date: 02/10/2023




## Legend Key

- Topsoil
- Poorly Graded SAND
- Poorly Graded SAND w… CLAYEY SAND

98.00

**Notes:**

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit Water Content Liquid Limit
X———●———△
[FINES CONTENT%]
BOTTOM OF CASING
LOSS OF CIRCULATION

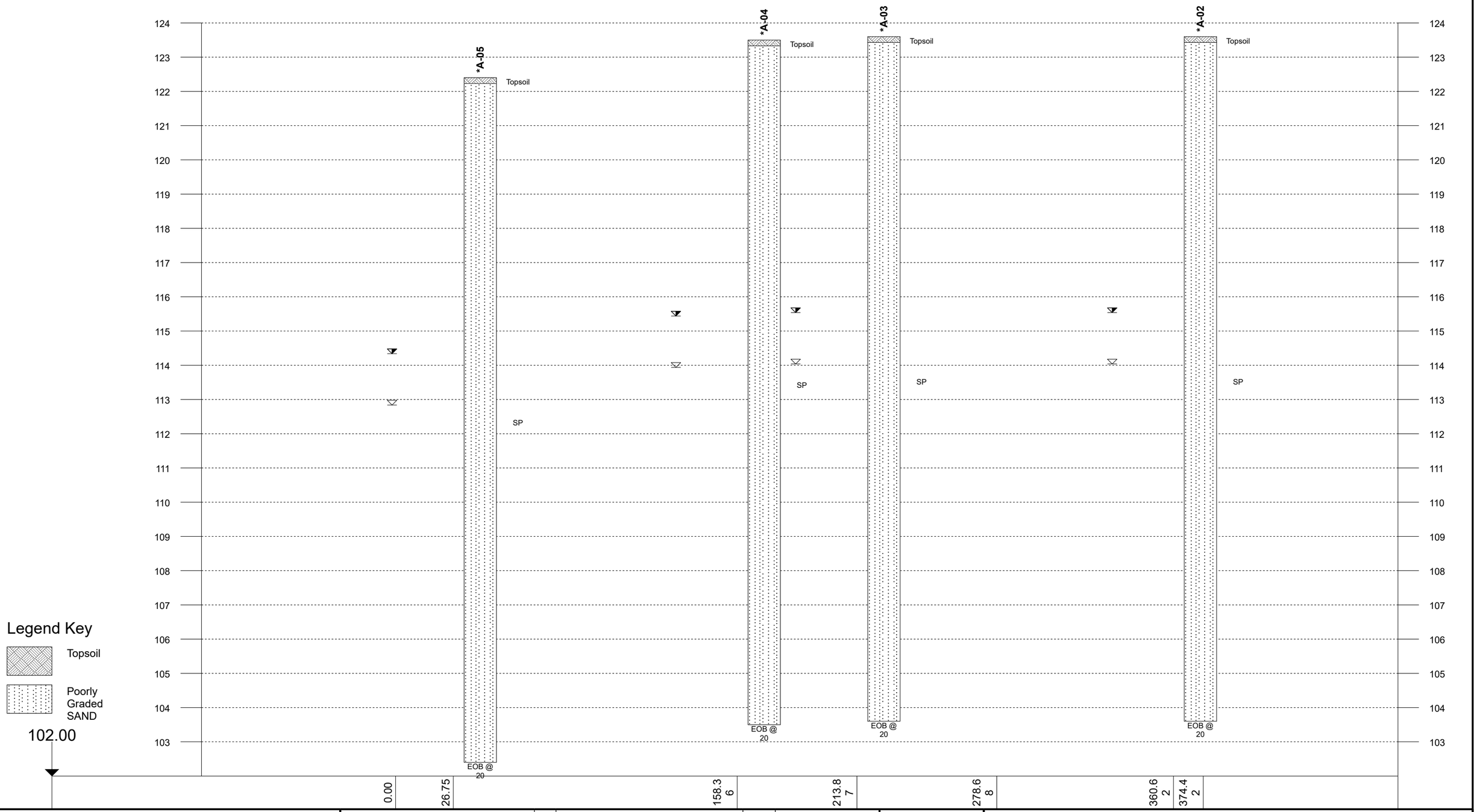
WL (First Encountered)
WL (Completion)
WL (Estimated Seasonal High Water)
WL (Stabilized)

Fill
Possible Fill
Probable Fill
Rock

# GENERALIZED SUBSURFACE SOIL PROFILE B-B'

**Windermere Downtown Property**
**Kimley-Horn**
**517 Main Street, Windermere, Florida 34786**

Project No: 24:7059 Date: 02/10/2023




## Legend Key

- Topsoil
- Poorly Graded SAND
- 102.00

**Notes:**

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

| | |
|---|---|
| Plastic Limit Water Content Liquid Limit (X—●—△) | WL (First Encountered) |
| [FINES CONTENT%] | WL (Completion) |
| BOTTOM OF CASING | WL (Estimated Seasonal High Water) |
| LOSS OF CIRCULATION | WL (Stabilized) |

| | |
|---|---|
| Fill | |
| Possible Fill | |
| Probable Fill | |
| Rock | |

**GENERALIZED SUBSURFACE SOIL PROFILE C-C'**

**Windermere Downtown Property**

**Kimley-Horn**

**517 Main Street, Windermere, Florida 34786**

Project No: 24:7059 Date: 02/10/2023

Soil Map—Orange County, Florida


Map Scale: 1:951 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

- Area of Interest (AOI)

**Soils**

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**

- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**

- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County, Florida
Survey Area Data: Version 18, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 2, 2020—Mar 13, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 48 | Tavares fine sand-Urban land complex, 0 to 5 percent slopes | 2.6 | 100.0% |
| **Totals for Area of Interest** | | **2.6** | **100.0%** |

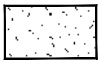
## Appendix B – Field Operations

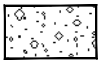
Reference Notes
Exploration Procedures
Boring Logs

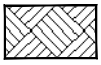
# REFERENCE NOTES FOR BORING LOGS

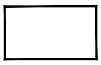
## MATERIAL[1,2]

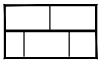

**ASPHALT**


**CONCRETE**


**GRAVEL**

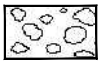

**TOPSOIL**

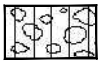

**VOID**


**BRICK**

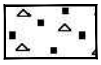

**AGGREGATE BASE COURSE**

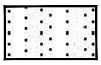

**GW** **WELL-GRADED GRAVEL**
**gravel-sand mixtures, little or no fines**

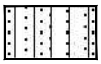

**GP** **POORLY-GRADED GRAVEL**
**gravel-sand mixtures, little or no fines**


**GM** **SILTY GRAVEL**
**gravel-sand-silt mixtures**

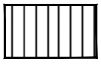

**GC** **CLAYEY GRAVEL**
**gravel-sand-clay mixtures**

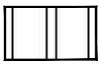

**SW** **WELL-GRADED SAND**
**gravelly sand, little or no fines**

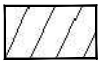

**SP** **POORLY-GRADED SAND**
**gravelly sand, little or no fines**


**SM** **SILTY SAND**
**sand-silt mixtures**

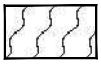

**SC** **CLAYEY SAND**
**sand-clay mixtures**

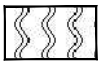

**ML** **SILT**
**non-plastic to medium plasticity**

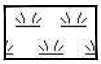

**MH** **ELASTIC SILT**
**high plasticity**


**CL** **LEAN CLAY**
**low to medium plasticity**


**CH** **FAT CLAY**
**high plasticity**


**OL** **ORGANIC SILT or CLAY**
**non-plastic to low plasticity**


**OH** **ORGANIC SILT or CLAY**
**high plasticity**


**PT** **PEAT**
**highly organic soils**

## DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

| | | | |
|---|---|---|---|
| SS | Split Spoon Sampler | PM | Pressuremeter Test |
| ST | Shelby Tube Sampler | RD | Rock Bit Drilling |
| WS | Wash Sample | RC | Rock Core, NX, BX, AX |
| BS | Bulk Sample of Cuttings | REC | Rock Sample Recovery % |
| PA | Power Auger (no sample) | RQD | Rock Quality Designation % |
| HSA | Hollow Stem Auger | | |

## PARTICLE SIZE IDENTIFICATION

| DESIGNATION | | PARTICLE SIZES |
|---|---|---|
| Boulders | | 12 inches (300 mm) or larger |
| Cobbles | | 3 inches to 12 inches (75 mm to 300 mm) |
| Gravel: | Coarse | ¾ inch to 3 inches (19 mm to 75 mm) |
| | Fine | 4.75 mm to 19 mm (No. 4 sieve to ¾ inch) |
| Sand: | Coarse | 2.00 mm to 4.75 mm (No. 10 to No. 4 sieve) |
| | Medium | 0.425 mm to 2.00 mm (No. 40 to No. 10 sieve) |
| | Fine | 0.074 mm to 0.425 mm (No. 200 to No. 40 sieve) |
| Silt & Clay ("Fines") | | <0.074 mm (smaller than a No. 200 sieve) |

## COHESIVE SILTS & CLAYS

| UNCONFINED COMPRESSIVE STRENGTH, $Q_P$[4] | SPT[5] (BPF) | CONSISTENCY[7] (COHESIVE) |
|---|---|---|
| <0.25 | <2 | Very Soft |
| 0.25 - <0.50 | 2 - 4 | Soft |
| 0.50 - <1.00 | 5 - 8 | Firm |
| 1.00 - <2.00 | 9 - 15 | Stiff |
| 2.00 - <4.00 | 16 - 30 | Very Stiff |
| 4.00 - 8.00 | 31 - 50 | Hard |
| >8.00 | >50 | Very Hard |

## GRAVELS, SANDS & NON-COHESIVE SILTS

| SPT[5] | DENSITY |
|---|---|
| <5 | Very Loose |
| 5 - 10 | Loose |
| 11 - 30 | Medium Dense |
| 31 - 50 | Dense |
| >50 | Very Dense |

| RELATIVE AMOUNT[7] | COARSE GRAINED (%)[8] | FINE GRAINED (%)[8] |
|---|---|---|
| Trace | ≤5 | ≤5 |
| With | 10 - 20 | 10 - 25 |
| Adjective *(ex: "Silty")* | 25 - 45 | 30 - 45 |

## WATER LEVELS[6]

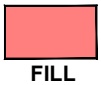

WL (First Encountered)


WL (Completion)


WL (Seasonal High Water)


WL (Stabilized)

## FILL AND ROCK


FILL


POSSIBLE FILL


PROBABLE FILL


ROCK

[1]Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

[2]To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

[3]Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

[4]Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

[5]Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

[6]The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

[7]Minor deviation from ASTM D 2488-17 Note 14.

[8]Percentages are estimated to the nearest 5% per ASTM D 2488-17.

# SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

## SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)

- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.

**Drilling Methods May Vary*— The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **A-01** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

| SITE LOCATION: | LOSS OF CIRCULATION |
|---|---|
| **517 Main Street, Windermere, Florida 34786** | |

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513040.4** | **484586.0** | | **123.8** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | BS1 | 48 | | Topsoil Thickness[2.00"]<br>(SP) SAND, light brown, moist to wet | | 123.8 | |
| 5 | | | | | | | 119 | |
| 10 | S-2 | BS1 | 19<br>2 | | | | 114 | |
| 15 | | | | | | | 109 | |
| 20 | | | | | **END OF BORING AT 20 FT** | | 104 | |
| 25 | | | | | | | 99 | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT: 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY: RQD, REC

LIQUID LIMIT / PLASTIC LIMIT

CALIBRATED PENETROMETER TSF: 1 2 3 4 5

WATER CONTENT % [FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| WL (First Encountered) **9.50** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: | |
| WL (Completion) | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** | |
| WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| WL (Stabilized) | | | |

## GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **A-02** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1513020.5** | **484726.8** | | **123.6** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) |
|---|---|---|---|---|---|---|---|
| 0 | S-1 | BS1 | 0 | | Topsoil Thickness[2.00"] | | |
| | | | | | (SP) SAND, light brown, moist to wet | | |
| 5 | | | | | | | 119 |
| 10 | S-2 | BS1 | 19 2 | | | | 114 |
| 15 | | | | | | | 109 |
| 20 | | | | | **END OF BORING AT 20 FT** | | 104 |
| 25 | | | | | | | 99 |
| 30 | | | | | | | 94 |

BLOWS/6"

STANDARD PENETRATION BLOWS/FT
20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT

CALIBRATED PENETROMETER TSF
1 2 3 4 5

WATER CONTENT %
[FINES CONTENT] %
10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| WL (First Encountered) **9.50** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: | |
| WL (Completion) | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** | |
| WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **A-03** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1513161.7** | **484685.6** | | **123.6** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) |
|---|---|---|---|---|---|---|---|
| 0 | S-1 | BS1 | 48 | | Topsoil Thickness[2.00"] | | |
| | | | | | (SP) SAND, light brown, moist to wet | | |
| 5 | | | | | | | 119 |
| 10 | S-2 | BS1 | 19 2 | | | | 114 |
| 15 | | | | | | | 109 |
| 20 | | | | | **END OF BORING AT 20 FT** | | 104 |
| 25 | | | | | | | 99 |
| 30 | | | | | | | 94 |

BLOWS/6"

STANDARD PENETRATION BLOWS/FT
20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF
1 2 3 4 5
WATER CONTENT %
[FINES CONTENT] %
10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | | |
|---|---|---|---|---|
| WL (First Encountered) | **9.50** | BORING STARTED: **Mar 02 2022** | CAVE IN DEPTH: | |
| WL (Completion) | | BORING COMPLETED: **Mar 02 2022** | HAMMER TYPE: **Manual** | |
| WL (Seasonal High Water) | **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| WL (Stabilized) | | | | |

## GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **A-04** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513202.2** | **484634.6** | | **123.5** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | BS1 | 48 | | Topsoil Thickness[2.00"]<br>(SP) SAND, light brown, moist to wet | | 123.5 | |
| 5 | | | | | | | 119 | |
| 10 | S-2 | BS1 | 19<br>2 | | | | 114 | |
| 15 | | | | | | | 109 | |
| 20 | | | | | **END OF BORING AT 20 FT** | | 104 | |
| 25 | | | | | | | 99 | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT: 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY: RQD, REC

LIQUID LIMIT / PLASTIC LIMIT

CALIBRATED PENETROMETER TSF: 1 2 3 4 5

WATER CONTENT % [FINES CONTENT] %: 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| WL (First Encountered) **9.50** | BORING STARTED: **Mar 02 2022** | CAVE IN DEPTH: | |
| WL (Completion) | BORING COMPLETED: **Mar 02 2022** | HAMMER TYPE: **Manual** | |
| WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **A-05** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1513337.8** | **484622.4** | | **122.4** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) |
|---|---|---|---|---|---|---|---|
| 0 | S-1 | BS1 | 48 | | Topsoil Thickness[2.00"] | | |
| | | | | | (SP) SAND, light brown, moist to wet | | |
| 5 | | | | | | | 118 |
| 10 | S-2 | BS1 | 19 2 | | | ▼ ▽ | 113 |
| 15 | | | | | | | 108 |
| 20 | | | | | **END OF BORING AT 20 FT** | | 103 |
| 25 | | | | | | | 98 |
| 30 | | | | | | | 93 |

BLOWS/6"

⊗ STANDARD PENETRATION BLOWS/FT
20 40 60 80 100
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

△ LIQUID LIMIT
× PLASTIC LIMIT
○ CALIBRATED PENETROMETER TSF
1 2 3 4 5
● WATER CONTENT %
[FINES CONTENT] %
10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) **9.50** | BORING STARTED: **Mar 02 2022** | | CAVE IN DEPTH: |
| ▼ WL (Completion) | BORING COMPLETED: **Mar 02 2022** | | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

**GEOTECHNICAL BOREHOLE LOG**

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-01** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513120.3** | **484439.1** | | **123.2** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"] (SP) SAND, light brown, moist, very loose to loose | | | 2-2-1-7 (3) |
| | S-2 | SS | 24 | 24 | | | | 2-1-2-1 (3) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 2-3-2-2 (5) |
| | S-4 | SS | 24 | 24 | | | | 2-3-3-2 (6) |
| | S-5 | SS | 24 | 24 | (SP-SC) SAND WITH CLAY, light brown, moist, loose | ▼ | 114 | 4-5-5-6 (10) |
| 10 | | | | | (SC) CLAYEY SAND, light brown, wet, medium dense | | | |
| 15 | S-6 | SS | 18 | 18 | | | 109 | 6-10-11 (21) |
| | S-7 | SS | 18 | 18 | | | 104 | 9-12-16 (28) |
| 20 | | | | | | | | |
| | S-8 | SS | 18 | 18 | | | 99 | 6-6-4 (10) |
| 25 | | | | | **END OF BORING AT 25 FT** | | | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)

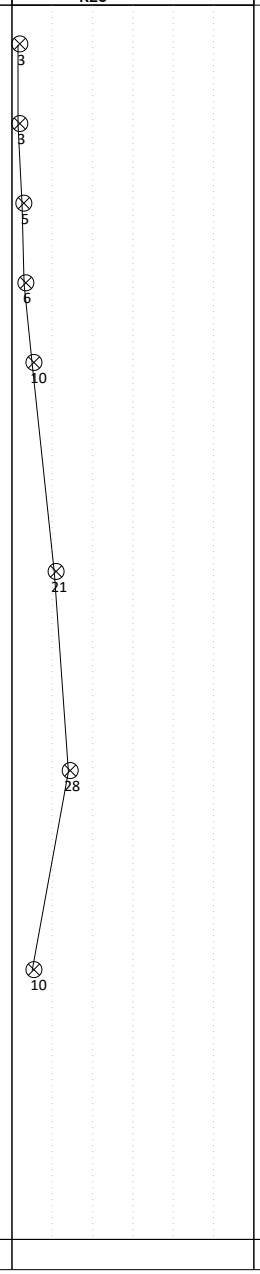
ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC

LIQUID LIMIT

PLASTIC LIMIT

CALIBRATED PENETROMETER TSF (1 2 3 4 5)

WATER CONTENT % [FINES CONTENT] % (10 20 30 40 50)




THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-02** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

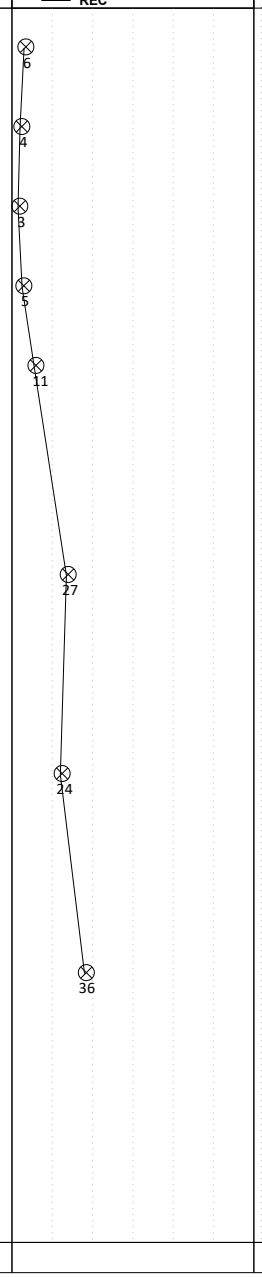
| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1513148.7** | **484530.9** | | **123.2** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"]<br>(SP) SAND, light brown, moist, very loose and medium dense | | | 2-3-3-2 (6) |
| | S-2 | SS | 24 | 24 | | | | 2-2-2-2 (4) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 2-1-2-3 (3) |
| | S-4 | SS | 24 | 24 | | | | 2-3-2-3 (5) |
| | S-5 | SS | 24 | 24 | | ▼ | 114 | 6-5-6-6 (11) |
| 10 | | | | | (SC) CLAYEY SAND, light brown, wet, medium dense to dense | | | |
| 15 | S-6 | SS | 18 | 18 | | | 109 | 8-11-16 (27) |
| | S-7 | SS | 18 | 18 | | | 104 | 6-9-15 (24) |
| 20 | | | | | | | | |
| | S-8 | SS | 18 | 18 | | | 99 | 8-15-21 (36) |
| 25 | | | | | **END OF BORING AT 25 FT** | | | |
| | | | | | | | 94 | |
| 30 | | | | | | | | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)




THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-03** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513066.3** | **484457.3** | | **123.5** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[3.00"] (SP) SAND, light brown, moist, very loose and loose | | | 2-4-4-4 (8) |
| | S-2 | SS | 24 | 24 | | | | 3-2-1-2 (3) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 2-2-2-1 (4) |
| | S-4 | SS | 24 | 24 | | | | 3-3-2-2 (5) |
| | S-5 | SS | 24 | 24 | | ▼ | | 2-3-3-2 (6) |
| 10 | | | | | | | 114 | |
| | | | | | (SC) CLAYEY SAND, light brown, wet, medium dense to loose | | | |
| | S-6 | SS | 18 | 18 | | | | 6-6-5 (11) |
| 15 | | | | | | | 109 | |
| | S-7 | SS | 18 | 18 | | | | 5-5-4 (9) |
| 20 | | | | | | | 104 | |
| | | | | | (SP-SC) SAND WITH CLAY, light brown, wet, medium dense | | | |
| | S-8 | SS | 18 | 18 | | | | 6-5-6 (11) |
| 25 | | | | | **END OF BORING AT 25 FT** | | 99 | |
| | | | | | | | | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)

ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC

LIQUID LIMIT △ PLASTIC LIMIT ×

CALIBRATED PENETROMETER TSF (1 2 3 4 5)

WATER CONTENT % ● [FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

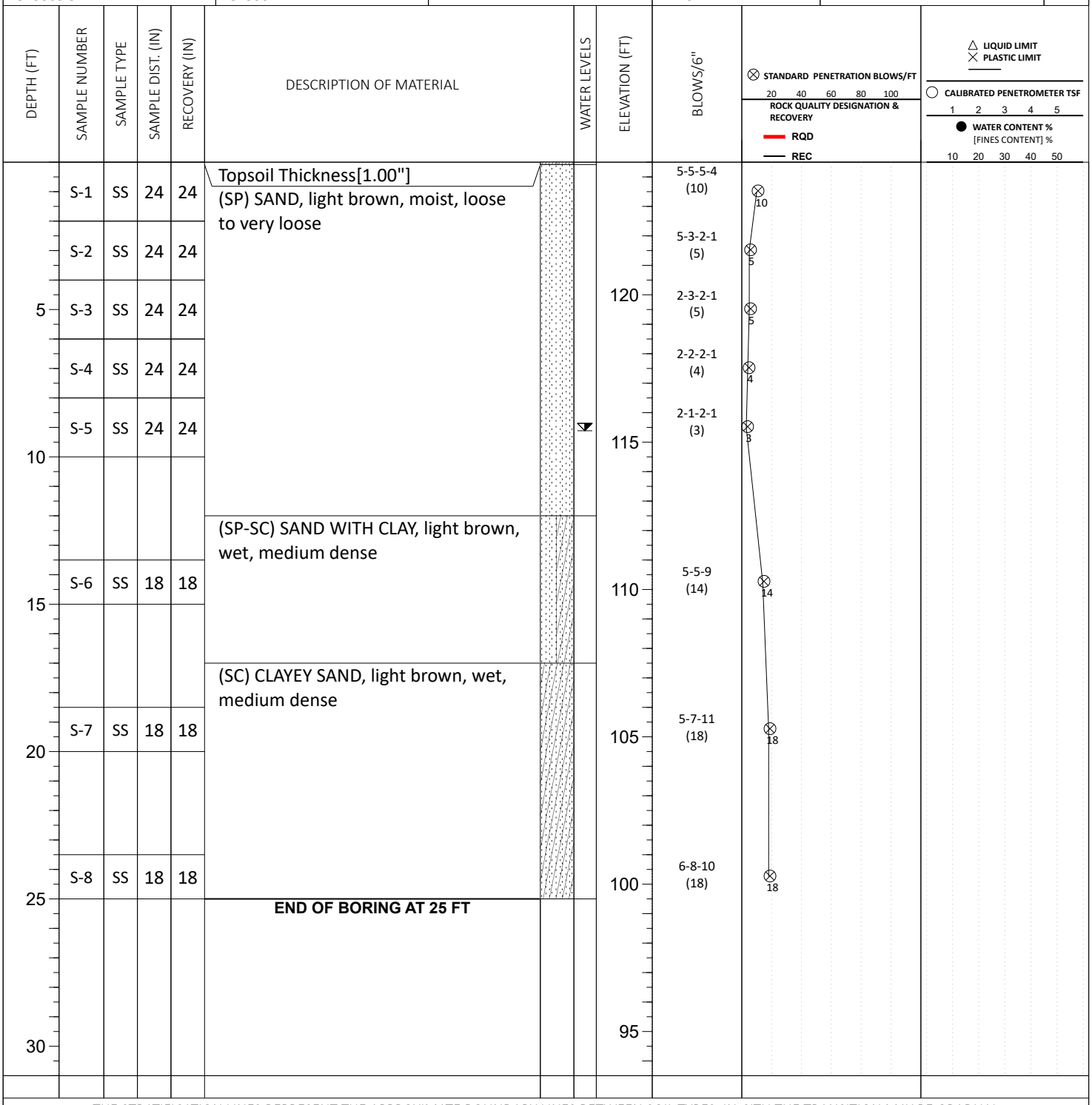
| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-04** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513065.9** | **484536.2** | | **124.5** | |




THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 02 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 02 2022** | HAMMER TYPE: **Manual** |
| ⧩ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ⧨ WL (Stabilized) | | | |

**GEOTECHNICAL BOREHOLE LOG**

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-05** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1512920.3** | **484515.3** | | **124** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[3.00"] (SP) SAND, light brown, moist, loose to very loose | | 124 | 2-3-4-4 (7) |
| | S-2 | SS | 24 | 24 | | | | 3-1-2-2 (3) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 3-2-1-1 (3) |
| | S-4 | SS | 24 | 24 | | | | 2-2-1-2 (3) |
| | S-5 | SS | 24 | 24 | | ▼ | | 2-1-2-2 (3) |
| 10 | | | | | (SC) CLAYEY SAND, light brown, wet, medium dense | | 114 | |
| | S-6 | SS | 18 | 18 | | | | 9-10-13 (23) |
| 15 | | | | | | | 109 | |
| | S-7 | SS | 18 | 18 | | | | 8-12-13 (25) |
| 20 | | | | | | | 104 | |
| | S-8 | SS | 18 | 18 | | | | 6-8-11 (19) |
| 25 | | | | | **END OF BORING AT 25 FT** | | 99 | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 02 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 02 2022** | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **B-06** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: |
|---|---|---|---|
| **1512955.0** | **484626.1** | | **124** |

BOTTOM OF CASING

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"]<br>(SP) SAND, light brown, moist to wet, very loose and loose | | 124 | 2-2-3-3 (5) |
| | S-2 | SS | 24 | 24 | | | | 3-2-2-2 (4) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 3-2-2-2 (4) |
| | S-4 | SS | 24 | 24 | | | | 2-2-2-2 (4) |
| | S-5 | SS | 24 | 24 | | ▼ | | 4-3-4-9 (7) |
| 10 | | | | | | | 114 | |
| | | | | | (SC) CLAYEY SAND, light brown, wet, loose to medium dense | | | |
| | S-6 | SS | 18 | 18 | | | | 2-4-5 (9) |
| 15 | | | | | | | 109 | |
| | S-7 | SS | 18 | 18 | | | | 6-5-6 (11) |
| 20 | | | | | | | 104 | |
| | S-8 | SS | 18 | 18 | | | | 5-5-6 (11) |
| 25 | | | | | **END OF BORING AT 25 FT** | | 99 | |
| | | | | | | | | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)

ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC

LIQUID LIMIT △ PLASTIC LIMIT ×

CALIBRATED PENETROMETER TSF (1 2 3 4 5)

WATER CONTENT % ● [FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** / LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **R-01** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786** — LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513315.8** | **484548.2** | | **121.5** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"] (SP) SAND, light brown, moist, very loose and loose | | 121.5 | 2-3-2-3 (5) |
| | S-2 | SS | 24 | 24 | | | | 2-1-1-1 (2) |
| 5 | S-3 | SS | 24 | 24 | | | 117 | 1-1-1-1 (2) |
| | S-4 | SS | 24 | 24 | | | | 1-2-2-2 (4) |
| | S-5 | SS | 24 | 24 | | ▼ | | 2-3-3-3 (6) |
| 10 | | | | | **END OF BORING AT 10 FT** | | 112 | |
| 15 | | | | | | | 107 | |
| 20 | | | | | | | 102 | |
| 25 | | | | | | | 97 | |
| 30 | | | | | | | 92 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | | |
|---|---|---|---|---|
| ▽ WL (First Encountered) | **>10** | BORING STARTED: **Mar 02 2022** | | CAVE IN DEPTH: |
| ▼ WL (Completion) | | BORING COMPLETED: **Mar 02 2022** | | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) | **9.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | | |

**GEOTECHNICAL BOREHOLE LOG**

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **R-02** | **1 of 1** |
| PROJECT NAME: | DRILLER/CONTRACTOR: | | |
| **Windermere Downtown Property** | **Suncoast Drilling** | | |
| SITE LOCATION: **517 Main Street, Windermere, Florida 34786** | | | LOSS OF CIRCULATION |
| NORTHING: **1513157.1** | EASTING: **484594.1** | STATION: | SURFACE ELEVATION: **122.8** |
| | | | BOTTOM OF CASING |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"] | | | 2-2-3-2 (5) |
| | | | | | (SP) SAND, light brown, moist, very loose and loose | | | |
| | S-2 | SS | 24 | 24 | | | | 2-1-2-2 (3) |
| 5 | S-3 | SS | 24 | 24 | | | 118 | 2-1-1-2 (2) |
| | S-4 | SS | 24 | 24 | | ▼ | | 2-2-1-2 (3) |
| | S-5 | SS | 24 | 24 | | ▽ | | 2-2-3-3 (5) |
| 10 | | | | | **END OF BORING AT 10 FT** | | 113 | |
| 15 | | | | | | | 108 | |
| 20 | | | | | | | 103 | |
| 25 | | | | | | | 98 | |
| 30 | | | | | | | 93 | |

⊗ STANDARD PENETRATION BLOWS/FT — 20 40 60 80 100

ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC

△ LIQUID LIMIT
× PLASTIC LIMIT

○ CALIBRATED PENETROMETER TSF — 1 2 3 4 5

● WATER CONTENT % [FINES CONTENT] % — 10 20 30 40 50

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) **9.50** | BORING STARTED: **Mar 02 2022** | | CAVE IN DEPTH: |
| ▼ WL (Completion) | BORING COMPLETED: **Mar 02 2022** | | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

**GEOTECHNICAL BOREHOLE LOG**

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **R-03** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786** — LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1513088.1** | **484673.0** | | **123.4** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"] (SP) SAND, light brown, moist, very loose to loose | | 123.4 | 2-2-2-2 (4) |
| | S-2 | SS | 24 | 24 | | | | 2-1-1-1 (2) |
| 5 | S-3 | SS | 24 | 24 | | | 119 | 2-1-2-2 (3) |
| | S-4 | SS | 24 | 24 | | ▼ | | 2-2-2-2 (4) |
| | S-5 | SS | 24 | 24 | | ▽ | 114 | 2-3-2-2 (5) |
| 10 | | | | | **END OF BORING AT 10 FT** | | | |
| 15 | | | | | | | 109 | |
| 20 | | | | | | | 104 | |
| 25 | | | | | | | 99 | |
| 30 | | | | | | | 94 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)
ROCK QUALITY DESIGNATION & RECOVERY
RQD
REC

LIQUID LIMIT
PLASTIC LIMIT
CALIBRATED PENETROMETER TSF (1 2 3 4 5)
WATER CONTENT %
[FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) **9.50** | BORING STARTED: **Mar 01 2022** | CAVE IN DEPTH: | |
| ▼ WL (Completion) | BORING COMPLETED: **Mar 01 2022** | HAMMER TYPE: **Manual** | |
| ▼ WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

# GEOTECHNICAL BOREHOLE LOG

| CLIENT: | PROJECT NO.: | BORING NO.: | SHEET: |
|---|---|---|---|
| **Kimley-Horn** | **24:7059** | **R-04** | **1 of 1** |

| PROJECT NAME: | DRILLER/CONTRACTOR: |
|---|---|
| **Windermere Downtown Property** | **Suncoast Drilling** |

SITE LOCATION: **517 Main Street, Windermere, Florida 34786**

LOSS OF CIRCULATION

| NORTHING: | EASTING: | STATION: | SURFACE ELEVATION: | BOTTOM OF CASING |
|---|---|---|---|---|
| **1512993.1** | **484654.5** | | **125.4** | |

| DEPTH (FT) | SAMPLE NUMBER | SAMPLE TYPE | SAMPLE DIST. (IN) | RECOVERY (IN) | DESCRIPTION OF MATERIAL | WATER LEVELS | ELEVATION (FT) | BLOWS/6" |
|---|---|---|---|---|---|---|---|---|
| 0 | S-1 | SS | 24 | 24 | Topsoil Thickness[2.00"] (SP) SAND, light brown, moist, very loose to loose | | 125 | 2-1-2-2 (3) |
| | S-2 | SS | 24 | 24 | | | | 1-1-1-1 (2) |
| 5 | S-3 | SS | 24 | 24 | | | 121 | 2-1-1-1 (2) |
| | S-4 | SS | 24 | 24 | | ▼ | | 2-2-2-2 (4) |
| | S-5 | SS | 24 | 24 | | ▽ | 116 | 2-2-3-3 (5) |
| 10 | | | | | **END OF BORING AT 10 FT** | | | |
| 15 | | | | | | | 111 | |
| 20 | | | | | | | 106 | |
| 25 | | | | | | | 101 | |
| 30 | | | | | | | 96 | |

STANDARD PENETRATION BLOWS/FT (20 40 60 80 100)

ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC

LIQUID LIMIT

PLASTIC LIMIT

CALIBRATED PENETROMETER TSF (1 2 3 4 5)

WATER CONTENT % [FINES CONTENT] % (10 20 30 40 50)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

| | | | |
|---|---|---|---|
| ▽ WL (First Encountered) **9.50** | BORING STARTED: **Mar 02 2022** | | CAVE IN DEPTH: |
| ▼ WL (Completion) | BORING COMPLETED: **Mar 02 2022** | | HAMMER TYPE: **Manual** |
| ▼ WL (Seasonal High Water) **8.00** | EQUIPMENT: **ATV** | LOGGED BY: **MW** | DRILLING METHOD: **Mud rotary** |
| ▽ WL (Stabilized) | | | |

**GEOTECHNICAL BOREHOLE LOG**

# Appendix C – Laboratory Testing

Laboratory Testing Summary

# Laboratory Testing Summary

| Sample Source | Sample Number | Depth (feet) | MC (%) | Soil Type | Atterberg Limits | | | Percent Passing No. 200 Sieve | Moisture - Density | | Organic Content | Permeability (feet/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | LL | PL | PI | | Maximum Density (pcf) | Optimum Moisture (%) | | |
| A-01 | 1/2 | 0-20 | 3.0 | SP | | | | | | | | Kh=27.6ft/day Kv=18.4ft/day |
| A-02 | 1/2 | 0-20 | 3.1 | SP | | | | | | | | Kh=16.3ft/day Kv=10.8ft/day |
| A-03 | 1/2 | 0-20 | 2.5 | SP | | | | | | | | Kh=20.2ft/day Kv=13.5ft/day |
| A-04 | 1/2 | 0-20 | 3.5 | SP | | | | | | | | Kh=15.3ft/day Kv=18.4ft/day |
| A-05 | 1/2 | 0-20 | 2.8 | SP | | | | | | | | Kh=18.8ft/day Kv=12.5ft/day |
| B-01 | 5 | 8-10 | 6.8 | SP-SC | | | | 10.6 | | | | |
| B-03 | 7 | 18.5-20 | 19.2 | SC | | | | 15.8 | | | | |
| B-04 | 7 | 18.5-20 | 22.0 | SC | | | | 18.9 | | | | |
| B-05 | 6 | 13.5-15 | 19.9 | SC | | | | 25.2 | | | | |
| B-06 | 6 | 13.5-15 | 19.1 | SC | | | | 13.6 | | | | |

**Notes:** See test reports for test method, *ASTM D2488

**Definitions:** MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

| | | | |
|---|---|---|---|
| Project: | Windermere Downtown Property | Project No.: | 24:7059 |
| Client: | Kimley-Horn | Date Reported: | 5/17/2022 |


| Office / Lab | Address | Office Number / Fax |
|---|---|---|
| ECS Florida LLC - Orlando | 2815 Directors Row<br>Suite 500<br>Orlando, FL 32809 | (407)859-8378<br>(407)859-9599 |

# Laboratory Testing Summary

| Sample Source | Sample Number | Depth (feet) | MC (%) | Soil Type | Atterberg Limits | | | Percent Passing No. 200 Sieve | Moisture - Density | | Organic Content | Permeability (feet/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | LL | PL | PI | | Maximum Density (pcf) | Optimum Moisture (%) | | |
| R-01 | 5 | 8-10 | 3.8 | SP | | | | 4.8 | | | | |
| R-02 | 5 | 8-10 | 3.1 | SP | | | | 3.7 | | | | |
| R-03 | 4 | 6-8 | 2.6 | SP | | | | 2.9 | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**Notes:** See test reports for test method, *ASTM D2488

**Definitions:** MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

| | | | |
|---|---|---|---|
| Project: | Windermere Downtown Property | Project No.: | 24:7059 |
| Client: | Kimley-Horn | Date Reported: | 5/17/2022 |


| Office / Lab | Address | Office Number / Fax |
|---|---|---|
| ECS Florida LLC - Orlando | 2815 Directors Row<br>Suite 500<br>Orlando, FL 32809 | (407)859-8378<br>(407)859-9599 |