8009839 Appendix A Transmission Technical Specifications

Installation for the

Miller Substation Interconnection – Foundation Installations of Structures 62A & 62F

March 3rd, 2026

Table of Contents

ATTACHMENTS:

1. GENERAL:

1.1 General Description: This project entails the installation of two new foundations in order to perform a cut-in along the existing transmission circuit 941 to interconnect with the new Miller Substation as well as interconnecting with FRP. Circuit 941 will be split into two circuits: Circuit 975 going to existing Normandy Substation, and circuit 941 going to existing Brandy Branch Substation. It is anticipated that the transmission scope of work will be contracted to a foundation contractor. It is anticipated that there will be a need for a transmission subcontractor to hold the outage on the 941. In addition to the minimum qualifications included in the solicitation, the transmission contractor and/or whomever is performing the proposed transmission outage as detailed in these specifications and attachments of Appendix A, shall be qualified to have a JEA hold tag over and operate breakers in a manner to take an outage on the 941.

1.2 Intent: The Contractor shall provide all material, equipment, labor and supervision to accomplish the work as specified herein and on the construction plans. The source of the JEA supplied materials to accomplish the work of this project is specified herein and on the construction plans. The contractor should take note that, while the actual delivery dates of these items are not precisely known at this time, the schedule provided is synchronized with the expected delivery schedule for certain materials, equipment, etc. The contractor is responsible under this contract to pick up, inspect, receive, unload and install these items at the job site(s).

1.3 Location of Project: A vicinity map appears on the cover of the construction drawings. The work will take place in Duval County, approximately fifteen and a half (15.5) miles West of Downtown Jacksonville, FL. The project area is:

1.3.1 Approximately 0.15 miles south of 14279 Old Plank Rd, Jacksonville, Fl 32220.

1.4 Scope of Work: Install two (2) new foundations as described in this specification.

1.5 Project Engineer:

JEA
Jonathan Maywood
225 North Pearl Street
Jacksonville, FL, 32202
Cell: (904) 229-7848
Email: maywjw2@jea.com

Project Representative:

Burns & McDonnell
Jacob Adams
495 N Keller Rd – Suite 300
Maitland, FL, 32751
Cell: 660-473-5543
Email: jeadams@burnsmcd.com

1.6 Project Manager:

JEA
Jason Rinehart
225 North Pearl Street
Jacksonville, FL, 32202
Cell: (904) 831-7177
Email: rineja@jea.com

Construction Inspector:

JEA
Bo Medley
225 North Pearl Street
Jacksonville, FL, 32202
Cell: 904-776-7594
Email: medlrm@JEA.com

1.7 Pre-Bid Conference and Site Visit: A mandatory pre-bid conference and site visit will be held for the benefit of communication and coordination. Such meeting and visit will be scheduled as depicted in the solicitation.

1.8 Sequence of Work and Project Schedule: All work shall be performed in an orderly and workmanlike manner. Sequence of work may be scheduled at the discretion of the Contractor within the guidelines of these specifications. The transmission scope of work is anticipated to begin and end in **May 2026**. Also, all demolition work and all trees, shrubs, and vegetation called for removal must be removed. All site cleanup and remaining work must be completed by no later than fifteen (15) calendar days after substantial completion.

1.9 Overtime: No overtime for the transmission scope of work shall be allowed, unless granted by the JEA Project Representative. Contractor shall only work four (4) ten (10) hour days or five (5) eight (8) hour days, totaling forty (40) hours per week. Except in cases where the outage will require it.

1.10 Minimum Qualifications: It is anticipated that the transmission scope of work will be contracted to a transmission contractor. In addition to the minimum qualifications included in the solicitation, the transmission contractor and/or whomever is performing the proposed transmission scope of work as detailed in these specifications and attachments of Appendix A, shall be on JEA's Responsible Bidder's List (RBL), for category EG-5 Overhead Transmission Construction over 69kV (De-energized).

2. OUTAGES:

2.1 Electrical Clearances (Outages): A 12-hour nightly outage is required for this project**.** For the detailed outage requirements see Appendix C for construction sequence options. To limit the duration of outages, the installation shall be performed in the following order:

2.1.1 Mobilize

2.1.2 Install phase 1 of the CMP foundations with 12-hour long nightly outages. We are currently approved for four consecutive nightly outages, these are: May 12th, 13th, 14th, and 15th.

2.2 All outages on the JEA Transmission System (including distribution and substation bus outages) shall be granted by JEA Systems Operation and Control Center (SOCC) only. If outages are needed, the contractor shall submit all requests (for an outage) to the JEA project representative. The JEA project representative shall submit all requests to SOCC for approval and, provided the request is granted, the contractor shall cooperate (with SOCC) in the scheduling, timing, duration and termination.

2.3 Hold Tags - Authorized Person Requirements**:** If outages are needed, the contractor will be required to request hold tags. In order for the contractor to request a hold tag on the JEA system, the individual requesting the hold tag must be an *Authorized Person* as determined by JEA, per the procedure as shown in the attachment "HOLD TAGS – AUTHORIZED PERSON REQUIRMENTS" section of Appendix A. The contractor will be required to have a knowledgeable employee, preferably a foreman, take and successfully pass the JEA course "Principles of Hold Tags and Grounding for Contractors". The course will be provided at 10855 New Berlin Road, and will take one (1) full day to complete. The prerequisite for the course is "JEA's Substation Entry Training", See section 8.4 of these specifications for additional details. Both Courses will be administered by Scott Nordeng (contact information is below). The contractor must have his employees sign up for the course(s) by contacting the JEA Project Manager upon winning the bid.

Scott Nordeng
JEA
Technical Training Senior Specialist
Office: (904) 665-6728

Cell: (904) 591-5232
Email: nordsc@jea.com

2.4 Recall of Line Clearances or Hold Tags: In the event that a transmission or distribution hold tag on an energized or de-energized line must be recalled due to a system emergency, as determined by the JEA, the contractor shall complete only the work necessary to clear the line or equipment, clear his personnel, and release his hold tag as quickly as possible. Any recall shall not constitute a just cause by the contractor for a claim for extras.

3. SURVEYING AND AS-BUILT DRAWINGS:

3.1 Drawings and Details: The drawings titled found within the attachment "TRANSMISSION CONSTRUCTION DRAWINGS" section of Appendix A, along with these written specifications, plating, standards, pole installation guidelines, shop drawings, permits, and soil borings, detail the work to be performed.

3.2 General Surveying: The Contractor shall engage the services of a State of Florida Registered Land Surveyor to establish the limits of construction and clearing, set the baselines, stake the structure and guy anchors, mark the right-of-way near each proposed pole, and perform as-builts (where applicable). Note: Survey Data for the Construction Drawings was based on LiDAR provided by JEA.

3.2.1 Coordinates: Foundation locations are shown on the "TRANSMISSION CONSTRUCTION DRAWINGS" section of Appendix A. Work shall be done under the direct supervision of a State of Florida Registered Land Surveyor. The accuracy of this operation is critical to the success of this project. Therefore, prior to setting or relocating structures on this project, the Contractors' Construction Superintendent Chief shall be prepared to meet on the jobsite with the Project Engineer (JEA) to discuss and exchange data for the staking operation and thereby ensure effective communication has occurred. The horizontal and vertical datum(s) shall be the North American Datum (NAD) 1983 and North American Vertical Datum (NAVD) 1988 respectively. Any exceptions must be approved by JEA prior to the commencement of work. All work will be required to adhere to the following standards. All existing survey stakes set during the design of the project shall be removed to avoid confusion.

a) Vertical: Work shall be Third Order, as outlined in the Federal Geographic Data Committee (FGDC) Geospatial Positioning Accuracy Standards, Part 4: Standards of Architecture, Engineering, Construction (A/E/C) and Facility Management.

b) Horizontal: Work can be done using either standard surveying techniques or Global Positioning Satellite (GPS) system. If standard surveying techniques are used, all horizontal work shall comply with Third Order Class II, as outlined in the Federal Geographic Data Committee (FGDC) Geospatial Positioning Accuracy Standards, Part 4: Standards for Architecture, Engineering, Construction (A/E/C) and Facility Management. If GPS is used, the relative horizontal accuracy shall conform to the Federal Geographic Data Committee (FGDC) Geospatial Positioning Accuracy Standards, Part 2: National Standard for Spatial Data Accuracy.

3.3 As-Built Drawings: The contractor shall provide full size "As-Built" drawings within forty-five (45) days of substantial completion of work. The contractor shall engage the services of a State of Florida Registered Land Surveyor to obtain As-Built Survey data for these "As-built" drawings that comply with section 3.2 above. The contractor shall note any changes, revisions or corrections, in red, and provide these "as-builts" to JEA. In addition, the contractor shall employ a State of Florida

Registered Land Surveyor to determine and record on the "as-builts" the appropriate State Plane Coordinate System (SPCS) and Zone (latest adjustment), for all new structures/anchors.

3.3.1 The "As-Built" drawings shall verify the following construction features were built according to the Design Plans:

- Coordinates in easting, northing and latitude, longitude of all new foundation locations. The coordinates of the foundation locations are to be provided to JEA within five (5) days of substantial completion of work. Coordinates are to be filled out in the provided table on the TRANSMISSION CONSTRUCTION DRAWINGS.
- Any changes from the Construction Drawings

4. TRANSMISSION FOUNDATIONS:

4.1 Foundation Installation Scope: Foundation excavations and Corrugated Metal Pipe (CMP) installations shall be performed in strict accordance with Attachment 2: FOUNDATION SPECIFICATION (SECTION 31 63 30) and the site conditions outlined in Attachment 5: GEOTECHNICAL REPORT. In general, the contractor shall construct the foundation excavations by use of a power-driven rotary rig having an auger sized according to the size of the foundations. The Contractor's scope of work for this phase is strictly limited to the following:

Excavating the hole, utilizing temporary casing where unstable soils or high groundwater dictate. Installing the CMP to the specified depth. Placing the 2,000 PSI concrete backfill in the over-excavation zone and the annular space between the CMP and the excavation wall. Filling the interior of the CMP with water or slurry to maintain stability during concrete curing. Capturing and disposing of any displaced water, slurry, and spoils/soil in accordance with all Local, State, and Federal requirements.

4.2 Pole installation, dewatering of the CMP interior, and final crushed rock/soil backfilling will be performed by others under a separate scope. See the table below for a summary of foundation sizes:

Structure Number	Foundation Diameter (inches)	Foundation Length (ft)
#62A, 62F	90	28

4.3 Foundation Types: This project will use the following foundation preparations:

4.3.1 Direct embedded foundation preparations utilizing Corrugated Metal Pipe (CMP) and concrete backfill. Concrete compressive strength at 28 days shall be a minimum of 2,000 PSI.

5. MATERIALS:

5.1 Material Provided by Contractor: Material provided by the contractor shall be good quality and meet all standards and codes governing the material for the type of use of the material. Miscellaneous material such as inhibitors, cleaning solvents, grout, paint, rope, etc., required for construction shall be supplied by the contractor.

5.2 Material Requested by JEA: All material is to be provided by contractor for this Project.

5.3 Other Scrap Materials: The contractor shall take full responsibility and ownership of all other existing scrap materials (damaged hardware, damaged insulators, misc. grounding materials, etc.) to be removed from the construction site. In addition, garbage and miscellaneous materials shall be removed from the Public Right-of-Way, substation site, and JEA Easements, to be disposed of by the contractor.

6. SITE ACCESS, PERMITS, AND SAFETY:

6.1 Access to the Work: Access to perform all work is the responsibility of the Contractor. The Contractor shall display all signs and follow all Florida Department of Transportation (FDOT) and City of Jacksonville (COJ), rules and regulations when gaining access to the work. Flagmen shall be used, if required. Access to the worksite will be through existing JEA Transmission Line Easements and public roadways.

6.1.1 Any access arrangements crossing private property will be the responsibility of the Contractor.

6.1.2 The Contractor shall repair any damage to all roads, R/W's and property to as-is condition, and as directed by and to the satisfaction of JEA. All restoration must be completed by no later fifteen (15) calendar days after substantial completion of work. In order to protect JEA and the contractor, the contractor shall record a video and take pictures of the existing conditions prior to the start of work. The videos and pictures must be dated and be clear enough so that they made be used in the event of a dispute.

6.2 Maintenance of Traffic (MOT): The contractor will be responsible for all Maintenance of Traffic (MOT) during construction. Cost for any MOT shall be included in the bid price.

6.3 Lay Down Area: The contractor may use the following JEA owned land as a laydown area to store materials and provide parking for employees and their equipment. Any other arrangements for a laydown area will be the responsibility of the contractor.

6.3.1 The Transmission Corridor near Miller: The contractor may use the existing Transmission Line Corridor that runs east to west along the existing circuits 940 and 941. If intended for use, please coordinate locations directly with JEA Transmission Engineer to check clearances and feasibility. Any proposed laydown area will need to leave unobstructed access to structures by O&M, be placed at least twenty (20) feet horizontally from any energized phase conductors, and seventy-five (75) feet from any existing structures.

6.4 Substation Safety Training: If the contractor needs to access any JEA Substation, it will be required that the contractor and anyone accessing the area have taken and completed the JEA Substation Safety Training Certification class. The substation training certification expires after three (3) years. If training is needed, please contact Scott Nordeng (contact information below):

Scott Nordeng
JEA
Technical Training Senior Specialist
Office: (904) 665-6728
Cell: (904) 591-5232
Email: nordsc@jea.com

6.4.1 JEA Badge Access: A JEA contractor's badge will be required to gain entry onto any JEA Substation. Every Employee working at the construction site needs to have a JEA contractor's badge so that they may open and close the gates at a JEA substation. Even if the contactor has a JEA contractor's badge from a previous project, the contractor needs to provide to the JEA Project Engineer the name's, phone numbers, and emails of the employees whom he wishes to have a JEA contractor's badge with access to a JEA substation for this project. Access rights will need to be added by JEA to any badge so that it functions. The process of granting access may take up to three (3) weeks, therefore the request for badge access should be made as soon as possible.

6.4.2 Storage of Materials: All materials, aside from transmission poles, stored at any laydown area must be stored inside a lockable trailer that will be locked every time that the contractor leaves the site for the day. The intention is to prevent theft.

6.5 Permits: It is not anticipated that any permits will be required for the work on this project. The proposed work will take place in JEA's existing easement for the new Miller substation and within the existing transmission corridor.

6.5.1 In the event that unforeseen permits are required, JEA will reimburse the contractor the cost of any permit plus 10% for administrative fees.

6.6 Access thru Wetlands: Vehicle or equipment access to areas around or near Wetland areas (where applicable), as denoted by the wetland hatch on the "TRANSMISSION CONSTRUCTION DRAWINGS", shall only be by way of temporary matting installed by the Contractor. No fill will be allowed.

6.6.1 The soils from the hole excavations inside the wetland boundaries shall be taken off site. All soils removed from the construction site shall be disposed of per all local, state, and federal rules pertaining to all environmental requirements.

6.6.2 Construction activity will require sediment/ erosion controls. The construction drawings indicate the location of required silt fencing / erosion control. The contractor shall furnish and install silt fence assembly, including fabric and stakes, in accordance with the details shown on the drawings and the contractor's required Storm Water Pollution Prevention Plan. Additional erosion control may be necessary based on the way that the contractor wishes to perform the pole installations. JEA will have a consultant checking the condition of the silt fence regularly during the construction period. The contractor shall repair and maintain the silt fence to the satisfaction of JEA's consultant.

6.6.3 The contractor shall comply with all local, state, and federal rules pertaining to all environmental requirements. Any costs associated with sediment/ erosion control (silt fence installation) will be the responsibility of the contractor.

6.7 Matting: The contractor shall install matting, as seen fit, to allow for equipment and employee access to each proposed and existing structure. If used, The matting system shall be substantial enough to accommodate any needed equipment used to install proposed structures and wires and shall be of a type similar to the Dura-Base Mat – 8x14 ft Tan Cat Class 154-1000 as shown on the Sunbelt rentals website: https://www.sunbeltrentals.com/equipment/cat/1539/ground-protection/

6.8 Payment for Matting: The contractor will be responsible for all matting during construction (where applicable).

6.9 Security: Contractor shall always be responsible for providing their own security to the work site, equipment, and materials. In addition, the contractor shall provide site security for contractor work safety at their discretion.

6.10 General Safety Information:

6.10.1 Please visit the following site to learn more about JEA's safety related information: https://www.jea.com/About/Procurement/Contractor_Safety/

6.10.2 **The winning bid contractor will need to become JEA Safety Qualified at least ten (10) business days after the bid opening by submitting the "Contractor Safety Qualification Questionnaire" found in the link above.**

6.10.3 The contractor's employees need to be drug tested at least thirty (30) days prior to the start of any work. JEA may request for proof of the drug testing before and during the construction.

6.10.4 The contractor's employees will need to take safety orientation and/ or training as described in the following link: https://www.jea.com/About/Procurement/Become_a_Vendor/Contractor_Safety/Safety_Orientation_Training/

6.10.5 For any questions regarding JEA's safety requirements, please contact Curtis Stothers (contact information below):

Safety & Health Specialist:
Manager of Safety and Health Services
Curtis Stothers
Office: (904) 665-7736
Cell: (850) 855-6177
Email: stotct@jea.com

6.11 Protection of Existing improvements: Contractor shall exercise proper care not to destroy or otherwise damage any existing improvements (utilities, buildings, roads, etc.) in the work area that are to remain. Any damage to such improvements shall be immediately repaired by the Contractor at no additional cost to JEA.

6.12 Restoration: The contractor shall, at his expense, restore any vegetative / non-vegetative areas damaged during construction to conditions that existed prior to starting the project. The contractor will be required to restore area to proper grade, properly amend soil and install vegetation that matches surrounding and/or pre-existing conditions. Contractor shall water area as necessary to permanently establish new vegetation.

6.13 Grassing: Grass shall be established on all areas where existing grass is disturbed or killed by construction activity (matting, equipment traffic, grubbing, etc.). Grass shall be established by seeding, seeding and mulching, or by sodding and as deemed necessary by the JEA Project Representative. The work shall include maintaining the grassed areas until final acceptance of the project.

6.13.1 Materials and Construction Methods: The following section of the most current edition of Florida DOT Standard Specifications shall govern the materials and construction methods used by the Contractor.

a) Performance Turf: 570

b) Section 570 of the FDOT Standard Specifications references any grass type meeting section 981 as acceptable, specifically 981-2. JEA will allow the use of Bahia, Bermuda, and Annual Type Ryegrass to be used for restoration. The Full FDOT specification can be found at the link below: FY 2026-27 eBook

7. DEBRIS REMOVAL:

7.1 Debris Removal: In general, all rubbish, tires, trash, and other debris/ obstructions that are products of the construction activities shall be completely removed and disposed of from the project site/ property. Burning of materials will not be permitted.

8. MAKE READY WORK:

8.1 Make Ready Work: In general, the contractor shall be responsible for all make ready and temporary work needed to install new proposed transmission facilities and remove any existing facilities as indicated on the construction drawings. This shall include any needed distribution relocations and resolution of any conflicts with existing guy wires, stub poles, lateral drops, etc (where applicable).

9. SEQUENCE OF WORK:

Below is a recommended and anticipated sequence of work, however final discretion is left to the Contractor as long as it follows the requirements of section 2.1.

9.1 Mobilize

9.2 Install CMP foundations with 12-hour long nightly outages. We are currently approved for four consecutive nightly outages.

9.3 Re-energize

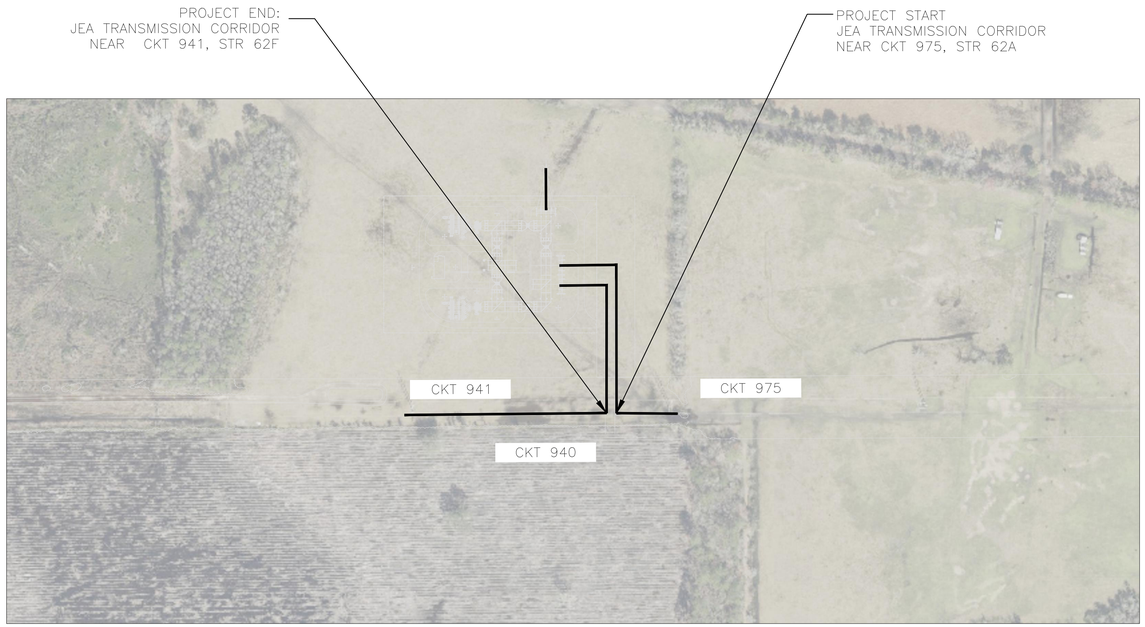
9.4 Site Restoration

9.5 Demobilize

ATTACHMENT 1: TRANSMISSION CONSTRUCTION DRAWINGS

CONSTRUCTION DRAWINGS
FOR THE
MILLER SUBSTATION FOUNDATION INSTALLATION

PROJECT DRAWING INDEX	
DRAWING NO. / SHEET NO.	SHEET DESCRIPTION
TR 1400 / SHEET 1	COVER SHEET
TR 1400 / SHEET 2	NOTES / LEGEND
TR 1400 / SHEET 3	PLAN DETAIL
TR 1400 / SHEET 4	DIRECT EMBED CMP DESIGN



LOCATION MAP
NOT TO SCALE

NO.	REVISION	DATE	BY	CH'D	APP'D		REVISION	DATE	BY	CH'D	APP'D
	ISSUED FOR BID	03/06/26	AJS	JA							

ENGINEERING RECORD	BY	DATE
STATUS	BY	DATE
ASSIGNED	PLAN	05/01/24
DESIGNED	JA	03/10/25
DRAWN	JA	03/10/25
CHECKED	TBD	-
APP'D	TBD	-

JEA
BUILDING COMMUNITY

CONSTRUCTION DRAWINGS
FOR THE
MILLER SUBSTATION FOUNDATION INSTALLATION

SCALE: N/A

PROJECT DESIGN SEGMENT 8009839

PROJECT NO. 173283

DRAWING NO. TR 1400

SHEET NO. 1 OF 4

MILLER INTERCONNECTION 230kV TRANSMISSION PROJECT CONSTRUCTION LIST

STRUCTURE NUMBER	FOUNDATION	QTY	FOUNDATION DIAMETER (FT)	FOUNDATION LENGTH (FT)
62F	DIRECT EMBED - CMP	1	5.5	25
62A	DIRECT EMBED - CMP	1	5.5	25

GENERAL NOTES:

1. SCOPE OF WORK STATEMENT:

   INSTALL TWO (2) CONCRETE FOUNDATIONS WITH CORRUGATED METAL PIPE (CMP). SEE SHEET 4 FOR FOUNDATION DETAIL DRAWING AND NOTES.

2. LOCATION:

   THE WORK WILL TAKE PLACE IN DUVAL COUNTY. THE PROJECT AREA IS WITHIN EXISTING JEA TRANSMISSION CORRIDOR. THE WORK WILL TAKE PLACE OUTSIDE OF THE PROPOSED MILLER SUBSTATION.

3. SURVEY INFORMATION:

   THE LAND SURVEY WAS PROVIDED BY FRP.

4. FOUNDATION LOCATIONS:

   FOR FOUNDATION LOCATIONS SEE THE PLAN DETAIL DRAWING ON SHEET 3. INSTALLATION LOCATIONS ARE TO BE LOCATED BY THE CONTRACTOR BASED ON THE PROVIDED COORDINATES. A PROFESSIONAL SURVEYOR. REGISTERED IN THE STATE OF FLORIDA, WILL BE REQUIRED TO MARK THE PROPOSED POLE LOCATIONS. FOUNDATION LOCATIONS AFTER INSTALLATION SHALL BE CONFIRMED BY PROFESSIONAL SURVEYOR, MARKED UP ON CONSTRUCTION DRAWINGS, AND PROVIDED BACK TO JEA.

5. DESIGN CRITERIA:

   FOUNDATION DESIGN WILL FOLLOW JEA DESIGN PRACTICE, THE GUIDELINGES ESTABLISHED IN ACI 336.3R, AND THE APPLICABLE REQUIREMENTS OF ACI 318. THE DESIGN IS BASED ON INFORMATION PRESENTED IN THE REPORT WITH THE SUBJECT, "MILLER TRACT SWITCHYARD GEOTECHNICAL ENGINEERING REPORT" DATED JUNE 6, 2025 PREPARED BY TERRACON.

6. STRUCTURES:

   STRUCTURES WILL BE INSTALLED BY OTHERS

LEGEND:

- EXISTING TRANSMISSION CONDUCTOR TO REMAIN (SIZE AND TYPE AS INDICATED)
- EXISTING TRANSMISSION CONDUCTOR TO BE RELOCATED/REMOVED (SIZE AND TYPE AS INDICATED)
- PROPOSED NEW TRANSMISSION CONDUCTOR (SIZE AND TYPE AS INDICATED)
- UNDERGROUND ADSS/FIBER ROUTE
- PROPOSED NEW SHIELD WIRE (SIZE AND TYPE AS INDICATED)
- EXISTING FENCING
- EXISTING RIGHT OF WAY
- H — DOWN GUY, H = INSTALL (NO. OF GUYS / NO. OF ANCHORS)
- R — DOWN GUY, R = REMOVE (NO. OF GUYS / NO. OF ANCHORS)
- E — DOWN GUY, E = EXISTING (NO. OF GUYS / NO. OF ANCHORS)
- EXISTING STEEL TRANSMISSION POLE
- EXISTING SPUN CONCRETE TRANSMISSION POLE
- EXISTING DISTRIBUTION STATIC CAST POLE
- EXISTING DISTRIBUTION WOOD POLE
- PROPOSED ADSS HANDHOLE
- PROPOSED SPUN CONCRETE TRANSMISSION POLE
- PROPOSED STEEL TRANSMISSION POLE
- ## — EXISTING TRANSMISSION STRUCTURE NUMBER
- ## — EXISTING TRANSMISSION STRUCTURE NUMBER TO BE REMOVED
- ## — NEW TRANSMISSION STRUCTURE NUMBER
- ### — TRANSMISSION CIRCUIT NUMBER
- A / B / C — TRANSMISSION PHASING & CONFIGURATION
- ##### — EXISTING DISTRIBUTION POLE WITH ADDRESS

NO.	REVISION	DATE	BY	CH'D	APP'D		REVISION	DATE	BY	CH'D	APP'D
	ISSUED FOR BID	03/06/26	AJS	JA							

ENGINEERING RECORD	BY	DATE
STATUS	BY	DATE
ASSIGNED	PLAN	05/01/24
DESIGNED	JA	03/10/25
DRAWN	JA	03/10/25
CHECKED	TBD	-
APP'D	TBD	-

JEA BUILDING COMMUNITY

CONSTRUCTION LIST
FOR THE
MILLER SUBSTATION FOUNDATION INSTALLATION

SCALE: N/A

PROJECT DESIGN SEGMENT 8009839

PROJECT NO. 173283

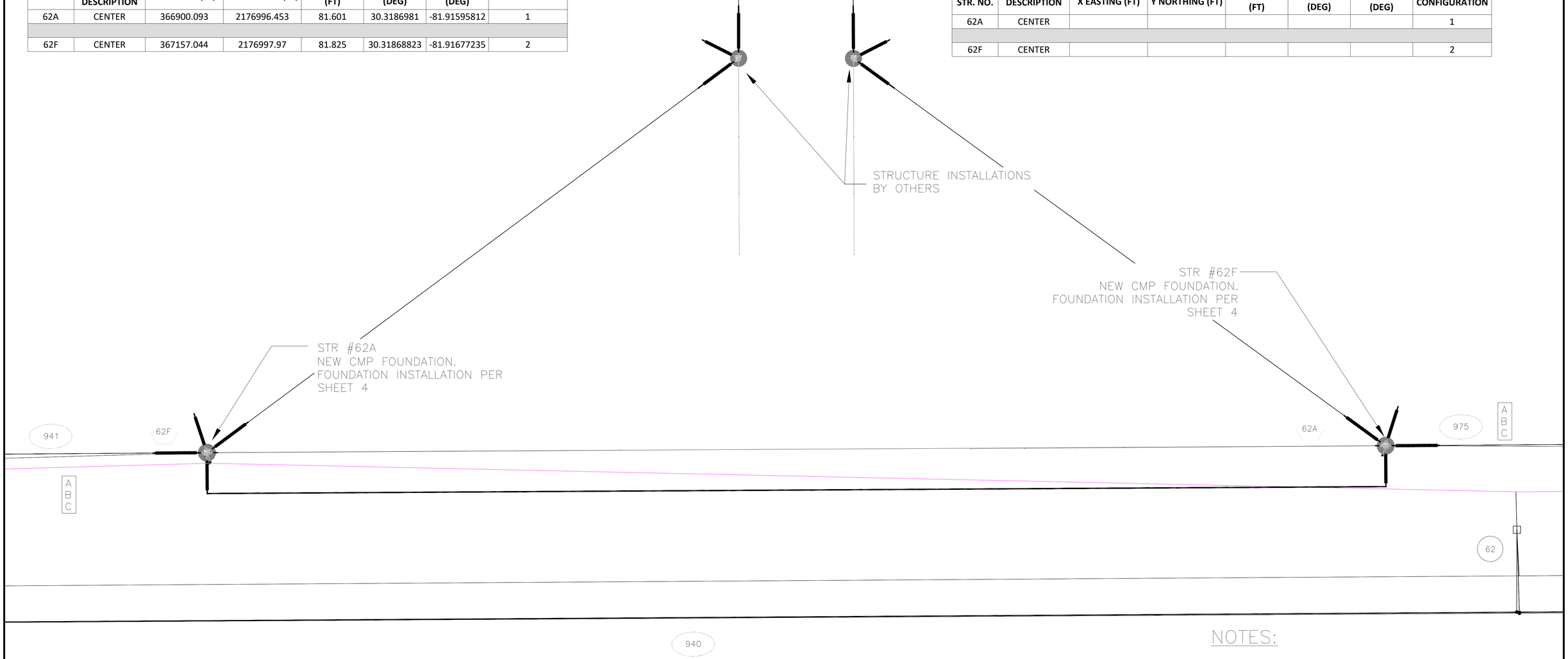
DRAWING NO. TR 1400

SHEET NO. 2 OF 4

DETAIL A: NEW STRUCTURE STR #62A & #62F PLAN DETAIL

FOUNDATION STAKING							
STR. NO.	STAKE DESCRIPTION	X EASTING (FT)	Y NORTHING (FT)	Z ELEVATION (FT)	LATITUDE (DEG)	LONGITUDE (DEG)	CONFIGURATION
62A	CENTER	366900.093	2176996.453	81.601	30.3186981	-81.91595812	1
62F	CENTER	367157.044	2176997.97	81.825	30.31868823	-81.91677235	2

FOUNDATION AS-BUILT							
STR. NO.	DESCRIPTION	X EASTING (FT)	Y NORTHING (FT)	Z ELEVATION (FT)	LATITUDE (DEG)	LONGITUDE (DEG)	CONFIGURATION
62A	CENTER						1
62F	CENTER						2



NOTES:

1. ALL STRUCTURE, CONDUCTOR, AND HARDWARE INSTALLATIONS TO BE COMPLETED BY OTHERS FOLLOWING FOUNDATION INSTALLATIONS ON THIS PROJECT.
2. TEMPORARY FENCE AND WARNING SIGNS SHALL BE INSTALLED AROUND THE PERIMETER OF THE FOUNDATIONS TO MITIGATE FALL HAZARDS.

NO.	REVISION	DATE	BY	CH'D	APP'D		REVISION	DATE	BY	CH'D	APP'D
	ISSUED FOR BID	03/06/26	AJS	JA							

ENGINEERING RECORD		
STATUS	BY	DATE
ASSIGNED	PLAN	05/01/24
DESIGNED	JA	03/10/25
DRAWN	JA	03/10/25
CHECKED	TBD	-
APP'D	TBD	-

JEA
BUILDING COMMUNITY

PLAN DETAILS
FOR THE
MILLER SUBSTATION FOUNDATION INSTALLATION

SCALE: 1" = 10'

PROJECT DESIGN SEGMENT 8009839

PROJECT NO. 173283

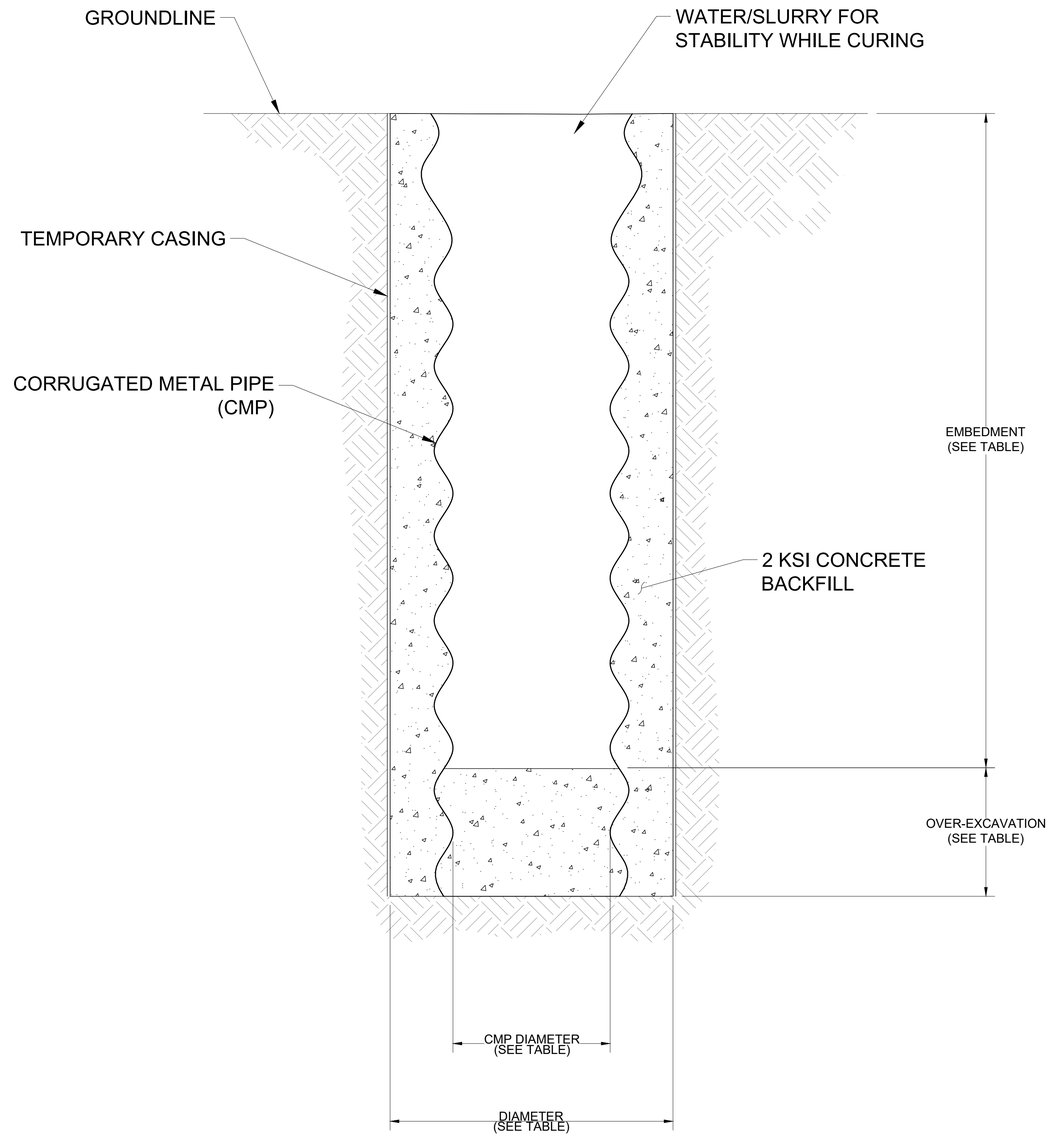
DRAWING NO. TR 1400

SHEET NO. 3 OF 4

FOUNDATION	MIN. HOLE DIAMETER (FT)	EMBEDMENT (FT)	OVER EXCAVATION (FT)	TOTAL BORING DEPTH (FT)	CMP DIA. (IN)
62F	7.5	25	3.0	28.0	78
62A	7.5	25	3.0	28.0	78

NOTES:

1. FOUNDATION DESIGN IS BASED ON THE INFORMATION PRESENTED IN THE REPORT WITH THE SUBJECT, "MILLER TRACT SWITCHYARD GEOTECHNICAL ENGINEERING REPORT" DATED JUNE 6, 2025 PREPARED BY TERRACON.
2. CONCRETE POLE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 31 63 30.
3. CMP SHALL BE STEEL AND HAVE A YIELD STRESS OF 33 KSI AND BE AT LEAST 18 GAGE.
4. POLE INSTALLATIONS TO BE COMPLETED BY OTHERS.
5. THE FOLLOWING ASSUMPTIONS WERE MADE FOR THIS DESIGN:
   - 5.1. DESIGNS ASSUME NO SLOPE OR DITCH RESULTING IN MORE THAN 7 DEGREE SLOPE OR 3.5 FT OF NEGLECT WITHIN 3 SHAFT DIAMETERS OF PROPOSED FOUNDATIONS.
   - 5.2. THE DESIGN ASSUMED THAT THERE ARE NO EXISTING FOUNDATIONS WITHIN THE DISTANCE OF 3X DIAMETER CENTER TO CENTER OF THE DIRECT EMBEDS.
   - 5.3. IF ABOVE ASSUMPTIONS ARE INCORRECT, CONTACT GEOTECHNICAL DEPARTMENT FOR EVALUATION.
   - 5.4. IF SUBSURFACE CONDITIONS ENCOUNTERED DURING FOUNDATION INSTALLATION ARE DISSIMILAR FROM THE GEOTECH REPORT, CONTACT GEOTECHNICAL DEPARTMENT FOR EVALUATION.



ELEVATION
DIRECT EMBEDDED CMP FOUNDATION 1/-

NO.	REVISION	DATE	BY	CH'D	APP'D
	ISSUED FOR BID	03/06/26	AJS	JA	

ENGINEERING RECORD	BY	DATE
STATUS	PLAN	05/01/24
ASSIGNED	JA	03/10/25
DESIGNED	JA	03/10/25
DRAWN	TBD	-
CHECKED	TBD	-
APP'D		

JEA BUILDING COMMUNITY

DIRECT EMBED DESIGN FOR THE MILLER SUBSTATION FOUNDATION INSTALLATION

SCALE: N/A

PROJECT DESIGN SEGMENT 8009839

PROJECT NO. 173283

DRAWING NO. TR 1400

SHEET NO. 4 OF 4

ATTACHMENT 2: FOUNDATION SPECIFICATION (SECTION 31 63 30)

SECTION 31 63 30 – FOUNDATIONS FOR DIRECT EMBEDDED POLES

PART 1 - GENERAL

1.01 SUMMARY:

A. Work under this Section consists of furnishing all supervision, labor, tools, equipment, materials, and quality control necessary to perform excavation and backfilling of foundations for direct embedded poles for the Miller Solar Interconnect Project.

B. Work under this Section shall conform to all applicable requirements of ACI 336.1 published by the American Concrete Institute, Farmington Hills, Michigan, except as modified herein.

C. Excavations shall be completed, and poles embedded, to the dimensions indicated on the drawings, including socket length when applicable, and rely on end bearing for axial capacity.

D. Contractor and/or Subcontractor shall visit the Site prior to bidding to observe and review specific Site conditions and requirements for equipment, methods, and costs to perform excavation and backfilling for foundations.

E. Contractor shall verify the location of all underground conduits, piping, duct banks and utilities prior to performing excavations.

F. Owner will retain a Geotechnical Representative as defined herein.

1.02 RELATED REQUIREMENTS:

1. 8010196 Appendix A Transmission Technical Specifications.
2. SECTION 31 68 16 – Helical Screw Anchors.
3. SECTION 31 68 17 – Anchor Testing.

1.03 REFERENCE STANDARDS:

A. General:

1. Standards listed by reference, including revisions by issuing authority, form a part of this Section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
2. Where specifications and reference documents conflict, the specification shall govern.
3. Unless otherwise noted, the latest revision of the following reference standards shall apply to this Section.

B. Applicable Standards:

1. American Concrete Institute (ACI):
   a. 336.1 - Specification for the Construction of Drilled Piers.
2. American Petroleum Institute (API):
   a. 13A – Specification for Drilling-Fluid Materials.
3. ASTM International (ASTM):
   a. C33 – Concrete Aggregates
   b. D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).
   c. D1241 – Materials for Soil-Aggregate Subbase, Base and Surface Courses.
   d. D2487 – Classification of Soils for Engineering Purposes.
   e. D4253 – Maximum Index Density of Soils Using a Vibratory Table.
   f. D4254 – Minimum Index Density of Soils and Calculation of Relative Density.

1.04 DEFINITIONS:

A. Bearing Stratum – The formation(s) or layer(s) of soil or rock that support the embedded pole and loads imposed on it.

B. Geotechnical Representative – The Geotechnical Representative is responsible for observation and recording of material verification, embedded pole excavation and installation sequence and methods, and other quality control documentation.
   1. The Geotechnical Representative will be provided by the Owner.
C. Corrugated Metal Pipe (CMP) – cylindrical, corrugated steel casing used to create a stabilized excavation for subsequent placement of the direct-embedded pole.
D. Pumping of Concrete - Concrete placed under water or through slurry conveyed by pressure through a rigid pipe or flexible hose and discharged directly to the bottom of the excavation. Pressure is applied by piston pumps, pneumatic compressed air, or squeeze pressure pumps in accordance with ACI 336.1. NOTE: Placement of concrete under water or through slurry will not be permitted during construction of embedded poles which bear upon or are socketed into rock.
E. Rock Excavation – Where applicable for measurement and payment purposes, rock excavation is defined as intact rock material encountered in the excavation which cannot be removed with a conventional earth auger and/or underreaming tool, and which requires a rock auger, core barrel, or hand labor using air-powered tools and/or other special excavation procedures. Refusal of the earth auger shall be defined as a penetration rate equal to, or less than, 1 foot per 10-minute period with the full torque and crowd continuously applied. Earth, clay, coal seams, boulders, cobbles, rock fragments, soft fractured materials, or voids encountered between rock units will not be considered rock excavation.
F. Slurry - Method of advancing excavation where bentonite (sodium montmorillonite in accordance with API 13A) or anionic polymer is mixed with clean water or water within the excavation to produce a slurry mixture capable of maintaining the stability of excavation walls and bottom in potentially caving and/or water-bearing soils. Slurry is also used to increase density of fluid within the excavation to offset exterior hydrostatic pressure and to facilitate removal of coarser grained soils by mixing and incorporation into the slurry mixture. NOTE: The use of slurry will not be permitted during construction of that portion of the excavation which bears upon or is socketed into rock.
G. Tremie - Concrete placed under water or through slurry by means of gravity flow through a rigid pipe. NOTE: The use of the tremie method of placing concrete will not be permitted. Pumping will be required when placing concrete under water or through slurry.
H. Unclassified Excavation - Where applicable for measurement and payment purposes, all materials encountered from the ground surface to the tip-bearing elevation, exclusive of rock excavation as described above.

1.05 EXPERIENCE QUALIFICATIONS:

A. Foundation Contractor
   1. A minimum of 5 years' experience in foundations for direct embed pole construction, including experience with similar subsurface materials, water conditions, excavation dimensions, and special techniques as required.
   2. Submit a written description of equipment and techniques proposed for use on this Contract, and the name of three similar projects successfully completed in the last 5 years.
   3. The experience statement of past work and description of equipment and techniques proposed for use shall be submitted at time of Bid and will be considered in the evaluation of bids.

1.06 SUBMITTALS:

A. Bid Submittals:
   1. Proposed excavation rig name, model number, maximum continuous torque rating (ft-lb), maximum downward force ("crowd"), proposed earth and rock auger attachments, and proposed special techniques and equipment. Submittals shall reflect any Contractor modifications that affect the torque and crowd ratings.
   2. Proposed gradation and source of crushed rock backfill material, if used.
   3. Proposed method(s) of construction – dry and uncased, temporary casing, slurry, or other procedure. If slurry methods are proposed, indicate whether mineral and/or polymer slurry will be utilized.

B. Pre-Construction Submittals: Submit the following items two (2) weeks prior to start of Work. Work shall not begin until all the submittals have been received and approved by the Owner. The Contractor shall allow the Owner two (2) weeks to review, comment, and return the submittal package after a complete set has been received. All costs associated with incomplete or unacceptable submittals shall be the responsibility of the Contractor.
   1. Detailed procedures for each anticipated method of construction - dry and uncased, temporary casing, slurry, or other procedure including:
      a. Sequence of excavation, pole and bearing plate installation, and placement of crushed rock or concrete.
      b. Methods to prevent segregation of concrete during placement, if used.
      c. Methods to prevent caving, if necessary.
      d. Procedures for, and sequence of, installation and removal of temporary casing.
      e. Procedures for supporting direct embedded pole during placement of crushed rock or concrete backfill, and throughout curing of concrete, if used.
      f. Equipment and procedures for placement and compaction of crushed rock.
      g. Equipment and procedures for placement of concrete.
   2. Procedures to mitigate the potential for buoyancy due to the following conditions:
      a. Backfill placement is unexpectedly interrupted and cannot be completed the same working day as pole setting.
      b. Multi-section poles are not fully assembled within 7-days of the setting the base section.
   3. Gradation and source of crushed rock backfill material.
   4. Concrete mix design.

C. Construction and Closeout Submittals:
   1. Submit at the completion of each day, foundation construction logs similar to the form at the end of this Section and which contain the following information, where applicable:
      a. Identification number.
      b. Excavation dimensions (depth, diameter).
      c. Pole embedment depth.
      d. Bearing plate dimensions (where applicable).
      e. Ground surface elevation.
      f. Description of soils encountered during drilling and the depths at which transitions occur.
      g. Bearing stratum description.
      h. Nature and location of obstructions.
      i. Water conditions during drilling and backfill placement.
      j. Amount of unclassified excavation.

k. Amount of rock excavation
l. Length of socket, if required.
m. Method of construction - dry and uncased, temporary casing, slurry, or other.
n. Type of backfill used.
o. For crushed rock backfill, identify placement and compaction methods.
p. For concrete backfill, identify placement method.

2. As-built foundation location and elevation data.

PART 2 - PRODUCTS

2.01 GENERAL:

A. The Owner will furnish poles for direct embedment.

2.02 CRUSHED ROCK BACKFILL MATERIAL:

A. Material shall consist of natural, durable crushed rock generally free of foreign or deleterious materials such as shale, sandstone, shells, soil, or organics. River rock, or similar rounded gravels, are not permitted. Snow, ice or frozen soils shall not be present in backfill material.

B. Dry Excavations: Material used as compacted crushed rock backfill for direct embedded poles placed in a dry excavation, and in wet excavations when crushed rock is being placed above the groundwater, shall be crushed rock conforming to the requirements of ASTM D1241, Type 1, Gradation A with the following gradation, or comparable DOT standard gradation approved by Owner.

Sieve Designation	Percent Passing (By Mass)
2.0-inch	100
3/8-inch	30-65
No. 4	25-55
No. 10	15-40
No. 40	8-20
No. 200	2-8

C. Wet Excavations: For excavations that encounter groundwater, and which cannot be dewatered, material used as compacted crushed rock backfill and placed through water shall be poorly graded crushed rock conforming to ASTM C33, Size Number 57, with the following gradation, or comparable DOT standard gradation approved by Owner. NOTE: Crushed rock backfill shall not be placed through water deeper than two (2) feet unless approved during the submittal process.

Sieve Designation	Percent Passing (By Mass)
1.5-inch	100
1-inch	95-100
1/2-inch	25-60
No. 4	0-10

No. 8	0-5
No. 200	0

D. Material used to backfill the upper one (1) foot of the excavation and surrounding area as indicated shall be as follows:
   1. Cohesionless Materials: Includes gravels, gravel-sand mixtures, sands, and gravelly sands exclusive of clayey and silty materials -- materials which are free-draining and for which impact compaction will not produce a well-defined moisture-density relationship curve and for which the maximum density by impact methods will generally be less than by vibratory methods.
   2. Cohesive Materials: Includes silts and clays generally exclusive of sands and gravel -- materials for which impact compaction will produce a well-defined moisture-density relationship curve.

2.03 CONCRETE:

A. If applicable, as specified in SECTION 03 30 00, except as follows.
   1. Minimum 28-day compressive strength of 2,000 psi.
   2. Slump requirements for concrete placed in foundations shall be based on the construction method used, as follows:
      a. For dry uncased excavations: 4 to 6 inches.
      b. For temporarily cased excavations: 6 to 8 inches.
      c. For slurry excavations or placement of concrete under water: 7 to 9 inches.

2.04 SLURRY:

A. Slurry shall consist of a mixture of bentonite (sodium montmorillonite conforming to API 13A) or anionic polymer and water to produce a slurry of sufficient density to maintain stability of the excavation walls and bottom and to facilitate removal of coarser grained soils from the excavation.

2.05 CASING:

A. Temporary and permanent casing shall be steel and of sufficient strength to prevent collapse or cave-in of the excavation and prevent soil and water from entering the excavation during drilling, field observation, and backfill placement.
B. Corrugated Metal Pipe (CMP) shall not be utilized as permanent casing for excavations unless it is used in conjunction with temporary steel casing and the annulus between the CMP and temporary steel casing is backfilled with concrete before removal of temporary steel casing to ensure stability of the excavation. The minimum annulus between the temporary casing and CMP shall be 6-inches to allow for backfilling with concrete.

2.06 DRILLING EQUIPMENT:

A. Perform excavations with an auger rig capable of drilling, as a minimum, the diameter and depth of foundations, including sockets, as shown on the Drawings in the subsurface materials present. Contractor is responsible for selecting appropriate drilling equipment and procedures as required to complete the excavations and install the foundations as indicated and in the subsurface conditions present. Rock excavation should be anticipated during drilling. Cobbles and/or boulders should not be anticipated during drilling.

PART 3 - EXECUTION

3.01 PREDRILLING:

A. At Contractor's expense, foundation excavations may be predrilled by an approved method to determine the depth to rock.

3.02 GENERAL EXCAVATION:

A. Unless otherwise approved in advance, construction of each direct embedded pole foundation shall be completed during one working day, including full excavation, setting of pole, and placement of backfill.

B. Grade the area around the excavation, or construct a temporary berm, to prevent flow of surface water into the excavation.

C. Keep the ground surface for a minimum of 2 feet from the edge of the excavation clean and level.

D. Dispose of materials removed from the excavation at an off-site location unless otherwise directed.

E. Locate excavations as indicated within the following tolerances. Deviations in excess of these tolerances shall be corrected at Contractor's expense, including additional costs for engineering, redesign, and inspection:

1. Centerline: Within 3 inches or 4 percent of excavation diameter, whichever is less, of location indicated.
2. Diameter: Plus 6 inches, minus 1 inch.
3. Excavation Plumbness: 1.0 percent of the excavation depth, 12.5 percent of excavation diameter, or 15 inches total, whichever is less.
4. Depth: Plus 3 inches, minus 0 inch. Measurement shall be along the side of least dimension where penetration occurs along a sloping grade.

F. Take all precautions necessary to prevent blowouts and disturbance of the sides or bottom of the excavation. If required, maintain water or slurry in the excavation at all times at a height sufficient to produce a positive head in the excavation.

G. If loose soil, a high water table, or other condition which causes the sides or bottom of the excavation to be unstable is encountered, advance the excavation through use of slurry, a temporary casing, or other approved method. The use of slurry shall be required for the construction of excavation in cohesionless materials below the water table.

H. Provide casing with a minimum inside diameter equal to the nominal diameter of the excavation and a sufficient strength to withstand the soil pressure. Provide casing on Site prior to start of excavation. Install:

1. To control seepage.
2. To prevent collapse of the walls.

I. When casing is installed to control seepage or prevent collapse of the walls, casing shall be advanced in intimate contact with the surrounding soils and ahead of any excavation.

J. When casing is used in combination with crushed rock backfill, casing shall be permanent.

K. When casing is used in combination with concrete backfill, casing may be permanent or temporary.

L. For permanent casing, pressure grout with lean grout as directed by Geotechnical Representative to fill voids between permanent casing and the hole wall due to caving or collapsed-wall conditions during construction which result in voids between the permanent casing and excavation wall.

M. If corrugated metal pipe (CMP) is to be utilized as a permanent casing, it shall be used in conjunction with temporary casing. The temporary casing shall be utilized to prevent collapse of walls during excavation. The CMP can then be lowered into the excavation, the annulus between the CMP and temporary casing backfilled with concrete per 3.05.D of this Section and the temporary casing removed. The minimum annulus between the temporary casing and the CMP shall be 6 inches.
N. Casings manufactured with fiber-based products shall not be permanently left in place.
O. Pressure grout with lean grout as directed by Geotechnical Representative to fill voids between permanent casing and the excavation wall due to caving or collapsed-wall conditions during construction which result in voids between the permanent casing and excavation wall.
P. When slurry is used, maintain a positive head in the excavation at all times. Circulate the slurry with sufficient consistency and velocity to remove the dislodged materials from the hole. Materials encountered which are too heavy to be removed by the slurry, may be removed by other approved means.
Q. Remove all material regardless of classification within the excavation to the depths indicated in the Contract Documents at which time Geotechnical Representative will field observe the excavation or drilling spoils and determine whether the excavation satisfies termination criteria. If termination criteria has not been met, Contractor shall extend the excavation until the criteria has been met or shall contact the Owner for a revised design. Excavation bottom shall be excavated to a level plane.
R. Cleanout and remove all loose material and spoil from sides and bottom of the excavation to the degree determined by the Geotechnical Representative, and prior to placing pole and backfill material. In no case shall the average thickness of sediments on the excavation bottom exceed one-half inch, with a maximum thickness of one inch.
S. Foundations which are overexcavated without Geotechnical Representative's approval shall have the overexcavation backfilled with crushed rock or concrete, as specified, at Contractor's expense.

3.03 POLE EMBEDMENT AND INSTALLATION TOLERANCES:

A. Prior to embedding pole, Contractor shall confirm that the indicated over-excavation depth and bearing plate requirements, as well as suitable bearing conditions, are present at the base of the excavation.
B. Center of the pole base shall not deviate from the center of the base of the excavation by more than one (1) inch.
C. Pole bottom shall be set to within plus or minus three (3) inches of the embedment depth indicated.
D. Pole plumbness criteria shall be as indicated.
E. Deviations in excess of the indicated pole location and installation tolerances shall be corrected at Contractor's expense.

3.04 BACKFILLING:

A. Backfill type shall be crushed rock or concrete material as indicated and specified herein.
B. Complete all backfilling within the same working day in which excavation is performed.
C. Place backfill immediately after final inspection and approval by the Geotechnical Representative.
D. Crushed Rock Backfill:
    1. Crushed rock backfill shall not be placed through slurry.

2. Crushed rock backfill shall not be placed through water deeper than two (2) feet unless approved during the submittal process.
3. Place crushed rock backfill for direct embedded poles in one (1) foot lifts or continuously but very slowly and bring the material up uniformly on all sides of the pole. Compact each lift or continuously using pneumatic tampers. A maximum of one shoveller per three tampers shall be used at each hole. No manual tamping equipment will be allowed. This procedure is to be continued until the crushed rock backfill is within one (1) foot of the top of the hole.

E. Concrete Backfill:
1. Prior to placement of concrete, restore the ground surface to required grade in the lateral direction around the excavation with on-site soils, to replace any soils that have collapsed or sloughed as a result of the Work. Mushrooming of concrete at the top of the foundation shall not be permitted.
2. Concrete not placed within 90 minutes from batch time shall be rejected.
3. Place concrete in accordance with applicable practices recommended by ACI.
4. Fill entire volume of excavation with concrete to the ground surface in one continuous operation.
5. Where practical, and without compromising the stability of the excavation, dewater excavation before placing concrete. Hold the water level in the bottom of the excavation prior to concreting at a nominal depth not to exceed 2 inches.
6. In dry excavations, place concrete with an approved drop pipe or funneling device. Approval of the funneling device shall be dependent upon Contractor's demonstrated ability to direct concrete flow so as not to fall or strike against the sides of the casing or the sides of the excavation. Use an extension pipe to limit the free-fall distance to 15 times the minimum annulus thickness, but no more than 20 feet.
7. Place concrete in a manner that will not cause segregation of the particles or permit infiltration of water or any other occurrence which would tend to decrease the strength of the concrete.
8. Where dewatering is impractical, or when using the slurry method, place concrete under water or through slurry as follows:
    a. Use a rigid pipe or flexible hose. Displace the slurry mud or water as the concrete is placed. Keep the end of the pipe or hose embedded in the concrete as the concrete is placed.
    b. Should the end of the pipe or hose be accidently pulled out of the concrete during the placement, discontinue the placing immediately and withdraw the pipe or hose to the surface. Reseal the pipe or hose at its bottom. Reinsert pipe in the excavation with the sealed end extending into the concrete to the level before the pullout. Placement may then be resumed.
    c. Overpour the cutoff point shown on the Drawings. Dip out the excess concrete. Geotechnical Representative will then visually observe the concrete at the top of the pour. If any contamination of the concrete is observed, reinsert the pipe or hose a sufficient distance into the concrete and continue placing fresh concrete until the contaminated concrete has been replaced by uncontaminated concrete.
    d. Draw off slurry displaced during concrete placement and remove from the Site.
    e. Use of a tremie pipe, in lieu of pumping, shall not be permitted.
9. Do not disturb the temporary casing, until a sufficient depth of concrete has been placed in the excavation to ensure that no voids will occur in the excavation due to intrusion of

soil or water as the temporary casing is being withdrawn. If a known void is present along the sides of the excavation, sufficient concrete shall be placed prior to disturbing the temporary casing to ensure sufficient concrete will remain above the bottom of casing after the void is passed.

10. Keep the temporary casing plumb and pull with a smooth, vertical motion, without jerks, to ensure, in Geotechnical Representative's opinion, that no voids will occur in the backfill due to intrusion of soil or water as the casing is being withdrawn. Coordinate the withdrawal of temporary casing, with concrete placement to maintain a load of concrete approximately 5 feet above the casing bottom.
11. Should soil, rock, or water enter the excavation and contaminate the concrete, remove the contaminated concrete before completing pour.
12. Conveying:
    a. Convey concrete from the mixer and deposit in place by methods which will prevent the segregation or loss of materials.
    b. Equipment for chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to provide a practically continuous flow of concrete at the delivery end.
    c. Do not use aluminum conveying equipment.
13. Consolidation of Concrete:
    a. Provide an adequate number of vibrators of sufficient capacity to keep up with the maximum rate of concrete placement. Keep on hand adequate standby equipment in good operating condition.
    b. Vibrate concrete within the top 5 feet, only after temporary casing has been pulled or when casing is permanent.
    c. Vibrate concrete until the concrete is thoroughly consolidated and the voids filled as evidenced by the level appearance of the concrete at the exposed surface and the embedment of the surface aggregate. Do not over-vibrate to avoid segregation of concrete aggregate from the cement paste.
14. Additionally, as specified in SECTION 03 30 00.

F. Soil Backfill
1. Backfill the upper one (1) foot and restore the ground surface to required grade above the crushed rock or concrete backfill as indicated on the Drawings. Fill in the lateral direction around the foundation with on-site soils, to replace any soils that have collapsed or sloughed as a result of the Work. Place the soil in 6-inch lifts and compact as specified below. Sufficiently compact all material replaced, with the exception of topsoil, as follows:
    a. Cohesive Soils: Compaction shall achieve a minimum of 95 percent of maximum density with a moisture content plus or minus 3 percent at optimum moisture per ASTM D698.
    b. Cohesionless Soils: Compaction shall achieve a minimum of 70 percent relative density as per ASTM D4253 and D4254.

3.05 PROTECTION

A. Protect installed poles from the potential for buoyancy due to the following conditions:
1. Backfill placement unexpectedly interrupted and cannot be completed the same working day as pole setting.
2. Multi-section poles are not fully assembled within 7-days of setting the base section.

3.06 NON-CONFORMING WORK:

A. Contractor shall be solely responsible for full compliance with the Contract Documents regardless of if and when discrepancies are brought to their attention. Contractor shall be responsible for all re-work necessary to achieve full compliance with the Contract Documents. Repairs or replacement shall be at the sole expense of the Contractor, including the costs to redesign, as required.

B. Owner may employ one or more of their representatives to provide observation and testing services.

C. Owner or Geotechnical Representative may reject any foundations which, in their opinion, do not conform to the Contract Documents.

D. As directed by Owner, perform remediation work for rejected foundations at no additional cost to Owner.

END OF SECTION 31 63 30

ATTACHMENT 3: HOLD TAGS – AUTHORIZED PERSON REQUIREMENTS

ELECTRIC T&S PROJECTS PROCEDURE: ES 20410 TSP 001

TITLE: CLEARANCE TAGS – AUTHORIZED PERSON REQUIREMENTS

CREATION DATE: 3/6/2020 **REVISED:** 11/3/2023

ASSIGNMENT OF RESPONSIBILITY: The Manager of Transmission and Substation Projects shall be responsible for the maintenance of this procedure which is intended to:

- List the requirements to become an Authorized Person.
- Ensure contractors of Transmission and Substation Projects follow JEA's procedures for clearance tags and grounding.

1.0 Definitions

1.1 **Authorized Person:** A person designated as qualified by the Manager of Transmission and Substation Projects that can request a clearance tag from the PSO.

1.2 **PSO:** Power Systems Operator. The scheduled Certified System Operator responsible for issuing tags and clearances for maintenance on the transmission and distribution systems.

1.3 **Hold Tag:** A status that will ensure that a device/line will not be operated by anyone without explicit permission from the PSO.

2.0 General Description

2.1 For an individual to be considered as an Authorized Person to request hold tags, he or she must attend the JEA course *Principles of Hold Tags and Grounding for Contractors*.

2.2 Final approval is issued by the Manager of Transmission and Substation Projects to become an Authorized Person.

2.3 Each foreman working in a JEA substation must be an Authorized Person to request a clearance tag.

2.4 An Authorized Person will not perform switching on JEA equipment.

2.5 Authorized Persons for Transmission and Substation Projects are listed in Appendix A.

3.0 Authorized Person Requirements

3.1 For an individual to be listed as an Authorized Person, he or she must:

3.1.1 Attend the JEA course *Principles of Clearance Tags and Grounding for Contractors*.

3.1.2 Have approval issued by the Manager of Transmission and Substation Projects.

3.2 The Manager of Transmission and Substation Projects can revoke an individual's Authorized Person status for any reason.

4.0 Course Information

4.1 The prerequisite for JEA's course, *Principles of Clearance Tags and Grounding for Contractors,* is JEA's *Substation Entry Training* course.

4.2 The course is one day in length and is available on an as-needed basis. Please request the course two weeks in advance.

4.3 Contractors sign up for the course by contacting their JEA Project Manager.

4.4 JEA employees my sign up for the course by contacting JEA's Technical Development Specialist Scott Nordeng, nordsc@jea.com, at 904-665-6728.

5.0 Documentation

5.1 The Manager of Transmission and Substation Projects is responsible for maintaining records of this process as required by JEA internal controls.

Revision #	Date	Description	Revised By	Approval
0	3/6/2020	Creation	AS	DH
1	3/12/2020	Terminology Update	AS	DH
2	11/3/2023	Replaced "hold" with "clearance" Updated training contact info. Removed Kory Blue from list. Revamped Appendix A	RMS	DH

6.0 Appendix A – Authorized Persons to Issue a Clearance Tag

Link: Authorized Persons List

4. SECTION.....SCHEDULE OF VALUES

The following Schedule of Values shall be filled out and submitted with the bid. An electronic copy will be made available.

Appendix B Schedule of Values

Scope	#	ITEM DESCRIPTION	UOM	Quantity	Unit Price	Extended Price
SET UP	1	1.1 MOBILIZATION	Lump Sum	1		$ -
	2	1.2 DEMOBILIZATION	Lump Sum	1		$ -
	3	1.3 BID BOND	Lump Sum	1		$ -
	4	1.4 SURVEYING - STAKE PROPOSED POLE LOCATIONS	Lump Sum	1		$ -
	5	1.5. INSTALL PHASE 1 OF CORRUGATED METAL PIPE (CMP) FOUNDATION FOR CONCRETE POLE #62A AS DETAILED IN THE TECHNICAL SPECIFICATIONS	Lump Sum	1		$ -
	6	1.6. INSTALL PHASE 1 OF CORRUGATED METAL PIPE (CMP) FOUNDATION FOR CONCRETE POLE #62F AS DETAILED IN THE TECHNICAL SPECIFICATIONS	Lump Sum	1		$ -
	7	1.7 CONCRETE COMPRESSIVE STRENGTH TESTING (7, 14, 21, 28 DAYS, SPARE) AS DETAILED IN THE TECHNICAL SPECIFICATIONS	Lump Sum	1		$ -
MATERIAL	8	2.1 Concrete	CY			$ -
	9	2.2 Corrugated Metal Pipe	QTY	2		$ -
	10	2.3 Temporary Casing	QTY	2		$ -
Miscellaneous	11	3.1 RESTORATION	Lump Sum	1		$ -
	12	3.2 AS-BUILT DRAWINGS	Lump Sum	1		$ -
	13	3.3 AS-BUILT SURVEY (5 DAYS)	Lump Sum	1		$ -
	14	3.4 MOT (ALLOWANCE) TO BE USED FOR ALL MAINTENANCE OF TRAFFIC AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS	Dollars			$ -
Subtotal Line 1 - 16 Above						**$**
SWA (10% of Subtotal)						**$**
Total Bid Price (Enter this amount on line 1 of the Bid Form)						**$**

ATTACHMENT 5: GEOTECHNICAL REPORT

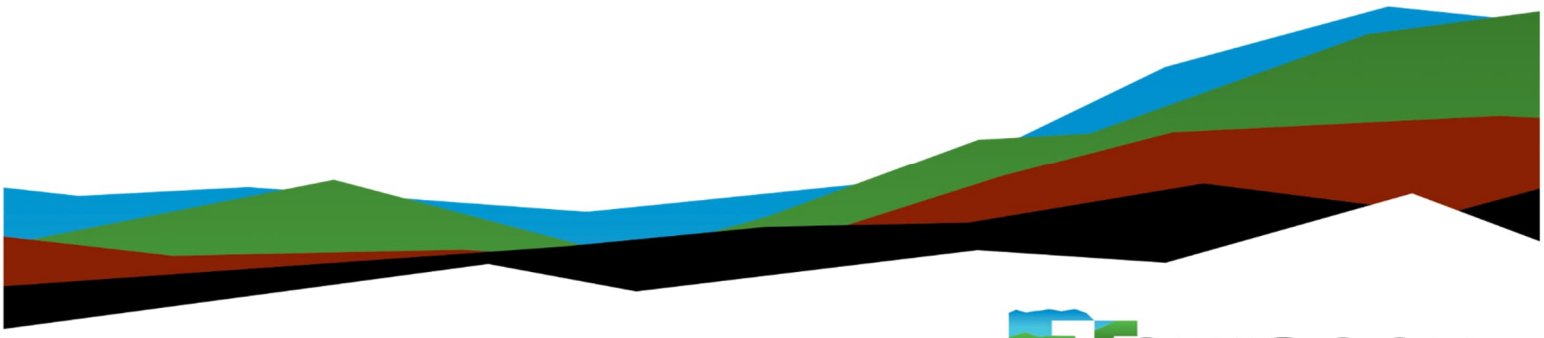
Miller Tract Switchyard

Geotechnical Engineering Report

June 6, 2025 | Terracon Project No. EQ255020

Prepared for:

Florida Renewable Partners, LLC
700 Universe Boulevard
Juno Beach, Florida 33408



Terracon
Explore with us

Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical
- Materials

8001 Baymeadows Way - Suite 1
Jacksonville, Florida 32256
P (904) 900-6494
Terracon.com

June 6, 2025

Florida Renewable Partners, LLC
700 Universe Boulevard
Juno Beach, Florida 33408

Attn: Mr. Sean Brannen
P: (561) 694-3202
E: Sean.Brannen@nexteraenergy.com

Re: Geotechnical Engineering Report
Miller Tract Switchyard
Old Plank Road
Jacksonville, Duval County, Florida
Terracon Project No. EQ255020

Dear Mr. Brannen:

We have completed the scope of Geotechnical Engineering services for the above-referenced project in general accordance with the Geotechnical Engineering Scope of Servies for Miller Solar, dated 11/12/2024. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and ancillary structures for the proposed switchyard as part of the solar project. This report supersedes the Draft report dated May 21, 2025 and incorporates review comments.

We appreciate the opportunity to be of continued service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Thomas D. Hallahan
Geotechnical Project Manager

Kirk A. McIntosh, PE, D.GE
Geotechnical Consultant
Florida PE No. 33703

Table of Contents

Attachments

Field Exploration Results

- Exploration and Testing Procedures
- Topographic Map
- Soils Map
- Exploration Location Plan
- General Notes
- Unified Soil Classification System
- GeoModel
- Boring Logs

Laboratory Test Results

- Laboratory Testing Procedures
- Summary of Laboratory Test Results
- Corrosion Test Results

Field Soil Electrical Resistivity Results

- Electrical Resistivity Exploration Location Plan
- Field Electrical Resistivity Test Data

Note: This report was originally delivered in a web-based format. Blue Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

Geohazards

Item	Overview Statement [1]
Geotechnical Overview	This geotechnical exploration mainly encountered sandy soil of varying fines content and density, with occasional layers of silty sand and clayey sand, from the ground surface to the deepest termination depth of 65 feet. Dense and very dense soils were often encountered at depths below 20 to 30 feet, which could prove difficult for deeper excavations
Shallow Bedrock	Shallow bedrock was not encountered at the site.
Frost Potential	The frost potential is considered negligible in this area.
Shallow Groundwater	Groundwater was encountered at a depth range of about 3 to 4½ feet below the ground surface (bgs). For planning purposes, we recommend assuming the seasonal high groundwater to be relatively shallow (approximately 2-foot bgs or higher) at this site.
Liquefaction	Liquefaction was not evaluated for this project
Karst	Karst is not a concern at this site.

1. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed switchyard facility and transmission line to be included as part of the proposed Miller solar substation facility near Old Plank Road in Jacksonville, Duval County, Florida. The purpose of these services was to provide information and geotechnical engineering recommendations relative to the proposed construction.

Terracon previously performed geotechnical engineering services for the entire solar site on behalf of Florida Renewable Partners LLC and issued a report on March 28, 2024 (ref. EQ235163). The previous study included soil borings, CPT soundings, infiltration testing, thermal resistivity testing, corrosion series testing, soil cement mix design, field electrical resistivity testing, and pile load testing.

The geotechnical engineering Scope of Services for this project included drilling test borings; performing field electrical resistivity testing; laboratory soil sample testing for corrosion properties, laboratory soil classification and index property testing, engineering analysis; and preparation of this Geotechnical Engineering Report.

The following hyperlinks can be used to quickly navigate to the location plans, field data, and laboratory data completed for this report:

- Field Exploration Results (includes exploration plans, and boring logs)
- Laboratory Test Results (includes the classification index testing and corrosion series)
- Field Soil Electrical Resistivity Data (includes test procedures, locations, and individual electrical resistivity test data)

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	▪ A Scope of Work (SOW) document was provided by FRP via e-mail on February 7, 2025.

Item	Description
	■ Proposed boring locations and boring depths were also provided
Project Description	It is our understanding that the project will include a substation, BESS, switchyard, and transmission line to be developed to support a new photovoltaic solar facility.
Proposed Structures	The proposed project will include the design of an electrical switchyard which will include equipment supported on concrete slabs-on-grade or drilled shafts.
Maximum Loads	We have been provided the following foundation loads for the project: Deadend Drilled Shafts: ■ Maximum 8' diameter ■ Compression = 15 kips ■ Uplift = 0 kips ■ Lateral = 15 kips ■ Moment = 450 kip-ft General Drilled Shafts: ■ Maximum 3' diameter ■ Compression = 12 kips ■ Uplift = 4 kips ■ Lateral = 6 kips ■ Moment = 60 kip-ft Mat/Slab Foundations: ■ 2,000 psf bearing pressure (assumed max load of 350 kips)
Grading/Slopes	Grading and/or site plans were not provided at this stage of the project. However, it is anticipated that the site work will involve an earthwork fill of up to 2 feet with no cut.

Terracon should be notified if any of the above information is inconsistent with the planned construction, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions was derived from our site visits from April 14th through April 22, 2025, in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The site is located along old Plank Road, in west Jacksonville, Duval County, Florida. The total area of the switchyard site is about 25 acres with approximate center coordinates of the following: 30.319749°N; 81.917626°W. See Topographic Vicinity Map
Current Ground Cover	Primarily pasture land. The western portion of the land tract includes trees. Standing surface water was not observed at the time of our site visits.
Existing Topography	The site is relatively flat. Review of the USGS database indicates that ground surface elevations range from about +80 to +85 feet (NAVD88 datum)

Geotechnical Characterization

Site Geology

Florida is the emergent part of a large platform, called the Floridian Plateau, which projects southward from the continental mass and separates the deep water of the Atlantic Ocean from that of the Gulf of Mexico.

The geology of the Northeastern Florida area is characterized by sedimentary strata formed during three distinct geologic periods. The surficial stratum is composed of undifferentiated Pleistocene and recent age beds of fine to coarse sand and silty clay deposits resulting from fluctuations of sea levels during Pleistocene interglacial periods. Recent age deposits consist of alluvial sand and clay in stream valleys and organic material in low-lying features. The thickness of this surficial stratum in the project area is mapped at about 50 to 100 feet. This upper, mostly sandy zone contains the surficial (water table) aquifer.

A Miocene age deposit, the Hawthorn Group, is frequently mapped as underlying the surficial sand and is typically composed of calcareous clay interbedded with lenses of sand, shell, and limestone with appreciable amounts of phosphate. Lenses of dolomite may also be present. This relatively impermeable stratum is mapped as extending to 200 feet beneath the ground surface in the project vicinity and serves as the confining layer for the underlying Floridan aquifer.

The Floridan Aquifer is composed of many limestone and dolomite formations of Eocene Age. This aquifer is one of the most productive in the world. The limestone and dolomite formations are made up of carbonate materials that range from very hard and continuous to very soft and discontinuous. The very soft materials contain many solution cavities, which hold and

transmit large quantities of water. Most of the freshwater supplies for agricultural use and for large domestic users are from the Floridan Aquifer.

Soil Survey

The Soil Survey for Duval County, Florida, as prepared by the United States Department of Agriculture (USDA), Soil Conservation Service (now renamed the Natural Resource Conservation Service - NRCS), identifies three soil types at the subject site. The soil survey presents shallow (typically upper 80 inches) soil stratification information. A map of the soil units is presented in Field Exploration Results.

Map Symbol No.	Soil Name	Estimated Seasonal High Groundwater Level		Flooding	
		Depth (ft)	Duration	Frequency	Duration
14	Boulogne Fine Sand (0 to 2 percent slopes)	0.5 - 1.5	Jan - Oct	None	--
66	Surrency Loamy Fine Sand, Depressional (0 to 2 percent slopes)	+2.0	Jan - Dec	None	--
82	Pelham Fine Sand (0 to 2 percent slopes)	+1.0	Jan - Dec	None	--

In general, the soil survey indicates the near-surface soils are comprised of sand and silty/clayey sand. Groundwater levels are reported within 1.5 feet or less below the ground surface throughout most of the site, and up to 2 feet above the ground in the lowest lying areas at the wettest times of year (typically June to September in the project area).

It should be noted that the NRCS Soil Survey is not intended as a substitute for site-specific geotechnical exploration; rather it is a useful tool in planning a project scope in that it provides information relative to the soil types likely to be encountered within the upper 6-1/2 feet of the soil profile. Boundaries between adjacent soil types on the NRSC Soil Survey maps are approximate. In general, the shallow subsurface conditions identified in the borings conducted for this project generally agree with the NRCS Soil Survey.

Subsurface Conditions

We have developed a general characterization of the subsurface conditions based on our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. Conditions observed at each exploration point are

indicated on the individual boring logs. The GeoModel and individual boring logs can be found in the Field Exploration Results attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Clean Sand	Very loose to very dense sand, with varying fines content (SP, SP-SM)
2	Silty Sand	Very loose to dense silty sand, occasionally with trace to little clay (SM)
3	Clayey Sand	Very loose to dense clayey sand (SC)

Groundwater

The boreholes were observed while drilling and after completion for the presence and the level of groundwater. A summary of measured groundwater levels recorded in the borings is provided below.

Location	Date Drilled	Depth to Groundwater (feet-bgs)	Estimated Seasonal High Groundwater[1] (feet-bgs)	NRCS Soil Map Unit No.[1]
B-01	4/22/2025	3.0	0.5’ - 1.5’ bgs Apparent Jan - Oct	14
B-02	4/17/2025	4.4		14
B-03	4/21/2025	3.0		14
B-04	4/22/2025	3.0		14
B-05	4/16/2025	4.0		14
B-06	4/15/2025	4.0		14
B-07	4/15/2025	4.0		14
B-08	4/14/2025	4.0		14
B-09	4/15/2025	4.0		14
B-10	4/15/2025	4.0		14
B-11	4/14/2025	4.0		14
B-12	4/14/2025	3.4		14
B-13	4/17/2025	3.0		14

Location	Date Drilled	Depth to Groundwater (feet-bgs)	Estimated Seasonal High Groundwater[1] (feet-bgs)	NRCS Soil Map Unit No.[1]
B-14	4/17/2025	4.0		14
B-15	4/17/2025	4.0		14
B-16	4/21/2025	3.5		14
B-17	4/22/2025	2.5		14
B-18	4/17/2025	4.4		14
B-19	4/16/2025	4.4		14
B-20	4/16/2025	4.0		14
B-21	4/18/2025	4.4		14
B-22	4/17/2025	4.4		14

1. As indicated in Soil Survey for Duval County, Florida

Groundwater conditions may be different at the time of construction. Mapping by the Natural Resources Conservation Service (NRCS) and our previous exploration in this area indicate a seasonal high groundwater level at a depth of approximately 6-to 18-inches below the ground surface. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling, including future development of the site and surrounding areas. Groundwater may temporarily perch on near-surface layers of clayey sands during and following periods of intense or prolonged rainfall. Long-term groundwater monitoring was outside the scope of services for this project. For planning purposes, we recommend assuming a seasonal high groundwater level at the existing natural ground surface for this site.

Bedrock

Rock was not encountered in any of the borings drilled at the site to the maximum boring termination depth of 65 feet bgs.

Field Electrical Resistivity

Field measurements of soil electrical resistivity were performed by Terracon. The locations and results of the field electrical resistivity testing are included in the Field Soil Electrical Resistivity Test Results section of this report.

Laboratory Corrosion Testing

The table below lists a summary of the results of laboratory pH, soluble sulfate, soluble chloride, oxidation-reduction potential (redox), and electrical resistivity testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary

Parameter	Number of Tests	Min.	Max.	Average
pH	7	5.50	6.14	5.77
Soluble Sulfate (mg/kg)	7	6	66	25
Soluble Chloride (mg/kg)	7	45	60	51
Redox (mV)	7	384	430	403
Electrical Resistivity (Ω-cm)	7	7,910	40,500	26,273

Results of soluble sulfate testing can be classified in accordance with ACI 318 – Building Code Requirements for Structural Concrete. Based on ACI 318 the water-soluble sulfates in the soils tested are negligible (<0.1 percent). Numerous sources are available to characterize corrosion potential of buried metals using the parameters above. Section 10.7.5 of the AASHTO LRFD Bridge Manual, 8th Edition, 2017, states the following soil or site conditions should be considered as indicative of potential deterioration or corrosion situation for buried steel:

- Soil electrical resistivity less than 2,000 ohm-cm
- pH less than 5.5
- pH between 5.5 and 8.5 with high organic content
- Sulfate concentration greater than 1,000 ppm mg/kg (0.1 percent)

These test results are provided to assist in determining the type and degree of corrosion protection that may be required. We recommend that a NACE certified corrosion professional be retained to analyze the need for corrosion protection and to design appropriate protective measures, if required.

Imported fill materials may have significantly different properties than the site materials noted above and should be evaluated if expected to be in contact with metals used for construction.

Seismic Considerations

Florida is under the jurisdiction of its own building code as opposed to the International Building Code. Under Chapter 1, Part 1, Section 101.2 Scope – Exceptions is a statement "Code requirements that address snow loads and earthquake protection are pervasive; they are left in place but shall not be utilized or enforced because Florida has no snow load or earthquake threat." The Florida Building Code is explicit that seismic provisions do not require structural design consideration in Florida.

Switchyard Structures

Geotechnical Overview

Shallow Foundations: We anticipate several structures will be constructed in order to support electrical equipment and provide storage in the switchyard portion of the project. The proposed structure types and specific loading information were not available at the time of this report. Settlement potential was analyzed using soil compressibility properties derived from the SPT borings conducted in the planned switchyard location and assumed structural loads. We estimate total settlements will be less than one inch provided isolated footing or mat/slab foundation loads are less than about 350 kips (including the self-weight of the foundation). Shallow foundation systems for support of lightly loaded buildings and equipment pads will be acceptable provided the maximum loads are not exceeded. Once loading and dimensions for these ancillary structures is better known, additional exploration and detailed settlement analyses should be performed to confirm shallow foundation acceptability.

We note that very loose sands were encountered in the upper 2 to 6 feet of the subsurface profile at several boring locations. In general, very loose sands above the water table can be densified from the ground surface by surficial soil compaction using a vibratory drum roller. It will be important for this to be performed where shallow foundations are to be used.

Deep foundations: Deep foundations are anticipated for support of the dead-end towers, A-frame structures, and transmission tower structures due to the anticipated high groundline shear and moment loads. Drilled shafts are most often used in this area to support these structures. Design parameters and construction recommendations for

drilled shafts have been provided in Drilled Foundation Design for Switchyard Structures.

Shallow Foundations for Support of Structures

A veneer of loose and very loose sands was frequently encountered near the surface and will require improvement prior to foundation construction. Due to anticipated shallow groundwater conditions, we anticipate shallow foundations would be constructed on up to about 2 feet of earthwork fill above the natural ground surface with associated site grading design to help remove surface water runoff from the structure areas. We note that very loose to loose clayey fine sand was encountered in Borings B-4 and B-15 at a depth range of about 2 to 6 feet below grade. This soil is easily disturbed (softened) due to construction activity and may need to be removed from beneath shallow foundations. Any shallow foundation designed to bear within clayey fine sands should be observed by a representative of the Geotechnical Engineer to confirm that the bearing level soils are acceptable. The site and subgrade should be prepared as discussed in the Earthwork section of this report.

If the site has been prepared in accordance with the requirements noted in Earthwork, and the considerations noted above are addressed, the following design parameters may be used in the design of shallow foundations.

Shallow Foundation Design Recommendations

Description	Columns	Walls	Mats
Net allowable bearing pressure [1]	2,000 psf	2,000 psf	2,000 psf
Modulus of subgrade reaction for slab-on-grade design (K_{v1})	150 pounds per square inch per in (psi/in) for point loading conditions		
Bearing material	Compacted engineered fill or approved in-situ soil as discussed in Earthwork		
Minimum dimensions	24 inches	18 inches	N/A
Minimum embedment below finished grade [2]	18 inches	18 inches	12 inches
Approximate total settlement [3]	<1 inch	<1 inch	<1 inch
Estimated differential settlement	½ inch between columns	½ inch over 30 feet	½ inch over 30 feet
Ultimate coefficient of sliding friction [4]	0.40		

Description	Columns	Walls	Mats

1. The recommended net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. It assumes any unsuitable soils, if encountered, will be replaced with compacted structural backfill, or will be compacted. Net allowable bearing pressure includes a factor of safety of at least 3.0
2. Required to generate the allowable bearing pressure and for erosion protection.
3. Values provided are for maximum loads noted in Project Description. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, and the quality of the earthwork operations. Footings should be proportioned to relatively constant dead-load pressure in order to reduce differential movement between adjacent footings.
4. Sliding friction along the base of the footing will not develop where net uplift conditions exist.

The allowable foundation bearing pressures apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Foundation excavations should be observed by a representative of the Geotechnical Engineer. If the soil conditions encountered differ significantly from those presented in this report, Terracon should be contacted to provide additional evaluation and supplemental recommendations.

Deep Foundations for Support of Structures

Deep foundations consisting of drilled shafts may be utilized for the support of the switchyard structures for the project. The wet (i.e. slurry) method of construction will likely be required due to the anticipated shallow seasonal high groundwater at the site. Typically, the wet method construction also requires incorporation of temporary surface casing to stabilize the top of the deep foundation excavation during construction. The temporary casing is removed during concrete placement.

Drilled Shaft Design Parameters

The soil internal friction angles and lateral subgrade modulus values shown in the following table are based on published methods with corrected SPT blow counts from the borings that were located within the planned switchyard area. Groundwater was assumed to be at the ground surface for design purposes.

Drilled Shaft Foundation Design Parameters								
Depth[1] (feet)	Average N-Value (Energy-Corrected)	L-Pile Soil Type	Effective Unit Weight γ (pcf)	Allowable Compression Skin Friction[2] (ksf)	Allowable End Bearing Pressure[3] (ksf)	Internal Angle of Friction ϕ (°)	Cohesion c (psf)	Lateral Subgrade Modulus k (pci)
0 to 2	6	SAND	41	0.01	2.5	31	0.0	160
2 to 6	5	SAND	42	0.03	1.9	29	0.0	70
6 to 28	23	SAND	50	0.38	9.4	36	0.0	145
28 to 60	31	SAND	58	0.68	12.5	36	0.0	120

1. Depth below ground surface at boring location
2. Allowable compression skin friction includes a factor of safety of at least 2.0. For uplift skin friction, a factor of 2/3 should be applied to the values shown in this table.
3. Allowable end bearing includes a factor of safety of at least 3.0

Shafts should be adequately reinforced as designed by the Structural Engineer for both tension and shear to sufficient depths. Buoyant unit weights of the soil and concrete should be used in the calculations below the highest anticipated groundwater elevation.

Drilled shafts should have a minimum (center-to-center) spacing of three diameters. Closer spacing may require a reduction in axial load capacity. Axial capacity reduction can be determined by comparing the allowable axial capacity determined from the sum of individual piles in a group versus the capacity calculated using the perimeter and base of the pile group acting as a unit. The lesser of the two capacities should be used in design.

A minimum shaft diameter of 30 inches should be used. Drilled shafts should have a minimum length of 10 feet. Post-construction settlements of drilled shafts designed and constructed as described in this report are estimated to be less than about 1/2 inch. Differential settlement between individual shafts is expected to be half of the total settlement.

Drilled Shaft Construction Considerations

The drilling contractor should be experienced in the subsurface conditions observed at the site, and the excavations should be performed with equipment capable of providing a relatively clean bearing surface. The drilled straight-shaft foundation system should be installed in general accordance with the procedures presented in "Standard Specification for the Construction of Drilled Piers", ACI Publication No. 336.1-01.

Sandy soils were observed in the substation borings. To prevent collapse of the sidewalls the use of wet slurry method drilling procedures and a temporary surface casing to help

maintain stability of the upper portion of the shaft excavation during construction are anticipated as a minimum requirement for construction of the drilled shaft foundations. The following recommendations are applicable for the wet method of drilled shaft construction. It is recommended that a geotechnical engineer (or a senior technician experienced in drilled shaft construction) document the installation of the drilled shaft since it will be a non-redundant foundation.

- Temporary casing of the top portion of the shaft excavation is recommended to help maintain stability, inhibit lateral infiltration of surficial water, provide better control of the concreting operation, and reduce the potential for caving at the top of the excavation.
- When using the slurry displacement method of construction, the drilled shaft is constructed by excavating a cylindrical hole with a drill rig equipped with appropriately sized tooling (earth augers, digging buckets, clean-out buckets, etc.) in conjunction with a clay mineral or polymer drilling slurry which stabilizes the excavated shaft walls while the shaft is being excavated.
- Typically, the slurry is introduced into the excavation at some depth above the groundwater level to help prevent caving of the sidewalls and maintain the integrity of the side shear and end bearing resistances provided by the soil.
- Drilled shaft installation in loose sands without cohesion may result in unplanned caving of the excavation resulting in subsidence of the ground surface. Therefore, it is imperative that the contractor maintain a stable excavation through close monitoring of excavation and drilling slurry properties.
- When the design shaft tip elevation is reached, the shaft base is cleaned of loose sediment and then a steel reinforcing cage is installed, and fluid concrete is placed through a tremie pipe or pump pipe starting at the bottom of the drilled hole. As concrete is placed from the bottom up, drilling slurry is displaced out of the top of the shaft excavation.
- The slurry level in the shaft excavation should be maintained at a minimum of 6 feet above the static groundwater level at all times.
- Observation and documentation during drilled shaft excavation should include verification of plumbness, maintenance of sufficient slurry head, monitoring the density, viscosity, pH, and sand content of the drilling slurry, and monitoring any changes in the depth of the excavation between initial approval and prior to concreting using a weighted tape. The following drilling fluid properties are recommended:

Recommended Drilling Slurry Specifications (AASHTO, 2008)

Property of Slurry (Units)	Requirement	Test Method (API Standard Method)
Density (lb/ft^3)	Mineral: 64.3 to 72 Polymer: ≤ 64	Mud Density Balance (API 13B-1)
Viscosity (sec/quart)	Mineral: 28 to 50 Polymer: 32 to 135	Marsh Funnel and Cup (API 13B-1)
pH	Mineral: 8 to 11 Polymer: 8 to 11.5	Glass Electrode pH Meter or pH Paper Strips
Sand Content Immediately Prior to Concrete Placement (% by Volume)	Mineral: < 4.0 Polymer: ≤ 1.0	Sand Content (API 13B-1)

- The specific gravity of the drilling slurry should be periodically monitored from the initial mixing to the completion of the excavation of the shaft. An increase in the specific gravity or density of the drilling slurry at the bottom of the shaft by as much as 10 percent could be indicative of soil particles settling out of the slurry onto the bottom of the excavation. Excessive accumulation of loose particles at the bottom of the shaft prior to concrete placement could result in a reduction of the allowable bearing resistance of the soils at the bottom of the drilled shaft or discontinuities in the shaft cross section if loose soil becomes suspended in the fluid concrete mass during concrete placement. If proper cleaning of the shaft base is not possible, then the end bearing resistance at the base of the shaft should be ignored in shaft design.
- The required fabricated reinforcing steel cage should be placed in the drilled shaft excavation after the shaft has reached the required depth, the base of the shaft has been acceptably cleaned and approved, and the drilling slurry has been cleaned/modified as necessary to meet specification requirements. The shaft should be concreted within two hours following the completion of rebar cage installation. The reinforcing cage and concrete mix should be designed to allow fluid concrete to flow freely between and around the individual steel bars and provide concrete cover of at least 3 inches between the reinforcing steel elements and the surrounding soil. The clear space between rebars should be at least five times the maximum aggregate size used in the concrete mix. Documentation of drilled shaft construction should include conformation that a steel cage meeting design requirements was installed in the shaft prior to concrete placement.
- Following approval of the shaft excavation depth and drilling slurry properties, the drilled shaft should be concreted as soon as practically possible using tremie methods. The bottom of the tremie pipe should be initially set at about one tremie pipe diameter above the bottom of the shaft excavation. A closure flap at the bottom of the tremie should be used, or a sliding plug introduced into the tremie before the fluid concrete, to reduce the potential for the concrete mixing

with or being contaminated by the slurry. The bottom of the tremie pipe must be completely embedded (typically at least 5 feet) in fluid concrete during placement, which should be a continuous operation. Documentation of drilled shaft construction should include an estimation of the concrete volume placed to construct the shaft and a comparison of this volume to the theoretical volume of the drilled shaft as a basis for acceptance of the drilled shaft. Concrete cylinders should also be cast, cured, and tested in the laboratory for the drilled shaft to confirm that the design unconfined compressive strength is achieved.

Earthwork

General

The site work conditions will be largely dependent on the weather conditions and the contractor's means and methods in controlling surface drainage and protecting the subgrade. The shallow groundwater conditions and poor drainage of the flat topography will present challenges to the earthwork operations. Groundwater construction considerations are provided in Site Drainage and Groundwater Control.

Site preparation in the switchyard, or where mat foundations will be installed, should include clearing and grubbing, installation of a site drainage system (where necessary), subgrade preparation, proof rolling and densification, as necessary. Site preparation is not necessary where inverters will be supported on driven piles except to improve site drainage where necessary.

Site Drainage

During construction, the contractor may want to consider implementing a program to lower groundwater along the main access pathways to facilitate access and mobilization around the site, or to accomplish adequate compaction below mat/slab foundations. If such a program is implemented, groundwater levels should be lowered to a depth of at least two feet below the surface of any vibratory compaction operations. If work is completed during the typical wet season, the site will likely be very wet.

If required, the drainage system may consist of perimeter ditches supplemented with parallel ditches and swales. Pumping equipment should be utilized if the collector ditch system cannot effectively gravity drain water away from the site, especially during the rainy season. The site should be graded to shed water and avoid ponding over the subgrade for mat/slab foundations and roadway areas.

Site Preparation

The initial step in site preparation will be the stripping and removal of existing vegetation, debris, and other deleterious materials from proposed switchyard, access road areas, and any proposed mat foundations. Stripping depths based on the widely spaced borings are estimated to be less than 6 inches but could vary considerably between our boring locations and across the site, particularly in areas of timber cultivation and harvest. We recommend actual stripping depths be evaluated during construction to aid in preventing removal of excess material. Trees, tree stumps, and large vegetation should be cleared from the site at the location of mat foundations and roadway areas.

Following stripping and prior to the placement of new structural fill in areas below design grade and in rough graded cut areas, subgrades should be densified or proofrolled to help delineate unstable soil zones. It may be difficult to densify and proofroll with a vibratory drum roller during the wet season due to the shallow groundwater condition. If so, alternate proofrolling procedures, involving rubber-tire equipment and/or placement of an initial lift of fill, may be required and should be approved by the Geotechnical Engineer.

Unstable areas identified by proofrolling should be undercut to expose stable material and backfilled with structural fill or stabilized following the recommendations below.

Prior to placement of fill in areas below design grade and after completion of rough grading in cut areas of the site, the exposed subgrade should be moisture conditioned and compacted to the density and water content ranges recommended in this report.

Structural Fill Material Types

Structural fill should meet the following material property requirements:

Fill Type[1]	USCS Classification	Acceptable Areas for Placement
Structural Fill	SP, SP-SM[2]	▪ No more than 10% material passing the No. 200 Mesh Sieve
General Fill	SP, SP-SM, SM	▪ No more than 15% material passing the No. 200 Mesh Sieve

Fill Type[1]	USCS Classification	Acceptable Areas for Placement

1. Controlled, compacted fill should consist of approved materials that are free of organic matter, significant plastic fines, and debris. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
1. The borings indicate that the near-surface existing soils are acceptable for use as structural or general fill.

Structural Fill Compaction Requirements

Structural fill should meet the following compaction requirements.

Item	Description
Maximum Lift Thickness	■ 12 inches or less in loose thickness when heavy, self-propelled compaction equipment is used ■ 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) or the overlapping tracks of a bulldozer are used
Minimum Compaction Requirements[1]	■ ≥95% of maximum density in the substation (including utility trenches) and below equipment slabs ■ ≥95% of maximum dry density for access roads ■ ≥98% of maximum dry density for the top 1 foot of access road subgrades and for the aggregate base layer
Water Content Range	As needed to achieve compaction and an unyielding surface

1. Maximum density and optimum water content as determined using modified effort (ASTM D1557).

Wet Weather Earthwork

The suitability of soils used for Structural Fill depends primarily on their grain-size distribution and moisture content when they are placed. As the fines content increases, soils become more sensitive to small changes in moisture content. Soils containing more than about 10 percent fines (by weight) cannot be consistently compacted to a firm, unyielding condition when the moisture content is more than 2 percentage points above or below optimum. Optimum moisture content is the moisture content at which the

maximum dry density for the material is achieved in the laboratory by the ASTM D1557 test procedure.

Utility Trenches

All trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. Excavations should be backfilled with structural or native fills in accordance with this report and be compacted in accordance with recommendations in this report.

Groundwater Considerations

The Contractor should be prepared to implement a dewatering program for excavations made below the groundwater table, such as those for installation of stormwater pipes, foundations, or other utilities. Dewatering procedures used by the contractor will be dependent on a number of factors such as the areas and depths of excavations, prevalent groundwater conditions, and prevalent weather conditions at the time of construction.

Dewatering procedures employed should be capable of maintaining groundwater levels at least 2 feet below the lowest point of the excavation being dewatered, or as deep as required to achieve the required compaction or suitable subgrade conditions. In addition, the dewatering procedures should be maintained until all construction operations are above the groundwater levels that existed prior to dewatering, or until all structural bearing subgrades are adequately protected.

We expect that installation of deeper structures will require vacuum-type dewatering systems such as wellpoints or horizontal sock-type vacuum dewatering systems. Groundwater control in shallower excavations (e.g., spread footings) in sandy soils can typically be accomplished by excavating sumps in non-structural bearing areas of the excavation and pumping of the accumulated water from the sumps as needed to maintain a dry excavation.

To facilitate construction operations and aid long term performance of grade supported structures on the project site, additional measures may be necessary to manage the shallow groundwater conditions. Such measures may include, but may not be limited to, the following:

- The use of clean granular backfill materials, such as sands with less than 5% passing the No. 200 mesh sieve or No. 57 gradation crushed washed stone, to facilitate backfill operations near or below groundwater levels.
- The proper scheduling of construction operations to minimize the potential effects of groundwater conditions on excavation and construction operations. Such scheduling should be performed in a manner as to minimize the amount of time for

which excavations are allowed to remain open and subgrades exposed, and to expedite the backfill or construction operations as quickly as is practical. Therefore, all materials and equipment required to perform any excavation or construction operations should be available and ready on the site prior to and at the time of the operations.

- The use of thin mats of lean concrete to help protect structural subgrades and to help minimize the effects of perched groundwater conditions on the subgrades. Such “mud mats” can be placed during and immediately following excavation operations, and will allow, with proper care and use, for backfill placement or other construction operations within the excavations at a later time.

Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of grade-supported improvements such as slabs and access roads. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be moisture conditioned, and recompacted prior to floor slab construction.

The groundwater table could affect overexcavation efforts, especially for overexcavation and replacement of lower strength soils. A temporary dewatering system consisting of sumps with pumps may be necessary to achieve the recommended depth of overexcavation depending on groundwater conditions at the time of construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/ precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near

property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

Terracon should be retained to observe the earthwork efforts. Observation and testing should include documentation of removal of vegetation and topsoil, proofrolling, mitigation of soft/unstable areas delineated by the proofroll, surficial soil compaction, and drilled shaft installation.

The earthwork efforts should be monitored under the direction of Terracon Geotechnical Engineer. Field density tests should be conducted during placement and compaction of engineered fill. The testing frequency should be in accordance with Fill Placement and Compaction Requirements.

Terracon may require additional tests as considered necessary to check on the uniformity of compaction. No additional layers of fill should be placed until the field density test results indicate that the specified density has been obtained.

In areas of shallow foundation excavations, the bearing subgrade should be evaluated by Terracon. In the event unanticipated conditions are encountered, Terracon may prescribe mitigation options. As noted, the installation of all drilled shafts should be observed and documented by a representative of Terracon.

In addition to the documentation of the essential parameters necessary for construction, the continuation of including Terracon into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties is commonly associated with contractor means and methods and is not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of the surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Attachments

Field Exploration Results

Contents:

Exploration and Testing Procedures

Field Exploration

The following table provides a summary of our geotechnical exploration completed at the site.

Number of Explorations	Type of Exploration	Depth or Spacing	Exploration ID	Location
5	Soil Boring	60 to 65 feet	B-13 through B-17	Planned Switchyard Area
11	Soil Boring	50 feet	B-01 through B-05, B-07, B-18 through B-22	
6	Soil Boring	30 feet	B-06 & B-08 through B-12	
2	Field Electrical Resistivity Test	1, 2, 3, 6, 10, 20, and 30	ER-01 through ER-04	
2	Field Electrical Resistivity Test	1, 2, 3, 6, 10, 20, 30, 60, 100, and 200[1]	ER-05 & ER-06	

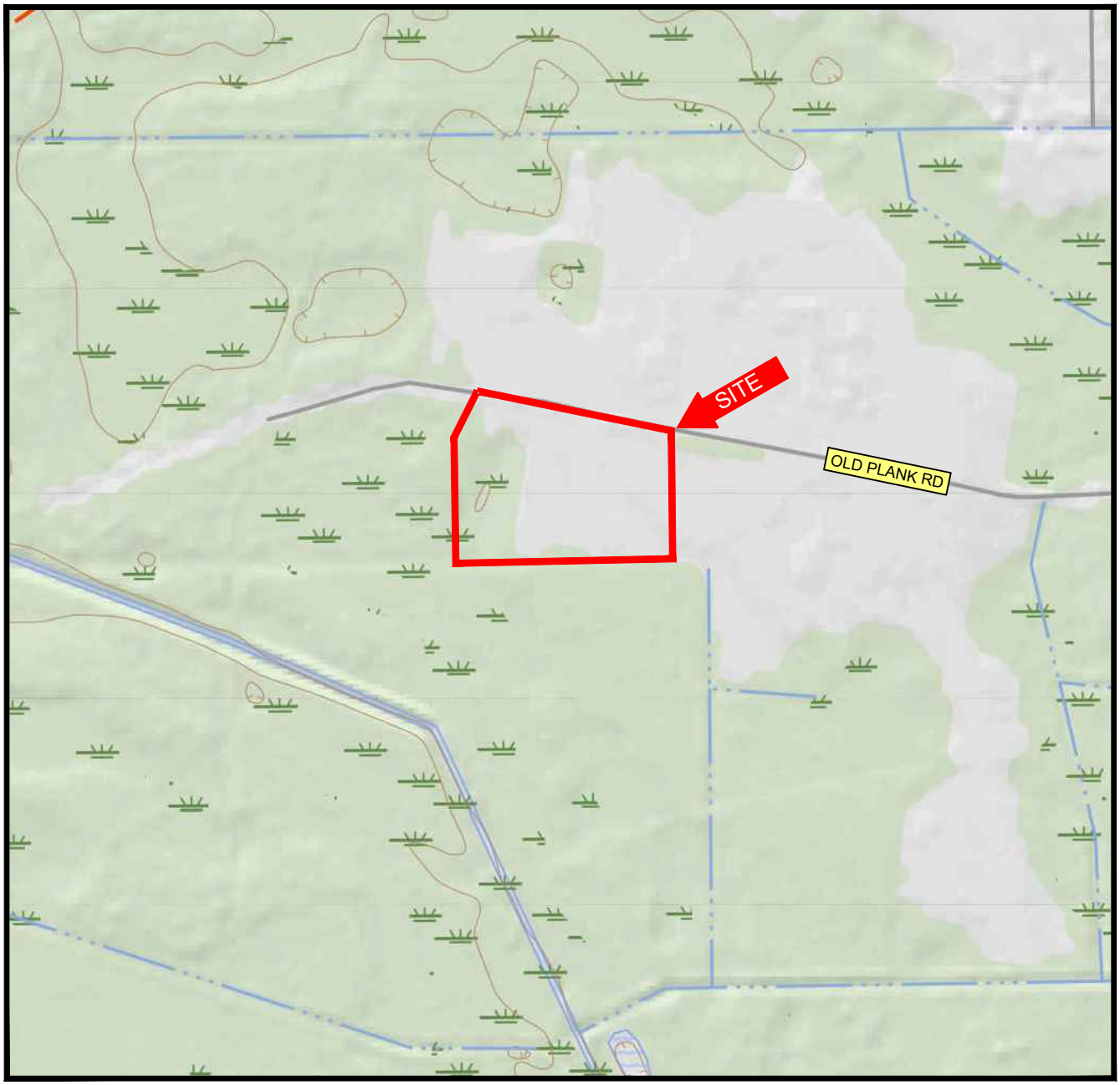
1. Maximum A-spacing reduced to 200-feet due to space constraints on site.

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. If more precise elevations or boring layout are desired, we recommend the borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted drill rig using mud rotary drilling procedures. Five samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound, energy-calibrated, automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the middle 12 inches of a normal 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with soil cuttings and bentonite chips after their completion.

The sampling depths, penetration distances, and other sampling information were recorded on the field boring logs. The samples were placed in appropriate containers and transported to our geotechnical laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1"=1000'

FEET

500 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000

BALDWIN, FLORIDA
ISSUED: 2025
7.5 MINUTE SERIES (QUADRANGLE)

N

Project Mngr:	TDH
Drawn By:	PJC
Checked By:	TDH
Approved By:	KAM
Project No.	EQ255020
Scale:	AS SHOWN
File No.	EQ255020
Date:	5-19-2025

Terracon
Explore with us
8001 BAYMEADOWS WAY - SUITE 1
JACKSONVILLE, FLORIDA 32256
PH. (904) 900-6494 FAX. (904) 268-5255

TOPOGRAPHIC VICINITY MAP

GEOTECHNICAL ENGINEERING REPORT
MILLER SOLAR STATION - SWITCHYARD

OLD PLANK ROAD
JACKSONVILLE, DUVAL COUNTY, FLORIDA

SCALE 1"=1000'

FEET

500 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000

U.S.D.A. SOIL SURVEY FOR DUVAL COUNTY, FLORIDA

SOIL LEGEND

14	BOULOGNE FINE SAND, 0 TO 2 PERCENT SLOPES
66	SURRENCY LOAMY FINE SAND, DEPRESSIONAL, 0 TO 2 PERCENT SLOPES
82	PELHAM FINE SAND, PONDED, 0 TO 2 PERCENT SLOPES

N

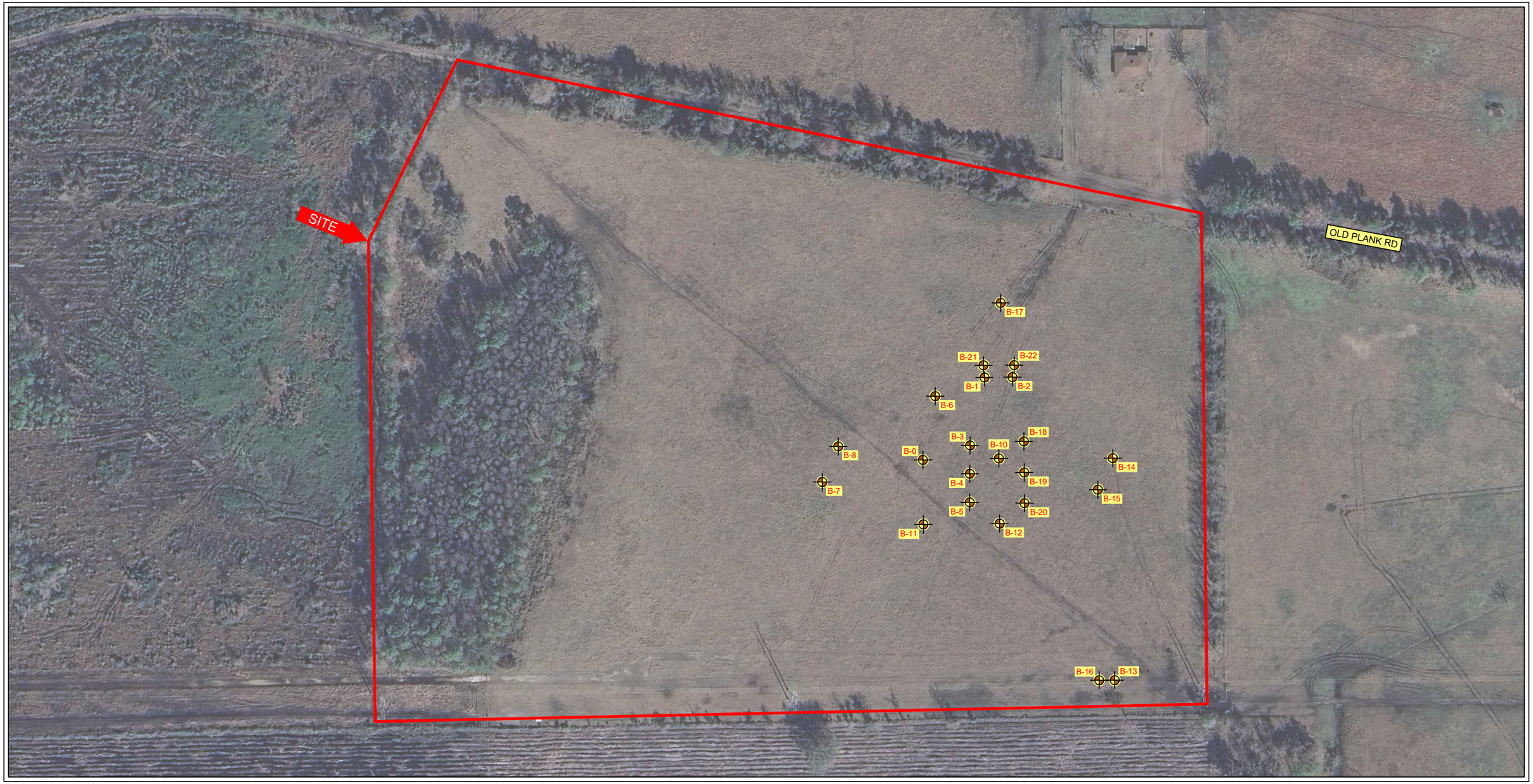
Project Mngr:	TDH
Drawn By:	PJC
Checked By:	TDH
Approved By:	KAM
Project No.	EQ255020
Scale:	AS SHOWN
File No.	EQ255020
Date:	5-19-2025

Terracon
Explore with us
8001 BAYMEADOWS WAY - SUITE 1
JACKSONVILLE, FLORIDA 32256
PH. (904) 900-6494 FAX. (904) 268-5255

SOILS MAP

GEOTECHNICAL ENGINEERING REPORT
MILLER SOLAR STATION - SWITCHYARD

OLD PLANK ROAD
JACKSONVILLE, DUVAL COUNTY, FLORIDA



APPROXIMATE SCALE IN FEET

0 100 200

N

LEGEND

APPROXIMATE LOCATION OF SPT BORING

Project Mngr:	TDH
Drawn By:	PJC
Checked By:	TDH
Approved By:	KAM

Project No.	EQ255020
Scale:	AS SHOWN
File No.	EQ255020
Date:	10-24-2023

Terracon Explore with us
8001 BAY MEADOWS WAY - SUITE ONE
JACKSONVILLE, FLORIDA 32256
PH. (904) 900-6494 FAX. (904) 268-5255

EXPLORATION LOCATION PLAN

GEOTECHNICAL ENGINEERING PROJECT
MILLER SOLAR STATION - SWITCHYARD

OLD PLANK ROAD
JACKSONVILLE, DUVAL COUNTY, FLORIDA

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

General Notes

Sampling

Standard Penetration Test

Water Level

- Water Initially Encountered
- Water Level After a Specified Period of Time
- Water Level After a Specified Period of Time
- Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

Field Tests

N	Standard Penetration Test Resistance (Blows/Ft.)
(HP)	Hand Penetrometer
(T)	Torvane
(DCP)	Dynamic Cone Penetrometer
UC	Unconfined Compressive Strength
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils
(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Relative Density	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	< 3
Loose	3 - 8
Medium Dense	9 - 24
Dense	25 - 40
Very Dense	> 40

Consistency of Fine-Grained Soils
(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Soft	less than 0.25	0 - 1
Soft	0.25 to 0.50	1 - 3
Medium Stiff	0.50 to 1.00	4 - 5
Stiff	1.00 to 2.00	6 - 12
Very Stiff	2.00 to 4.00	13 - 24
Hard	> 4.00	> 24

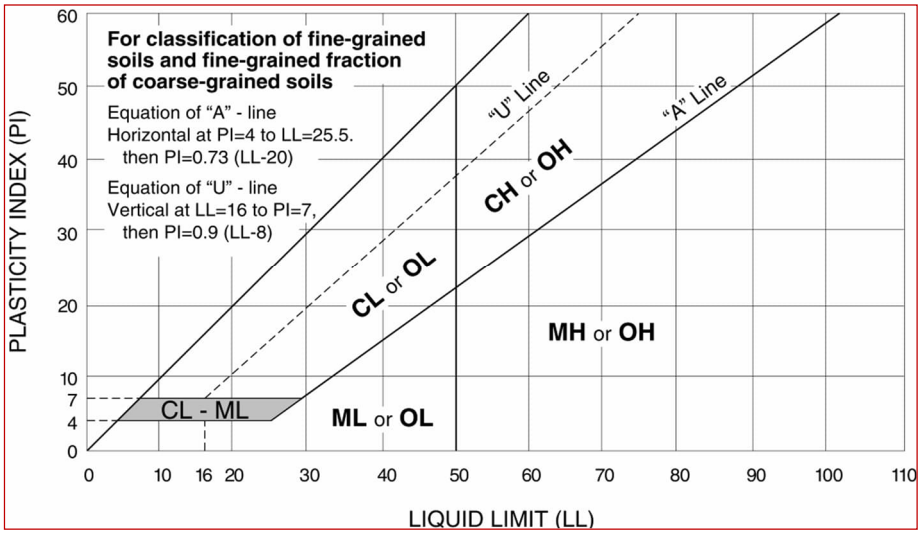
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 4 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried}$ < 0.75	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried}$ < 0.75	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

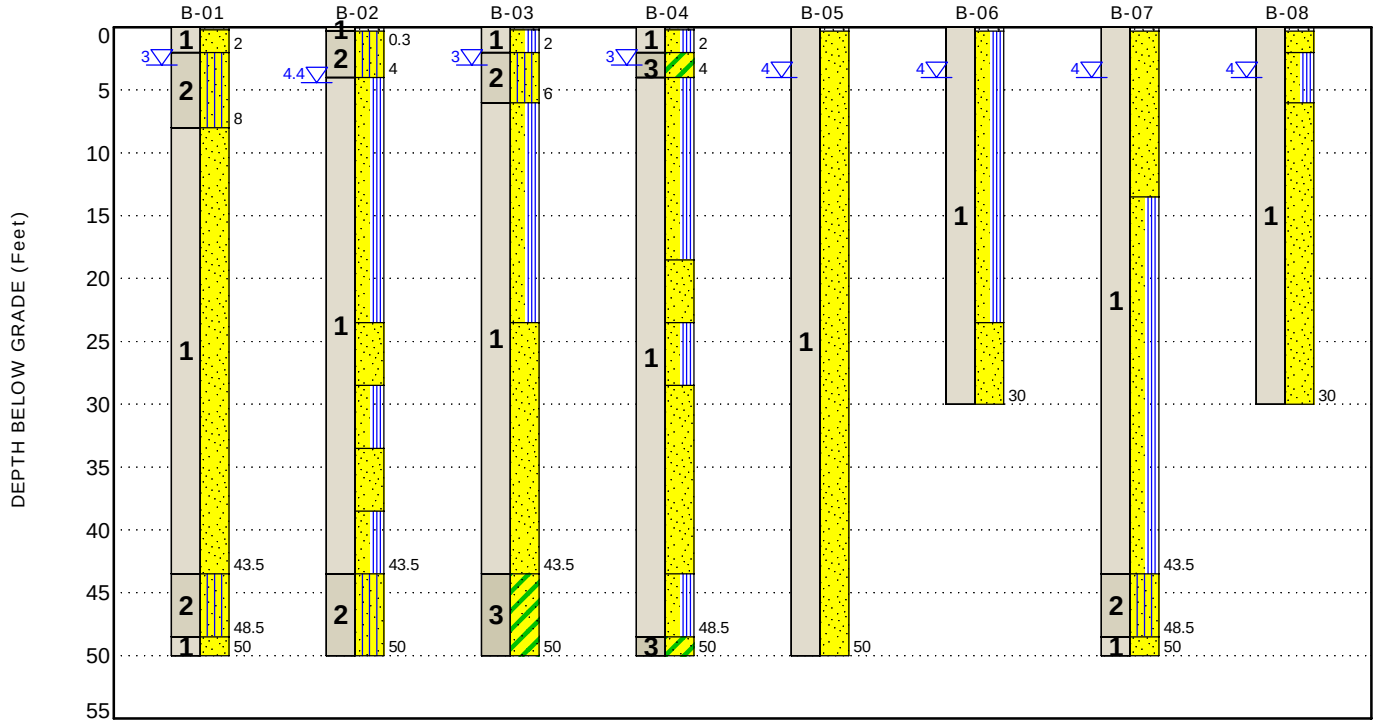
[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Clean Sand	Loose to very dense sand with varying fines content (SP, SP-SM)
2	Silty Sand	Very loose to dense silty sand, occasionally with trace to little clay (SM)
3	Clayey Sand	Very loose to dense clayey sand (SC)

Legend

- Topsoil
- Poorly-graded Sand
- Silty Sand
- Poorly-graded Sand with Silt
- Clayey Sand

▽ First Water Observation

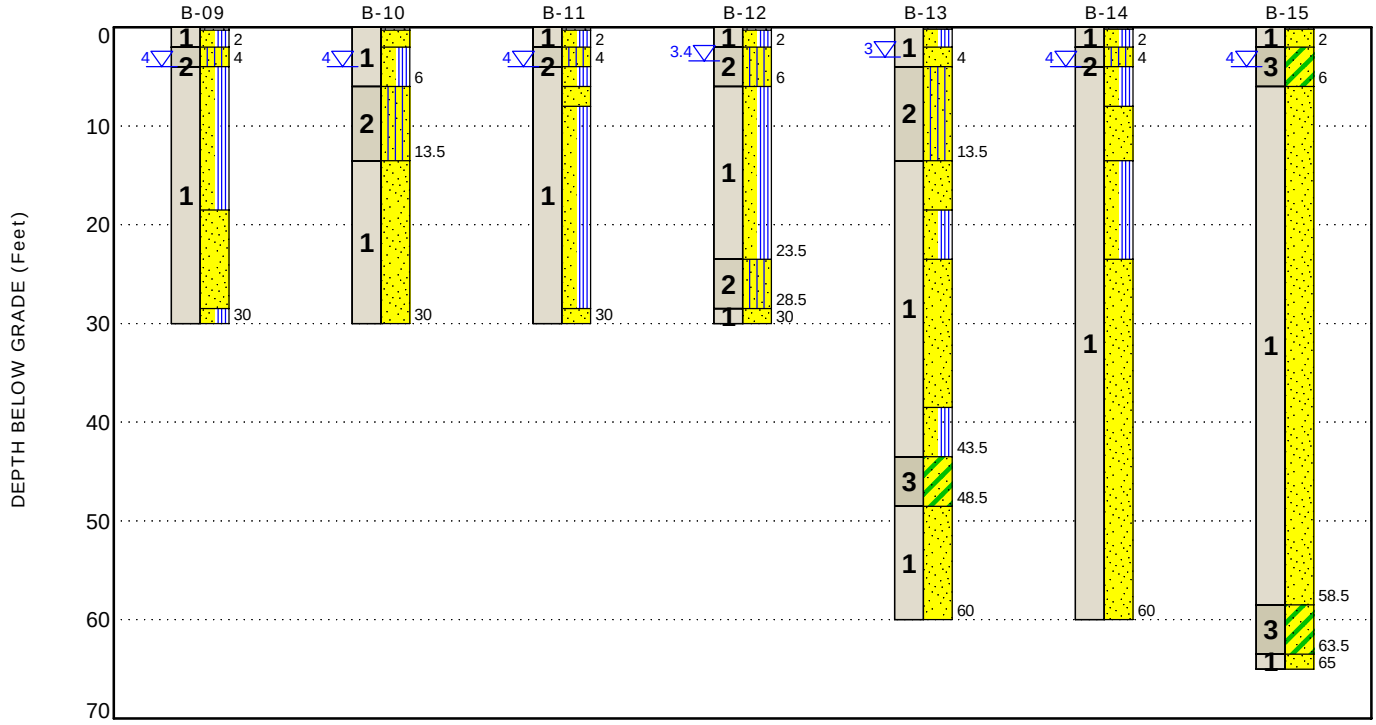
Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Clean Sand	Loose to very dense sand with varying fines content (SP, SP-SM)
2	Silty Sand	Very loose to dense silty sand, occasionally with trace to little clay (SM)
3	Clayey Sand	Very loose to dense clayey sand (SC)

Legend

- Topsoil
- Poorly-graded Sand with Silt
- Silty Sand
- Poorly-graded Sand
- Clayey Sand

▽ First Water Observation

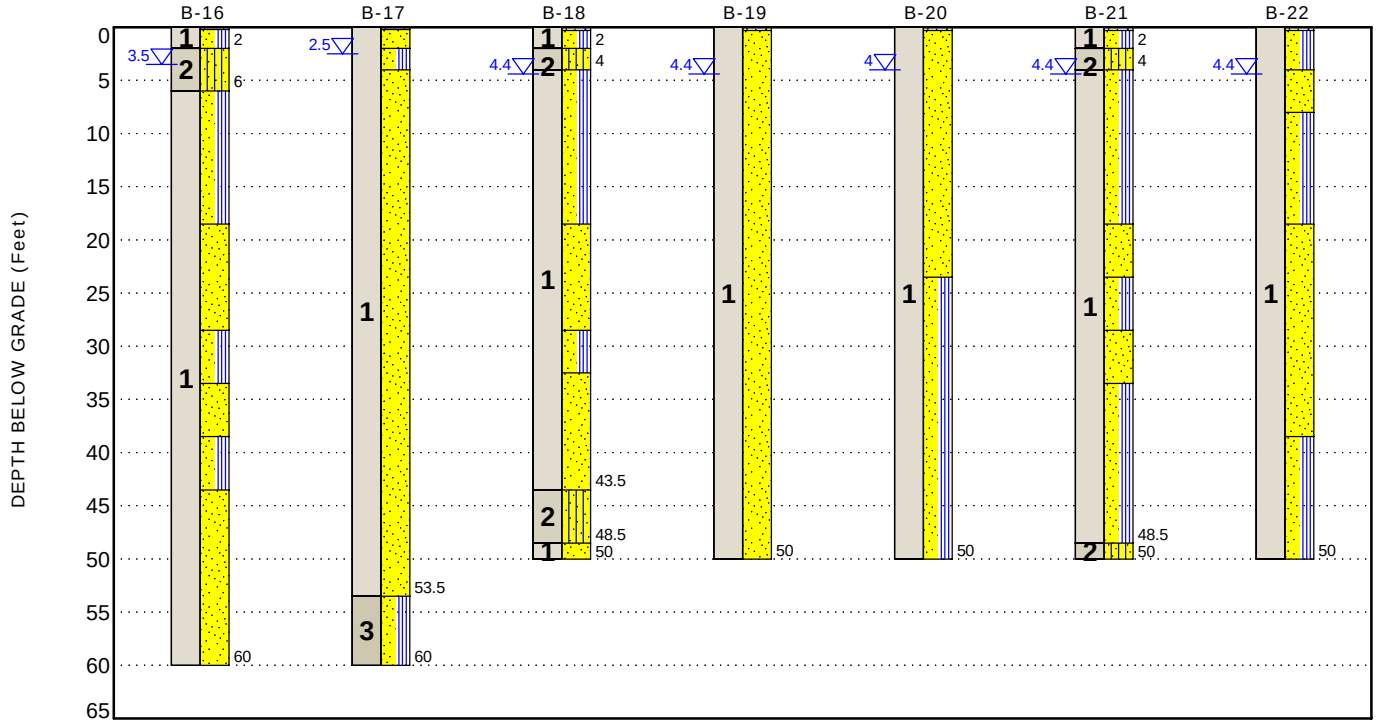
Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Clean Sand	Loose to very dense sand with varying fines content (SP, SP-SM)
2	Silty Sand	Very loose to dense silty sand, occasionally with trace to little clay (SM)
3	Clayey Sand	Very loose to dense clayey sand (SC)

Legend	
Topsoil	Poorly-graded Sand with Silt
Silty Sand	Poorly-graded Sand

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-01

Location: See Exploration Plan

Latitude: 30.3200° Longitude: -81.9170°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil - 2" thick				
	POORLY GRADED SAND (SP), fine grained, very dark brown, loose, trace roots	2-2-2-2 N=4			
2.0	SILTY SAND (SM), fine grained, brown, loose	2-2-2-3 N=4			
	below 4 feet - medium dense	5-6-6-7 N=12			
8.0		4-6-9-9 N=15	20.2		12.0
	POORLY GRADED SAND (SP), fine grained, brown, medium dense	6-7-7-10 N=14			
		4-5-6 N=11			
		4-4-5 N=9			
		5-5-6 N=11			
	below 28.5 feet - dense	9-11-17 N=28			

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 3 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-01

Location: See Exploration Plan

Latitude: 30.3200° Longitude: -81.9170°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, brown, medium dense *(continued)* below 33.5 feet - very dense			11-21-26 N=47			
				15-20-25 N=45			
43.5	SILTY SAND (SM), fine grained, dark gray, medium dense			7-7-11 N=18	23.0	NP	12.1
48.5	POORLY GRADED SAND (SP), fine grained, gray, dense			12-16-21 N=37			
50.0	*Boring Terminated at 50 Feet*						

35
40
45
50

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 3 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-02

Location: See Exploration Plan

Latitude: 30.3200° Longitude: -81.9169°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
	SILTY SAND (SM), fine grained, very dark gray, loose, trace roots	1-1-2-2 N=3			
4.0		2-3-3-5 N=6	25.5		12.8
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, grayish brown, medium dense	3-3-6-6 N=9			
		9-9-6-6 N=15			
	below 8 feet - brown and dark brown, dense	10-14-14-10 N=28			
	below 13.5 feet - brown, medium dense	6-6-8 N=14			
		8-8-10 N=18			
23.5	POORLY GRADED SAND (SP), fine grained, grayish brown and light brown, dense	12-14-14 N=28			
28.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brownish gray, dense	12-16-16 N=32			

Water Level Observations: ▽ Groundwater encountered at 4.4 feet on 4/17/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-02

Location: See Exploration Plan

Latitude: 30.3200° Longitude: -81.9169°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	33.5						
POORLY GRADED SAND (SP), fine grained, brownish gray, dense				14-16-18 N=34			
	38.5						
POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, dense				12-12-14 N=26			
	43.5						
SILTY SAND (SM), fine grained, brownish gray, medium dense				8-8-10 N=18	27.1		20.5
	50.0			14-14-10 N=24			
Boring Terminated at 50 Feet							

35 40 45 50

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 4.4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-03

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9171°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil - 2" thick				
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark gray, loose, trace roots	2-2-2-2 N=4			
2.0	SILTY SAND (SM), fine grained, brown and gray, very loose, little clay	2-WOH-WOH-1 N<1	24.2	NP	21.5
	below 4 feet - loose, reddish brown, end trace clay	1-2-3-4 N=5	17.7		17.7
6.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	6-7-9-10 N=16			
		7-9-9-11 N=18			
		6-9-12 N=21			
		5-9-13 N=22			
23.5	POORLY GRADED SAND (SP), fine grained, brown and light brown, medium dense, trace silty fine sand nodules	8-6-7 N=13			
	below 28.5 feet - brownish gray, dense, discontinue silty fine sand	15-19-20 N=39			

Water Level Observations: ▽ Groundwater encountered at 3 feet on 4/21/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%
WOH: Weight of Hammer

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-21-2025

Boring Completed
04-21-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-03

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9171°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
35				19-21-26 N=47			
40				19-22-25 N=47			
43.5							
45				11-16-17 N=33			
50.0				3-7-15 N=22			
50							

POORLY GRADED SAND (SP), fine grained, brown and light brown, medium dense, trace silty fine sand nodules *(continued)*
below 33.5 feet - very dense

CLAYEY SAND (SC), fine grained, gray, dense

below 48.5 feet - light gray, medium dense

Boring Terminated at 50 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 3 feet on 4/21/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-21-2025

Boring Completed
04-21-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-04

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9171°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil - 2" thick						
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, loose, trace roots			1-2-3-2 N=5			
2.0	CLAYEY SAND (SC), fine grained, grayish brown, very loose	▽		2-1-1-1 N=2	21.1	22-18-4	21.1
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown to light brown, medium dense			3-4-5-6 N=9			
				4-8-9-8 N=17			
				7-8-8-9 N=16			
				5-6-8 N=14			
18.5	POORLY GRADED SAND (SP), fine grained, light brown, medium dense			4-6-8 N=14			
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown and dark brown, medium dense			8-9-15 N=24			
28.5	POORLY GRADED SAND (SP), fine grained, brownish gray, dense			14-18-21 N=39			

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 3 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-04

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9171°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, brownish gray, dense *(continued)*			13-16-24 N=40			
35							
				16-16-15 N=31			
40							
43.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, medium dense			6-6-7 N=13			
45							
48.5	CLAYEY SAND (SC), fine grained, gray, dense			4-10-16 N=26			
50							
50.0	*Boring Terminated at 50 Feet*						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 3 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-05

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9171°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick						
	POORLY GRADED SAND WITH SILT (SP), fine grained, dark gray, loose, trace roots			2-2-2-3 N=4			
		▽		2-3-3-4 N=6			
	below 4 feet - brown, discontinue roots			2-3-3-5 N=6			
5				3-3-5-8 N=8			
	below 8 feet - medium dense			5-6-5-10 N=11			
10							
				5-6-6 N=12			
15							
				5-10-10 N=20	26.8		3.5
20							
	below 23.5 feet -dense			10-14-14 N=28			
25							
	below 28.5 feet - medium dense			12-12-5 N=17			
30							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-05

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9171°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP), fine grained, dark gray, loose, trace roots *(continued)*						
	35			8-10-10 N=20			
	40			11-8-8 N=16			
	45			13-11-11 N=22			
	below 48.5 feet - grayish brown, dense						
	50.0 50			15-18-11 N=29			
	Boring Terminated at 50 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-06

Location: See Exploration Plan

Latitude: 30.3200° Longitude: -81.9173°

Depth (Ft.)	Description	Field Test Results
0.3	Topsoil - 3" thick	
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark gray, loose, trace roots	2-2-3-4 N=5
	below 2 feet - light gray, medium dense, trace silty fine sand nodules	3-3-6-4 N=9
	below 4 feet - gray and reddish brown, discontinue roots and silty fine sand	6-6-8-10 N=14
		6-8-8-10 N=16
		10-10-8-6 N=18
		5-4-5 N=9
		6-5-5 N=10
23.5	POORLY GRADED SAND (SP), fine grained, brown, dense	8-13-16 N=29
		12-12-14 N=26
30.0	*Boring Terminated at 30 Feet*	

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/15/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-15-2025

Boring Completed
04-15-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-07

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9178°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
	POORLY GRADED SAND (SP), fine grained, very dark brown, loose, trace roots	2-2-4-4 N=6			
		1-1-3-3 N=4			
	below 4 feet - discontinue roots	2-2-5-5 N=7			
	below 6 feet - medium dense, trace roots	5-5-8-10 N=13			
		10-6-8-6 N=14			
13.5					
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown, medium dense	8-6-6 N=12			
		5-5-6 N=11	27.5		5.6
		8-8-12 N=20			
	below 28.5 feet - brown, dense	11-11-15 N=26			
	below 32.5 feet - brownish gray, medium dense				

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/15/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-15-2025

Boring Completed
04-15-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-07

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9178°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown, medium dense *(continued)*						
35				12-10-10 N=20			
	below 38.5 feet - gray, dense						
40				8-10-15 N=25			
43.5							
	SILTY SAND (SM), fine grained, dark gray, loose						
45				8-4-4 N=8			
48.5							
	POORLY GRADED SAND (SP), fine grained, grayish brown, medium dense						
50				14-14-10 N=24			
50.0	*Boring Terminated at 50 Feet*						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/15/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-15-2025

Boring Completed
04-15-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-08

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9178°

Depth (Ft.)	Description	Field Test Results
0.3	Topsoil - 3" thick	
	POORLY GRADED SAND (SP), fine grained, dark gray, loose, trace roots	2-2-3-5 N=5
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, light brown, loose	3-3-5-8 N=8
	below 4 feet - medium dense	6-8-10-15 N=18
6.0	POORLY GRADED SAND (SP), fine grained, light brown, medium dense	4-6-6-8 N=12
		6-5-5-10 N=10
		4-6-8 N=14
		6-6-8 N=14
		10-10-9 N=19
	below 28.5 feet - grayish brown, dense	10-14-18 N=32
30.0	*Boring Terminated at 30 Feet*	

Depth (Ft.): 5, 10, 15, 20, 25, 30

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/14/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-14-2025

Boring Completed
04-14-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-09

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9173°

Depth (Ft.)	Description	Field Test Results
0.3	Topsoil - 3" thick	
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark gray, loose, trace roots	2-3-3-5 N=6
2.0	SILTY SAND (SM), fine grained, dark grayish brown, medium dense	3-4-6-6 N=10
4.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark brown, medium dense	5-8-12-14 N=20
		6-8-10-14 N=18
		5-8-8-10 N=16
		6-6-8 N=14
18.5	POORLY GRADED SAND (SP), fine grained, brown and light brown, medium dense	8-8-10 N=18
		14-14-10 N=24
28.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brownish gray, dense	16-12-16 N=28
30.0	*Boring Terminated at 30 Feet*	

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/15/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-15-2025

Boring Completed
04-15-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-10

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9169°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
	POORLY GRADED SAND (SP), fine grained, gray, loose, trace roots	1-1-2-2 N=3			
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, loose	3-4-3-4 N=7			
	below 4 feet - medium dense	6-6-5-5 N=11			
6.0	SILTY SAND (SM), fine grained, brown, medium dense	5-5-6-7 N=11	22.6		12.9
		6-6-7-7 N=13			
13.5	POORLY GRADED SAND (SP), fine grained, brown, medium dense	6-7-7 N=14			
		7-9-10 N=19			
		6-11-12 N=23			
	below 28.5 feet - gray, dense	10-14-21 N=35			
30.0	*Boring Terminated at 30 Feet*				

Depth (Ft.): 5, 10, 15, 20, 25, 30

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 4/15/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-15-2025

Boring Completed
04-15-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-11

Location: See Exploration Plan

Latitude: 30.3194° Longitude: -81.9173°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, loose, trace roots	1-2-2-2 N=4			
4.0	SILTY SAND (SM), fine grained, brownish gray, loose	2-3-3-5 N=6	21.2		16.2
6.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, grayish brown, medium dense	4-7-7-10 N=14			
8.0	POORLY GRADED SAND (SP), fine grained, brown, medium dense	5-8-8-10 N=16			
28.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	6-6-7-11 N=13 7-8-8 N=16 7-10-14 N=24 8-8-10 N=18			
30.0	POORLY GRADED SAND (SP), fine grained, brownish gray, dense	10-14-14 N=28			
	Boring Terminated at 30 Feet				

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/14/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-14-2025

Boring Completed
04-14-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-12

Location: See Exploration Plan

Latitude: 30.3194° Longitude: -81.9169°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, loose, trace roots	2-2-3-3 N=5			
6.0	SILTY SAND (SM), fine grained, brown and gray, medium dense, trace roots	4-4-6-8 N=10 3-6-6-8 N=12			
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	4-8-10-10 N=18 8-12-10-10 N=22 6-5-5 N=10 6-8-11 N=19			
28.5	SILTY SAND (SM), fine grained, gray and brown, dense, little clay	10-14-14 N=28	32.7	NP	18.7
30.0	POORLY GRADED SAND (SP), fine grained, light brownish gray, dense	10-16-18 N=34			
	Boring Terminated at 30 Feet				

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 3.4 feet on 4/14/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-14-2025

Boring Completed
04-14-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-13

Location: See Exploration Plan

Latitude: 30.3187° Longitude: -81.9163°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil - 2" thick				
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark gray, loose, trace roots	1-1-2-2 N=3			
4.0	POORLY GRADED SAND (SP), fine grained, very light brown, loose	3-4-4-4 N=8			
13.5	SILTY SAND (SM), fine grained, reddish brown and gray, medium dense	4-8-9-8 N=17 5-8-9-9 N=17 6-7-9-8 N=16	19.6		12.7
18.5	POORLY GRADED SAND (SP), fine grained, brown, medium dense	4-5-5 N=10			
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown to light gray, medium dense	5-6-6 N=12			
	POORLY GRADED SAND (SP), fine grained, brownish gray, medium dense	8-6-10 N=16 8-11-14 N=25			

Water Level Observations: ▽ Groundwater encountered at 3 feet on 4/17/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-13

Location: See Exploration Plan

Latitude: 30.3187° Longitude: -81.9163°

Depth (Ft.)	Graphic Log	Material Description	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		Depth (Ft.)						
35		POORLY GRADED SAND (SP), fine grained, brownish gray, medium dense *(continued)* below 33.5 feet - dense			12-16-21 N=37			
38.5								
40		POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, medium dense, trace silty fine sand nodules			9-7-7 N=14			
43.5								
45		CLAYEY SAND (SC), fine grained, gray and brown, medium dense			4-9-12 N=21			
48.5								
50		POORLY GRADED SAND (SP), fine grained, gray, medium dense			6-8-11 N=19			
55		below 53.5 feet - brown, very dense			13-18-31 N=49			
60					14-21-30 N=51			
60.0		*Boring Terminated at 60 Feet*						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 3 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-14

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9163°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil 2" thick				
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark grayish brown, very loose, trace roots	1-1-1-2 N=2			
4.0	SILTY SAND (SM), fine grained, dark gray, very loose, trace roots	1-1-1-1 N=2	23.5		17.2
8.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, loose below 6 feet - medium dense	1-1-3-6 N=4 3-3-6-8 N=9			
13.5	POORLY GRADED SAND (SP), fine grained, brown, medium dense	4-6-8-11 N=14			
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	5-7-8 N=15 4-6-7 N=13			
	POORLY GRADED SAND (SP), fine grained, light brown, dense	10-14-16 N=30 12-17-21 N=38			

Water Level Observations: ▽ Groundwater encountered at 4 feet on 4/17/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-14

Location: See Exploration Plan

Latitude: 30.3197° Longitude: -81.9163°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, light brown, dense *(continued)*						
	below 33.5 feet - light brownish gray, trace silty fine sand nodules			12-15-16 N=31			
35							
	below 38.5 feet - brownish gray, very dense			16-22-26 N=48			
40							
				19-23-19 N=42			
45							
	below 48.5 feet - dense			12-16-19 N=35			
50							
				14-12-16 N=28			
55							
	below 58.5 feet - medium dense			11-10-10 N=20			
60.0							
60	*Boring Terminated at 60 Feet*						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-15

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9164°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.2	Topsoil - 2" thick						
	POORLY GRADED SAND (SP), fine grained, dark gray, loose, trace roots			1-1-2-2 N=3			
2.0							
	CLAYEY SAND (SC), fine grained, light brown, loose			2-1-2-3 N=3			
5		▽		2-3-5-6 N=8	20.8	27-21-6	21.3
6.0							
	POORLY GRADED SAND (SP), fine grained, light brown, medium dense			6-7-7-6 N=14			
				5-6-7-7 N=13			
10							
	below 13.5 feet - brown, loose			3-4-4 N=8			
15							
	below 18.5 feet - medium dense			3-4-5 N=9			
20							
				6-7-13 N=20			
25							
	below 28.5 feet - grayish brown, dense			14-16-19 N=35			
30							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-15

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9164°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, light brown, medium dense *(continued)*						
35				13-16-19 N=35			
40				12-14-17 N=31			
	below 43.5 feet - gray, medium dense			9-9-8 N=17			
45							
50				7-9-12 N=21			
	below 53.5 feet - dense			13-17-20 N=37			
55							
58.5							
	CLAYEY SAND (SC), fine grained, gray, very loose			WOH-WOH-WOH N= <1	23.7	29-21-8	24.3
60							
63.5							
	POORLY GRADED SAND (SP), fine grained, light gray, very dense			12-17-28 N=45			
65							
65.0							
	Boring Terminated at 65 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Notes
WOH: Weight of Hammer

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-16

Location: See Exploration Plan

Latitude: 30.3187° Longitude: -81.9164°

Depth (Ft.)	Description	Field Test Results
0.2	Topsoil - 2" thick	
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark gray, loose, trace roots	1-2-2-2 N=4
6.0	SILTY SAND (SM), fine grained, brownish gray, loose	2-3-2-2 N=5
		2-3-4-4 N=7
18.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, grayish brown, medium dense	5-6-6-7 N=12
		6-7-7-7 N=14
		5-6-5 N=11
28.5	POORLY GRADED SAND (SP), fine grained, dark brown and light brown, medium dense below 23.5 feet - brown and gray, dense, trace silty fine sand nodules	7-10-12 N=22 9-12-14 N=26
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brownish gray, medium dense	8-10-11 N=21

Water Level Observations
Groundwater encountered at 3.5 feet on 4/21/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-21-2025

Boring Completed
04-21-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-16

Location: See Exploration Plan

Latitude: 30.3187° Longitude: -81.9164°

Graphic Log	Depth (Ft.)		Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	33.5							
		POORLY GRADED SAND (SP), fine grained, brownish gray, very dense			15-20-21 N=41			
	38.5							
		POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown and gray, medium dense			6-8-9 N=17			
	43.5							
		POORLY GRADED SAND (SP), fine grained, brownish gray, medium dense			6-7-8 N=15			
		below 48.5 feet - brown, dense			14-18-21 N=39			
		below 53.5 feet - light grayish brown, very dense			17-26-27 N=53			
	60.0				20-29-32 N=61			
		Boring Terminated at 60 Feet						

35 40 45 50 55 60

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 3.5 feet on 4/21/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-21-2025

Boring Completed
04-21-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-17

Location: See Exploration Plan

Latitude: 30.3204° Longitude: -81.9169°

Depth (Ft.)	Description	Field Test Results
0.2	Topsoil - 2" thick	
	POORLY GRADED SAND (SP), fine grained, very dark brown, loose, trace roots	1-2-1-2 N=3
2.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, dark brown, very loose, trace roots	1-1-1-1 N=2
4.0	POORLY GRADED SAND (SP), fine grained, brown, medium dense	3-7-9-11 N=16
		6-8-12-15 N=20
	below 8 feet - dense	8-11-15-19 N=26
	below 13.5 feet - light brown, medium dense	6-8-8 N=16
		5-7-10 N=17
	below 23.5 feet - dense	12-15-20 N=35
	below 28.5 feet - grayish brown, very dense	14-19-24 N=43

Water Content (%)

Atterberg Limits: LL-PL-PI

Percent Fines

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 2.5 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-17

Location: See Exploration Plan

Latitude: 30.3204° Longitude: -81.9169°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, brown, medium dense *(continued)*						
	below 33.5 feet - gray, dense						
35				10-18-21 N=39			
40				10-14-17 N=31			
	below 43.5 feet - very dense			20-25-32 N=57			
45							
	below 48.5 feet - dark gray, loose			2-2-2 N=4			
50							
53.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray, loose			2-3-5 N=8			
55							
	below 58.5 feet - medium dense			5-7-13 N=20			
60.0	*Boring Terminated at 60 Feet*						
60							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 2.5 feet on 4/22/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-22-2025

Boring Completed
04-22-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-18

Location: See Exploration Plan

Latitude: 30.3198° Longitude: -81.9168°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, very loose, trace roots	2-1-1-1 N=2			
2.0	SILTY SAND (SM), fine grained, gray and brown, medium dense, trace roots	4-4-6-8 N=10	19.3		18.1
4.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	5-6-6-8 N=12			
		10-10-14-14 N=24			
	below 8 feet - dense	10-14-14-10 N=28			
	below 13.5 feet - medium dense	6-7-7 N=14			
18.5	POORLY GRADED SAND (SP), fine grained, light brown, medium dense	8-9-8 N=17			
	below 23.5 feet - trace silty fine sand nodules	6-6-10 N=16			
28.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray and brown, medium dense, trace clayey fine sand nodules	8-8-12 N=20			
32.5					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 4.4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-18

Location: See Exploration Plan

Latitude: 30.3198° Longitude: -81.9168°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, light brownish gray, medium dense, trace clayey fine sand nodules *(continued)*			6-8-14 N=22			
35							
	below 38.5 feet - discontinue clayey fine sand			14-14-10 N=24			
40							
43.5	SILTY SAND (SM), fine grained, dark gray, medium dense			12-8-8 N=16			
45							
48.5	POORLY GRADED SAND (SP), fine grained, light brown and light gray, dense, trace clayey fine sand nodules			12-12-14 N=26			
50.0	*Boring Terminated at 50 Feet*						
50							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4.4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-19

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9168°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick						
	POORLY GRADED SAND (SP), fine grained, dark brown, loose, trace roots			2-2-4-4 N=6			
				1-1-2-2 N=3			
	below 4 feet - brown, medium dense, discontinue roots	▽		8-8-5-5 N=13			
5				10-10-8-8 N=18			
				8-5-5-6 N=10			
10							
				7-7-5 N=12			
15							
				4-4-7 N=11			
20							
	below 23.5 feet - dense			10-10-15 N=25			
25							
				10-12-16 N=28			
30							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4.4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-19

Location: See Exploration Plan

Latitude: 30.3196° Longitude: -81.9168°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, dark brown, loose, trace roots *(continued)*						
	below 33.5 feet - medium dense			8-8-12 N=20			
	35						
	below 38.5 feet - brownish gray, dense			15-15-10 N=25			
	40						
	below 43.5 feet - gray, medium dense			10-10-14 N=24			
	45						
	50.0			14-10-8 N=18			
	50						
	Boring Terminated at 50 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4.4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-20

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9168°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick						
	POORLY GRADED SAND (SP), fine grained, dark brown, loose, trace roots			1-2-2-3 N=4			
	below 2 feet - dark brown, discontinue roots			3-3-5-6 N=8			
	below 4 feet - brown, medium dense	▽		9-9-6-6 N=15			
5				11-9-6-8 N=15			
				14-14-10-8 N=24			
10							
				5-5-6 N=11			
15							
				4-4-8 N=12			
20							
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, light brown, dense			12-12-14 N=26			
25							
				14-14-12 N=26	23.4		7.0
30							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-20

Location: See Exploration Plan

Latitude: 30.3195° Longitude: -81.9168°

Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, light brown, dense *(continued)*						
	35			18-14-14 N=28			
	40			14-14-18 N=32			
	below 43.5 feet - dark gray, medium dense			10-10-14 N=24			
	45						
	50.0			8-8-12 N=20			
	Boring Terminated at 50 Feet						
	50						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4 feet on 4/16/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-16-2025

Boring Completed
04-16-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-21

Location: See Exploration Plan

Latitude: 30.3201° Longitude: -81.9170°

Depth (Ft.)	Description	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
0.3	Topsoil - 3" thick				
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, loose, trace roots	1-1-2-3 N=3			
2.0	SILTY SAND (SM), fine grained, dark gray, loose, trace roots	2-2-3-3 N=5			
4.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, reddish brown and gray, loose, trace roots	2-2-1-1 N=3			
	below 6 feet - grayish brown, medium dense, discontinue roots	3-3-6-8 N=9			
	below 8 feet - brown, medium dense	5-6-6-10 N=12	24.9		9.3
	below 13 feet - light brown	6-6-8 N=14			
18.5	POORLY GRADED SAND (SP), fine grained, brown, medium dense	8-10-10 N=20			
23.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, gray and brown, medium dense	5-5-6 N=11			
28.5	POORLY GRADED SAND (SP), fine grained, brownish gray, medium dense	6-6-5 N=11			

Water Level Observations: ▽ Groundwater encountered at 4.4 feet on 4/18/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-18-2025

Boring Completed
04-18-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-21

Location: See Exploration Plan

Latitude: 30.3201° Longitude: -81.9170°

Depth (Ft.)	Graphic Log	Description	Depth (Ft.)	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
33.5		POORLY GRADED SAND WITH SILT (SP-SM), fine grained, light brown to gray, dense	35			18-18-14 N=32			
		below 38.5 feet - medium dense	40			8-9-8 N=17	24.5		6.2
		below 43 feet - gray, dense, trace silty fine sand nodules,	45			16-16-12 N=28			
48.5		SILTY SAND (SM), fine grained, gray, dense	50			14-14-18 N=32			
50.0		*Boring Terminated at 50 Feet*							

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
▽ Groundwater encountered at 4.4 feet on 4/18/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-18-2025

Boring Completed
04-18-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Miller Tract Switchyard
Otis Road | Jacksonville, Florida
Terracon Project No. EQ255020

8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-22

Location: See Exploration Plan

Latitude: 30.3201° Longitude: -81.9168°

Depth (Ft.)	Description	Field Test Results
0.3	Topsoil - 3" thick	
	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, very dark gray, loose, trace roots	1-1-2-2 N=3
	below 2 feet - brown and dark brown, discontinue roots	2-3-3-4 N=6
4.0	POORLY GRADED SAND (SP), fine grained, brown and light brown, medium dense	8-10-10-14 N=20
		6-6-12-12 N=18
8.0	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, medium dense	5-5-6-6 N=11
		6-6-8 N=14
18.5	POORLY GRADED SAND (SP), fine grained, light brown, medium dense	6-5-5 N=10
		6-8-8 N=16
	below 28.5 feet - silty fine sand nodules	10-10-14 N=24

Water Level Observations
Groundwater encountered at 4.4 feet on 4/17/2025

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes
Automatic Hammer Efficiency: 93.7%

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Terracon
8001 Baymeadows Way Ste 1
Jacksonville, FL

Boring Log No. B-22

Location: See Exploration Plan

Latitude: 30.3201° Longitude: -81.9168°

Depth (Ft.)	Graphic Log	Water Level Observations	Sample Type	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	POORLY GRADED SAND (SP), fine grained, light brown, medium dense *(continued)*						
35				7-8-8 N=16			
38.5	POORLY GRADED SAND WITH SILT (SP-SM), fine grained, brown, dense			14-14-12 N=26	22.7		7.5
40	below 43.5 feet - grayish brown, medium dense, discontinue silty fine sand						
45				10-10-14 N=24			
50				14-14-8 N=22			
50.0	*Boring Terminated at 50 Feet*						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
Groundwater encountered at 4.4 feet on 4/17/2025

Drill Rig
D-50

Hammer Type
Automatic

Driller
D. Bell

Logged by
J. Bemis

Boring Started
04-17-2025

Boring Completed
04-17-2025

Notes

Advancement Method
Mud Rotary

Abandonment Method
Boring backfilled with bentonite chips upon completion.

Laboratory Test Results

Contents:

Laboratory Testing Procedures

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Fines Content
- Atterberg Limits

Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Corrosivity Testing: Bulk samples of near surface soils were tested in the laboratory for the following properties in general accordance with the corresponding standards:

- pH Analysis (ASTM G51)
- Chloride (AWWA 4500-CL E)
- Sulfate (ASTM D516)
- Oxidation-Reduction Potential (ASTM G200)
- Electrical Resistivity Testing (ASTM G57)

SUMMARY OF LABORATORY TESTING RESULTS
MILLER TRACT SWITCHYARD
DUVAL COUNTY, FLORIDA
TERRACON PROJECT NO. EQ255021

Test Location	Depth (Feet)	Moisture Content (%)	Fines Content (%)	Atterberg Limits		USCS Symbol
				Liquid Limit	Plasticity Index	
B-01	6.0 - 8.0	20.2	12.0	-	-	SM
	43.5 - 45.0	23.0	12.1	NA	NP	SM
B-02	2.0 - 4.0	25.5	12.8	-	-	SM
	43.5 - 45.0	27.1	20.5	-	-	SM
B-03	2.0 - 4.0	24.2	21.5	NA	NP	SM
	4.0 - 6.0	19.7	17.7	-	-	SM
B-04	2.0 - 4.0	24.2	21.1	22	4	SC
B-05	18.5 - 20.0	26.8	3.5	-	-	SP
B-07	18.5 - 20.0	27.5	5.6	-	-	SP-SM
B-10	6.0 - 8.0	22.6	12.9	-	-	SM
B-11	2.0 - 4.0	21.2	16.2	-	-	SM
B-12	23.5 - 25.0	32.7	18.7	NA	NP	SM
B-13	8.0 - 10.0	19.6	12.7	-	-	SM
B-14	2.0 - 4.0	23.5	17.2	-	-	SM
B-15	4.0 - 6.0	20.8	21.3	27	6	SC
	58.5 - 60.0	23.7	24.3	29	8	SC
B-18	2.0 - 4.0	19.3	18.1	-	-	SM
B-20	28.5 - 30.0	23.4	7.0	-	-	SP-SM
B-21	8.0 - 10.0	24.9	9.3	-	-	SP-SM
	38.5 - 40.0	24.5	6.2	-	-	SP-SM
B-22	28.5 - 40.0	22.7	7.5	-	-	SP-SM

RESULTS OF CORROSIVITY TESTING
MILLER TRACT SWITCHYARD
DUVAL COUNTY, FLORIDA
TERRACON PROJECT NO. EQ255020

Sample Number	Test Location	Depth (Feet)	pH	Chloride Content (ppm)	Sulfate Content (ppm)	Electrical Resistivity (ohm-cm)	Oxidation Reduction Potential (mV)
CS-1	B-01	1.0 - 4.0	5.74	60	6	29,900	385
CS-2	B-07	1.0 - 4.0	5.97	45	27	28,400	416
CS-3	B-13	1.0 - 4.0	6.14	45	66	32,900	384
CS-4	B-14	1.0 - 4.0	5.53	45	45	7,910	414
CS-5	B-15	1.0 - 4.0	5.50	45	9	18,800	430
CS-6	B-16	1.0 - 4.0	5.75	60	9	25,500	402
CS-7	B-17	1.0 - 4.0	5.74	60	15	40,500	388

8001 Baymeadows Way, Suite 1 ■ Jacksonville, Florida 32256
Telephone (904) 900-7674

Field Soil Electrical Resistivity Test Results

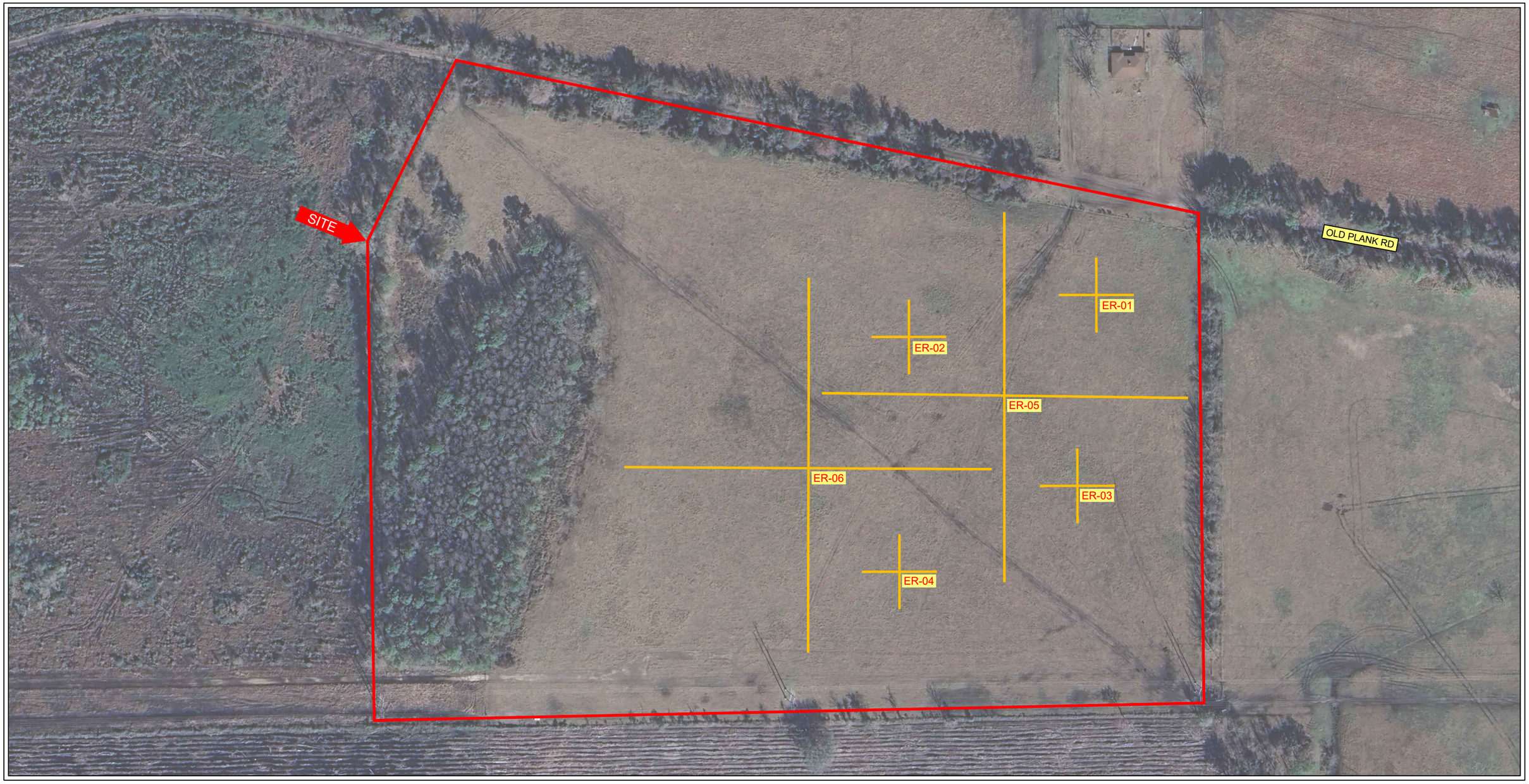
Contents:

Field Electrical Resistivity Test Procedures

Field measurements of soil electrical resistivity were performed in general accordance with ASTM Test Method G 57, and IEEE Standard 81, using the Wenner Four-Electrode. The Wenner arrangement (equal electrode spacing) was used with the following “a” spacings:

- 1, 2, 3, 6, 10, 20, & 30 feet (ER-01 through ER-04)
- 1, 2, 3, 6, 10, 20, 30, 30, 100, & 200 feet (ER-05 & ER-06)

The “a” spacing is generally considered to be the depth of influence of the test. The testing was performed in both a north-south and an east-west orientation.



APPROXIMATE SCALE IN FEET

0 100 200

N

LEGEND

+ APPROXIMATE LOCATION OF ELECTRICAL RESISTIVITY TEST

Project Mngr:	TDH
Drawn By:	PJC
Checked By:	TDH
Approved By:	KAM

Project No.	EQ255020
Scale:	AS SHOWN
File No.	EQ255020
Date:	10-24-2023

Terracon Explore with us
8001 BAY MEADOWS WAY - SUITE ONE
JACKSONVILLE, FLORIDA 32256
PH. (904) 900-6494 FAX. (904) 268-5255

ELECTRICAL RESISTIVITY LOCATION PLAN

GEOTECHNICAL ENGINEERING PROJECT
MILLER SOLAR STATION - SWITCHYARD

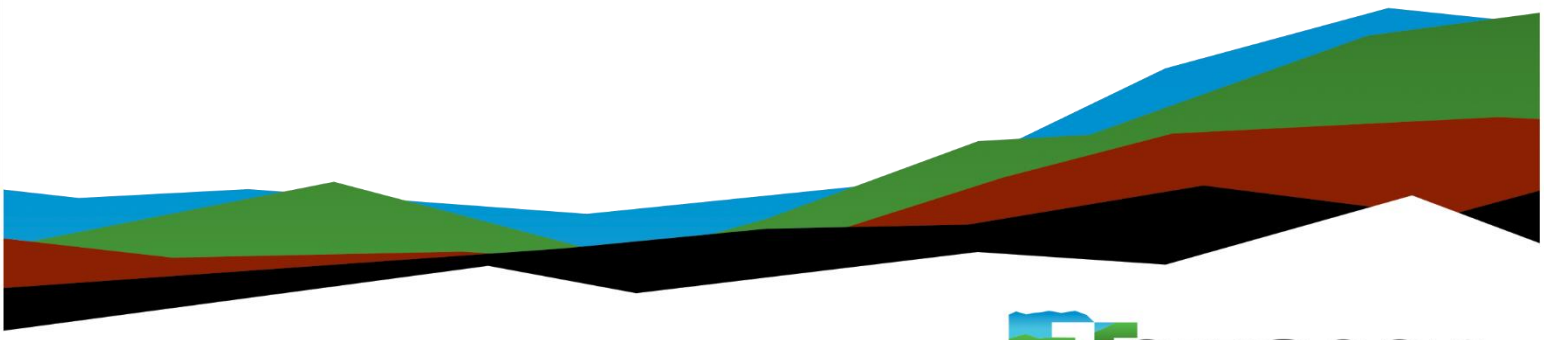
OLD PLANK ROAD
JACKSONVILLE, DUVAL COUNTY, FLORIDA

Miller Tract Switchyard Electrical Resistivity Testing

Electrical Resistivity Testing Report

Prepared for:

Florida Renewable Partners, LLC
700 Universe Boulevard
Juno Beach, Florida



Terracon
Explore with us

Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical
- Materials

5463 W. Waters Avenue, Suite 830
Tampa, Florida 33634
P (813) 221-0050
Terracon.com

March 20, 2025

Florida Renewable Partners, LLC
700 Universe Boulevard
Juno Beach, Florida

Attn: Mr. Sean Brannen
P: (561) 694-3203
E: Sean.Brannen@nexteraenergy.com

Re: Electrical Resistivity Testing Report
Miller Tract Switchyard Electrical Resistivity Testing
West of Otis Road and Old Plank Road
Duval County, Florida
Terracon Project No. EQ255020

Dear Mr. Brannen:

We have completed the scope of Electrical Resistivity Testing services for the above referenced project in general accordance with the Florida Renewable Partners, LLC project specifications. This report presents the of the electrical resistivity testing for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon
Registry Number 8830

Charles W. McCrackin, P.G.
Senior Geophysicist
Florida Registration No.: 2864

Thomas D. Hallahan
Project Manager

Introduction

This report presents the results of Electrical Resistivity Testing services performed for the proposed solar facility to be located on West of Otis Road and Old Plank Road in Duval County, Florida. The purpose of these services was to provide electrical resistivity testing at selected locations on the site.

The Scope of Services for this project included performing five soil resistivity tests and preparation of this report.

A drawing showing the site location is shown on the **Site Location Plan**.

Project Description

The purpose of the geophysical exploration was to identify soil resistance and apparent soil resistivity data for subsurface grounding at the site.

Exploration Methods

Electrical Resistivity (ER) – Terracon utilized an ER system consisting of an L & R Instruments MiniRes, resistivity meter. The exploration was completed as follows:

- We completed six soil electrical resistivity tests, consisting of two perpendicular arrays (generally in the North-South and East-West direction).
- We utilized a 4-Pin Wenner electrode system with pins driven up to 12-inches in the ground in a linear array or not to exceed 5% the A-spacing.
- Four locations had a maximum a-spacing of 30 feet (ER-1, ER-2, ER-3, and ER-4), and two locations had a maximum a-spacing of 200 feet (ER-5 and ER-6).

Name of test	a-spacing (feet)
ER-1, ER-2, ER-3, and ER-4	1, 2, 3, 6, 10, 20, and 30
ER-5 and ER-6	1, 2, 3, 6, 10, 20, 30, 60, 100, and 200

- Electrical current was then injected into the ground and the resulting voltage (potential) was measured between the outer, current electrodes and the inner, potential electrodes.

Geophysical Results

The maximum and minimum apparent resistivity are summarized in the following table:

Array	Maximum Apparent Resistivity (ohm-cm)	Minimum Apparent Resistivity (ohm-cm)
ER-1 N/S	86,990	37,440
ER-1 E/W	85,830	36,300
ER-2 N/S	80,830	35,200
ER-2 E/W	81,600	35,650
ER-3 N/S	78,670	44,510
ER-3 E/W	77,360	43,040
ER-4 N/S	77,360	40,440
ER-4 E/W	77,750	39,240
ER-5 N/S	87,620	32,330
ER-5 E/W	88,570	31,060
ER-6 N/S	77,360	37,860
ER-6 E/W	76,980	38,200

The complete results are provided in the attached **Exploration Results**.

General Comments

It should be noted that, as with any geophysical testing method, these processes rely on instrument signals to indicate physical conditions in the field. Signal information can be affected by on-site conditions beyond the control of the operator such as but not limited to, cultural features, surface obstructions, underground utilities, concrete/soil types, concrete/soil moisture, groundwater table depth, and/or reinforcing steel spacing. Interpretation of those signals is based on a combination of known factors combined with the experience of the operator and geophysical scientist evaluating the results. Utilizing conventional observation, sampling, and testing of select areas are recommended to confirm the results from the geophysical surveys. As with all geophysical methods, the geophysical results provide a level of confidence, but should not be considered absolute. We cannot be responsible for the interpretation of geophysical results by others.

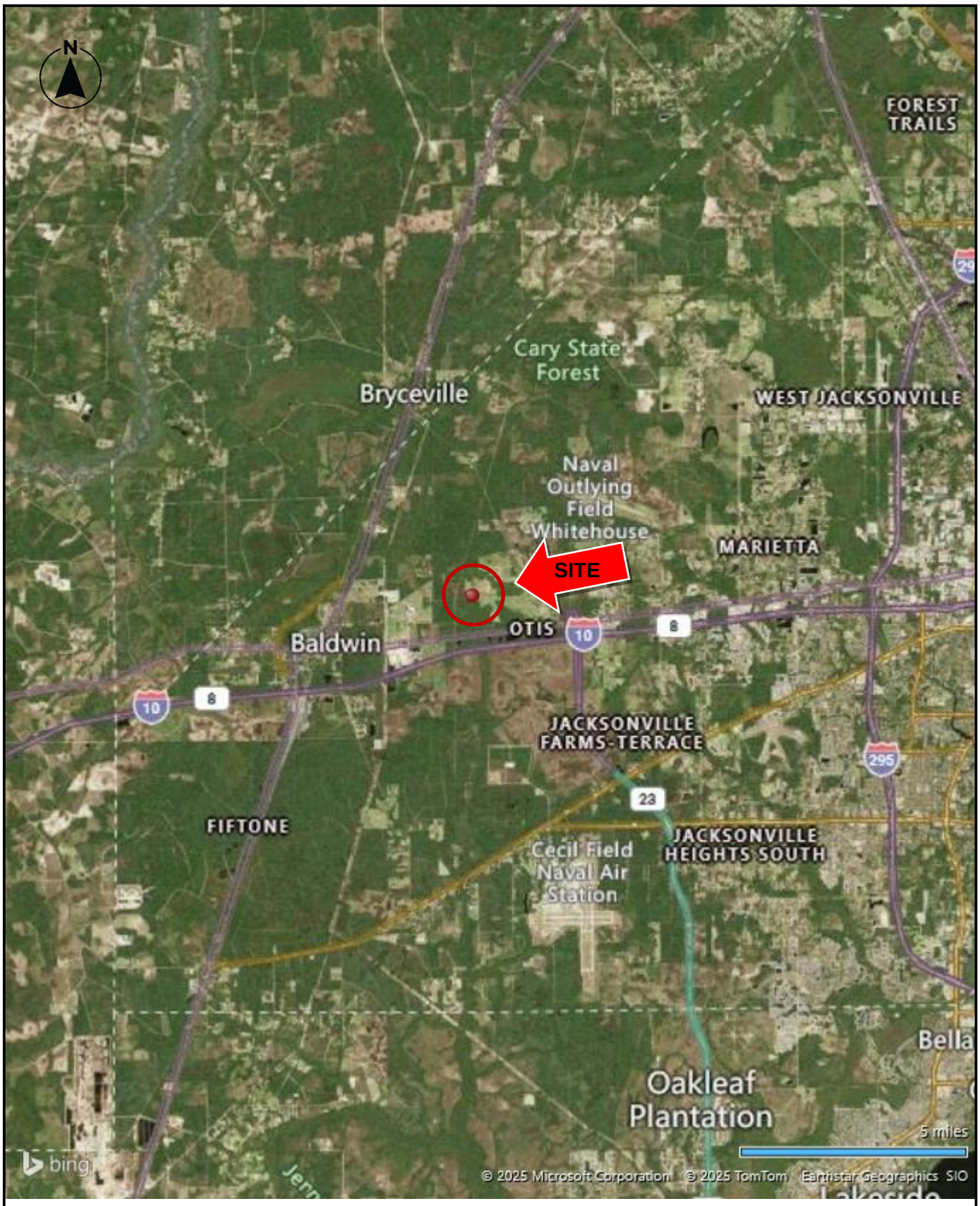
This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geophysical practices. No warranties, either express or implied, are intended or made.

The results presented in this report are based upon the data obtained from the geophysical surveys and from other information discussed in this report. This report does not reflect variations that may occur in areas inaccessible to the geophysical equipment, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction.

Attachments

Site Location and Exploration Plans

Contents:



Project No.	EQ25502
Scale:	AS SHOWN
Client:	Florida Renewable Partners, LLC
Date:	March 20, 2025

Terracon

8001 Baymeadows Way Ste 1
Jacksonville, FL 32256-7521

SITE EXPLORATION

Miller Solar Switchyard
Otis Road
Jacksonville, FL

Exhibit

A-1

ER Transect

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project No.	EQ255020
Scale:	AS SHOWN
Client:	Florida Renewable Partners, LLC
Date:	March 20, 2025

Terracon

8001 Baymeadows Way Ste 1
Jacksonville, FL 32256-7521

EXPLORATION PLAN

Miller Solar Switchyard

Otis Road
Jacksonville, FL

Exhibit

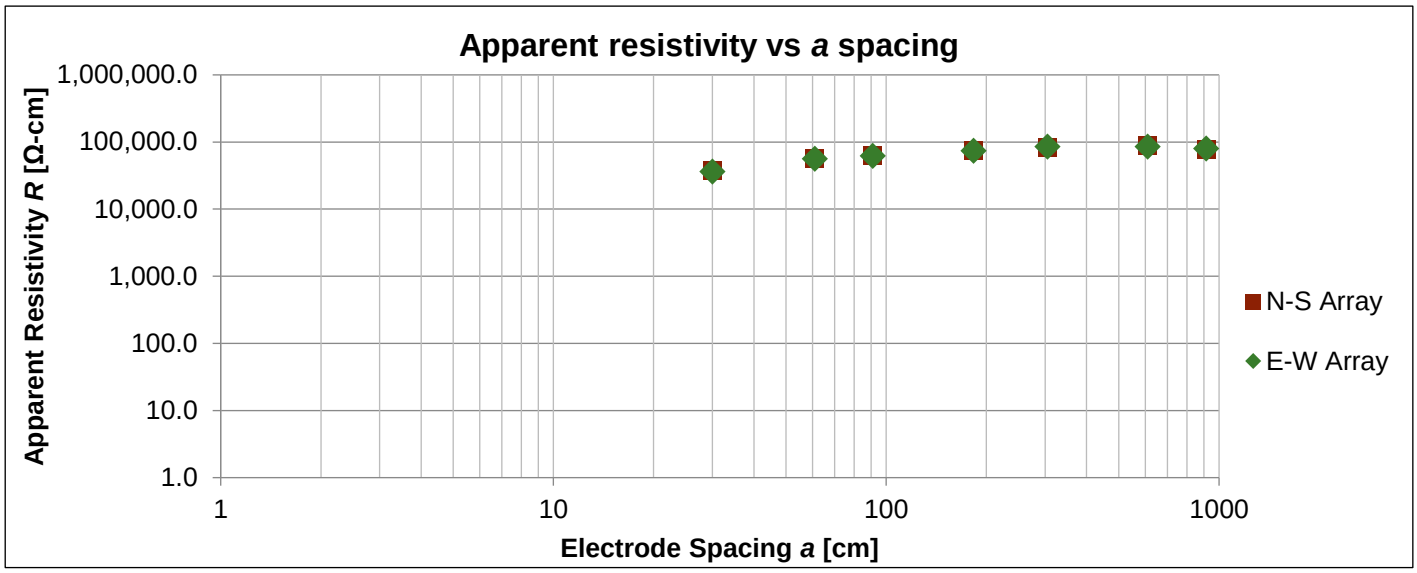
A-2

Field Soil Electrical Resistivity Test Data

Array Loc.	ER-1 (30°19'13.49"N 81°54'59.06"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	197.100	37440	191.100	36300
2	61	1.2	3	146.700	56460	146.900	56540
3	91	1.8	5	107.600	61850	108.300	62250
6	183	3.6	9	64.200	74130	64.400	74360
10	305	6.0	15	42.300	81400	44.600	85830
20	610	12.0	30	22.600	86990	22.300	85830
30	914	12.0	30	13.369	76920	13.858	79730

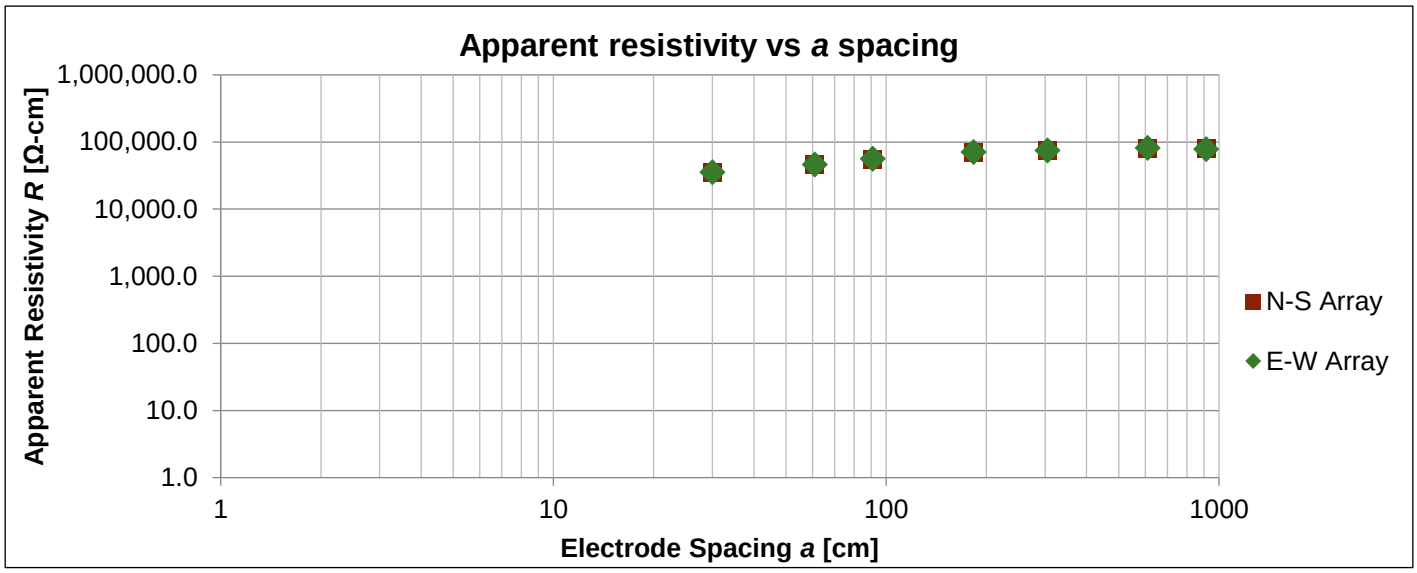


Field Soil Electrical Resistivity Test Data

Array Loc.	ER-2 (30°19'12.81"N 81°55'2.56"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	185.300	35200	187.700	35650
2	61	1.2	3	121.600	46800	120.300	46300
3	91	1.8	5	96.200	55290	97.800	56210
6	183	3.6	9	60.100	69400	61.600	71130
10	305	6.0	15	39.300	75630	39.100	75250
20	610	12.0	30	21.000	80830	21.200	81600
30	914	12.0	30	13.982	80450	13.671	78660

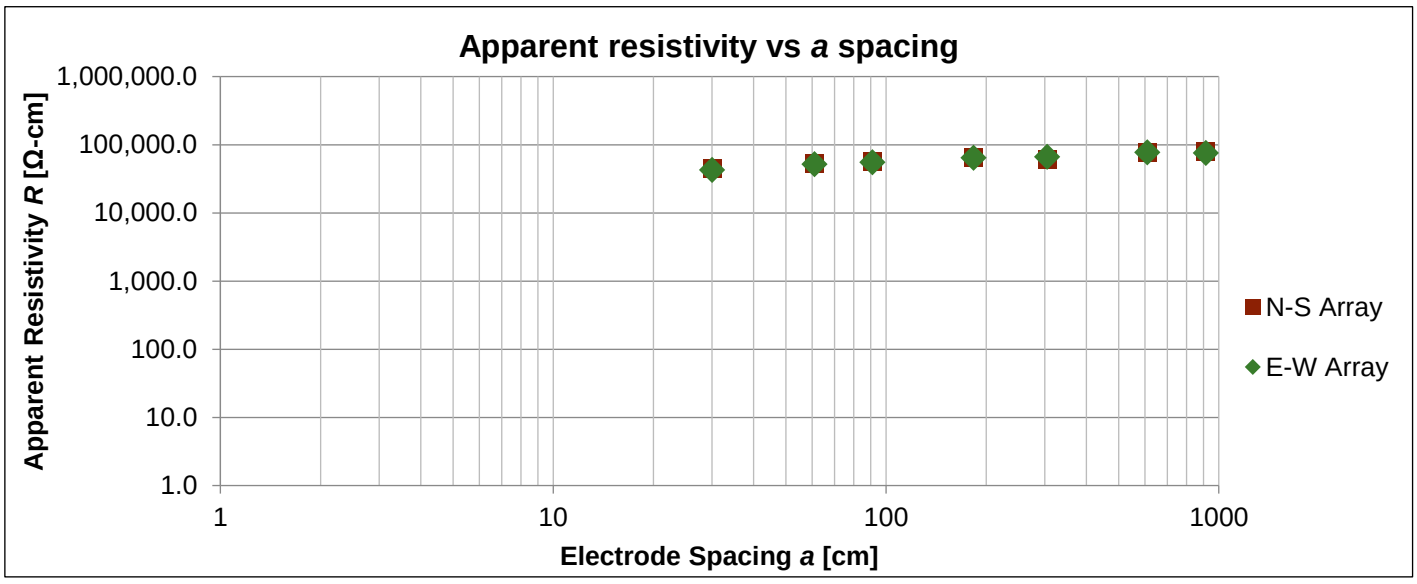


Field Soil Electrical Resistivity Test Data

Array Loc.	ER-3 (30°19'10.41"N 81°54'59.41"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	234.300	44510	226.600	43040
2	61	1.2	3	137.900	53080	135.400	52110
3	91	1.8	5	97.400	55980	96.300	55350
6	183	3.6	9	56.700	65470	56.100	64780
10	305	6.0	15	32.100	61770	34.700	66780
20	610	12.0	30	20.000	76980	20.100	77360
30	914	12.0	30	13.673	78670	13.248	76220

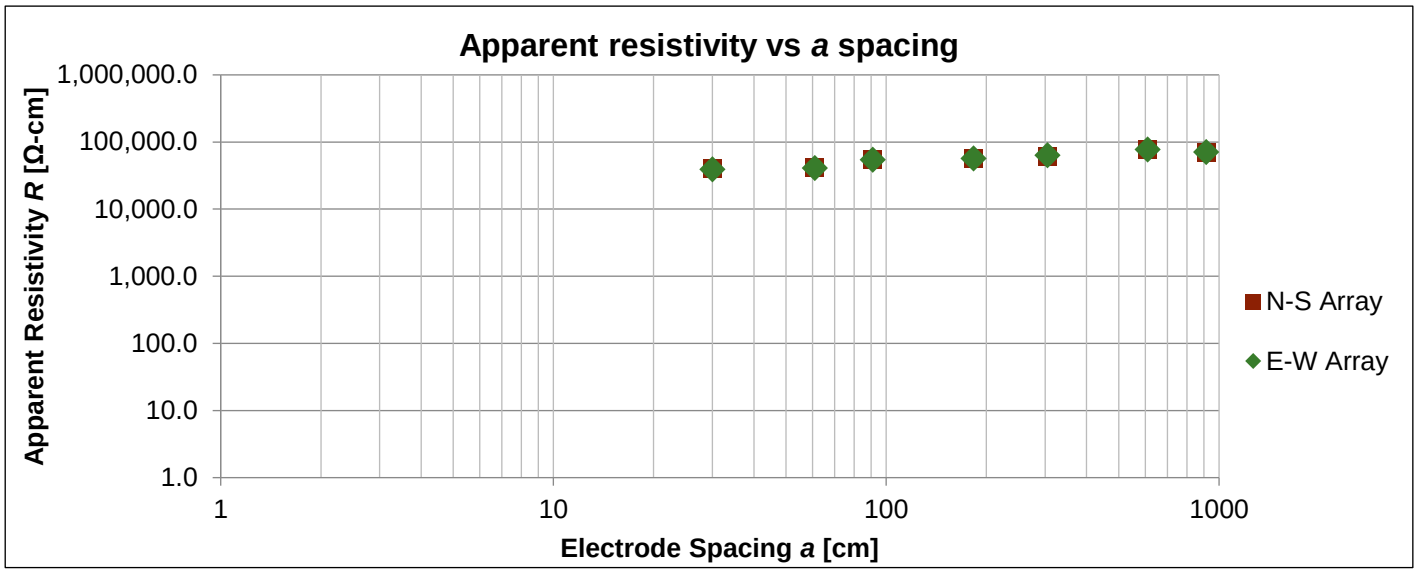


Field Soil Electrical Resistivity Test Data

Array Loc.	ER-4 (30°19'9.03"N 81°55'2.73"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $$\rho = \frac{4\pi a R}{1 + \frac{2a}{\sqrt{a^2 + 4b^2}} - \frac{a}{\sqrt{a^2 + b^2}}}$$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	212.900	40440	206.600	39240
2	61	1.2	3	108.700	41840	106.500	40990
3	91	1.8	5	96.100	55240	95.000	54600
6	183	3.6	9	49.500	57160	49.200	56810
10	305	6.0	15	31.800	61200	32.900	63310
20	610	12.0	30	20.100	77360	20.200	77750
30	914	12.0	30	12.266	70570	12.373	71190

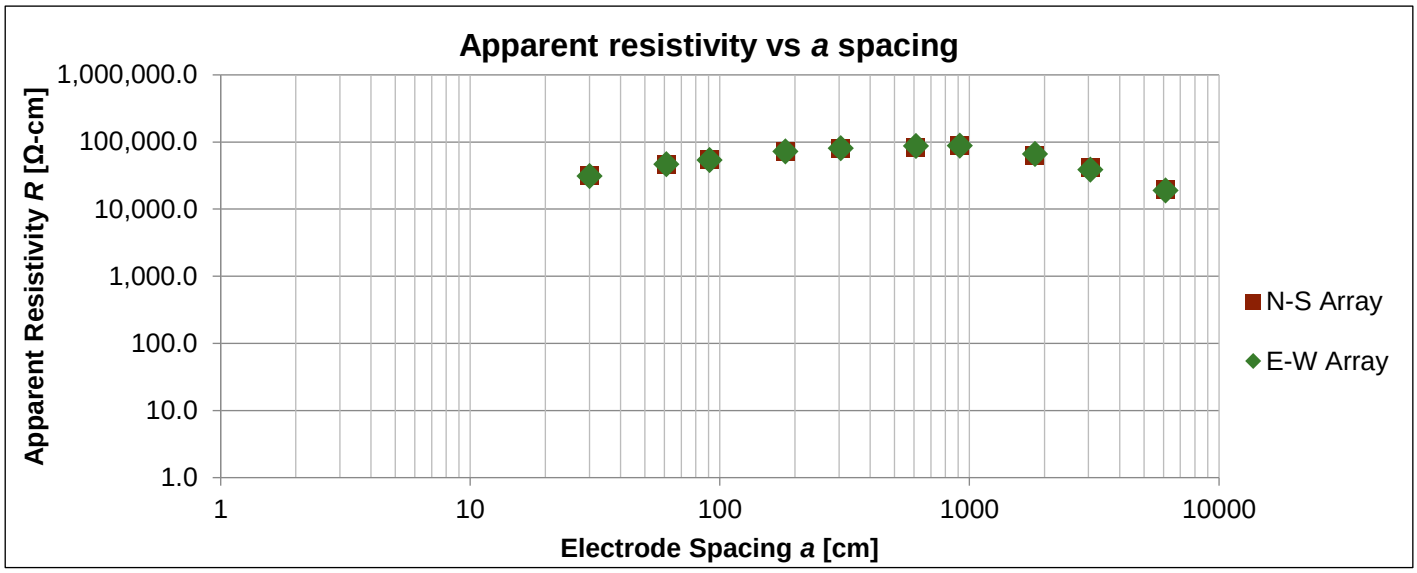


Field Soil Electrical Resistivity Test Data

Array Loc.	ER-6 (30°19'10.68"N 81°55'4.45"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	170.200	32330	163.500	31060
2	61	1.2	3	120.200	46260	121.800	46880
3	91	1.8	5	95.300	54780	94.000	54030
6	183	3.6	9	62.700	72400	62.500	72170
10	305	6.0	15	41.300	79480	41.800	80440
20	610	12.0	30	21.800	83910	22.600	86990
30	914	12.0	30	15.229	87620	15.394	88570
60	1829	12.0	30	5.397	62050	5.758	66200
100	3048	12.0	30	2.162	41410	2.015	38600
200	6096	12.0	30	0.520	19920	0.497	19040



Field Soil Electrical Resistivity Test Data

Array Loc.	ER-6 (30°19'10.68"N 81°55'4.45"W)		
Instrument	L&R Instruments Minires	**Weather**	Sunny
Serial #	342	**Ground Cond.**	Dry Sand
Cal. Check	3/7/2025	**Tested By**	Teddy Contreras, Luis Colon
Test Date	March 7, 2025	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	None		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi a R}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		**Electrode Depth *b***		**N-S Test**		**E-W Test**	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]	Measured Resistance *R* Ω	Apparent Resistivity ρ [Ω-cm]
1	30	0.6	2	199.300	37860	201.100	38200
2	61	1.2	3	122.400	47110	123.600	47570
3	91	1.8	5	99.700	57310	98.300	56500
6	183	3.6	9	53.100	61310	52.000	60040
10	305	6.0	15	35.200	67740	35.100	67550
20	610	12.0	30	20.100	77360	20.000	76980
30	914	12.0	30	12.377	71210	12.382	71240
60	1829	12.0	30	4.325	49730	4.466	51350
100	3048	12.0	30	1.770	33900	1.776	34020
200	6096	12.0	30	0.422	16160	0.419	16050