



**CITY OF CALLAWAY  
S. BERTHE AVE. DRAINAGE IMPROVEMENTS  
BID NO.: CM2023-06**

**ADDENDUM #3**

Date Issued: April 17, 2023

This addendum is being released to address the following questions:

- 1. Regarding the # 1 BID Line Item for permitting, is that just for the NPDES permit and inspections?**

*A. The permitting line item is for NPDES only; BDI as already addressed the FDEP/USACOE permits.*
- 2. On the plans it is showing two utility poles to be relocated, who is financially responsible for that, is the contractor just to coordinate with the Utility owner?**

*A. The Contractor is to coordinate relocation with utility owners and the City is typically responsible for financing the utility move.*
- 3. Will this project be awarded and constructed along with the Bridge construction?**

*A. The Berthe Bridge project has been awarded to RJ Gorman and ground-breaking is expected soon. The Berthe Drainage project will be awarded separately, and ditch piping construction could end up occurring simultaneously with bridge construction. The awarded contractor for Berthe Drainage would need to coordinate with RJ Gorman, the City and the CEI representative.*
- 4. Also has the project already been fully permitted?**

*A. Yes. We have received WMD and USACOE permits for the Berthe Drainage project and are on file with the City Clerk's Office.*
- 5. Can a geotechnical report be provided?**

*A. Yes. Geotech was obtained for the bridge project and used for the ditch piping design since field bores were adjacent the drainage project site (see Attachment).*
- 6. The plans call for back fill with select material over pipes. I don't see where this specifies the type of material**

*A. Select Material shall be Type B stabilization.*
- 7. I see on the bid tab that you fine grading quantities show 1,200 SY for sod prep but you show 3,600 SY of Sod as well as rough grading I'm coming up with much more the 1,200 SY.**

*A. The 1,200 SY of fine grading and sod prep is for the area over the storm pipe within the city ROW. All other area bounded by the new lift station and existing berm will be filled and rough graded only, with the erosion control blanket and sod placed over top.*

*Janice L. Peters*

Janice L. Peters, City Clerk

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This Addendum must be acknowledged and included with the bid packet submission.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Date



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Baskerville-Donovan, Inc.  
14101 Panama City Beach Pkwy, Ste 110  
Panama City Beach, FL 32413

June 11, 2020  
File No.: P20-0262

**Attention:** Mr. Jeff Petermann, P.E.

**Subject:** Geotechnical Services for the Proposed Bridge at S Berthe Avenue in Callaway, Florida

Dear Mr. Petermann:

Southern Earth Sciences, Inc., has completed the preliminary geotechnical services for the proposed bridge at S Berthe Avenue in Callaway, Florida. Our services were performed in general accordance with proposal number P20-0420.04, dated April 16, 2020. This report presents the results of our field and laboratory testing and includes recommendations with regard to the design and construction of the foundations.

#### **FIELD INVESTIGATIVE PROCEDURES:**

Prior to our field testing, boring locations were marked and underground utilities were located by contacting Sunshine State One Call of Florida. On June 2, 2020, personnel with our firm traveled to the project site and completed the field testing for the above referenced project. For our geotechnical investigation, two (2) cone soundings were performed to depths ranging from approximately 44 to 54 feet below the existing ground surface. Cone soundings were intended to be performed to 60 feet below existing ground surface; however, due to very dense soils encountered, the cone soundings were only able to extend to depths mentioned above. The cone penetrometer is track mounted and rather than sampling and testing at five foot intervals, as normally done with a standard penetration borings, the cone penetrometer is an electronic device that provides continuous evaluation of the soils bearing capacity through point and frictional resistances. The cone penetrometer is hydraulically pushed into the soil with point and frictional resistances obtained continuously on a computer printout. This testing equipment provides an accurate definition of the soil strength characteristics and the changes in stratification. The cone soundings were performed in general accordance with ASTM D5778.

Additionally, four direct push borings were performed to a depth of approximately 10 feet below the existing ground surface for the north and south approach slabs. The direct push boring was performed with our Geoprobe 6622 and the DT22 soil sampling system. This is a closed-piston sampler, with an inner piston rod and outer drive casing, and is driven to the top of the sampling interval. The inner piston rod is removed and the sampler is driven to collect a soil sample. The soil samples are collected in a clear 5-foot PVC liner and are delivered back to our laboratory for soil classifications and laboratory testing.

Test locations were established in the field by using a 100-foot tape and estimating right angles with reference to existing landmarks; therefore, our test locations should be considered approximate. See the attached Figure for our approximate test locations. Test locations were performed within the roadway. Maintenance of Traffic was provided by the City of Callaway.

#### **LABORATORY TESTING PROCEDURES:**

Laboratory investigative work consisted of physical examination of samples obtained during the soil test boring operation. Soil samples were visually classified in the laboratory in accordance with the Unified Soil Classification System. Evaluation of the samples, in conjunction with standard penetration resistances, have been used to estimate soil characteristics.

**Natural Moisture:** Three (3) samples were selected for determination of their natural moisture content. In the laboratory, each sample was weighed, dried, and its moisture content was calculated in general accordance with ASTM D2216.

**Percent Passing 200 Mesh Sieve:** Three (3) samples were selected to determine its percent of materials, by dry weight, finer than the U.S. Number 200 Mesh Sieve. This test was performed in general accordance with ASTM D1140.

The laboratory test results are shown on the boring logs at the depth of the tested sample. Abbreviations of laboratory data are shown below:

NM = Natural Moisture Content (%)

-200 = Percent Finer than the U.S. No. 200 Mesh Sieve

#### **CONE SOUNDINGS:**

CPT Log graphically indicates the cone tip resistance, friction ratio, equivalent N-value and interpreted soil type at each sounding location. Soil classifications and data were interpreted from methods recommended by Robertson and Campanella and/or the Swedish Geotechnical Institute Information Publication No. 15E. Correlations between Cone Resistance values and Standard Penetration Testing "N" values were performed according to the methods developed by Robertson, Campanella and Wightman.

The soil types and stratigraphy shown on the CPT Log sheets are based upon material parameters measured and evaluated as the cone is advanced. The CPT Log sheets were developed for general information only.

## SITE AND SOIL CONDITIONS:

The existing culvert is located approximately 200 feet south of Minneola Street. S Berthe is a two-lane paved roadway with grassed shoulders, however, based upon our previous testing, there is rip rap along the shoulders of the road and culvert. We understand the culvert will be replaced with a new single span bridge supported on a pile foundation. As mentioned above, our test locations were performed within the roadway. At this time topographic information has not been provided, however, the elevations of our test location should be existing pavement grades.

For engineering purposes the soils encountered within the depth of our borings may be divided into three (3) soil strata. Beneath the asphalt and base the first soil stratum was sands and was encountered from the ground surface to a depth of approximately 15 feet. The sands varied in color and texture which ranged from slightly silty to slightly clayey, and clayey to clean sands. The sands typically ranged from loose to medium dense, typically medium dense to dense beneath the asphalt.

The second soil stratum was encountered at a depth ranging from approximately 15 to 32 feet below the existing ground surface. This soil strata consisted of clayey sands. The results of our borings indicate the clayey sands are very loose with intermittent thin medium dense layers.

The third and final soil stratum was typically encountered throughout the remaining depth of our soundings/borings. These soils were slightly clayey to clayey sands. These sands ranged from dense to very dense. At test location C-1 our sounding could not extend beyond 43 feet and test location C-2 could not extend beyond 54 feet. A very dense layer was encountered at approximately 40 to 43 feet with a medium dense layer encountered to approximately 52 feet, where another very dense layer was encountered at test location C-2. We anticipate these soils to have varying amounts of shell and partially cemented material.

On the date of our field testing (June 2, 2020), the groundwater level was measured at the depths shown on the attached logs which ranged from approximately 5.9 to 7.5 feet below the existing ground surface. Fluctuations in the water table depths will occur due to seasonal precipitation/evapotranspiration differences, tidal influences, and any neighboring drainage influences. Therefore, it is highly recommended the groundwater levels be verified prior to any excavations on the site.

## **STRUCTURAL INFORMATION:**

We understand the existing culvert will be replaced with a single span bridge supported on a pile foundation. We understand there will be two end bents/abutments with no center bents. We understand that pre-stressed concrete piles will be utilized. At this time, no civil or structural information is available. Once further details are available for the project we request this information is provided to us to provide additional recommendations, if warranted.

## **DEEP (PILE) FOUNDATION RECOMMENDATIONS:**

Our preliminary evaluation of foundation conditions has been based on structural information presented in this report and subsurface data obtained during our investigation. In evaluating standard penetration borings, we have used correlations that were previously made between penetration resistances and foundation stabilities observed in soil conditions similar to those encountered at your site.

For deep (pile) foundations, we have calculated allowable compressive and tensile capacities for pre-stressed concrete piles with various sizes at an embedment depth of approximately 42 feet below existing pavement grades. As mentioned above, at this time, no scour elevation has been provided, therefore, we have not accounted any skin friction from the top ten (10) feet of our calculations. The embedment depths below are below existing pavement grades; therefore, any cantilever above existing grade should be added to the pile length. Allowable compressive capacities include a factor of safety of two (2), in compression, and three (3), in tension. Skin friction has been reduced ten (10) percent for jetting/pre-drilling during pile installation. The allowable pile capacities are based upon a soil/pile interaction and do not consider the structural aspects of the pile.

The tabulated pile capacities will provide the information required by the Structural Engineer to select the pile lengths consistent with the design loads and based upon economic considerations for each pile length. Allowable stresses in the piles shall conform to the Florida Building Code.

The Table below provides the estimated allowable compressive and tensile capacities for 12-inch and 14-inch prestressed concrete piles with various embedment depths. Based upon previous projects, we understand 16-inch pre-stressed concrete piles can be obtained, however, are not frequently used and are generally not as economical.

**TABLE I:**  
Pre-stressed Concrete - Allowable Capacities

Embedment Depth (ft.)	12-inch Sq. Pre-stressed Concrete Piles		14-inch Sq. Pre-stressed Concrete Piles	
	Compressive (tons)	Tensile (tons)	Compressive (tons)	Tensile (tons)
42	25	5	33	5.5

Prior to the installation of production piling, we recommend performing a pile load test at or near test location C-1. The test pile shall be installed with the same equipment and in the same manner as the foundation piling. The test pile shall be loaded to twice the design pile capacity in accordance with ASTM D-1143 using the standard loading procedure. A pile load test for a driven pile can also be performed in accordance with ASTM D-4945. Depending upon the results of the pile load test and/or CAPWAP analysis, adjustments in the pile lengths or capacities may be required. It is also recommended the installation of all production piling be monitored by Southern Earth Sciences, Inc., employed by the Owner, to verify production piles are installed in accordance with the pile load test program.

**TESTING:**

The effectiveness of the foundation will depend significantly on the proper preparation of the soils, as indicated previously. Therefore, we recommend the owner employ Southern Earth Sciences, Inc., as the testing laboratory to perform construction testing services. If we are not employed to provide construction testing services, Southern Earth Sciences, Inc., can not accept any responsibility for any conditions, which deviate from those described in this geotechnical report. Southern Earth Sciences, Inc., should be invited to the pre-construction conference to discuss the project with all interested parties so that the project may be completed expeditiously and to the intent of our geotechnical report. We would be pleased to review the plans and specifications as they relate to the soil preparation and provide a fee proposal for construction testing.

**GENERAL COMMENTS:**

Professional judgments on design criteria are presented in this letter. These are based partly on our evaluations of technical information provided, partly on our understanding of the characteristics of the project being planned, and partly on our general experience with subsurface conditions in the area. We do not guarantee performance of the project in any respect, only that our judgments meet the standard of care of our profession.

This information is exclusively for the use and benefit of the addressee(s) identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by any other person or entity. The contents of this letter may not be quoted in whole or in part or distributed to any person or entity other than the addressee(s) hereof without, in each case, the advance written consent of the undersigned.

This report has been prepared in order to aid in the evaluation of this property and to assist the architects and engineers in the foundation design. It is intended for use with regard to the specific project discussed herein, and any substantial changes in the bridge, loads, locations, or assumed (or reported) grades shall be brought to our attention immediately so that we may determine how such changes may effect our conclusions and recommendations. We would appreciate the opportunity to review the plans and specifications for the foundation and floor construction to verify that our conclusions and recommendations are interpreted correctly. Our report does not address environmental issues which may be associated with the subject property.

While the soil test borings performed for this project are representative of subsurface soil conditions at their respective locations and for their respective vertical reaches, local variations of the subsurface materials are anticipated and may be encountered. The boring logs and related information are based on the driller's logs and visual examination of selected samples in the laboratory. Delineation between soil types shown on the boring logs is approximate, and soil descriptions represent our interpretation of subsurface conditions at the designated boring location on the particular date drilled.



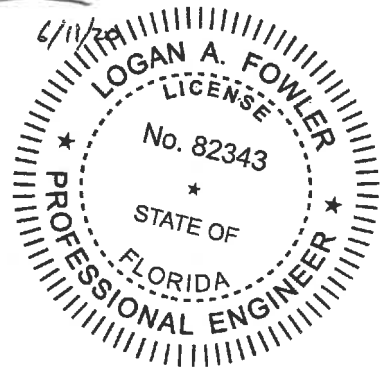
We appreciate the opportunity to assist you. If you have any questions or if we may be of further assistance, please call at your convenience.

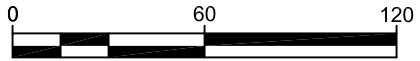
Yours Very Truly,

**SOUTHERN EARTH SCIENCE, INC.**



Logan A. Fowler, P.E.  
Eng. Reg. No. 82343  
State of Florida





SESI FILE NO:  
P20-0262

S Berthe Ave  
New Bridge  
Callaway, FL



DRAWN BY:	LF
CHECKED BY:	LF
DATE:	6/10/20
SCALE:	1:60

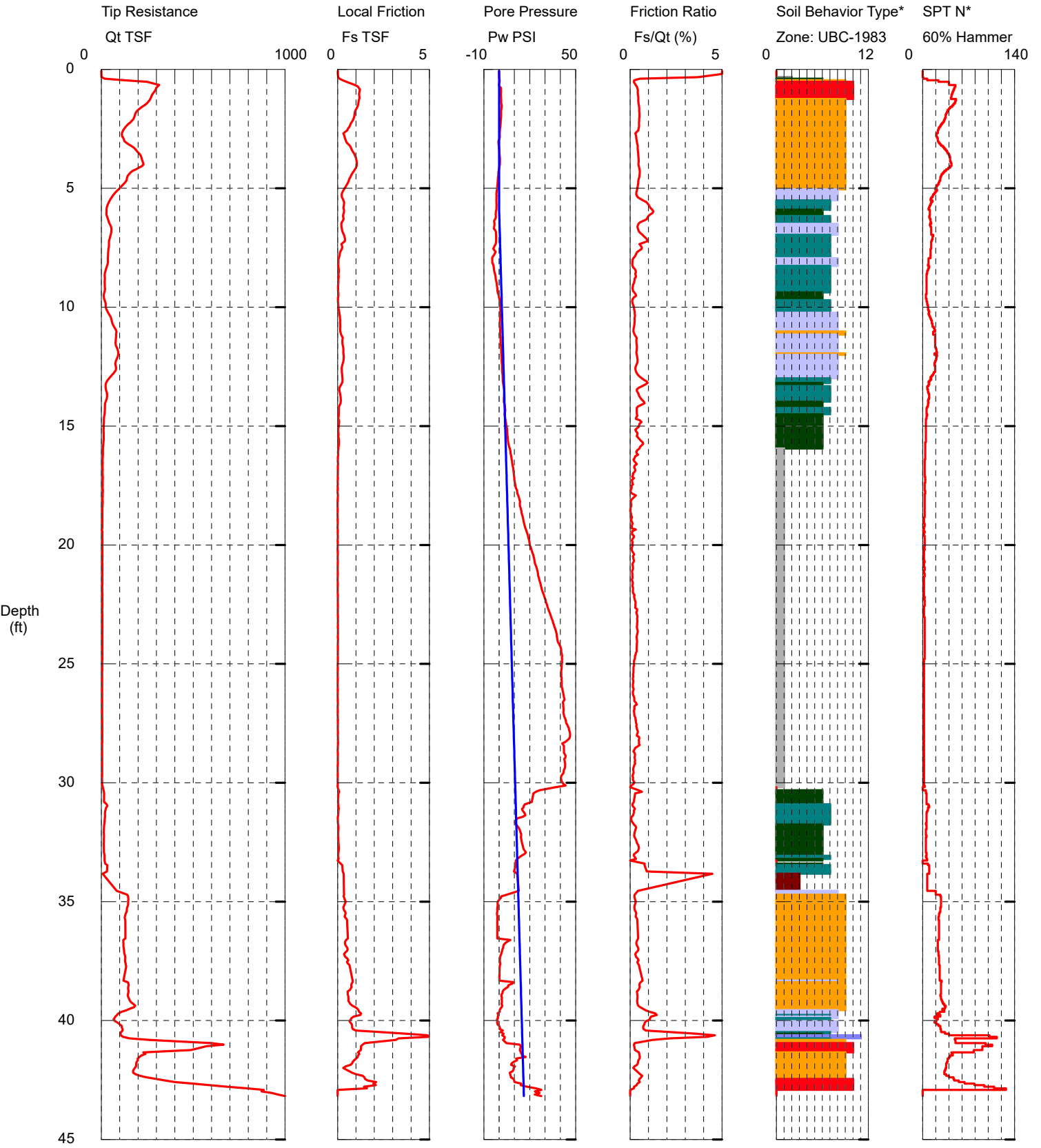
FIGURE I

APPROXIMATE TEST LOCATIONS

# Southern Earth Sciences Inc.

Operator: Jamison Short  
 Sounding: C-1  
 Cone Used: DDG1485  
 Groundwater Depth: 5.9 ft

CPT Date/Time: 6/2/2020 11:04:37 AM  
 Location: Berthe Ave. Bridge  
 Job Number: P20-0262  
 Elevation: Unknown



Maximum Depth = 43.18 feet

Depth Increment = 0.066 feet

- |                          |                             |                            |                                |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay        | 7 silty sand to sandy silt | 10 gravelly sand to sand       |
| 2 organic material       | 5 clayey silt to silty clay | 8 sand to silty sand       | 11 very stiff fine grained (*) |
| 3 clay                   | 6 sandy silt to clayey silt | 9 sand                     | 12 sand to clayey sand (*)     |

C-2

C-1

C-2

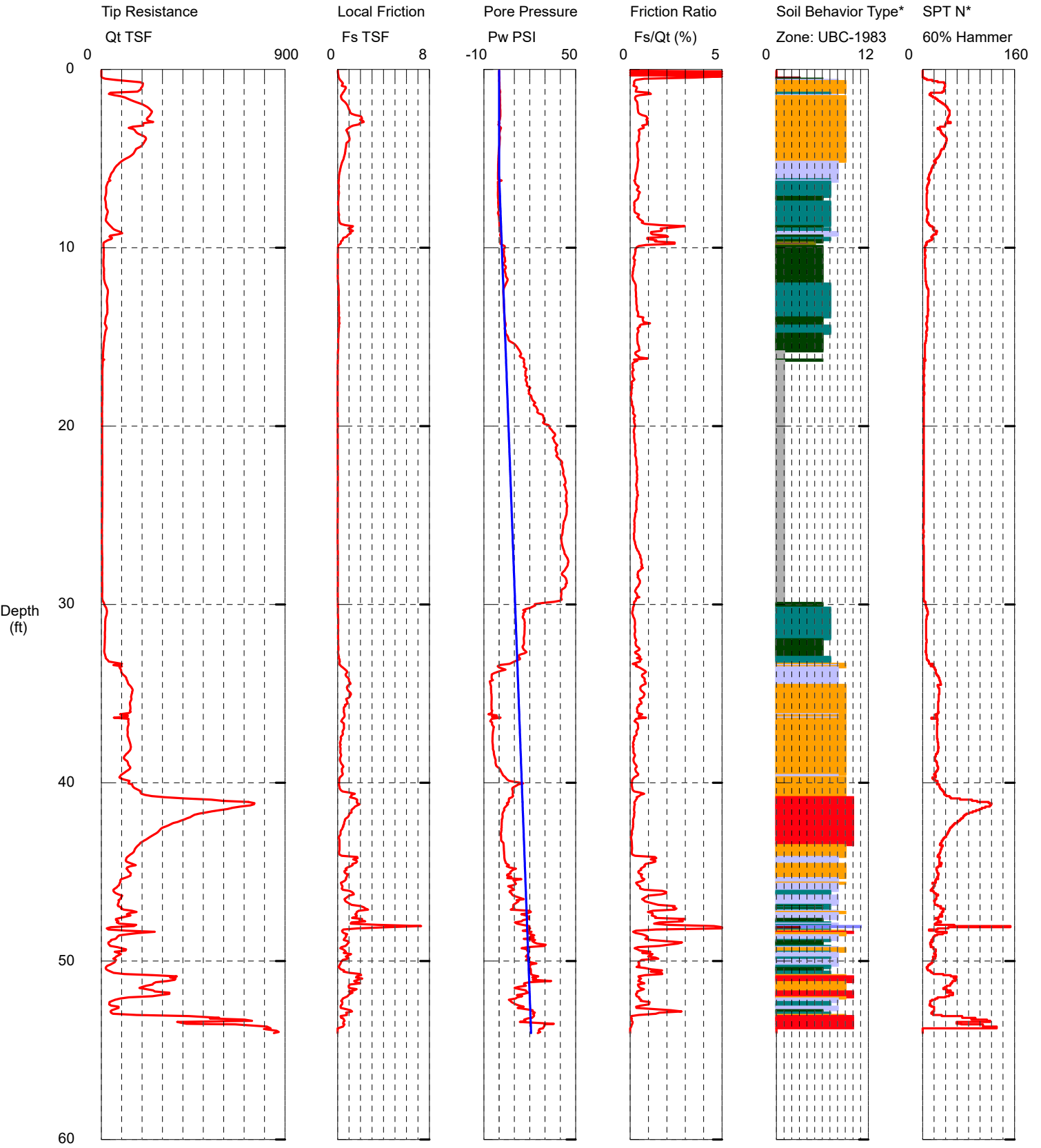
\*Soil behavior type and SPT based on data from UBC-1983



# Southern Earth Sciences Inc.

Operator: Jamison Short  
 Sounding: C-2  
 Cone Used: DDG1485  
 Groundwater Depth: 7.5 ft

CPT Date/Time: 6/2/2020 10:15:02 AM  
 Location: Berthe Ave. Bridge  
 Job Number: P20-0262  
 Elevation: Unknown



Maximum Depth = 54.04 feet

Depth Increment = 0.066 feet

- |                          |                             |                            |                                |
|--------------------------|-----------------------------|----------------------------|--------------------------------|
| 1 sensitive fine grained | 4 silty clay to clay        | 7 silty sand to sandy silt | 10 gravelly sand to sand       |
| 2 organic material       | 5 clayey silt to silty clay | 8 sand to silty sand       | 11 very stiff fine grained (*) |
| 3 clay                   | 6 sandy silt to clayey silt | 9 sand                     | 12 sand to clayey sand (*)     |

C-2

C-2

\*Soil behavior type and SPT based on data from UBC-1983

# LOG OF BORING B-3

**PROJECT:** S Berthe Ave Bridge  
**LOCATION:** Callaway, Florida  
**PROJECT NO.:** P20-0262  
**DATE:** 06/02/20

**METHOD:** Direct Push  
**DRILLER:** JS  
**ENGR / GEOL:** LF  
**SURFACE ELEVATION:** Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan	20 40 60 80		Atterberg Limits Natural Moisture			
			MATERIAL DESCRIPTION	PL MC LL		20 40 60 80	LL	PL	
0	▀		Asphalt						
0 - 1	▀	SC	Gray Clayey Fine SAND with Shell (Shell Base)						
1 - 2	▀	SP-SC	Tan and Brown Slightly Clayey Fine SAND	●	5				7
2 - 3	▀	SP-SC	Tan and Orange Slightly Clayey Fine SAND						
3 - 5	▀	SC	Orange, Red, and Gray Clayey Fine SAND						
5 - 9	▀	SP	Gray and Light Gray Medium to Fine SAND						
9 - 12	▀								

Water Level Est. Seasonal High GWL: ▾ Measured: ▾ Perched: ▾ **Notes:**  
 Water Observations: Groundwater Measured at 6.8 Feet  
 Below Existing Ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ▀ SPT ▀ Shelby Tube

**SOUTHERN EARTH SCIENCES, inc.**

LOG OF BORING P20-0262.GPJ SES PC FL.GDT 6/11/20

# LOG OF BORING B-4

**PROJECT:** S Berthe Ave Bridge  
**LOCATION:** Callaway, Florida  
**PROJECT NO.:** P20-0262  
**DATE:** 06/02/20

**METHOD:** Direct Push  
**DRILLER:** JS  
**ENGR / GEOL:** LF  
**SURFACE ELEVATION:** Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan	20 40 60 80		Atterberg Limits Natural Moisture			
			MATERIAL DESCRIPTION	PL MC LL		20 40 60 80	LL	PL	
0	▀		Asphalt						
0 - 0.8	▴	SC	Gray Clayey Fine SAND with Shell (Shell Base)						
0.8 - 1.0	▴	SP-SC	Brown Slightly Clayey Fine SAND	●	5				8
1.0 - 3.5	▴								
3.5 - 6.5	▴	SC	Tan and Orange Clayey Fine SAND						
6.5 - 7.3	▴	SP-SC	Tan Slightly Clayey Fine SAND						
7.3 - 8.0	▴	SP	Gray Medium to Fine SAND						
8.0 - 12.0	▴								

Water Level Est. Seasonal High GWL: ▾ Measured: ▾ Perched: ▾ **Notes:**  
 Water Observations: Groundwater Measured at 7.3 Feet  
 Below Existing Ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ▴ SPT ▀ Shelby Tube

**SOUTHERN EARTH SCIENCES, inc.**

LOG OF BORING P20-0262.GPJ SES PC FL.GDT 6/11/20

# LOG OF BORING B-5

**PROJECT:** S Berthe Ave Bridge  
**LOCATION:** Callaway, Florida  
**PROJECT NO.:** P20-0262  
**DATE:** 06/02/20

**METHOD:** Direct Push  
**DRILLER:** JS  
**ENGR / GEOL:** LF  
**SURFACE ELEVATION:** Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan	20 40 60 80		LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture					
0	▀		Asphalt						
0 - 1	▀	SC	Gray Clayey Fine SAND with Shell (Shell Base)						
1 - 2	▀	SP-SM	Dark Gray and Brown Slightly Silty Fine SAND						
2 - 5	▀	SP-SC	Tan and Brown Slightly Clayey Fine SAND						
5 - 6	▀	SC	Gray and Dark Gray Clayey Fine SAND	●	24				16
6 - 12	▼								

Water Level Est. Seasonal High GWL: ▾ Measured: ▼ Perched: ▼ **Notes:**  
 Water Observations: Groundwater Measured at 6.4 Feet  
 Below Existing Ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ▣ SPT ▣ Shelby Tube

**SOUTHERN EARTH SCIENCES, inc.**

LOG OF BORING P20-0262.GPJ SES PC FL.GDT 6/11/20

# LOG OF BORING B-6

**PROJECT:** S Berthe Ave Bridge  
**LOCATION:** Callaway, Florida  
**PROJECT NO.:** P20-0262  
**DATE:** 06/02/20

**METHOD:** Direct Push  
**DRILLER:** JS  
**ENGR / GEOL:** LF  
**SURFACE ELEVATION:** Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan	20 40 60 80		LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture					
				PL MC LL					
0	▀		Asphalt						
0 - 1	▧	SC	Gray Clayey Fine SAND with Shell (Shell Base)						
1 - 2.5	▨	SP-SC	Tan and Gray Slightly Clayey Fine SAND						
2.5 - 8	▩	SP-SC	Brown and Tan Slightly Clayey Fine SAND						
8 - 10	▫	SP-SM	Brown and Dark Brown Slightly Silty Fine SAND with Trace Organics						
10 - 12	▬								

Water Level Est. Seasonal High GWL: ▾ Measured: ▾ Perched: ▾ **Notes:**  
 Water Observations: Groundwater Measured at 7.5 Feet  
 Below Existing Ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: ▧ SPT ▫ Shelby Tube

**SOUTHERN EARTH SCIENCES, inc.**



# Important Information About Your Geotechnical Engineering Report

*Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.*

*The following information is provided to help you manage your risks.*

## Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

## Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

## A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

## Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

## Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

## A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

## **A Geotechnical Engineering Report Is Subject to Misinterpretation**

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

## **Do Not Redraw the Engineer's Logs**

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

## **Give Contractors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

## **Read Responsibility Provisions Closely**

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

## **Geoenvironmental Concerns Are Not Covered**

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

## **Obtain Professional Assistance To Deal with Mold**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

## **Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance**

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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