



**I-75 (SR 93) at NW 49<sup>th</sup> Street PD&E  
Study**  
Final  
Preliminary Geotechnical Soil Survey

**FDOT Office**  
District Five

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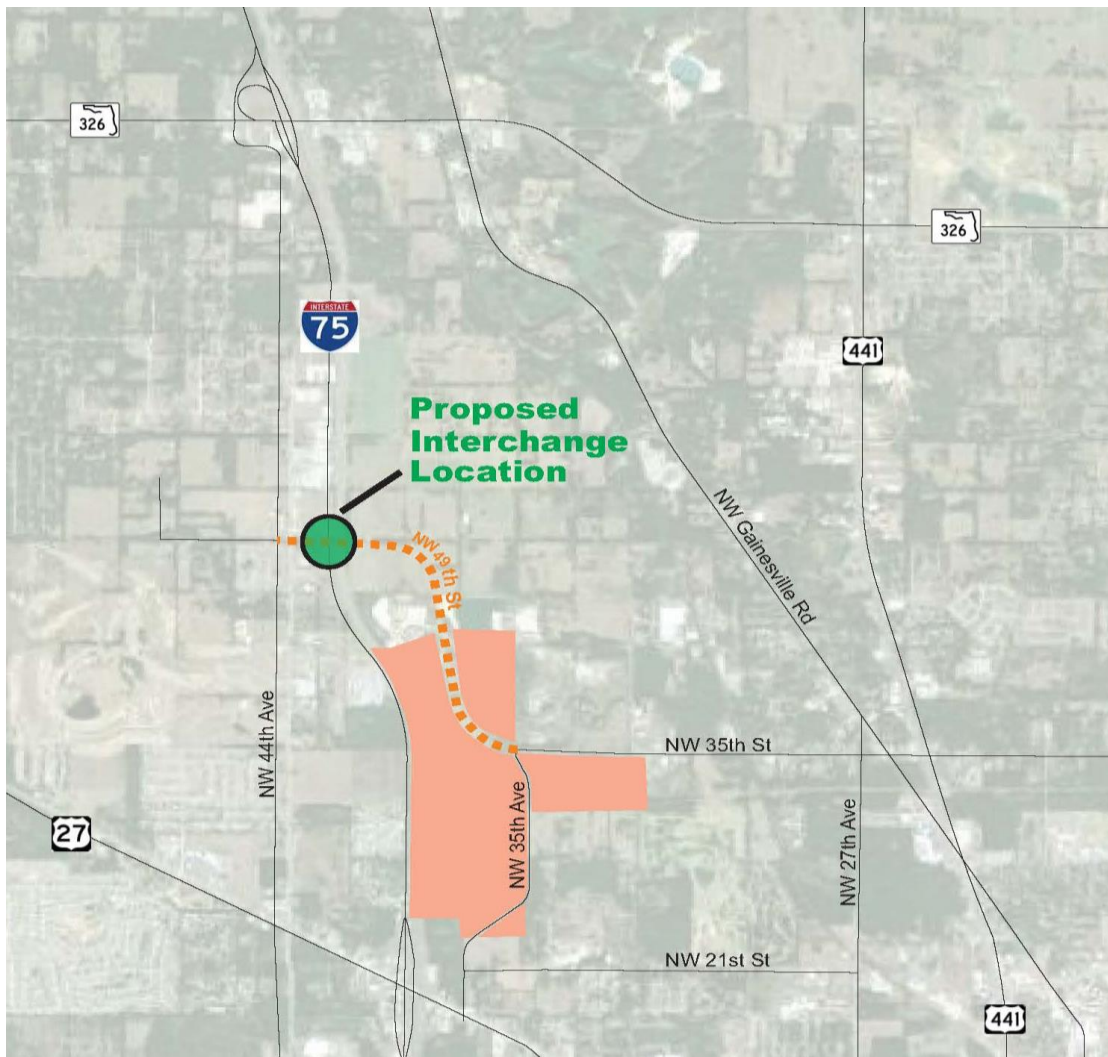
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## 1.0 Project Description

The project entails the investigation of the provision of a new I-75 interchange to be located between the existing I-75/US 27 interchange to the south (2.24 miles) and the existing I-75/SR 326 interchange to the north (2.04 miles) just northwest of Ocala in Marion County, Florida. A recently completed Interchange Justification Report (IJR) concluded that the existing I-75 interchange ramp movements and intersections at US 27 and at SR 326 will operate at failing levels of service. A new I-75 interchange at NW 49th Street (approximately midway between the two existing interchanges) is thus vital to avoid complete gridlock, “traffic stress” and undesirable safety conditions along the local street network. The western limit of this project is NW 44th Avenue (west of I-75) and the eastern limit is the NW 35th Street connection to NW 49th Street just east of the new proposed interchange site. It should be noted that this proposed NW 35th Street/NW 49th Street connection will be constructed by the county and is anticipated to be completed prior to the interchange being constructed.

**Figure 1-1 | Project Location Map**



## 2.0 Scope of Services

The purpose of the geotechnical portion of the PD&E study is to obtain information on the existing subsurface conditions along the project alignment to assist in the preparation of the PD&E Report for the project. The following services were provided to achieve the preceding objective:

- Reviewed published soils information. This published information was obtained from the Web Soil Survey of Marion County, Florida published by the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS).
- Conducted a visual reconnaissance of the project site and located and coordinated utility clearance.
- Performed a geotechnical field study to evaluate the existing subsurface conditions along the roadway alignment consisting of borings, subsurface sampling and field-testing. We performed sixteen (16) Standard Penetration Test (SPT) borings to depths of approximately 20 feet below the existing ground surface along the proposed roadway alignment.
- Performed a geotechnical field study for the proposed pond site alternative locations consisting of borings, subsurface sampling and field-testing. We performed forty (40) SPT borings within or adjacent to the pond site alternative locations to depths of approximately 20 to 30 feet below the existing ground surface to evaluate the subsurface conditions.
- Performed a total of thirty (30) field permeability tests within or adjacent to the proposed pond site alternative locations.
- Visually classified and stratified the recovered soil samples in the laboratory. Performed laboratory tests on selected representative samples to develop the soil legend for the project in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System.
- Prepared this Preliminary Soil Survey Study for the project.

## 3.0 Subsurface Conditions

### 3.1 Marion County Soil Survey

Based on a review of the Marion County Soil Survey published by USDA-NRCS, it appears that there are four (4) soil-mapping units noted within the project limits. A detailed soil survey map is shown on the USDA Vicinity Map Sheet in the attachments. The general soil descriptions are presented in the sub-sections below, as described in the Web Soil Survey.

### **3.1.1 Arredondo sand, 0 to 5 percent slopes (Unit 9)**

The Arredondo component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Non-irrigated land capability classification is 3s. This soil does not meet hydric criteria. The soil has a slightly sodic horizon within 30 inches of the soil surface.

### **3.1.2 Gainesville loamy sand, 0 to 5 percent slopes (Unit 35)**

The Gainesville component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Non-irrigated land capability classification is 3s. This soil does not meet hydric criteria. The soil has a slightly sodic horizon within 30 inches of the soil surface.

### **3.1.3 Hague sand, 2 to 5 percent slopes (Unit 37)**

The Hague component makes up 85 percent of the map unit. Slopes are 2 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Non-irrigated land capability classification is 2e. This soil does not meet hydric criteria. The soil has a slightly sodic horizon within 30 inches of the soil surface.

### **3.1.4 Pits (Unit 57)**

Soil and groundwater properties have not been provided within the USDA-NRCS Soil Survey. The pits complex consists of land which soil material and/or limestone or shell has been removed and consists of dumps where these materials have been piled, and miscellaneous areas where natural soil has been modified for urban development.

### 3.2 General Soil Properties

Additional information regarding the soils and groundwater conditions for the above soil mapping units was obtained from the Marion County Soil Survey published by USDA-NRCS and the Web Soil Survey and is presented in **Tables 3-1** and **3-2** as follows:

Table 3-1 | Marion County USDA NRCS Soil Survey Hydrologic Information

| Map No. | Soil Name                                     | Hydrologic Soil Group              | Depth to High Water Table (ft) | Typical Soil Types (Profile from Ground Surface to depth of approximately 80 inches) |
|---------|---|------------------------------------|--------------------------------|--|
| 9       | Arredondo sand, 0 to 5 percent slopes         | A                                  | > 6.0                          | Sand to Loamy Sand to Sandy Loam to Sandy Clay Loam                                  |
| 35      | Gainesville loamy sand, 0 to 5 percent slopes | A                                  | > 6.0                          | Loamy Sand   |
| 37      | Hague sand, 2 to 5 percent slopes             | A                                  | > 6.0                          | Sand to Sandy Clay Loam to Sandy Loam to Loamy Sand                                  |
| 57      | Pits <sup>(1)</sup>                           | No Estimates Provided by USDA-NRCS |                                |  |

Table 3-2 | Marion County USDA NRCS Soil Survey Information

| Map No. | Soil Name                                     | Soil Classification                |               |                        | Permeability (in/hr) |
|---------|---|------------------------------------|---------------|------------------------|----------------------|
|         |   | Depth (in)                         | USCS          | AASHTO                 |                      |
| 9       | Arredondo sand, 0 to 5 percent slopes         | 0-65                               | SP-SM, SM     | A-3, A-2-4             | 6.0-20.0             |
|         |   | 65-70                              | SM, SM-SC     | A-2-4                  | 2.0-6.0              |
|         |   | 70-80                              | SM-SC, SC     | A-2-4, A-2-6, A-4, A-6 | 2.0-6.0              |
| 35      | Gainesville loamy sand, 0 to 5 percent slopes | 0-80                               | SM            | A-2-4                  | 6.0-20.0             |
| 37      | Hague sand, 2 to 5 percent slopes             | 0-24                               | SP-SM, SM     | A-3, A-2-4             | 6.0-20.0             |
|         |   | 24-49                              | SM, SM-SC, SC | A-2, A-4, A-6          | 0.6-6.0              |
|         |   | 49-74                              | SM, SM-SC, SC | A-2, A-4, A-6          | 0.6-2.0              |
|         |   | 74-80                              | SM            | A-2-4                  | 2.0-6.0              |
| 57      | Pits <sup>(1)</sup>                           | No Estimates Provided by USDA-NRCS |               |                        |                      |

(1) No Soil and groundwater properties were provided by the USDA. Soil unit consists of pits from which soil material and/or limestone or shell has been or is being removed and consists of dumps where these materials have been piled, and miscellaneous areas where natural soil has been modified for urban development.

### 3.3 Groundwater Conditions

According to the USDA-NRSC Soil Survey, much of the project corridor consists of well drained soils. The seasonal high groundwater table is estimated at depths greater than 6.0 feet of the ground surface throughout the corridor.

## 4.0 Preliminary Subsurface Exploration

### 4.1 Roadway Borings

To evaluate the subsurface conditions and groundwater table levels along the proposed project limits Standard Penetration Test (SPT) borings were advanced to depths of approximately 20 feet below the existing ground surface along the project corridor.

The borings were performed using a drill rig with bentonite mud drilling procedures. The soil sampling for the borings were performed in general accordance with the American Society for Testing and Materials (ASTM) test designation D-1586. SPT resistance N-values were generally taken continuously to a depth of 10 feet and on intervals of 5 feet thereafter. As each soil type was revealed, representative samples were placed in air-tight containers and returned to our office for confirmation of the field classification by a geotechnical engineer.

The location of the borings performed were determined using the recorded GPS coordinates obtained by Tierra in conjunction with the design files provided by Metric. The locations of these borings should be considered approximate. The station and offset along with the soil profile of each boring performed are shown on the **Roadway Soil Profiles** sheet in the **Appendix**.

### 4.2 Pond Borings

To evaluate the subsurface conditions and groundwater table levels within the pond site alternatives, SPT borings were advanced to depths of approximately 20 to 30 feet below the existing ground surface within or near the pond site alternative locations.

The location of the borings performed were determined using the recorded GPS coordinates obtained by Tierra in conjunction with the design files provided by Metric. The locations of these borings should be considered approximate. The station and offset along with the soil profile of each boring performed are shown on the **Pond Soil Survey** sheets in the **Appendix**.

### 4.3 Field Hydraulic Conductivity Tests

A total of thirty (30) field hydraulic conductivity tests were performed at the location of the pond boring locations. These tests were performed at approximately 1 to 3 feet below the ground surface. These tests were performed and the results evaluated in accordance with the methodology presented in the latest FDOT Soils and Foundation Handbook. A summary of the hydraulic conductivity test results is presented **Table 5** of the **Appendix**.

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It is important to note that the results provided are the measured hydraulic conductivity rates of the in-situ soil conditions encountered at the time of our field activities. No factors of safety have been applied to these rates. The project drainage engineer should apply an appropriate factor of safety for design purposes.

### **5.0 Laboratory Testing**

#### **5.1 General**

Representative soil samples collected from the borings performed along the project alignments were classified and stratified in general accordance with the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System. Our classification was based on visual observations, using the results from the laboratory testing as confirmation. These tests included grain-size analyses, Atterberg Limits and natural moisture content determination. In addition, environmental corrosion tests were performed on selected soil samples to evaluate the corrosive nature of the subsurface soils encountered.

#### **5.2 Test Designation**

The following list summarizes the laboratory tests performed by Tierra and the respective test methods utilized.

- Grain-Size Analyses - The grain-size analyses were conducted in general accordance with the AASHTO test designation T-088 (ASTM test designation D-422).
- Atterberg Limits - The liquid limit and the plastic limit tests ("Atterberg Limits") were conducted in general accordance with the AASHTO test designations T-089 and T-090, respectively (ASTM test designation D-4318).
- Natural Moisture Content - The moisture content tests were conducted in general accordance with the AASHTO test designation T-265 (ASTM test designation D-2216).
- Environmental Corrosion - The environmental corrosion tests were conducted in general accordance with the FDOT test designations FM 5-550, FM 5-551, FM 5-552 and FM 5-553.

A summary of the laboratory test results for each soil stratum encountered along the project alignment is presented on the **Soil Survey** sheet in the **Appendix**. This sheet includes ranges of laboratory test results for different stratum soil samples collected from borings performed along the project alignments. A detailed summary of the laboratory test results performed for this report is presented in **Tables 3 and 4** of the **Appendix**.

## 6.0 Results of Subsurface Exploration

### 6.1 General Soil Conditions

Specific information of each boring performed is provided on the **Roadway Soil Profiles and Pond Soil Profiles** sheets in the **Appendix**.

The soil types encountered during this exploration have been assigned a stratum number. The stratum number and soil types associated with this project to date are provided below.

| Stratum Number  | Typical Soil Description   | AASHTO Classification    |
|---|--|--------------------------|
| 1   | Gray to Light Gray, and Brown to Light Brown SAND to SAND with<br>Silt                             | A-3                      |
| 2   | Brown to Orange-Brown Silty SAND to Slightly Clayey SAND,<br>Occasionally with Limestone Fragments | A-2-4                    |
| 3   | Gray to Gray-Brown Clayey SAND to Sandy CLAY, Occasionally with<br>Limestone Fragments             | A-2-6/A-2-7/A-6<br>A-7-6 |
| 4   | Gray Sandy CLAY to CLAY, Occasionally with Limestone Fragments                                     | A-7-5/A-7-6              |
| 5   | Limestone  | --(1)                    |
| <sup>(1)</sup> The USCS does not include a classification for limestone |  |                          |

A geotechnical engineer bases soil stratification on a visual review of the recovered samples, laboratory testing and interpretation of the field boring logs. The boring stratification lines represent the approximate boundaries between soil types of significantly different engineering properties; however, the actual transition may be gradual. In some cases, small variations in properties within the same boring not considered pertinent to our engineering evaluation may have been abbreviated or omitted for clarity. The boring profiles represent the conditions at the particular boring location and variations do occur among the borings.

### 6.2 Groundwater

The groundwater table was not apparent within the borings prior to the commencement of mud-rotary drilling. Groundwater Not Apparent (GNA) is indicated on the boring profiles on the **Roadway Soil Profiles and Pond Soil Profiles** sheets in the **Appendix**.

Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences (i.e., existing water management canals, swales, drainage ponds, underdrains, and areas of covered soils, such as paved parking lots and sidewalks).

## 6.3 Seasonal High Groundwater Estimates

The seasonal high groundwater table (SHGWT) levels along the majority of the project alignment are estimated to be in a perched condition ranging in depths from approximately 4 feet to depths greater than 10 feet below existing grades at the boring locations. A summary of these estimates by boring location is presented on the **Roadway Soil Profiles** and **Pond Soil Profiles** sheets and in **Tables 1 and 2** in the **Appendix**.

In general, the seasonal high groundwater table levels estimated along the project alignments were based on soil stratigraphy, measured groundwater levels from the borings, the USDA Soil Survey information for Marion County, Florida, and surrounding topography. In areas where subsurface soil conditions were disturbed, normal indications such as “stain lines” were not evident.

## 7.0 Preliminary Engineering Evaluations

### 7.1 General

Based upon the USDA-NRCS Soil Survey for Marion County and the borings performed, sandy soils to depths of 80 inches below the natural ground surface are reported along the majority of the project corridor with areas of plastic soils. In general, these soils are suitable for supporting proposed roadway embankments after proper subgrade preparation and removal of unsuitable materials.

Areas along the project corridor where clay, shallow rock and/or groundwater conditions may impact the project are detailed below.

#### 7.1.1 Shallow Groundwater

The Seasonal High Groundwater Table (SHGWT) for the soil units is reported at depths greater than 6 feet below the predevelopment natural grade within the project limits. The perched SHGWT at the boring locations is estimated to range from at the existing ground surface to depths greater than 10 feet below existing grades at the boring locations.

Roadway base to groundwater clearance will need to be evaluated to ensure minimum separation between the base and the SHGWT is maintained or to determine if additional measures are required (ie, blackbase, underdrains, etc.).

### **7.1.2 Near Surface Clayey Soils**

Near-surface, plastic soils (A-7-5/A-7-6) were noted from the existing ground surface to a depth of 20 feet below existing grade throughout the project corridor. The following soil mapping units noted plastic/clayey soils (A-2-6, A-4, and A-6) between depth ranges of approximately 24 to 80 inches below natural grade:

- Arredondo Sand, 0 to 5 percent slopes (Unit 9)
- Hague Sand, 2 to 5 percent slopes (Unit 37)

Plastic soils have limitations related to base clearance and are also poorly drained. Separation between plastic soils and the roadway pavement sections should be in accordance with FDOT Plans. As the project progresses beyond the PD&E stage, additional geotechnical services should be performed to determine the impact these materials will have to the proposed design.

### **7.1.3 Shallow Rock/Caprock**

Limestone/caprock was encountered at several boring locations at depths ranging from 7 to 20 feet of the natural ground surface in isolated areas of the project corridor. Excavations for utilities, ponds and foundations may be difficult and the Contractor should be prepared for such materials. Near surface limestone is known to be located within the project area. The presence of near surface limestone also creates a higher than normal probability of sinkhole formation during pond excavations.

## **7.2 Roadway Construction**

Site preparation should consist of normal clearing and grubbing followed by compaction of subgrade soils. Subgrade preparation should include the removal of plastic soils, top-soils and organic soils in accordance with FDOT Standard Plans. Backfill embankment materials should consist of materials conforming to FDOT Standard Plans. Clearing and grubbing and compaction should be accomplished in accordance with the latest FDOT Standard Specifications.

The overall site preparation and mechanical densification work for the construction of the proposed roadway improvements should be in accordance with the FDOT Standard Specifications and Standard Plans requirements. In general, the existing subsurface soils appear capable of supporting the construction of the proposed roadway improvements subject to the above geotechnical considerations and after proper subgrade preparation.

## 8.0 Limitations

Our professional services have been performed, our findings obtained and our preliminary evaluations prepared in accordance with generally accepted geotechnical engineering principles and practices at the time of this report. Tierra is not responsible for the conclusions, opinions or recommendations made by others based on this data.


The scope of the geotechnical portion of the PD&E study is to provide information on the existing subsurface conditions along the project alignment based on a review of the Marion County Soil Survey published by the USDA-NRCS and limited subsurface exploration to assist in the preparation of the PD&E Report for the project. The preliminary evaluations submitted in this report are based upon the data obtained from the published information and the limited subsurface exploration. Should subsoil variations become evident during the course of this project, a re-evaluation will be necessary after we have had an opportunity to observe the characteristics of the condition encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed roadway construction.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of Metric Engineering, Inc. and the FDOT.

Tierra appreciates the opportunity to be of service to Metric Engineering, Inc. on this project. If you have any questions or comments regarding this report, please contact our office at your earliest convenience.

Respectfully Submitted,

**TIERRA, INC.**



Luis A. Almodovar, E.I.  
Geotechnical Engineer Intern



Jeremy A. Sewell, P.E.  
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## Appendix

### Tables

Table 1 | Summary of Seasonal High Groundwater Table Estimates for Roadway

Table 2 | Summary of Seasonal High Groundwater Table Estimates for Ponds

Table 3 | Summary of Laboratory Test Results for Soil Classification

Table 4 | Summary of Laboratory Test Results for Environmental Classification

Table 5 | Summary of Hydraulic Conductivity Test Results

### Figures

FIGURE 2 | USDA Soil Survey & USGS Quadrangle Maps

FIGURE 3 | Soil Survey Sheet for Roadway & Ponds

FIGURES 4 - 9 | Roadway Boring Location Plan Sheets

FIGURE 10 | Roadway Soil Profiles Sheet

FIGURES 11 - 19 | Pond Soil Survey Sheets

**TABLE 1**  
**Summary of Seasonal High Groundwater Table Estimates for Roadway**  
**I-75 (SR 93) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN: 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Number                                 | Boring Location <sup>(1)</sup><br>C/L Construction |                  | Boring Depth <sup>(2)</sup><br>(feet) | Ground Surface Elevation<br>NAVD88 <sup>(1)</sup><br>(feet) | Measured GWT                         |                            | Date Groundwater Table Recorded | USDA Soil Survey |                                      | Estimated SHGWT <sup>(4)</sup>       |                            |
|---|--|------------------|---------------------------------------|---|--------------------------------------|----------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|----------------------------|
|   |  |                  |                                       |   | Depth Below Ground Surface<br>(feet) | Elevation NAVD88<br>(feet) |                                 | Soil Map Unit    | SHGWT Depth <sup>(3)</sup><br>(feet) | Depth Below Ground Surface<br>(feet) | Elevation NAVD88<br>(feet) |
|   | Station<br>(feet)                                  | Offset<br>(feet) |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| <b>Centerline Construction of 49th Street</b> |  |                  |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| B - 121R                                      | 120+50   | 42 RT            | 20.0                                  | 79.3  | GNA <sup>(5)</sup>                   | < 69.3                     | 04/18/2018                      | 9                | > 6.0                                | 9.0                                  | 70.3                       |
| B - 125R                                      | 125+16   | 6 RT             | 20.0                                  | 85.5  | GNA <sup>(5)</sup>                   | < 75.5                     | 04/18/2018                      | 9                | > 6.0                                | 8.0                                  | 77.5                       |
| B - 136L                                      | 136+38   | 4 LT             | 20.0                                  | 77.6  | GNA <sup>(5)</sup>                   | < 67.6                     | 04/16/2018                      | 9                | > 6.0                                | 8.0                                  | 69.6                       |
| B - 141R                                      | 140+73   | 50 RT            | 20.0                                  | 82.2  | GNA <sup>(5)</sup>                   | < 72.2                     | 04/17/2018                      | 9                | > 6.0                                | 6.0                                  | 76.2                       |
| B - 145L                                      | 145+16   | 11 LT            | 20.0                                  | 83.3  | GNA <sup>(5)</sup>                   | < 73.3                     | 04/17/2018                      | 9                | > 6.0                                | 4.0                                  | 79.3                       |
| B - 150R                                      | 150+33   | 44 RT            | 20.0                                  | 95.0  | GNA <sup>(5)</sup>                   | < 85                       | 04/16/2018                      | 9/37             | > 6.0                                | 4.0                                  | 91.0                       |
| B - 155L                                      | 154+88   | 29 LT            | 20.0                                  | 104.2   | GNA <sup>(5)</sup>                   | < 94.2                     | 04/16/2018                      | 37               | > 6.0                                | 4.0                                  | 100.2                      |
| B - 159L                                      | 159+13   | 30 LT            | 20.0                                  | 110.0   | GNA <sup>(5)</sup>                   | < 100                      | 04/16/2018                      | 37               | > 6.0                                | 12.0                                 | 98.0                       |
| <b>Centerline Construction of Ramp B</b>      |  |                  |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| B - 208R                                      | 207+76   | 28 RT            | 20.0                                  | 86.0  | GNA <sup>(5)</sup>                   | < 76                       | 04/17/2018                      | 37               | > 6.0                                | 8.0                                  | 78.0                       |
| B - 211L                                      | 210+87   | 11 LT            | 20.0                                  | 82.2  | GNA <sup>(5)</sup>                   | < 72.2                     | 04/17/2018                      | 37               | > 6.0                                | 7.0                                  | 75.2                       |
| <b>Centerline Construction of Ramp C</b>      |  |                  |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| B - 310R                                      | 309+76   | 59 RT            | 20.0                                  | 81.4  | GNA <sup>(5)</sup>                   | < 71.4                     | 05/05/2018                      | 37               | > 6.0                                | 2.0                                  | 79.4                       |
| B - 313L                                      | 313+06   | 41 LT            | 20.0                                  | 87.6  | GNA <sup>(5)</sup>                   | < 77.6                     | 04/18/2018                      | 9                | > 6.0                                | 8.0                                  | 79.6                       |
| <b>Centerline Construction of Ramp D</b>      |  |                  |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| B - 503L                                      | 502+58   | 27 LT            | 20.0                                  | 85.4  | GNA <sup>(5)</sup>                   | < 75.4                     | 04/18/2018                      | 37               | > 6.0                                | 4.0                                  | 81.4                       |
| B - 506R                                      | 505+86   | 5 RT             | 20.0                                  | 89.2  | GNA <sup>(5)</sup>                   | < 79.2                     | 04/18/2018                      | 37               | > 6.0                                | 4.0                                  | 85.2                       |
| <b>Centerline Construction of Ramp A</b>      |  |                  |                                       |   |                                      |                            |                                 |                  |                                      |                                      |                            |
| B - 603L                                      | 602+99   | 63 LT            | 20.0                                  | 77.0  | GNA <sup>(5)</sup>                   | < 67                       | 04/16/2018                      | 37               | > 6.0                                | 7.0                                  | 70.0                       |
| B - 606R                                      | 605+80   | 5 RT             | 20.0                                  | 78.5  | GNA <sup>(5)</sup>                   | < 68.5                     | 04/16/2018                      | 37               | > 6.0                                | 4.0                                  | 74.5                       |

<sup>(1)</sup> Boring locations (station and offset) and ground elevations were determined using design files provided by Metric.

<sup>(2)</sup> Depth below existing grades at time of field services.

<sup>(3)</sup> Seasonal high groundwater table depth reported in the Soil Survey of Marion County, Florida published by the USDA/NRCS.

<sup>(4)</sup> Perched seasonal high groundwater table depth estimated based on soil stratigraphy.

<sup>(5)</sup> GNA: Groundwater not apparent due to introduction of drilling fluid at a depth of 10 feet.

**TABLE 2**  
**Summary of Seasonal High Groundwater Table Estimates for Ponds**  
**I-75 (SR 93) at NE 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN: 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Number | Boring Location <sup>(1)</sup><br>B/L Survey SR 93 |                  | Boring Depth <sup>(2)</sup><br>(feet) | Ground Surface Elevation<br>NAVD88 <sup>(1)</sup><br>(feet) | Measured GWT                         |                               | Date Groundwater Table Recorded | USDA Soil Survey |                                      | Estimated SHGWT <sup>(4)</sup>       |                               |
|---------------|--|------------------|---------------------------------------|---|--------------------------------------|-------------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|-------------------------------|
|               | Station<br>(feet)                                  | Offset<br>(feet) |                                       |   | Depth Below Ground Surface<br>(feet) | Elevation<br>NAVD88<br>(feet) |                                 | Soil Map Unit    | SHGWT Depth <sup>(3)</sup><br>(feet) | Depth Below Ground Surface<br>(feet) | Elevation<br>NAVD88<br>(feet) |
|               |  |                  |                                       |   |                                      |                               |                                 |                  |                                      |                                      |                               |
| PBS - 1       | 2483+57  | 919 LT           | 20.0                                  | 85.6  | GNA <sup>(5)</sup>                   | < 75.6                        | 07/31/2018                      | 9                | > 6.0                                | 12.0 <sup>(6)</sup>                  | 73.6                          |
| PBS - 2       | 2483+67  | 482 LT           | 20.0                                  | 86.4  | GNA <sup>(5)</sup>                   | < 76.4                        | 07/31/2018                      | 37               | > 6.0                                | 6.0 <sup>(6)</sup>                   | 80.4                          |
| PBS - 3       | 2488+68  | 371 LT           | 20.0                                  | 85.5  | GNA <sup>(5)</sup>                   | < 75.5                        | 07/31/2018                      | 37               | > 6.0                                | > 20.0                               | < 65.5                        |
| PBS - 4       | 2492+37  | 276 LT           | 20.0                                  | 83.8  | GNA <sup>(5)</sup>                   | < 73.8                        | 07/31/2018                      | 37               | > 6.0                                | 3.0 <sup>(6)</sup>                   | 80.8                          |
| PBS - 5       | 2490+80  | 255 RT           | 20.0                                  | 82.9  | GNA <sup>(5)</sup>                   | < 72.9                        | 08/21/2018                      | 9                | > 6.0                                | 4.0 <sup>(6)</sup>                   | 78.9                          |
| PBS - 6       | 2487+62  | 422 RT           | 25.0                                  | 72.7  | GNA <sup>(5)</sup>                   | < 62.7                        | 08/21/2018                      | 37               | > 6.0                                | 12.0 <sup>(6)</sup>                  | 60.7                          |
| PBS - 7       | 2483+43  | 347 RT           | 20.0                                  | 75.7  | GNA <sup>(5)</sup>                   | < 65.7                        | 08/21/2018                      | 37               | > 6.0                                | 12.0 <sup>(6)</sup>                  | 63.7                          |
| PBS - 8       | 2485+27  | 683 RT           | 30.0                                  | 67.6  | GNA <sup>(5)</sup>                   | < 57.6                        | 08/21/2018                      | 9                | > 6.0                                | 6.5 <sup>(6)</sup>                   | 61.1                          |
| PBS - 9       | 2483+63  | 1018 RT          | 20.0                                  | 74.2  | GNA <sup>(5)</sup>                   | < 64.2                        | 08/21/2018                      | 9                | > 6.0                                | 3.0 <sup>(6)</sup>                   | 71.2                          |
| PBS - 10      | 2486+27  | 1439 RT          | 20.0                                  | 82.2  | GNA <sup>(5)</sup>                   | < 72.2                        | 08/22/2018                      | 9                | > 6.0                                | 8.0 <sup>(6)</sup>                   | 74.2                          |
| PBS - 11      | 2482+79  | 1413 RT          | 20.0                                  | 79.4  | GNA <sup>(5)</sup>                   | < 69.4                        | 08/22/2018                      | 9                | > 6.0                                | 7.0 <sup>(6)</sup>                   | 72.4                          |
| PBS - 12      | 2476+28  | 1509 RT          | 20.0                                  | 95.8  | GNA <sup>(5)</sup>                   | < 85.8                        | 08/24/2018                      | 9/37             | > 6.0                                | > 20.0                               | < 75.8                        |
| PBS - 13      | 2479+85  | 1304 RT          | 20.0                                  | 85.4  | GNA <sup>(5)</sup>                   | < 75.4                        | 08/22/2018                      | 9                | > 6.0                                | 2.5 <sup>(6)</sup>                   | 82.9                          |
| PBS - 14      | 2478+22  | 870 RT           | 20.0                                  | 89.5  | GNA <sup>(5)</sup>                   | < 79.5                        | 08/22/2018                      | 9                | > 6.0                                | > 20.0                               | < 69.5                        |
| PBS - 15      | 2479+53  | 517 RT           | 20.0                                  | 82.0  | GNA <sup>(5)</sup>                   | < 72.0                        | 08/22/2018                      | 37               | > 6.0                                | 6.5 <sup>(6)</sup>                   | 75.5                          |
| PBS - 16      | 2477+56  | 202 RT           | 20.0                                  | 83.5  | GNA <sup>(5)</sup>                   | < 73.5                        | 08/22/2018                      | 37               | > 6.0                                | > 20.0                               | < 63.5                        |
| PBS - 17      | 2474+18  | 368 RT           | 20.0                                  | 88.8  | GNA <sup>(5)</sup>                   | < 78.8                        | 08/24/2018                      | 37               | > 6.0                                | 5.0 <sup>(6)</sup>                   | 83.8                          |
| PBS - 18      | 2470+53  | 190 RT           | 20.0                                  | 88.6  | GNA <sup>(5)</sup>                   | < 78.6                        | 08/22/2018                      | 35               | > 6.0                                | 2.0 <sup>(6)</sup>                   | 86.6                          |
| PBS - 19      | 2476+86  | 417 LT           | 20.0                                  | 80.9  | GNA <sup>(5)</sup>                   | < 70.9                        | 08/24/2018                      | 35               | > 6.0                                | 1.5 <sup>(6)</sup>                   | 79.4                          |
| PBS - 20      | 2479+41  | 579 LT           | 20.0                                  | 86.5  | GNA <sup>(5)</sup>                   | < 76.5                        | 07/31/2018                      | 9                | > 6.0                                | 0.5 <sup>(6)</sup>                   | 86.0                          |
| PBS - 21      | 2479+06  | 894 LT           | 20.0                                  | 81.2  | GNA <sup>(5)</sup>                   | < 71.2                        | 01/24/2019                      | 9                | > 6.0                                | 0.0 <sup>(6)</sup>                   | 81.2                          |
| PBS - 22      | 2486+47  | 934 LT           | 20.0                                  | 85.5  | GNA <sup>(5)</sup>                   | < 75.5                        | 01/24/2019                      | 9                | > 6.0                                | > 20.0                               | < 65.5                        |
| PBS - 23      | 2485+16  | 735 LT           | 20.0                                  | 86.2  | GNA <sup>(5)</sup>                   | < 76.2                        | 01/24/2019                      | 9/37             | > 6.0                                | 12.0 <sup>(6)</sup>                  | 74.2                          |
| PBS - 24      | 2486+39  | 514 LT           | 20.0                                  | 85.2  | GNA <sup>(5)</sup>                   | < 75.2                        | 01/24/2019                      | 37               | > 6.0                                | 12.0 <sup>(6)</sup>                  | 73.2                          |
| PBS - 25      | 2459+54  | 166 RT           | 20.0                                  | 101.5   | GNA <sup>(5)</sup>                   | < 91.5                        | 03/22/2019                      | 37               | > 6.0                                | 4.0 <sup>(6)</sup>                   | 97.5                          |
| PBS - 26      | 2463+36  | 171 RT           | 20.0                                  | 98.9  | GNA <sup>(5)</sup>                   | < 88.9                        | 03/22/2019                      | 37               | > 6.0                                | 4.0 <sup>(6)</sup>                   | 94.9                          |

**TABLE 2**  
**Summary of Seasonal High Groundwater Table Estimates for Ponds**  
**I-75 (SR 93) at NE 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN: 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Number | Boring Location <sup>(1)</sup><br>B/L Survey SR 93 |                  | Boring Depth <sup>(2)</sup><br>(feet) | Ground Surface Elevation<br>NAVD88 <sup>(1)</sup><br>(feet) | Measured GWT                         |                               | Date Groundwater Table Recorded | USDA Soil Survey |                                      | Estimated SHGWT <sup>(4)</sup>       |                               |
|---------------|--|------------------|---------------------------------------|---|--------------------------------------|-------------------------------|---------------------------------|------------------|--------------------------------------|--------------------------------------|-------------------------------|
|               | Station<br>(feet)                                  | Offset<br>(feet) |                                       |   | Depth Below Ground Surface<br>(feet) | Elevation<br>NAVD88<br>(feet) |                                 | Soil Map Unit    | SHGWT Depth <sup>(3)</sup><br>(feet) | Depth Below Ground Surface<br>(feet) | Elevation<br>NAVD88<br>(feet) |
|               |  |                  |                                       |   |                                      |                               |                                 |                  |                                      |                                      |                               |
| PBS - 27      | 2467+27  | 189 RT           | 20.0                                  | 93.2  | GNA <sup>(5)</sup>                   | < 83.2                        | 03/22/2019                      | 37               | > 6.0                                | 4.0 <sup>(6)</sup>                   | 89.2                          |
| PBS - 28      | 2468+30  | 413 RT           | 20.0                                  | 97.1  | GNA <sup>(5)</sup>                   | < 87.1                        | 01/23/2019                      | 37               | > 6.0                                | 8.0 <sup>(6)</sup>                   | 89.1                          |
| PBS - 29      | 2467+04  | 752 RT           | 20.0                                  | 108.1   | GNA <sup>(5)</sup>                   | < 98.1                        | 01/23/2019                      | 37               | > 6.0                                | > 20.0                               | < 88.1                        |
| PBS - 30      | 2471+64  | 643 RT           | 20.0                                  | 96.0  | GNA <sup>(5)</sup>                   | < 86.0                        | 01/23/2019                      | 37               | > 6.0                                | 2.0 <sup>(6)</sup>                   | 94.0                          |
| PBS - 31      | 2475+88  | 612 RT           | 20.0                                  | 90.2  | GNA <sup>(5)</sup>                   | < 80.2                        | 01/24/2019                      | 37               | > 6.0                                | 2.0 <sup>(6)</sup>                   | 88.2                          |
| PBS - 32      | 2473+87  | 975 RT           | 20.0                                  | 95.9  | GNA <sup>(5)</sup>                   | < 85.9                        | 01/23/2019                      | 37               | > 6.0                                | 2.0 <sup>(6)</sup>                   | 93.9                          |
| PBS - 33      | 2487+86  | 652 RT           | 20.0                                  | 67.5  | GNA <sup>(5)</sup>                   | < 57.5                        | 02/19/2019                      | 37               | > 6.0                                | 6.0                                  | 61.5                          |
| PBS - 34      | 2487+13  | 955 RT           | 20.0                                  | 67.2  | GNA <sup>(5)</sup>                   | < 57.2                        | 02/19/2019                      | 9                | > 6.0                                | 6.0                                  | 61.2                          |
| PBS - 35      | 2490+11  | 910 RT           | 20.0                                  | 67.2  | GNA <sup>(5)</sup>                   | < 57.2                        | 02/20/2019                      | 9                | > 6.0                                | 6.0                                  | 61.2                          |
| PBS - 36      | 2490+95  | 524 RT           | 20.0                                  | 81.5  | GNA <sup>(5)</sup>                   | < 71.5                        | 02/20/2019                      | 9                | > 6.0                                | > 20.0                               | < 61.5                        |
| PBS - 37      | 2493+45  | 221 RT           | 20.0                                  | 82.0  | GNA <sup>(5)</sup>                   | < 72.0                        | 02/19/2019                      | 9                | > 6.0                                | 4.0 <sup>(6)</sup>                   | 78.0                          |
| PBS - 38      | 2493+66  | 594 RT           | 20.0                                  | 79.7  | GNA <sup>(5)</sup>                   | < 69.7                        | 02/20/2019                      | 9                | > 6.0                                | 16.0 <sup>(6)</sup>                  | 63.7                          |
| PBS - 39      | 2495+42  | 361 RT           | 20.0                                  | 79.3  | GNA <sup>(5)</sup>                   | < 69.3                        | 02/19/2019                      | 9                | > 6.0                                | 8.0 <sup>(6)</sup>                   | 71.3                          |
| PBS - 40      | 2498+22  | 244 RT           | 20.0                                  | 70.8  | GNA <sup>(5)</sup>                   | < 60.8                        | 02/19/2019                      | 9                | > 6.0                                | 8.0 <sup>(6)</sup>                   | 62.8                          |

<sup>(1)</sup> Boring locations (station and offset) and ground elevations provided by Metric.

<sup>(2)</sup> Depth below existing grades at time of field services.

<sup>(3)</sup> Seasonal high groundwater table depth reported in the Soil Survey of Marion County, Florida published by the USDA/NRCS.

<sup>(4)</sup> Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the USDA NRCS Soil Survey information, and surrounding topography.

<sup>(5)</sup> GNA: Groundwater not apparent to a depth of approximately 10 feet due to the introduction of drilling fluid.

<sup>(6)</sup> Perched seasonal high groundwater table depth estimated based on soil stratigraphy.

**Table 3**  
**Summary of Laboratory Test Results for Soil Classification**  
**I-75 (SR 91) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN No. 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Number | Sample Depth (ft) | Stratum Number | AASHTO Symbol | Sieve Analysis |     |     |      |      | Atterberg Limits |               |                  | Organic Content (%) | Natural Moisture Content (%) |
|---------------|-------------------|----------------|---------------|----------------|-----|-----|------|------|------------------|---------------|------------------|---------------------|------------------------------|
|               |                   |                |               | #10            | #40 | #60 | #100 | #200 | Liquid Limit     | Plastic Limit | Plasticity Index |                     |                              |
| PBS-6         | 8.0 - 10.0        | A-3            | 1             | 100            | 82  | 47  | 21   | 10   | -                | -             | -                | -                   | -                            |
| B-121R        | 4.0 - 6.0         | A-3            | 1             | 100            | 84  | 54  | 23   | 9    | -                | -             | -                | -                   | -                            |
| B-125R        | 4.0 - 6.0         | A-3            | 1             | 100            | 89  | 63  | 31   | 10   | -                | -             | -                | -                   | -                            |
| B-136L        | 0.0 - 2.0         | A-3            | 1             | -              | -   | -   | -    | 10   | -                | -             | -                | -                   | -                            |
| B-503L        | 0.0 - 2.0         | A-3            | 1             | -              | -   | -   | -    | 10   | -                | -             | -                | -                   | -                            |
| B-603L        | 0.0 - 2.0         | A-3            | 1             | -              | -   | -   | -    | 10   | -                | -             | -                | -                   | -                            |
| B-606R        | 0.0 - 2.0         | A-3            | 1             | -              | -   | -   | -    | 10   | -                | -             | -                | -                   | -                            |
| PBS-1         | 6.0 - 8.0         | A-2-4          | 2             | 100            | 88  | 64  | 35   | 21   | -                | -             | -                | -                   | -                            |
| PBS-7         | 4.0 - 6.0         | A-2-4          | 2             | 100            | 91  | 66  | 38   | 22   | -                | -             | -                | -                   | -                            |
| PBS-8         | 0.0 - 2.0         | A-2-4          | 2             | 100            | 88  | 58  | 26   | 11   | -                | -             | -                | -                   | -                            |
| PBS-9         | 2.0 - 3.0         | A-2-4          | 2             | 100            | 92  | 70  | 40   | 21   | -                | -             | -                | -                   | -                            |
| PBS-12        | 13.5 - 15.0       | A-2-4          | 2             | 100            | 84  | 57  | 31   | 18   | -                | -             | -                | -                   | -                            |
| PBS-14        | 2.0 - 4.0         | A-2-4          | 2             | 100            | 87  | 59  | 28   | 13   | -                | -             | -                | -                   | -                            |
| PBS-14        | 18.5 - 20.0       | A-2-4          | 2             | 100            | 91  | 64  | 34   | 17   | -                | -             | -                | -                   | -                            |
| PBS-16        | 6.0 - 8.0         | A-2-4          | 2             | 100            | 85  | 58  | 32   | 18   | -                | -             | -                | -                   | -                            |
| PBS-16        | 13.5 - 15.0       | A-2-4          | 2             | 100            | 92  | 66  | 35   | 19   | -                | -             | -                | -                   | -                            |
| PBS-20        | 2.0 - 4.0         | A-2-4          | 2             | 100            | 87  | 65  | 39   | 25   | -                | -             | -                | -                   | 13                           |
| B-136L        | 2.0 - 4.0         | A-2-4          | 2             | 100            | 91  | 66  | 35   | 20   | NP               | NP            | NP               | -                   | 10                           |
| B-136L        | 6.0 - 8.0         | A-2-4          | 2             | 100            | 91  | 64  | 34   | 20   | -                | -             | -                | -                   | -                            |
| B-141R        | 0.0 - 2.0         | A-2-4          | 2             | 100            | 91  | 66  | 33   | 16   | -                | -             | -                | -                   | -                            |
| B-141R        | 4.0 - 6.0         | A-2-4          | 2             | 100            | 92  | 71  | 43   | 23   | -                | -             | -                | -                   | -                            |
| B-145L        | 2.0 - 4.0         | A-2-4          | 2             | 100            | 89  | 67  | 39   | 24   | -                | -             | -                | -                   | -                            |
| B-155L        | 0.0 - 2.0         | A-2-4          | 2             | 100            | 91  | 64  | 34   | 14   | -                | -             | -                | -                   | -                            |

**Table 3**  
**Summary of Laboratory Test Results for Soil Classification**  
**I-75 (SR 91) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN No. 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Number | Sample Depth (ft) | Stratum Number | AASHTO Symbol | Sieve Analysis |     |     |      |      | Atterberg Limits |               |                  | Organic Content (%) | Natural Moisture Content (%) |
|---------------|-------------------|----------------|---------------|----------------|-----|-----|------|------|------------------|---------------|------------------|---------------------|------------------------------|
|               |                   |                |               | #10            | #40 | #60 | #100 | #200 | Liquid Limit     | Plastic Limit | Plasticity Index |                     |                              |
| B-155L        | 2.0 - 4.0         | A-2-4          | 2             | 100            | 93  | 72  | 44   | 27   | NP               | NP            | NP               | -                   | 38                           |
| B-159L        | 8.0 - 10.0        | A-2-4          | 2             | 100            | 89  | 61  | 37   | 23   | NP               | NP            | NP               | -                   | 13                           |
| B-313L        | 4.0 - 6.0         | A-2-4          | 2             | 100            | 88  | 65  | 39   | 26   | NP               | NP            | NP               | -                   | 14                           |
| B-603L        | 4.0 - 6.0         | A-2-4          | 2             | 100            | 89  | 63  | 34   | 17   | -                | -             | -                | -                   | -                            |
| PBS-5         | 6.0 - 8.0         | A-2-6          | 3             | 100            | 86  | 61  | 43   | 34   | -                | -             | -                | -                   | -                            |
| PBS-18        | 6.0 - 8.0         | A-2-6          | 3             | 100            | 92  | 73  | 51   | 32   | 24               | 12            | 12               | -                   | 18                           |
| PBS-37        | 4.0 - 8.0         | A-2-7          | 3             | -              | -   | -   | -    | 28   | 44               | 20            | 24               | -                   | 14                           |
| PBS-29        | 4.0 - 6.0         | A-6            | 3             | -              | -   | -   | -    | 47   | 37               | 24            | 13               | -                   | 32                           |
| PBS-15        | 8.0 - 10.0        | A-7-6          | 3             | 100            | 97  | 92  | 88   | 44   | 45               | 18            | 27               | -                   | 24                           |
| PBS-30        | 2.0 - 4.0         | A-7-6          | 3             | -              | -   | -   | -    | 58   | 49               | 25            | 24               | -                   | 37                           |
| PBS-28        | 8.0 - 10.0        | A-7-5          | 4             | -              | -   | -   | -    | 85   | 83               | 33            | 50               | -                   | 50                           |
| B-310R        | 13.5 - 15.0       | A-7-5          | 4             | -              | -   | -   | -    | 72   | 60               | 37            | 23               | -                   | 42                           |
| B-603L        | 7.0 - 8.0         | A-7-5          | 4             | 100            | 98  | 95  | 91   | 89   | 101              | 31            | 70               | -                   | 47                           |
| PBS-4         | 6.0 - 8.0         | A-7-6          | 4             | 100            | 92  | 85  | 77   | 70   | -                | -             | -                | -                   | 40                           |
| PBS-10        | 8.0 - 10.0        | A-7-6          | 4             | 100            | 99  | 96  | 92   | 90   | -                | -             | -                | -                   | 46                           |
| PBS-17        | 6.0 - 8.0         | A-7-6          | 4             | 100            | 94  | 89  | 85   | 86   | 93               | 23            | 70               | -                   | 49                           |
| PBS-23        | 13.5 - 15.0       | A-7-6          | 4             | -              | -   | -   | -    | 51   | 53               | 19            | 34               | -                   | 28                           |
| PBS-24        | 13.5 - 15.0       | A-7-6          | 4             | -              | -   | -   | -    | 57   | 56               | 20            | 36               | -                   | 32                           |
| PBS-39        | 13.5 - 20.0       | A-7-6          | 4             | -              | -   | -   | -    | 71   | 96               | 27            | 69               | -                   | 47                           |
| B-150R        | 4.0 - 6.0         | A-7-6          | 4             | 100            | 95  | 81  | 66   | 54   | 50               | 26            | 24               | -                   | 19                           |
| B-503L        | 8.0 - 10.0        | A-7-6          | 4             | 100            | 99  | 98  | 96   | 91   | 92               | 24            | 68               | -                   | 43                           |
| B-606R        | 4.0 - 6.0         | A-7-6          | 4             | 100            | 97  | 90  | 85   | 76   | 65               | 22            | 43               | -                   | 36                           |

**Table 4**  
**Summary of Laboratory Test Results for Environmental Classification**  
**I-75 (SR 91) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN No. 435209-1-22-01**  
**Tierra Project No: 5511-16-033**

| Boring Name | Depth (ft) | Stratum No./<br>AASHTO Symbol | pH<br>(FM 5-550) | Resistivity<br>(ohm-cm)<br>(FM 5-551) | Chlorides<br>(ppm)<br>(FM 5-552) | Sulfates<br>(ppm)<br>(FM 5-553) | Environmental Classification<br>(Soil) |                       |
|-------------|------------|-------------------------------|------------------|---------------------------------------|----------------------------------|---------------------------------|--|-----------------------|
|             |            |                               |                  |                                       |                                  |                                 | Steel                                  | Concrete              |
| B-125R      | 2.0 - 4.0  | 1/A-3                         | 6.0*             | 15,000                                | 45                               | 24                              | Moderately Aggressive                  | Moderately Aggressive |
| B-503L      | 2.0 - 4.0  | 1/A-3                         | 6.3*             | 36,000                                | 30                               | < 5                             | Moderately Aggressive                  | Slightly Aggressive   |
| PBS-4       | 0.0 - 3.0  | 1/A-3                         | 7.2              | 19,000                                | 15                               | 15                              | Slightly Aggressive                    | Slightly Aggressive   |
| PBS-6       | 4.0 - 6.0  | 1/A-3                         | 5.7*             | 17,000                                | 15                               | 47                              | Extremely Aggressive                   | Moderately Aggressive |
| PBS-12      | 2.0 - 4.0  | 1/A-3                         | 6.0*             | 39,000                                | 15                               | 15                              | Moderately Aggressive                  | Moderately Aggressive |
| B-211L      | 2.0 - 4.0  | 2/A-2-4                       | 6.2*             | 16,000                                | 45                               | 24                              | Moderately Aggressive                  | Slightly Aggressive   |
| PBS-11      | 2.0 - 4.0  | 2/A-2-4                       | 6.0*             | 9,900                                 | 15                               | 114                             | Moderately Aggressive                  | Moderately Aggressive |
| PBS-19      | 4.0 - 6.0  | 2/A-2-4                       | 5.8*             | 25,000                                | 15                               | 12                              | Extremely Aggressive                   | Moderately Aggressive |

\* Indicates governing factor(s) for environmental classification.

**TABLE 5**  
**SUMMARY OF HYDRAULIC CONDUCTIVITY TEST RESULTS**  
**I-75 (SR 93) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN: 435209-1-22-01**  
**Tierra Project No.: 5511-16-033**

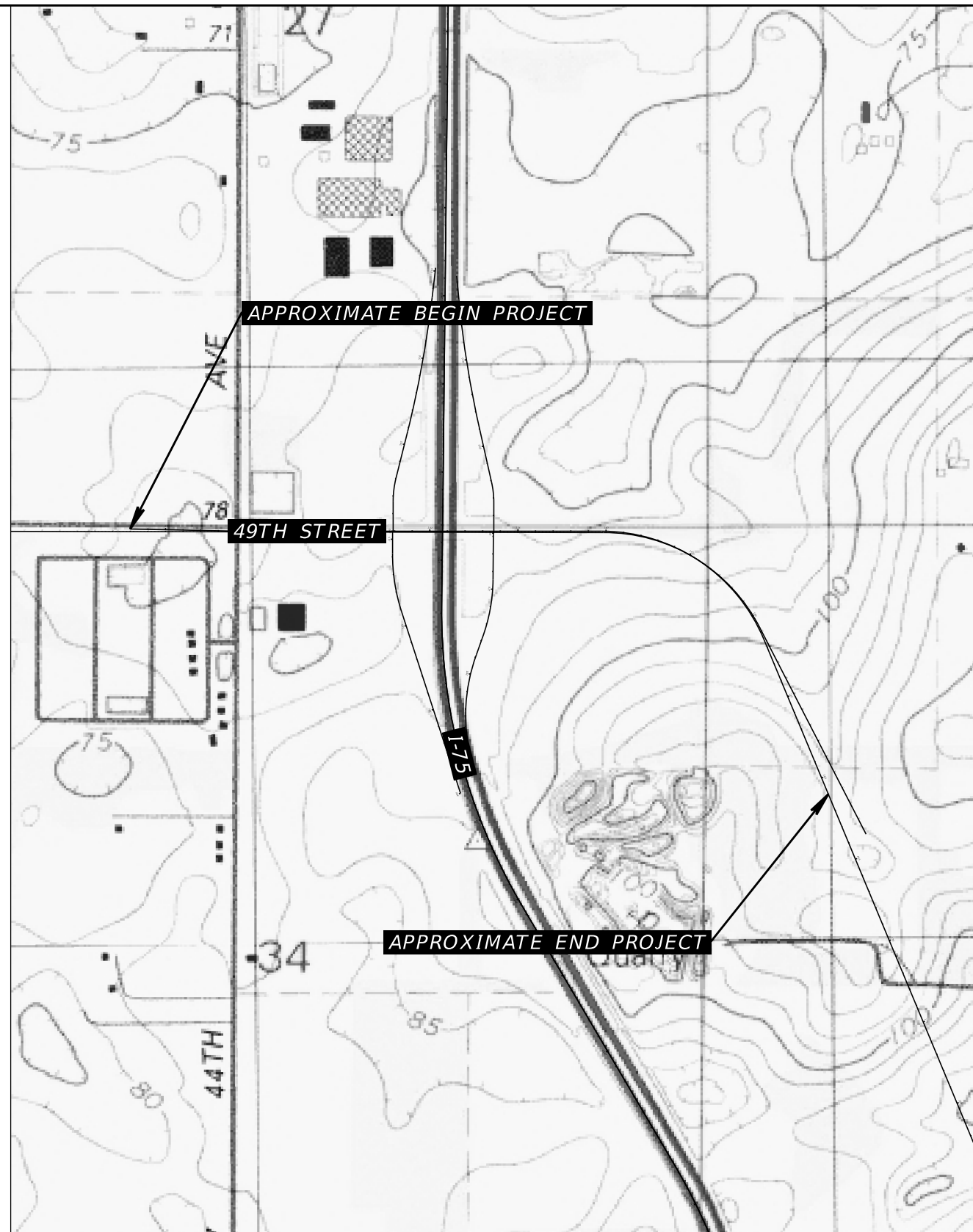
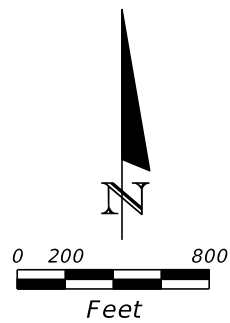
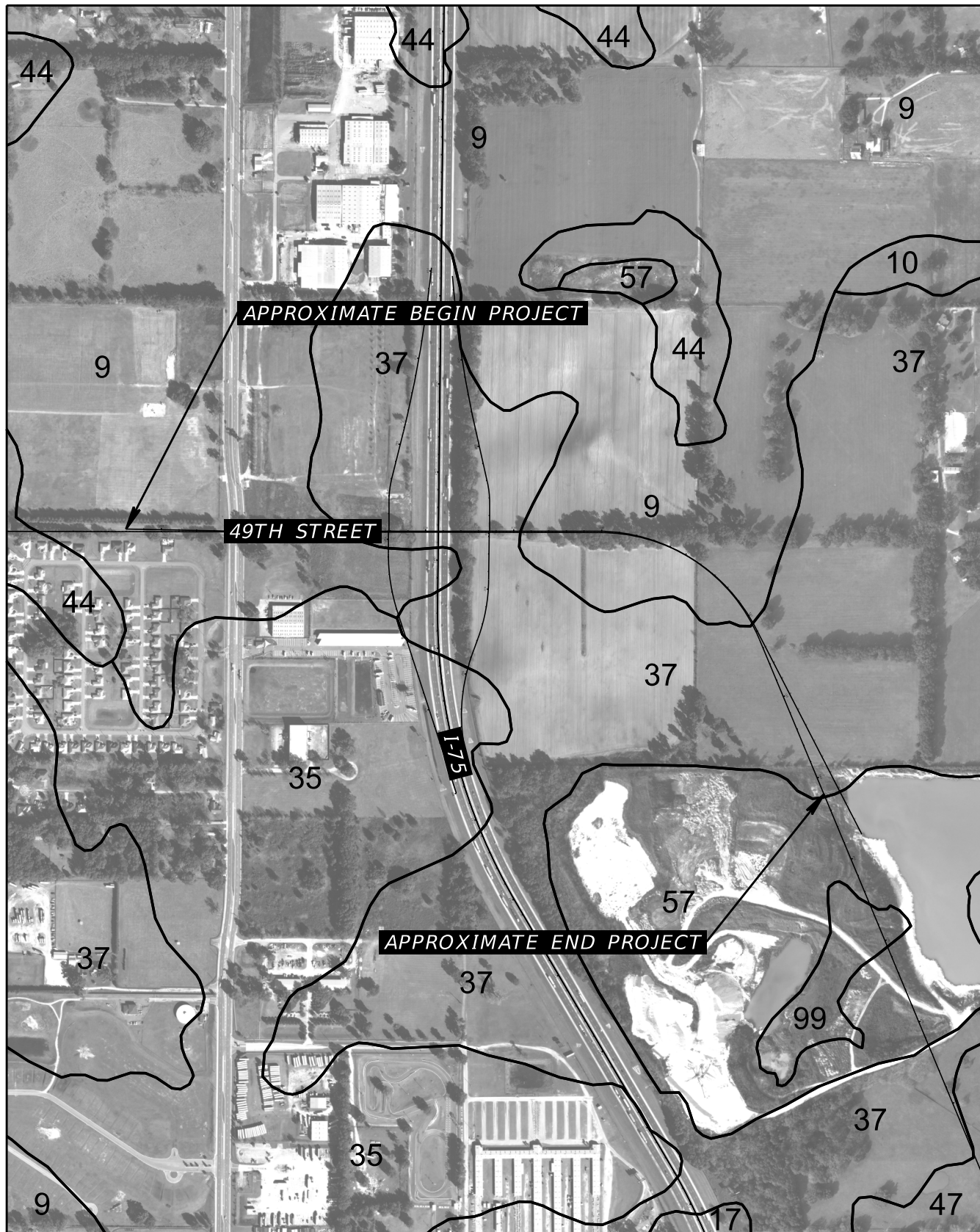
| Boring Number | Boring/Test Location <sup>(1)</sup><br>Baseline Survey SR 93 (I-75) |         | Ground Surface Elevation <sup>(1)</sup><br>(feet, NAVD 88) | Test Elevation<br>(feet, NAVD 88) | Estimated SHGW Elevation<br>(feet, NAVD 88) | Vertical Hydraulic Conductivity <sup>(3)</sup><br>(feet/day) | Horizontal Hydraulic Conductivity <sup>(3)</sup><br>(feet/day) | Confining Layer Elevation<br>(feet, NAVD 88) | Effective Porosity (%) |
|---------------|---|---------|--|-----------------------------------|---|--|--|--|------------------------|
|               | Station   | Offset  |  |                                   |   |  |  |  |                        |
| PBS-1         | 2483+57   | 919 LT  | 85.6   | 84.1                              | 73.6 <sup>(2)</sup>                         | 3  | 5  | 81.6   | 20                     |
| PBS-2         | 2483+67   | 482 LT  | 86.4   | 84.9                              | 80.4 <sup>(2)</sup>                         | 5  | 8  | 80.4   | 20                     |
| PBS-3         | 2488+68   | 371 LT  | 85.5   | 84.0                              | < 65.5                                      | 16   | 24   | 75.8   | 25                     |
| PBS-4         | 2492+37   | 276 LT  | 83.8   | 82.3                              | 80.8 <sup>(2)</sup>                         | 2  | 3  | 79.3   | 20                     |
| PBS-5         | 2490+80   | 255 RT  | 82.9   | 81.4                              | 78.9 <sup>(2)</sup>                         | 5  | 8  | 78.9   | 20                     |
| PBS-6         | 2487+62   | 422 RT  | 72.7   | 71.2                              | 60.7 <sup>(2)</sup>                         | 34   | 40   | 60.7   | 25                     |
| PBS-7         | 2483+43   | 347 RT  | 75.7   | 74.2                              | 63.7 <sup>(2)</sup>                         | 3  | 5  | 71.7   | 20                     |
| PBS-8         | 2485+27   | 683 RT  | 67.6   | 66.1                              | 61.1 <sup>(2)</sup>                         | 4  | 6  | 61.1   | 20                     |
| PBS-9         | 2483+63   | 1018 RT | 74.2   | 72.7                              | 71.2 <sup>(2)</sup>                         | 2  | 3  | 71.2   | 20                     |
| PBS-10        | 2486+27   | 1439 RT | 82.2   | 80.7                              | 74.2 <sup>(2)</sup>                         | 2  | 3  | 74.2   | 20                     |
| PBS-11        | 2482+79   | 1413 RT | 79.4   | 77.9                              | 72.4 <sup>(2)</sup>                         | 4  | 6  | 72.4   | 20                     |
| PBS-12        | 2476+28   | 1509 RT | 95.8   | 94.3                              | < 75.8                                      | 6  | 9  | 91.8   | 20                     |
| PBS-13        | 2479+85   | 1304 RT | 85.4   | 83.9                              | 82.9 <sup>(2)</sup>                         | 2  | 3  | 83.9   | 20                     |
| PBS-14        | 2478+22   | 870 RT  | 89.5   | 88.0                              | < 69.5                                      | 4  | 6  | < 69.5                                       | 20                     |
| PBS-15        | 2479+53   | 517 RT  | 82.0   | 80.5                              | 75.5 <sup>(2)</sup>                         | 1  | 2  | 75.5   | 20                     |
| PBS-16        | 2477+56   | 202 RT  | 83.5   | 82.0                              | < 63.5                                      | 7  | 11   | < 63.5                                       | 25                     |
| PBS-17        | 2474+18   | 368 RT  | 88.8   | 87.3                              | 83.8 <sup>(2)</sup>                         | 2  | 3  | 83.8   | 20                     |
| PBS-18        | 2470+53   | 190 RT  | 88.6   | 87.1                              | 86.6 <sup>(2)</sup>                         | 1  | 2  | 87.1   | 20                     |
| PBS-19        | 2476+86   | 417 LT  | 80.9   | 79.4                              | 79.4 <sup>(2)</sup>                         | 1  | 2  | 79.4   | 20                     |
| PBS-20        | 2479+41   | 579 LT  | 86.5   | 85.0                              | 86.0 <sup>(2)</sup>                         | 3  | 5  | 85.0   | 20                     |
| PBS-22        | 2486+47   | 934 LT  | 85.5   | 80.5                              | < 65.5                                      | 24   | 36   | 72.5   | 25                     |
| PBS-24        | 2486+39   | 514 LT  | 85.2   | 80.2                              | 73.2 <sup>(2)</sup>                         | 40   | 40   | 77.2   | 25                     |
| PBS-26        | 2463+36   | 171 RT  | 98.9   | 93.9                              | 94.9 <sup>(2)</sup>                         | 8  | 13   | 93.9   | 25                     |

**TABLE 5**  
**SUMMARY OF HYDRAULIC CONDUCTIVITY TEST RESULTS**  
**I-75 (SR 93) at NW 49th Street PD&E Study from End of NW 49th Street to End of NW 35th Street**  
**Marion County, Florida**  
**FPN: 435209-1-22-01**  
**Tierra Project No.: 5511-16-033**

| Boring Number | Boring/Test Location <sup>(1)</sup><br>Baseline Survey SR 93 (I-75) |        | Ground Surface Elevation <sup>(1)</sup><br>(feet, NAVD 88) | Test Elevation<br>(feet, NAVD 88) | Estimated SHGW Elevation<br>(feet, NAVD 88) | Vertical Hydraulic Conductivity <sup>(3)</sup><br>(feet/day) | Horizontal Hydraulic Conductivity <sup>(3)</sup><br>(feet/day) | Confining Layer Elevation<br>(feet, NAVD 88) | Effective Porosity (%) |
|---------------|---|--------|--|-----------------------------------|---|--|--|--|------------------------|
|               | Station   | Offset |  |                                   |   |  |  |  |                        |
| <b>PBS-28</b> | 2468+30   | 413 RT | 97.1   | 95.6                              | 89.1 <sup>(2)</sup>                         | 1  | 2  | 95.6   | 20                     |
| <b>PBS-30</b> | 2471+64   | 643 RT | 96.0   | 94.0                              | 94.0 <sup>(2)</sup>                         | 12   | 18   | 94.0   | 25                     |
| <b>PBS-32</b> | 2473+87   | 975 RT | 95.9   | 92.9                              | 93.9 <sup>(2)</sup>                         | 1  | 2  | 92.9   | 20                     |
| <b>PBS-34</b> | 2487+13   | 955 RT | 67.2   | 62.2                              | 61.2  | 5  | 8  | 55.2   | 20                     |
| <b>PBS-36</b> | 2490+95   | 524 RT | 81.5   | 78.5                              | < 61.5                                      | 15   | 23   | 78.5   | 25                     |
| <b>PBS-38</b> | 2493+66   | 594 RT | 79.7   | 75.7                              | 63.7 <sup>(2)</sup>                         | 5  | 8  | 73.7   | 20                     |
| <b>PBS-40</b> | 2498+22   | 244 RT | 70.8   | 65.8                              | 62.8 <sup>(2)</sup>                         | 5  | 8  | 62.8   | 20                     |

Notes:

- <sup>(1)</sup> Station, offset, and elevation of the test borings were determined using the design files provided by Metric, Inc. and GPS coordinates obtained by Tierra, Inc. at the time of fieldwork.
- <sup>(2)</sup> Perched seasonal high groundwater table estimated based on soil stratigraphy.
- <sup>(3)</sup> Measured hydraulic conductivity rates of soils encountered at the time of testing. No reduction or safety factors have been applied to the values. We recommend the pond designer apply the appropriate safety factors to these values.



REFERENCE: USDA SOIL SURVEY OF MARION COUNTY, FLORIDA

REFERENCE: USGS QUADRANGLE MAP OF "OCALA WEST, FLORIDA"

TOWNSHIP: 14 S  
 RANGE: 21E  
 SECTIONS: 27, 34 & 35

FIGURE 2

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | USDA SOIL SURVEY &<br>USGS QUADRANGLE MAPS | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|--|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |  |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |  |           |

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION  
MATERIALS AND RESEARCH

DATE OF SURVEY: APRIL 2018 TO MARCH 2019  
SURVEY MADE BY: TIERRA, INC.  
SUBMITTED BY: JEREMY A. SEWELL, P.E.

DISTRICT: 5  
ROAD NO.: 93  
COUNTY: MARION

FINANCIAL PROJECT ID : 435209-1-22-01  
PROJECT NAME: I-75 (SR 91) AT NW 49TH STREET PD&E STUDY

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS AND PONDS

SURVEY BEGINS STA. : 113+00 SURVEY ENDS STA. : 161+00 REFERENCE: CENTERLINE CONSTRUCTION OF 49TH STREET  
SURVEY BEGINS STA. : 2453+00 SURVEY ENDS STA. : 2503+00 REFERENCE: BASELINE SURVEY OF SR 93 (I-75)

| STRATUM NO. | ORGANIC CONTENT |           | MOISTURE CONTENT |                  | SIEVE ANALYSIS RESULTS |         |         |         |          | ATTERBERG LIMITS |              |              | DESCRIPTION | CORROSION TEST RESULTS |   |              |                    |              |              |         |
|-------------|-----------------|-----------|------------------|------------------|------------------------|---------|---------|---------|----------|------------------|--------------|--------------|-------------|------------------------|---|--------------|--------------------|--------------|--------------|---------|
|             | NO. OF TESTS    | % ORGANIC | NO. OF TESTS     | MOISTURE CONTENT | NO. OF TESTS           | 10 MESH | 40 MESH | 60 MESH | 100 MESH | 200 MESH         | NO. OF TESTS | LIQUID LIMIT |             | PLASTIC INDEX          | AASHTO GROUP  | NO. OF TESTS | RESISTIVITY ohm-cm | CHLORIDE ppm | SULFATES ppm | pH      |
| 1           | --              | --        | --               | --               | 7                      | 100     | 82-89   | 47-63   | 21-31    | 9-10             | --           | --           | --          | A-3                    | GRAY TO LIGHT GRAY AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT                              | 5            | 15,000-39,000      | 15-45        | <5-47        | 5.7-7.2 |
| 2           | --              | --        | 5                | 10-38            | 20                     | 100     | 84-93   | 57-72   | 26-44    | 11-27            | 4            | NP           | NP          | A-2-4                  | BROWN TO ORANGE BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS | 3            | 9,900-25,000       | 15-45        | 12-114       | 5.8-6.2 |
| 3           | --              | --        | 5                | 14-37            | 6                      | 100     | 86-97   | 61-92   | 43-88    | 28-44            | 5            | 24-49        | 12-27       | A-2-6/A-2-7/A-6/A-7-6  | GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS             | --           | --                 | --           | --           | --      |
| 4           | --              | --        | 12               | 19-50            | 12                     | 100     | 92-99   | 81-98   | 66-96    | 51-91            | 10           | 53-101       | 23-70       | A-7-5/A-7-6            | GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS                                  | --           | --                 | --           | --           | --      |
| 5           | --              | --        | --               | --               | --                     | --      | --      | --      | --       | --               | --           | --           | --          | --                     | LIMESTONE   | --           | --                 | --           | --           | --      |

EMBANKMENT AND SUBGRADE MATERIAL

STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.

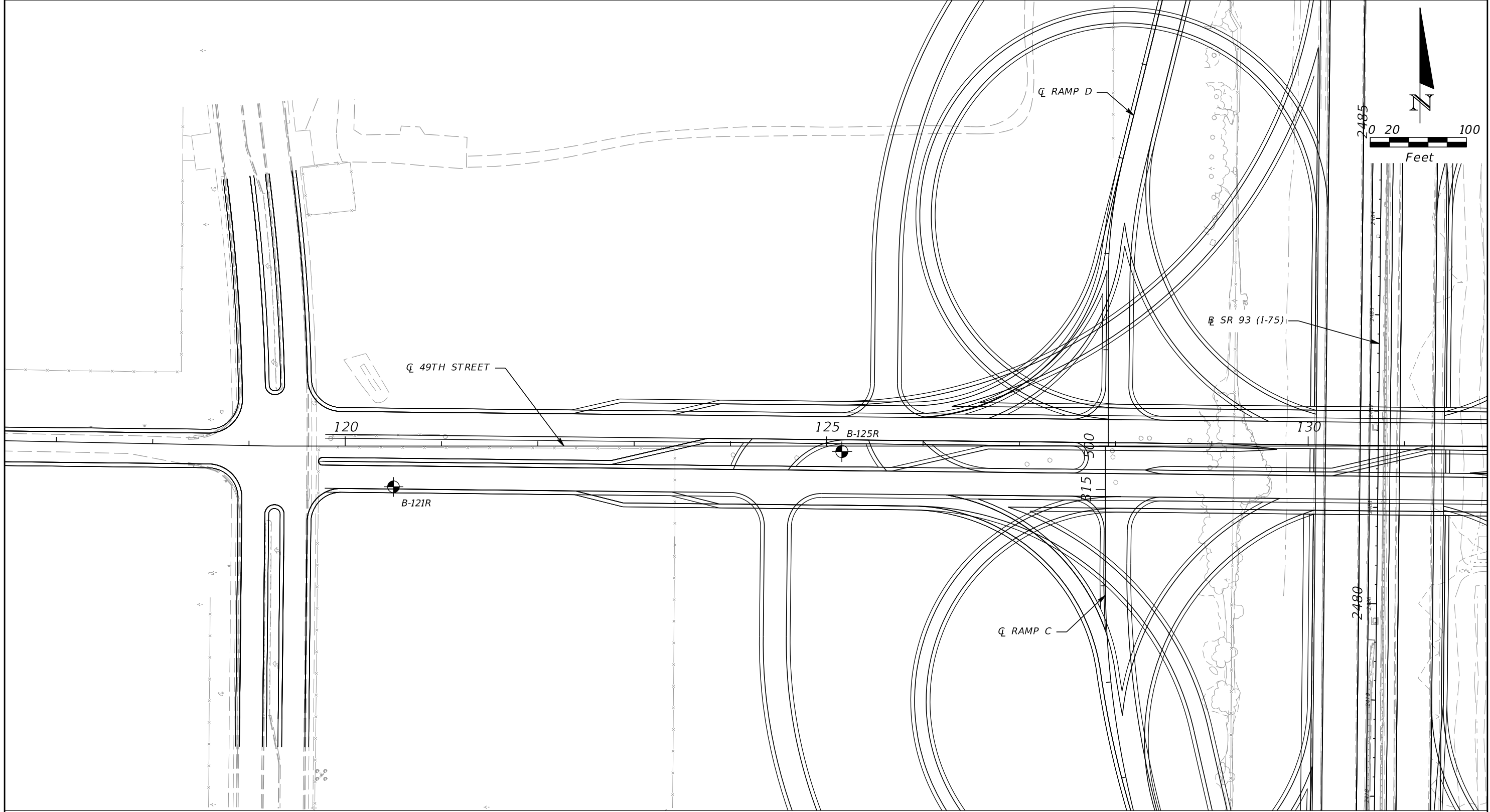
NOTES:

- THE MATERIAL FROM STRATUM 1 (A-3) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM 2 (A-2-4) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001. HOWEVER, THIS MATERIAL IS LIKELY TO RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. IT SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION.
- THE MATERIAL FROM STRATUM 3 (A-2-6/A-2-7/A-6/A-7-6) IS PLASTIC MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002 AND UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM 4 (A-7-5/A-7-6) IS HIGH PLASTIC MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002 AND UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
- THE MATERIAL FROM STRATUM NUMBER 5 IS A NATURAL LIMESTONE FORMATION. SPECIAL TOOLS AND EQUIPMENT WILL BE REQUIRED TO EXCAVATE AND/OR DEWATER THIS MATERIAL.
- WEATHERED LIMESTONE/CAPROCK WAS ENCOUNTERED WITHIN THE BORINGS. THIS MATERIAL IS ROCK AND IS LOCATED AT SHALLOW DEPTHS. EXCAVATIONS INTO AND/OR THROUGH LIMESTONE/CAPROCK WILL BE DIFFICULT AND WILL REQUIRE NON CONVENTIONAL CONSTRUCTION TECHNIQUES AND SPECIALIZED EQUIPMENT. LIMESTONE/CAPROCK IS POROUS AND WILL BE DIFFICULT TO DEWATER.

- ∇ - PERCHED SEASONAL HIGH GROUNDWATER TABLE  
GNA - GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID  
NP - NON-PLASTIC

FIGURE 3

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |           |

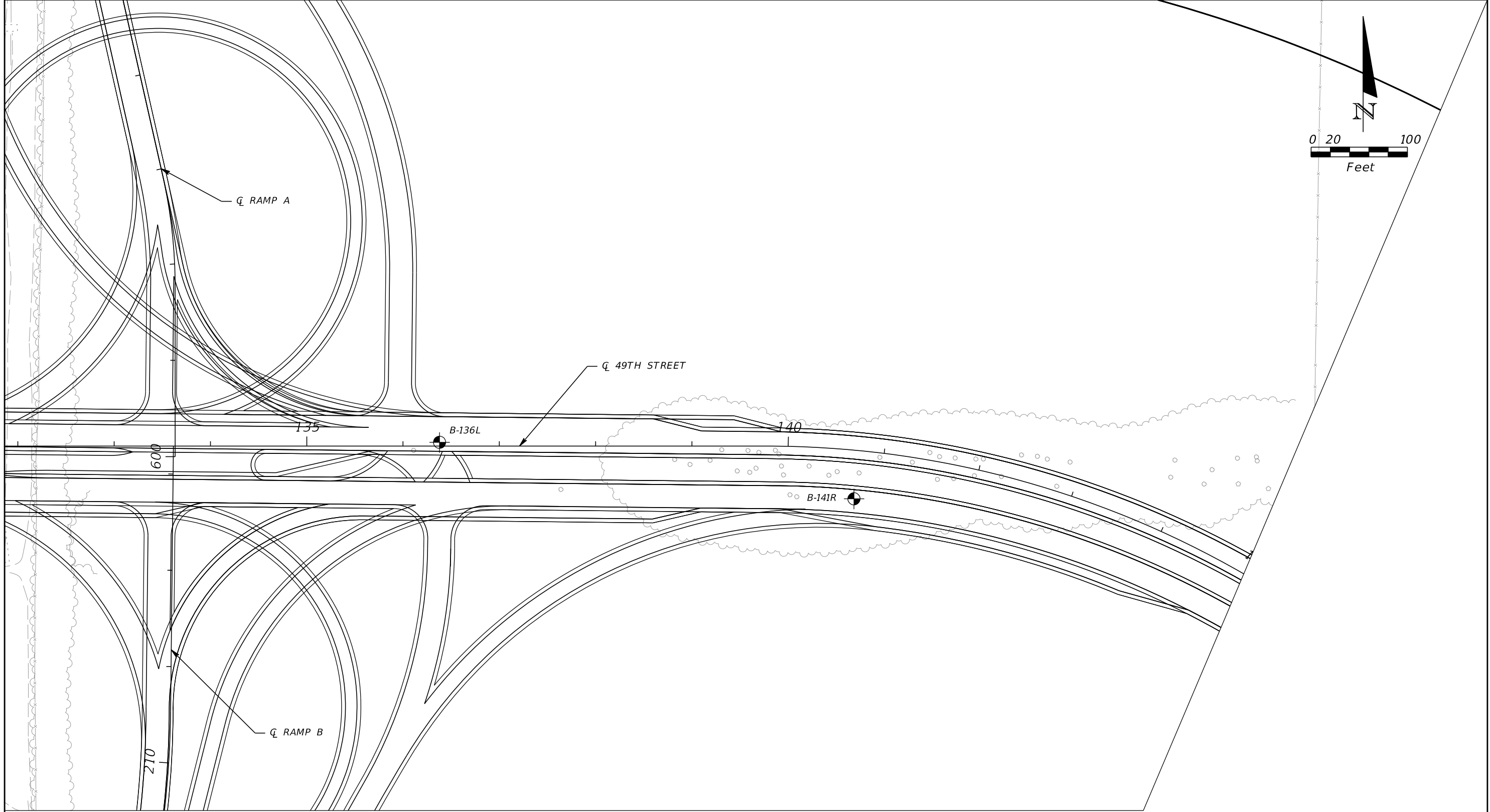


**LEGEND**

 APPROXIMATE SPT BORING LOCATION

**FIGURE 4**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |                |                      | <b>BORING LOCATION PLAN (1)</b> | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--|----------------|----------------------|---------------------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY         | FINANCIAL PROJECT ID |                                 |              |
|           |             |      |             | SR 93  | MARION   | 435209-1-22-01 |                      |                                 |              |

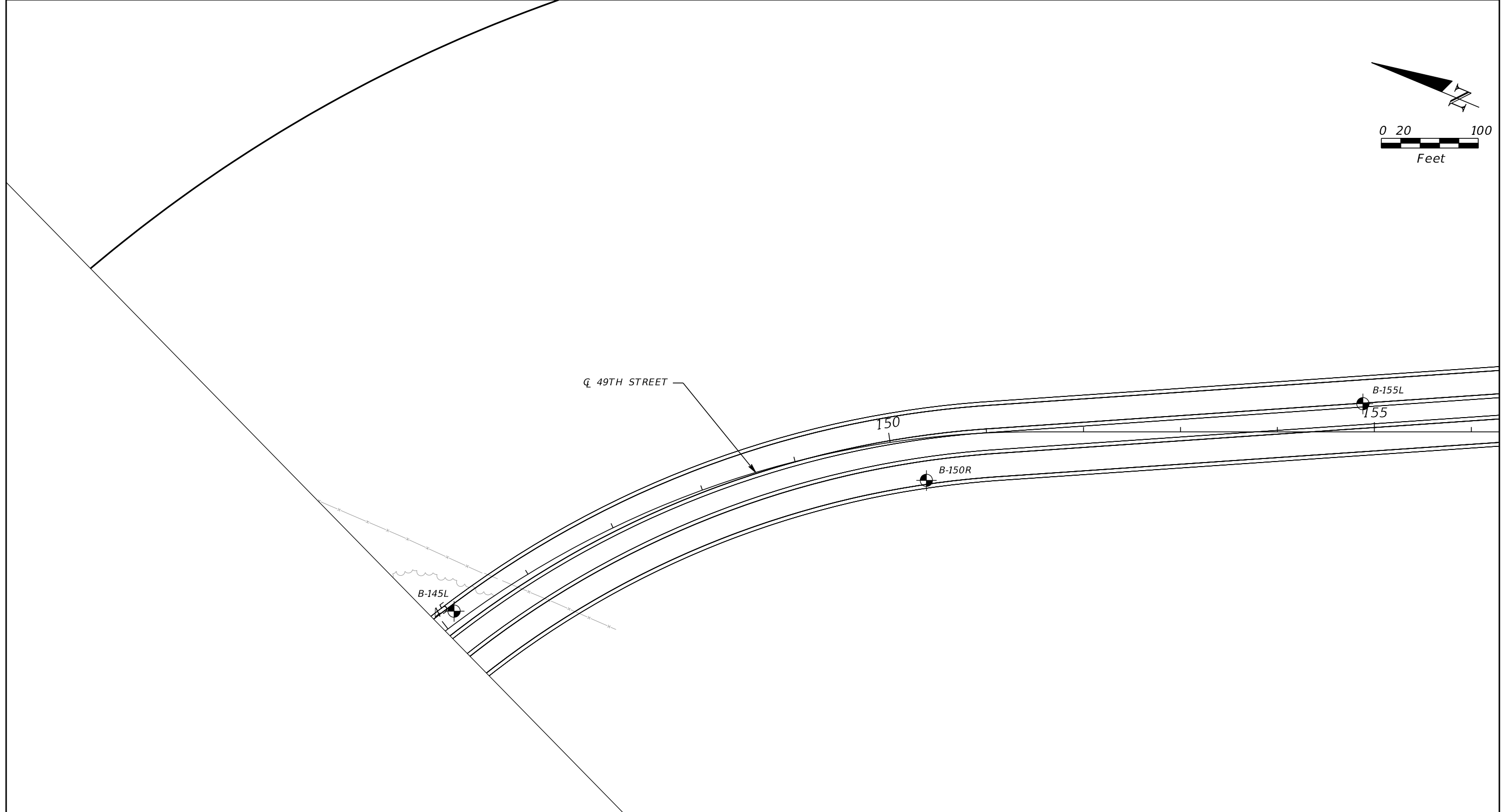
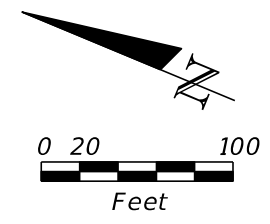


**LEGEND**

 APPROXIMATE SPT BORING LOCATION

**FIGURE 5**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>BORING LOCATION PLAN (2)</b> | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|---------------------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                                 |              |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                                 |              |

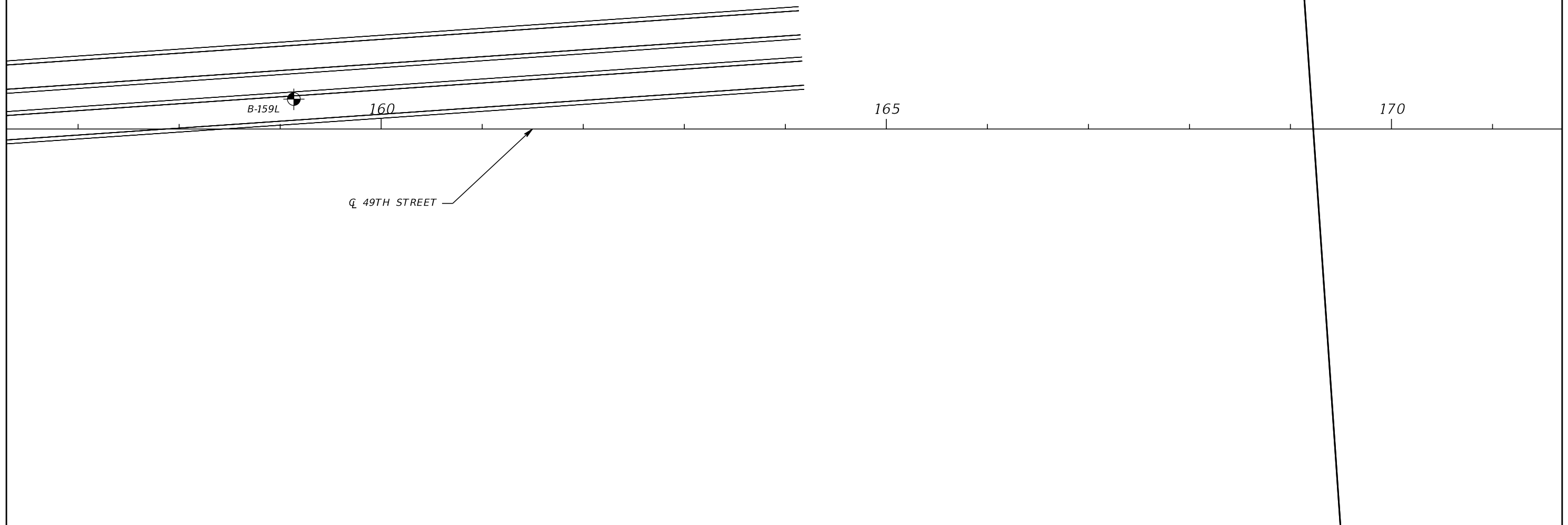
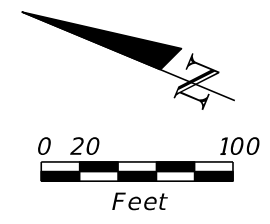


**LEGEND**

APPROXIMATE SPT BORING LOCATION

**FIGURE 6**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>BORING LOCATION PLAN (3)</b> | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|---------------------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                                 |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                                 |           |

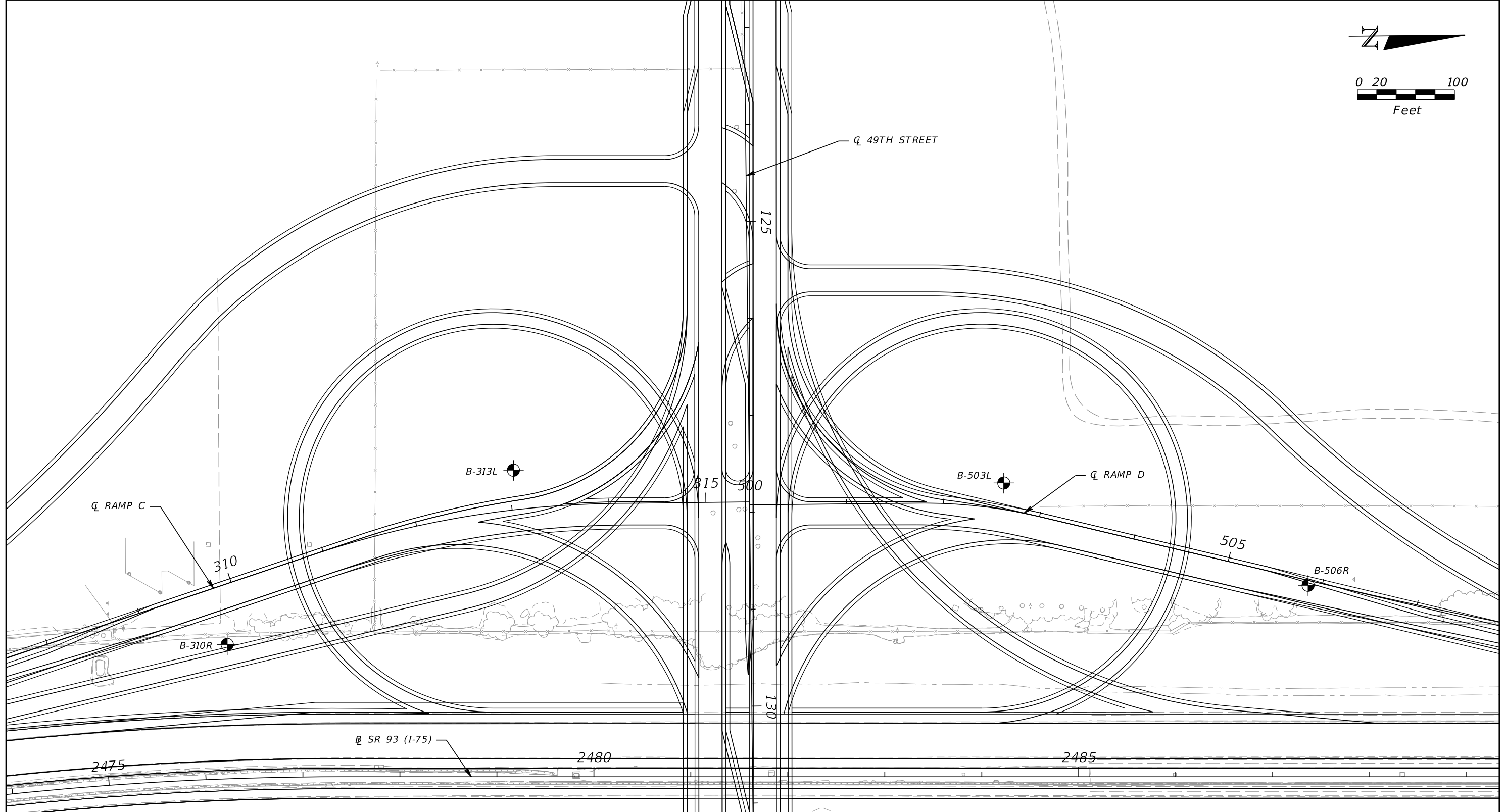
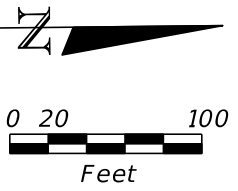


**LEGEND**

 APPROXIMATE SPT BORING LOCATION

**FIGURE 7**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>BORING LOCATION PLAN (4)</b> | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|---------------------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                                 |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                                 |           |

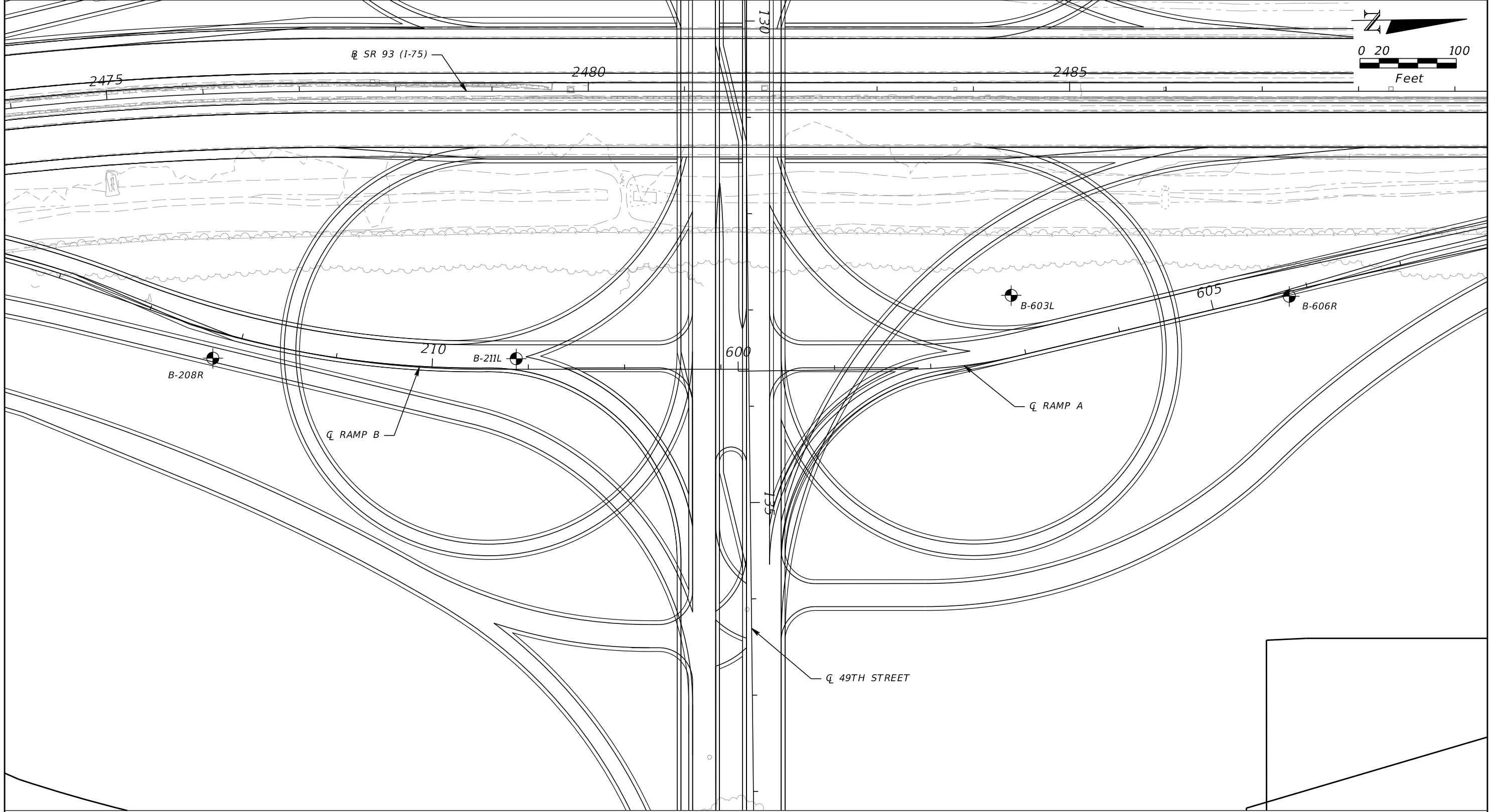


**LEGEND**

 APPROXIMATE SPT BORING LOCATION

**FIGURE 8**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>BORING LOCATION PLAN (5)</b> | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|---------------------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                                 |              |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                                 |              |



**LEGEND**

 APPROXIMATE SPT BORING LOCATION

**FIGURE 9**

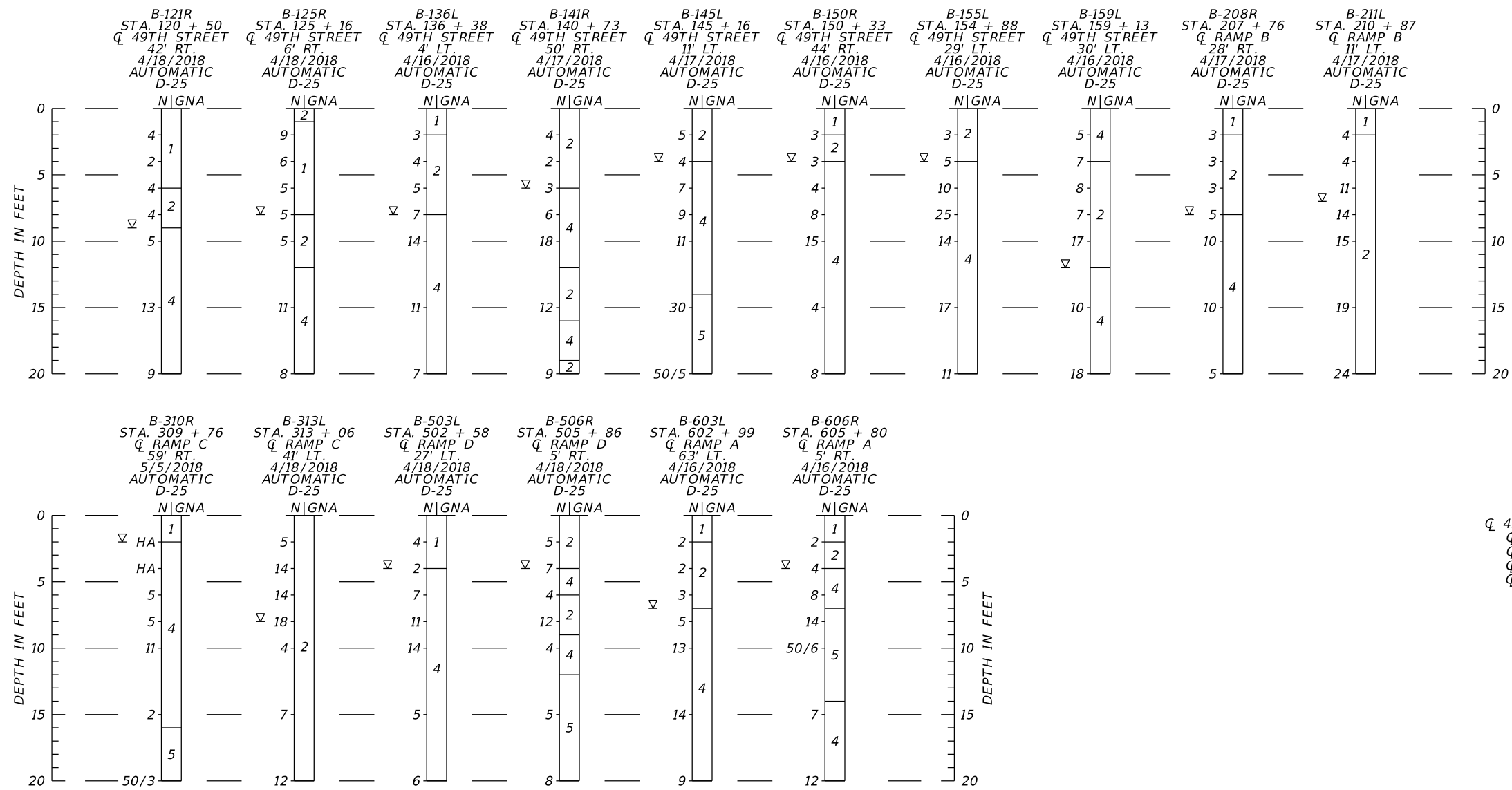
| REVISIONS |             |      |             | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET<br>NO. |
|-----------|-------------|------|-------------|--|--------|----------------------|--------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |              |
|           |             |      |             | SR 93  | MARION | 435209-1-22-01       |              |

JEREMY A. SEWELL, P.E.  
P.E. LICENSE NUMBER 62951  
TIERRA, INC.  
591 SUSAN B. BRITT COURT  
WINTER GARDEN, FLORIDA 34787  
CERTIFICATE OF AUTHORIZATION NO. 6486

**BORING LOCATION PLAN (6)**

**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
  - A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
  - N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
  - 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
  - HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
  - ▽ PERCHED SEASONAL HIGH GROUNDWATER TABLE
  - GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ◻ 49TH STREET CENTERLINE CONSTRUCTION OF 49TH STREET  
 ◻ RAMP A CENTERLINE CONSTRUCTION OF RAMP A  
 ◻ RAMP B CENTERLINE CONSTRUCTION OF RAMP B  
 ◻ RAMP C CENTERLINE CONSTRUCTION OF RAMP C  
 ◻ RAMP D CENTERLINE CONSTRUCTION OF RAMP D

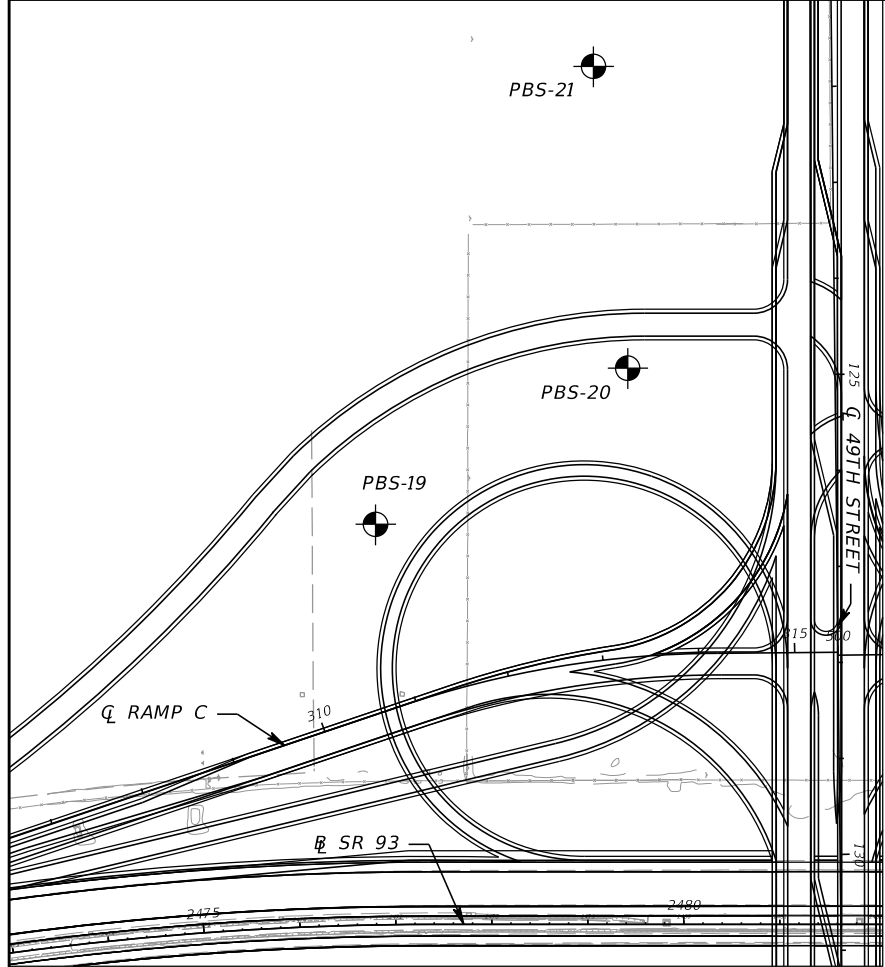


|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

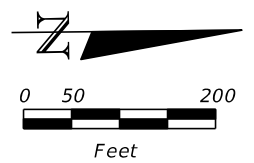
FIGURE 10

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |           |

**ROADWAY SOIL PROFILES**



**BORING LOCATION PLAN**



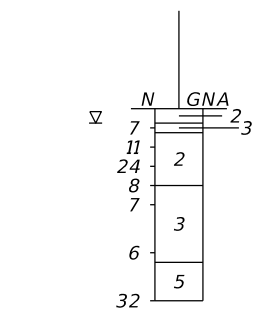
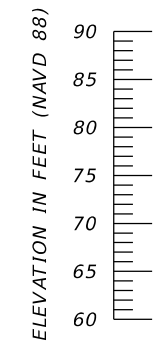
**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- LOSS OF CIRCULATION OF DRILLING FLUID (%)
- BASELINE SURVEY OF SR 93 (I-75)

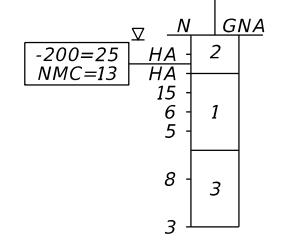
BOR # PBS-19  
 STA. 2476+86  
 REF. SR 93  
 OFF. 417 LT  
 ELEV. 80.9  
 DATE 8/24/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-20  
 STA. 2479+41  
 REF. SR 93  
 OFF. 579 LT  
 ELEV. 86.5  
 DATE 7/31/2018  
 DRILLER A. JACKSON  
 HAMMER AUTOMATIC  
 RIG D-25

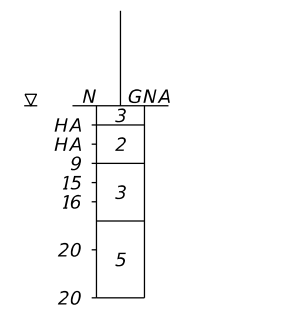
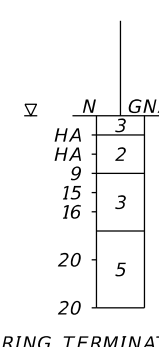
BOR # PBS-21  
 STA. 2479+06  
 REF. SR 93  
 OFF. 894 LT  
 ELEV. 81.2  
 DATE 1/24/2019  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25



BORING TERMINATED AT ELEVATION 60.9 FT (NAVD 88)



BORING TERMINATED AT ELEVATION 66.5 FT (NAVD 88)



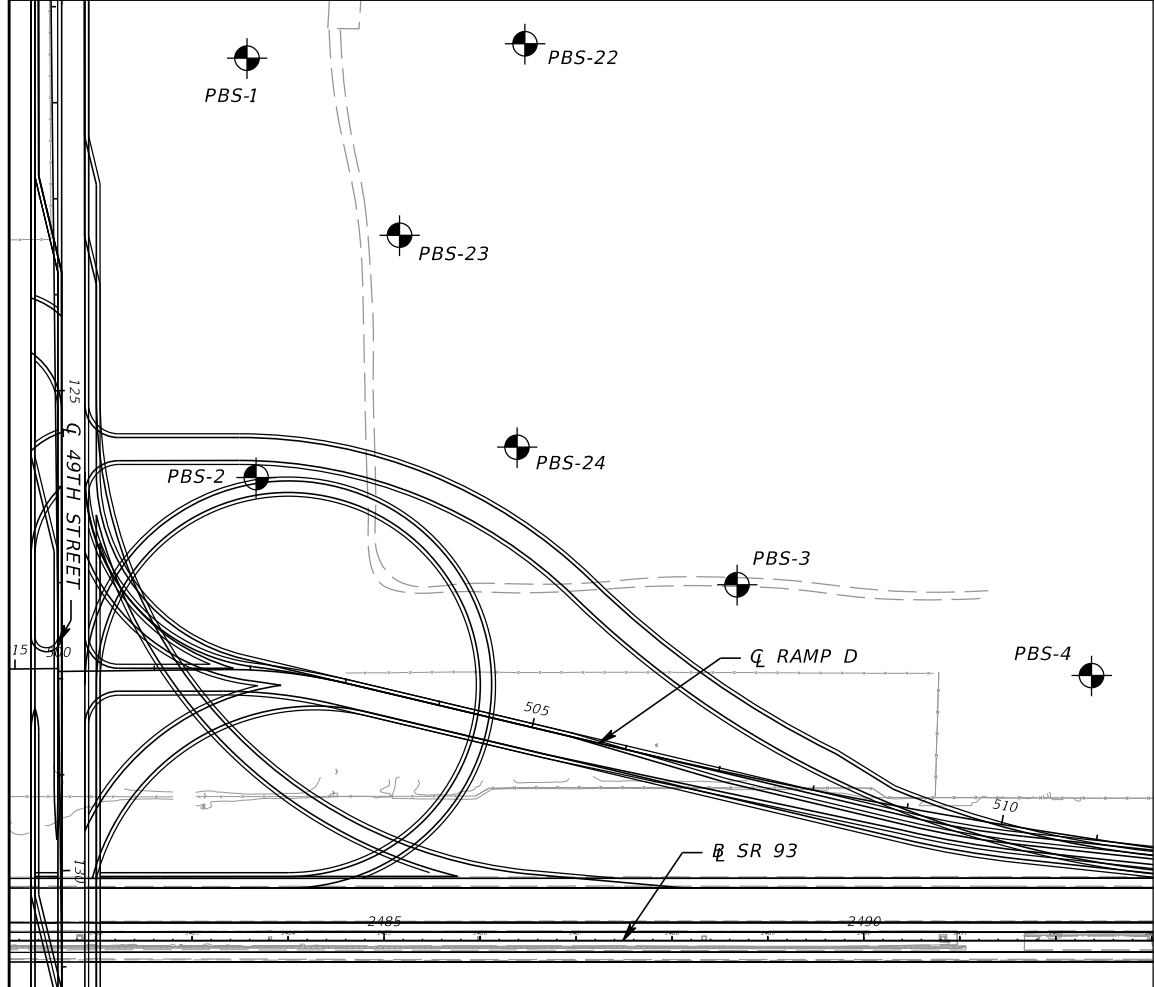
BORING TERMINATED AT ELEVATION 61.2 FT (NAVD 88)

|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

**FIGURE 11**

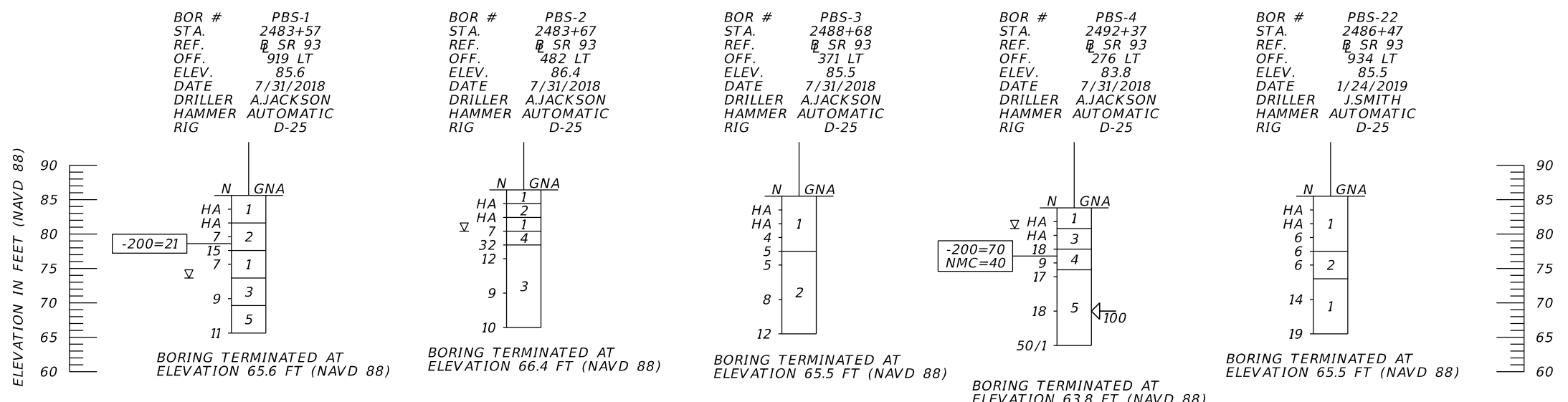
| <p>REVISIONS</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>DESCRIPTION</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> |             |                      |             | DATE | DESCRIPTION | DATE | DESCRIPTION |  |  |  |  | <p>JEREMY A. SEWELL, P.E.<br/>         P.E. LICENSE NUMBER 62951<br/>         TIERRA, INC.<br/>         591 SUSAN B. BRITT COURT<br/>         WINTER GARDEN, FLORIDA 34787<br/>         CERTIFICATE OF AUTHORIZATION NO. 6486</p> |  |  | <p>STATE OF FLORIDA<br/>         DEPARTMENT OF TRANSPORTATION</p> <table border="1"> <thead> <tr> <th>ROAD NO.</th> <th>COUNTY</th> <th>FINANCIAL PROJECT ID</th> </tr> </thead> <tbody> <tr> <td>SR 93</td> <td>MARION</td> <td>435209-1-22-01</td> </tr> </tbody> </table> |  |  | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | SR 93 | MARION | 435209-1-22-01 | <p>SHEET NO.</p> |  |
|--|-------------|----------------------|-------------|------|-------------|------|-------------|--|--|--|--|---|--|--|--|--|--|----------|--------|----------------------|-------|--------|----------------|------------------|--|
| DATE   | DESCRIPTION | DATE                 | DESCRIPTION |      |             |      |             |  |  |  |  |   |  |  |  |  |  |          |        |                      |       |        |                |                  |  |
|  |             |                      |             |      |             |      |             |  |  |  |  |   |  |  |  |  |  |          |        |                      |       |        |                |                  |  |
| ROAD NO.   | COUNTY      | FINANCIAL PROJECT ID |             |      |             |      |             |  |  |  |  |   |  |  |  |  |  |          |        |                      |       |        |                |                  |  |
| SR 93  | MARION      | 435209-1-22-01       |             |      |             |      |             |  |  |  |  |   |  |  |  |  |  |          |        |                      |       |        |                |                  |  |
| <p><b>POND SOIL SURVEY (1)</b></p>   |             |                      |             |      |             |      |             |  |  |  |  |   |  |  |  |  |  |          |        |                      |       |        |                |                  |  |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**BORING LOCATION PLAN**

- LEGEND**
1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- ⊕ APPROXIMATE SPT BORING LOCATION
- ▽ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ◁100 LOSS OF CIRCULATION OF DRILLING FLUID (%)
- SR 93 BASELINE SURVEY OF SR 93 (I-75)

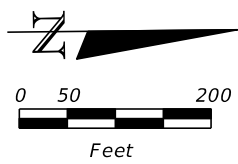
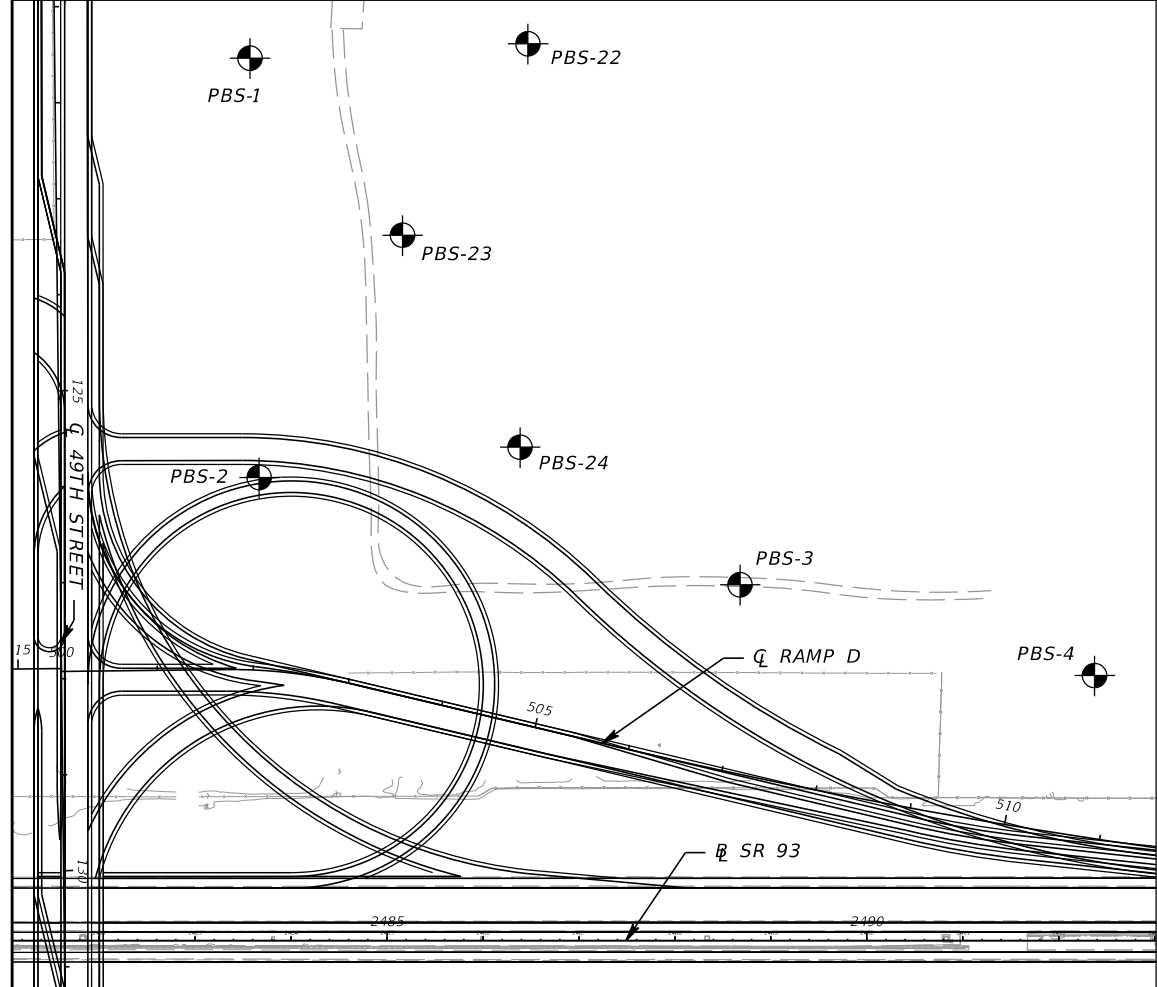


|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

**FIGURE 12**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>POND SOIL SURVEY (2)</b> | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|-----------------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                             |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                             |           |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

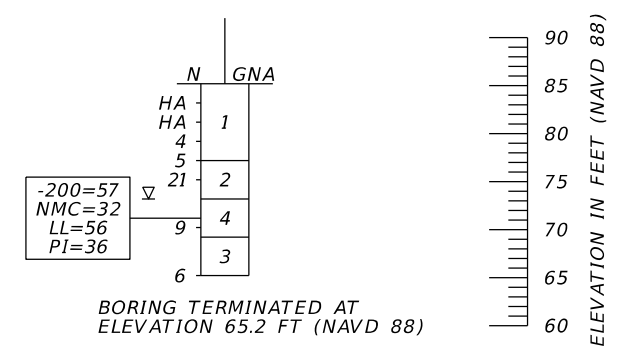
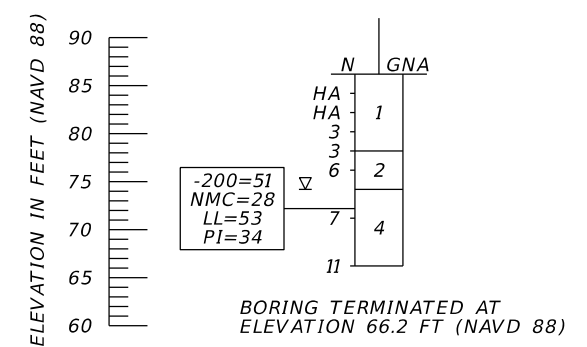


**BORING LOCATION PLAN**

- LEGEND**
1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- LOSS OF CIRCULATION OF DRILLING FLUID (%)
- BASELINE SURVEY OF SR 93 (I-75)

BOR # PBS-23  
 STA. 2485+16  
 REF. SR 93  
 OFF. 735 LT  
 ELEV. 86.2  
 DATE 1/24/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-24  
 STA. 2486+39  
 REF. SR 93  
 OFF. 514 LT  
 ELEV. 85.2  
 DATE 1/24/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

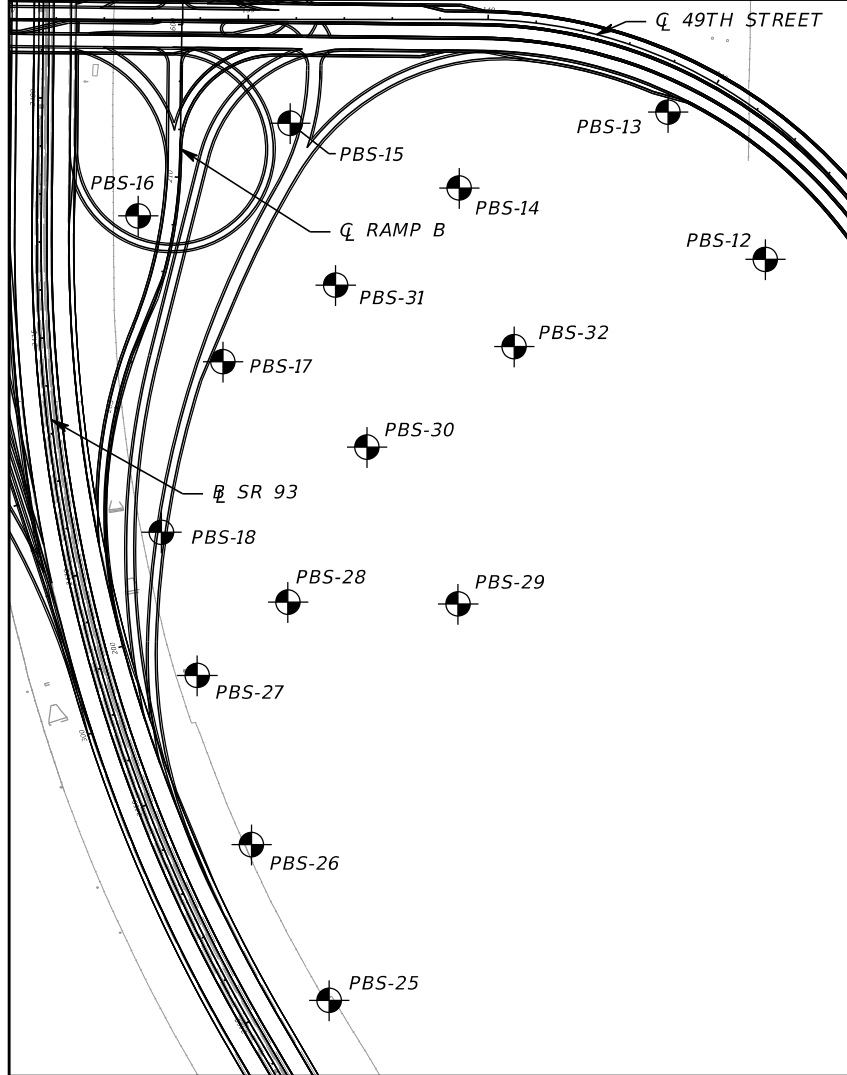


|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

**FIGURE 13**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO.<br><br><b>POND SOIL SURVEY (3)</b> |
|-----------|-------------|------|-------------|--|--|--------|----------------------|--|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |  |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |  |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**BORING LOCATION PLAN**

- LEGEND**
- GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  - BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  - GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  - GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  - LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- ⊕ APPROXIMATE SPT BORING LOCATION
- ▽ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ◁100 LOSS OF CIRCULATION OF DRILLING FLUID (%)
- SR 93 BASELINE SURVEY OF SR 93 (I-75)

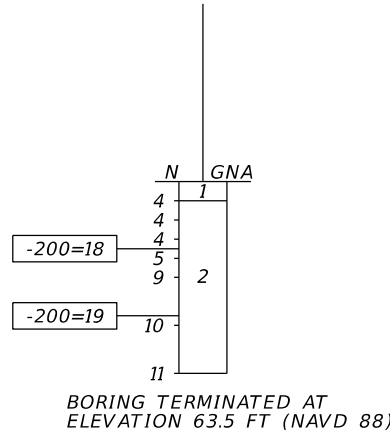
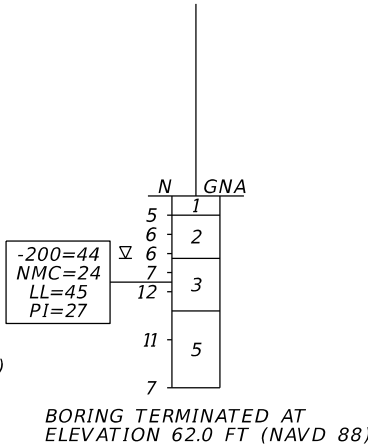
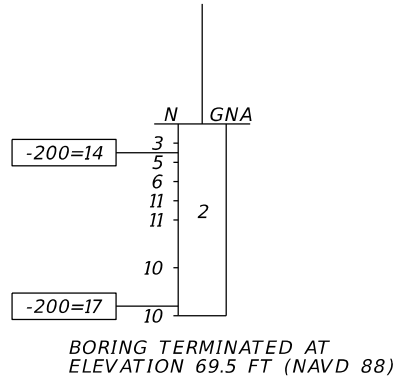
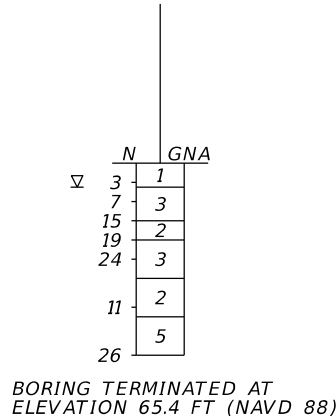
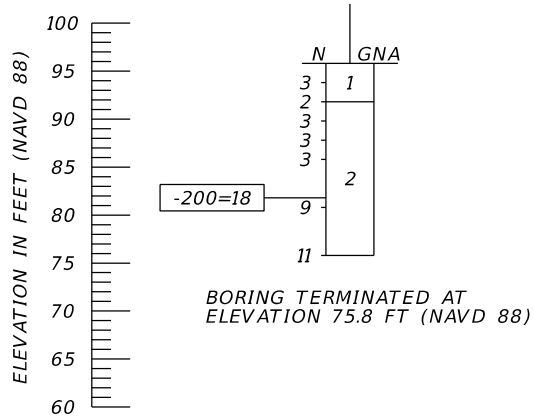
BOR # PBS-12  
 STA. 2476+28  
 REF. SR 93  
 OFF. 1509 RT  
 ELEV. 95.8  
 DATE 8/24/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-13  
 STA. 2479+85  
 REF. SR 93  
 OFF. 1304 RT  
 ELEV. 85.4  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-14  
 STA. 2478+22  
 REF. SR 93  
 OFF. 870 RT  
 ELEV. 89.5  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-15  
 STA. 2479+53  
 REF. SR 93  
 OFF. 517 RT  
 ELEV. 82.0  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-16  
 STA. 2477+56  
 REF. SR 93  
 OFF. 202 RT  
 ELEV. 83.5  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

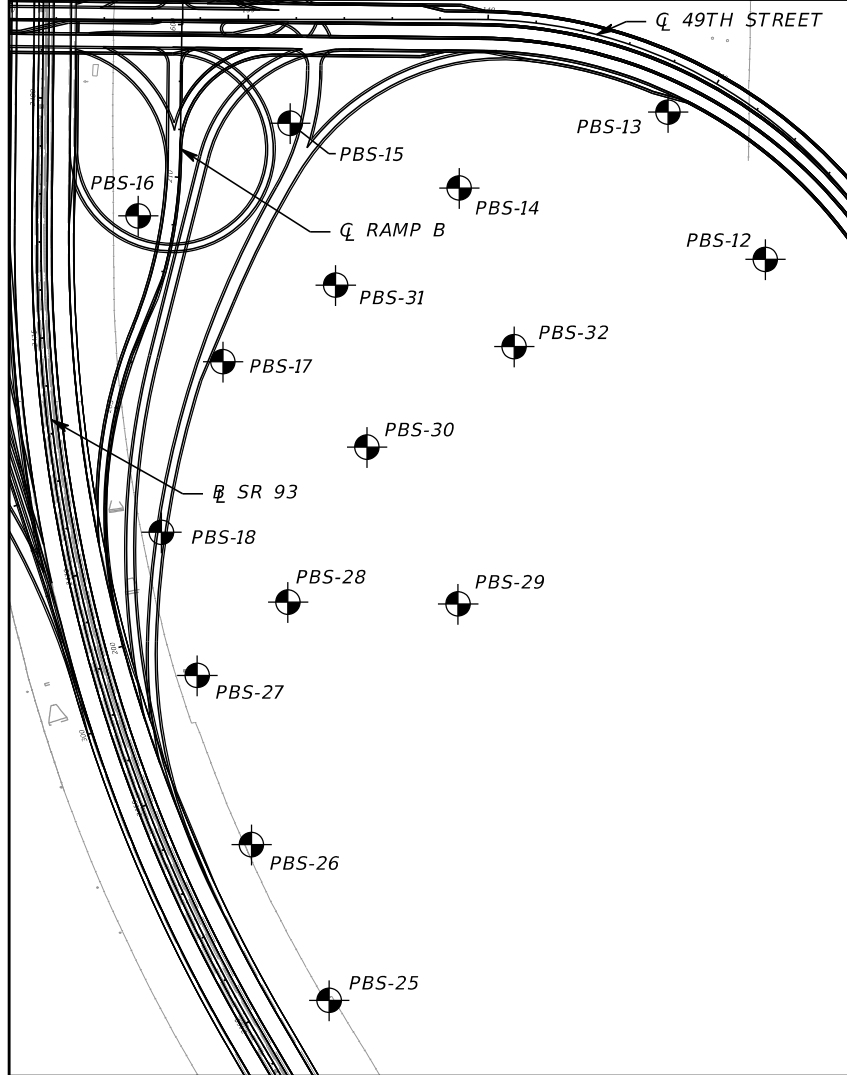


|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

**FIGURE 14**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | <b>POND SOIL SURVEY (4)</b> | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|-----------------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                             |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                             |           |

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**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- ⊕ APPROXIMATE SPT BORING LOCATION
- ▽ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ◁100 LOSS OF CIRCULATION OF DRILLING FLUID (%)
- ⊞ SR 93 BASELINE SURVEY OF SR 93 (I-75)

**BORING LOCATION PLAN**

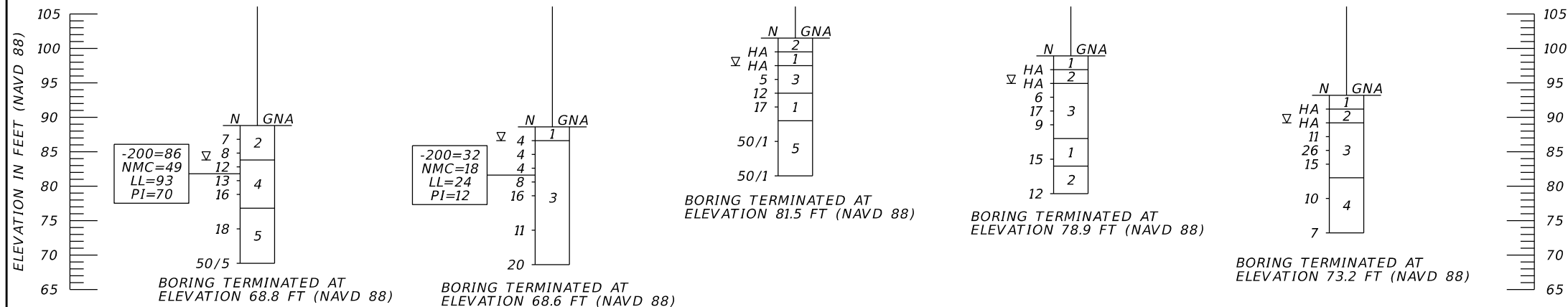
BOR # PBS-17  
 STA. 2474+18  
 REF. ⊞ SR 93  
 OFF. 368 RT  
 ELEV. 88.8  
 DATE 8/24/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-18  
 STA. 2470+53  
 REF. ⊞ SR 93  
 OFF. 190 RT  
 ELEV. 88.6  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-25  
 STA. 2459+54  
 REF. ⊞ SR 93  
 OFF. 166 RT  
 ELEV. 101.5  
 DATE 3/22/2018  
 DRILLER D.STAKELIN  
 HAMMER AUTOMATIC  
 RIG CME-55

BOR # PBS-26  
 STA. 2463+36  
 REF. ⊞ SR 93  
 OFF. 171 RT  
 ELEV. 98.9  
 DATE 3/22/2019  
 DRILLER D.STAKELIN  
 HAMMER AUTOMATIC  
 RIG CME-55

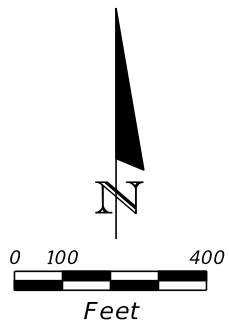
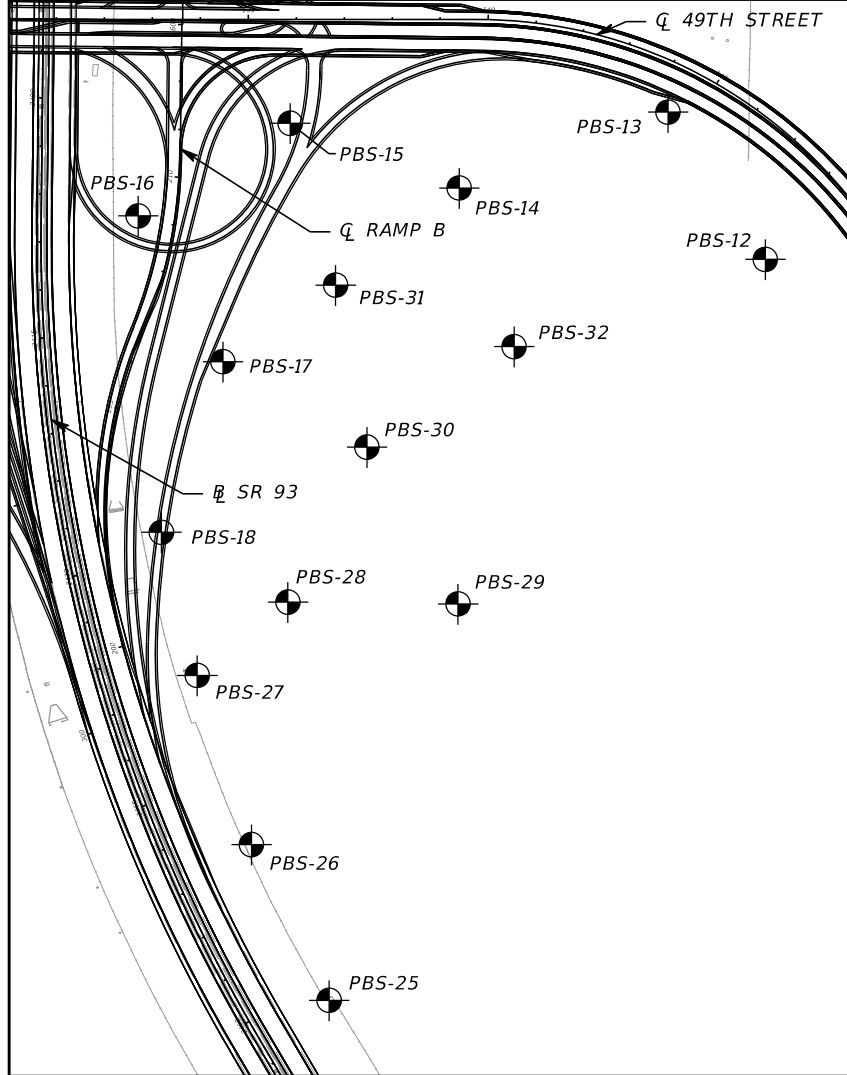
BOR # PBS-27  
 STA. 2467+27  
 REF. ⊞ SR 93  
 OFF. 189 RT  
 ELEV. 93.2  
 DATE 3/20/2019  
 DRILLER D.STAKELIN  
 HAMMER AUTOMATIC  
 RIG CME-55



**FIGURE 15**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO.<br><br><b>POND SOIL SURVEY (5)</b> |
|-----------|-------------|------|-------------|--|--|--------|----------------------|--|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |  |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |  |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- ⊕ APPROXIMATE SPT BORING LOCATION
- ∇ ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- ◁100 LOSS OF CIRCULATION OF DRILLING FLUID (%)
- SR 93 BASELINE SURVEY OF SR 93 (I-75)

**BORING LOCATION PLAN**

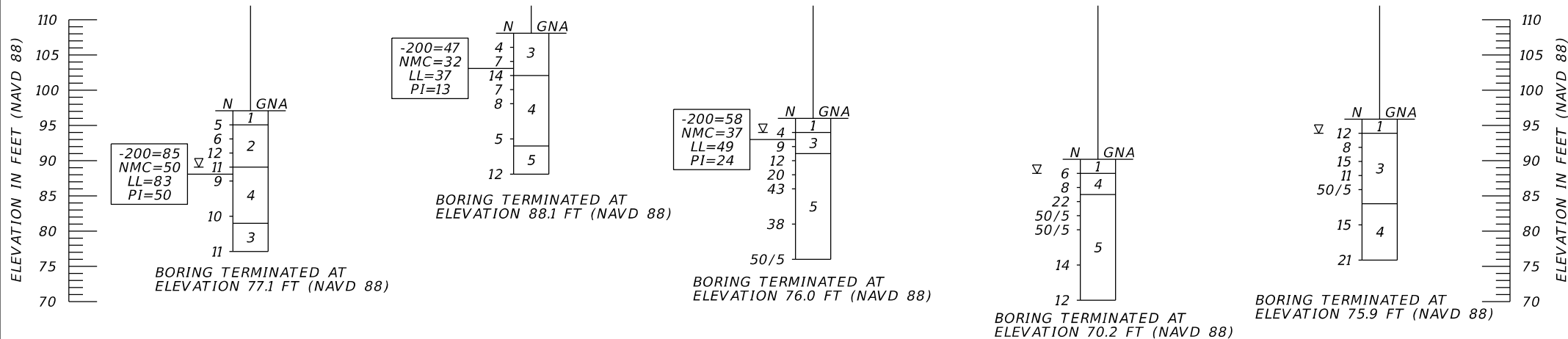
BOR # PBS-28  
 STA. 2468+30  
 REF. SR 93  
 OFF. 413 RT  
 ELEV. 97.1  
 DATE 1/23/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-29  
 STA. 2467+04  
 REF. SR 93  
 OFF. 752 RT  
 ELEV. 108.1  
 DATE 1/23/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-30  
 STA. 2471+64  
 REF. SR 93  
 OFF. 643 RT  
 ELEV. 96.0  
 DATE 1/23/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-31  
 STA. 2475+88  
 REF. SR 93  
 OFF. 612 RT  
 ELEV. 90.2  
 DATE 1/24/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-32  
 STA. 2473+87  
 REF. SR 93  
 OFF. 975 RT  
 ELEV. 95.9  
 DATE 1/23/2019  
 DRILLER J.SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

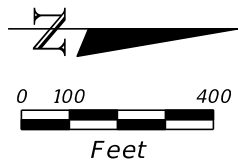
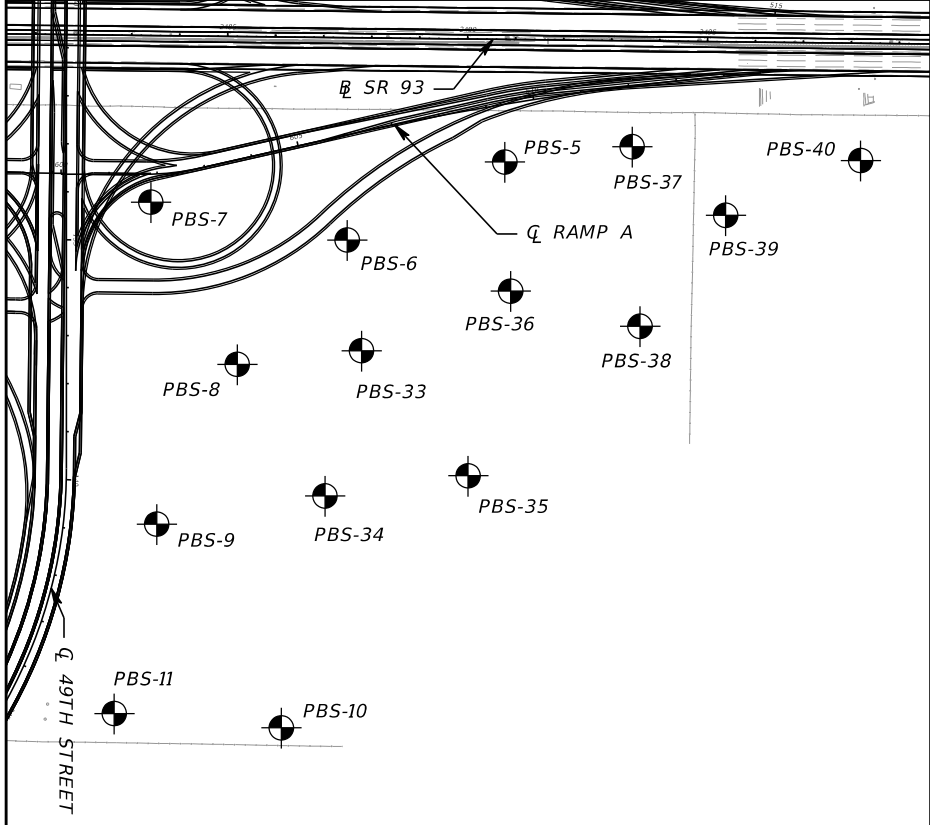


|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

FIGURE 16

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO.<br><br><b>POND SOIL SURVEY (6)</b> |
|-----------|-------------|------|-------------|--|--|--------|----------------------|--|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |  |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |  |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**BORING LOCATION PLAN**

**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- LOSS OF CIRCULATION OF DRILLING FLUID (%)
- BASELINE SURVEY OF SR 93 (1-75)

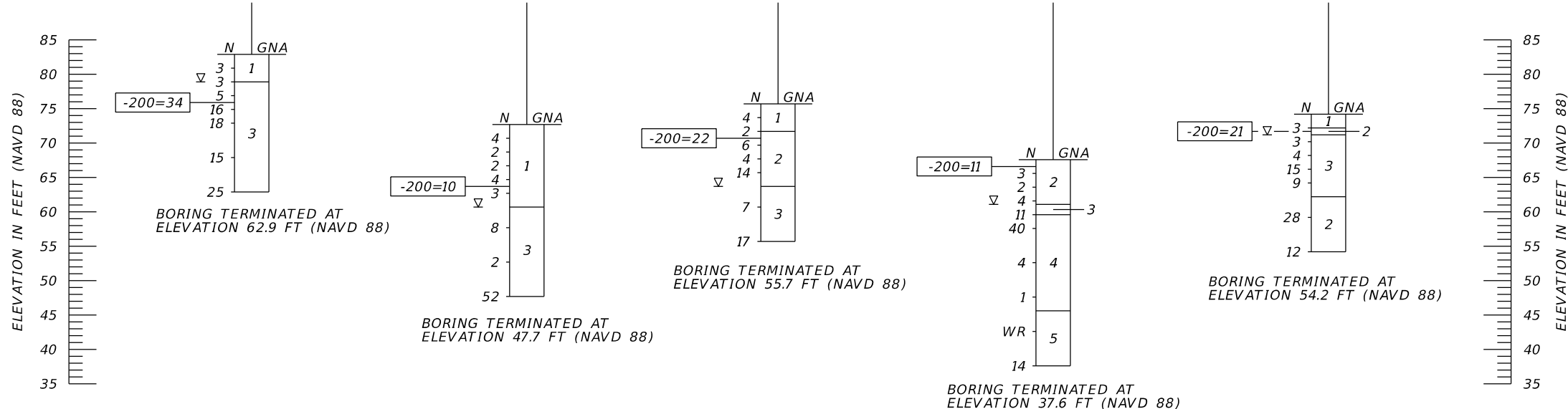
BOR # PBS-5  
 STA. 2490+80  
 REF. SR 93  
 OFF. 255 RT  
 ELEV. 82.9  
 DATE 8/21/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-6  
 STA. 2487+62  
 REF. SR 93  
 OFF. 422 RT  
 ELEV. 72.7  
 DATE 8/21/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-7  
 STA. 2483+43  
 REF. SR 93  
 OFF. 347 RT  
 ELEV. 75.7  
 DATE 8/21/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-8  
 STA. 2485+27  
 REF. SR 93  
 OFF. 683 RT  
 ELEV. 67.6  
 DATE 8/21/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-9  
 STA. 2483+63  
 REF. SR 93  
 OFF. 1018 RT  
 ELEV. 74.2  
 DATE 8/21/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25



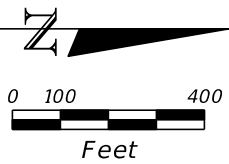
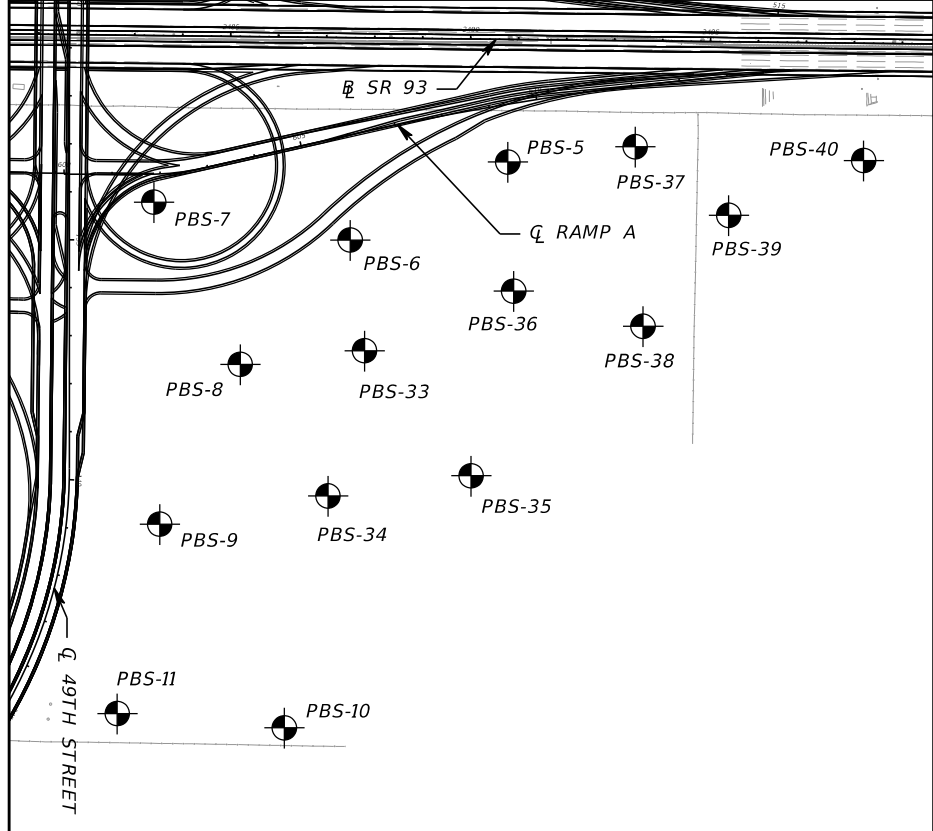
|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

FIGURE 17

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |           |

**POND SOIL SURVEY (7)**

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**BORING LOCATION PLAN**

**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
  2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
  3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
  4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
  5. LIMESTONE
- A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
- N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
- 50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
- HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
- WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD
- 200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)
- NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- APPROXIMATE SPT BORING LOCATION
- ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
- GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.
- LOSS OF CIRCULATION OF DRILLING FLUID (%)
- BASELINE SURVEY OF SR 93 (I-75)

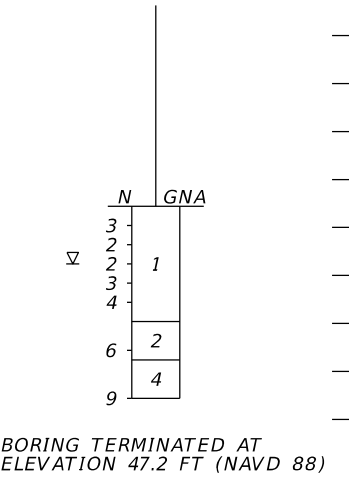
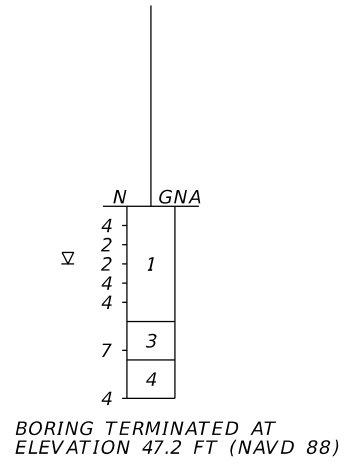
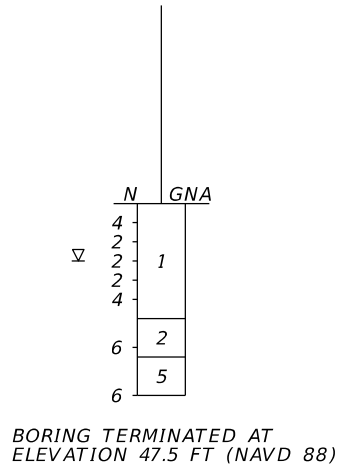
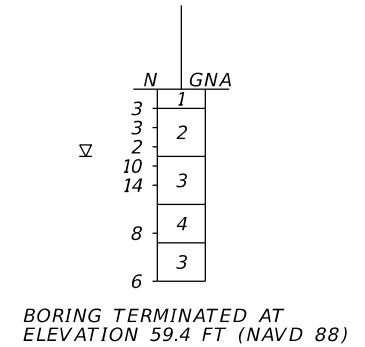
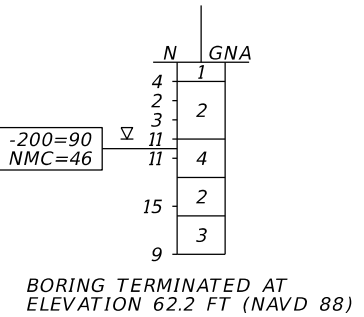
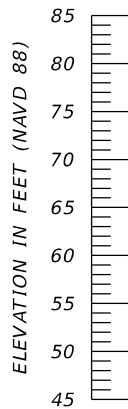
BOR # PBS-10  
 STA. 2486+27  
 REF. SR 93  
 OFF. 1439 RT  
 ELEV. 82.2  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-11  
 STA. 2482+79  
 REF. SR 93  
 OFF. 1413 RT  
 ELEV. 79.4  
 DATE 8/22/2018  
 DRILLER J. SMITH  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-33  
 STA. 2487+86  
 REF. SR 93  
 OFF. 652 RT  
 ELEV. 67.5  
 DATE 2/19/2019  
 DRILLER J. ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-34  
 STA. 2487+13  
 REF. SR 93  
 OFF. 955 RT  
 ELEV. 67.2  
 DATE 2/19/2019  
 DRILLER J. ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-35  
 STA. 2490+11  
 REF. SR 93  
 OFF. 910 RT  
 ELEV. 67.2  
 DATE 2/20/2019  
 DRILLER J. ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25



|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

FIGURE 18

| REVISIONS |             |      |             |
|-----------|-------------|------|-------------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |
|           |             |      |             |

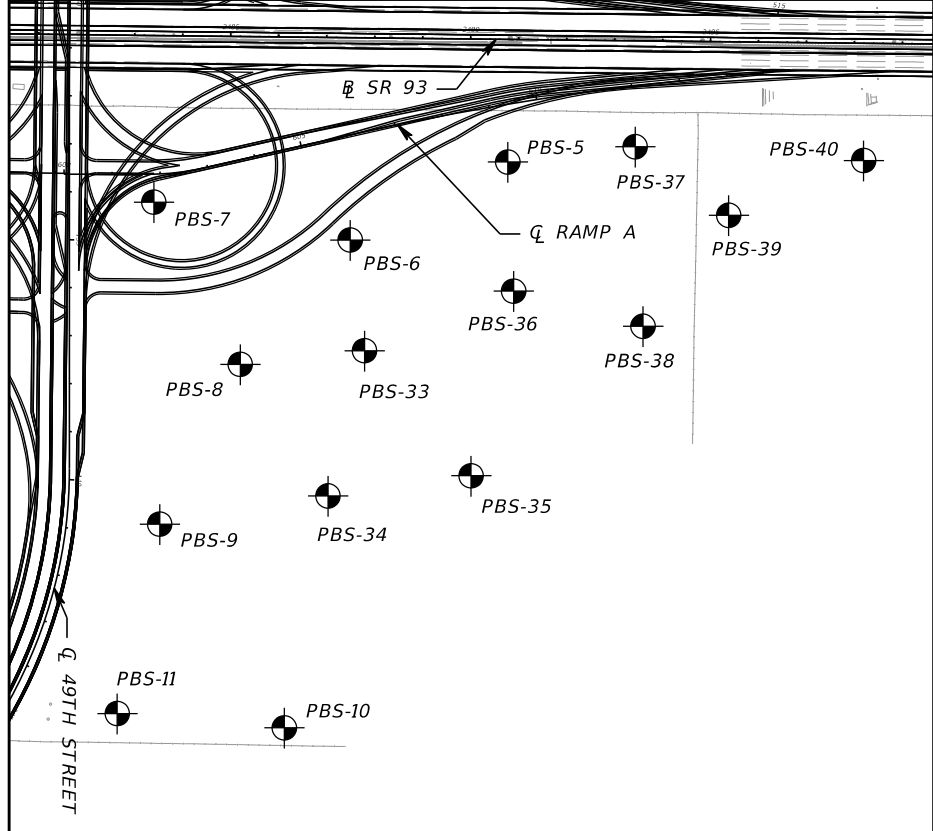
JEREMY A. SEWELL, P.E.  
 P.E. LICENSE NUMBER 62951  
 TIERRA, INC.  
 591 SUSAN B. BRITT COURT  
 WINTER GARDEN, FLORIDA 34787  
 CERTIFICATE OF AUTHORIZATION NO. 6486

| STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      |
|--|--------|----------------------|
| ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |
| SR 93  | MARION | 435209-1-22-01       |

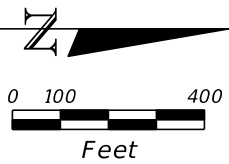
**POND SOIL SURVEY (8)**

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**BORING LOCATION PLAN**



**LEGEND**

1. GRAY TO LIGHT GRAY, AND BROWN TO LIGHT BROWN SAND TO SAND WITH SILT (A-3)
2. BROWN TO ORANGE-BROWN SILTY SAND TO SLIGHTLY CLAYEY SAND, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-4)
3. GRAY TO GRAY-BROWN CLAYEY SAND TO SANDY CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-2-6/A-2-7/A-6/A-7-6)
4. GRAY SANDY CLAY TO CLAY, OCCASIONALLY WITH LIMESTONE FRAGMENTS (A-7-5/A-7-6)
5. LIMESTONE

A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.

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

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

HA HAND AUGERED TO VERIFY UTILITY CLEARANCE

WR SPLIT-SPOON SAMPLER ADVANCED UNDER WEIGHT OF ROD

-200 PERCENT PASSING #200 SIEVE  
 NMC NATURAL MOISTURE CONTENT (%)  
 LL LIQUID LIMIT (%)  
 PI PLASTICITY INDEX (%)

NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE SPT BORING LOCATION

ESTIMATED SEASONAL HIGH GROUNDWATER TABLE

GNA GROUNDWATER NOT APPARENT DUE TO THE INTRODUCTION OF DRILLING FLUID.

LOSS OF CIRCULATION OF DRILLING FLUID (%)

BASELINE SURVEY OF SR 93 (I-75)

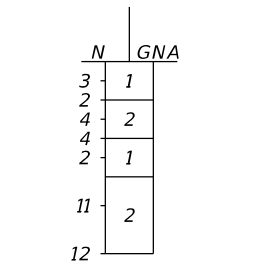
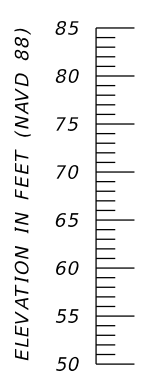
BOR # PBS-36  
 STA. 2490+95  
 REF. SR 93  
 OFF. 524 RT  
 ELEV. 81.5  
 DATE 2/20/2019  
 DRILLER J.ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-37  
 STA. 2493+45  
 REF. SR 93  
 OFF. 221 RT  
 ELEV. 82.0  
 DATE 2/19/2019  
 DRILLER J.ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-38  
 STA. 2493+66  
 REF. SR 93  
 OFF. 594 RT  
 ELEV. 79.7  
 DATE 2/20/2019  
 DRILLER J.ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

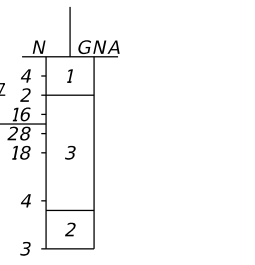
BOR # PBS-39  
 STA. 2495+42  
 REF. SR 93  
 OFF. 361 RT  
 ELEV. 79.3  
 DATE 2/19/2019  
 DRILLER J.ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

BOR # PBS-40  
 STA. 2498+22  
 REF. SR 93  
 OFF. 244 RT  
 ELEV. 70.8  
 DATE 2/19/2019  
 DRILLER J.ERICKSON  
 HAMMER AUTOMATIC  
 RIG D-25

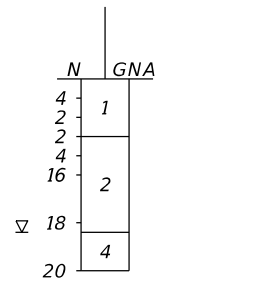


BORING TERMINATED AT ELEVATION 61.5 FT (NAVD 88)

-200=28  
 NMC=14  
 LL=44  
 PI=24

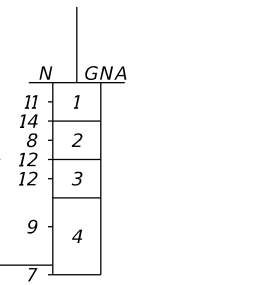


BORING TERMINATED AT ELEVATION 62.0 FT (NAVD 88)

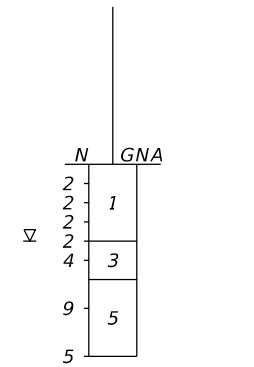


BORING TERMINATED AT ELEVATION 59.7 FT (NAVD 88)

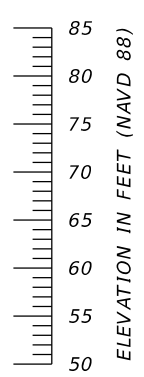
-200=71  
 NMC=47  
 LL=96  
 PI=69



BORING TERMINATED AT ELEVATION 59.3 FT (NAVD 88)



BORING TERMINATED AT ELEVATION 50.8 FT (NAVD 88)



|                                     | SAFETY HAMMER           | AUTOMATIC HAMMER        |
|-------------------------------------|-------------------------|-------------------------|
| GRANULAR MATERIALS-RELATIVE DENSITY | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY LOOSE                          | LESS THAN 4             | LESS THAN 3             |
| LOOSE                               | 4 to 10                 | 3 to 8                  |
| MEDIUM DENSE                        | 10 to 30                | 8 to 24                 |
| DENSE                               | 30 to 50                | 24 to 40                |
| VERY DENSE                          | GREATER THAN 50         | GREATER THAN 40         |
| SILTS AND CLAYS CONSISTENCY         | SPT N-VALUE (BLOWS/FT.) | SPT N-VALUE (BLOWS/FT.) |
| VERY SOFT                           | LESS THAN 2             | LESS THAN 1             |
| SOFT                                | 2 to 4                  | 1 to 3                  |
| FIRM                                | 4 to 8                  | 3 to 6                  |
| STIFF                               | 8 to 15                 | 6 to 12                 |
| VERY STIFF                          | 15 to 30                | 12 to 24                |
| HARD                                | GREATER THAN 30         | GREATER THAN 24         |

**FIGURE 19**

| REVISIONS |             |      |             | JEREMY A. SEWELL, P.E.<br>P.E. LICENSE NUMBER 62951<br>TIERRA, INC.<br>591 SUSAN B. BRITT COURT<br>WINTER GARDEN, FLORIDA 34787<br>CERTIFICATE OF AUTHORIZATION NO. 6486 | STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      | POND SOIL SURVEY (9) | SHEET NO. |
|-----------|-------------|------|-------------|--|--|--------|----------------------|----------------------|-----------|
| DATE      | DESCRIPTION | DATE | DESCRIPTION |  | ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |                      |           |
|           |             |      |             |  | SR 93  | MARION | 435209-1-22-01       |                      |           |

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.