Southeast GeoGroup

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www.segeogroup.com
Fla. CA No. 30687 / Ga. CA No. 006677

May 21, 2025

Mr. Mitchell Morgan
M & R Construction
73 Tall Oaks Road
Monticello, FL 32344

Re: **36 Shiver Road, Monticello, FL**
Parcel No. 19-2N-5E-0000-0160-0000
SEGG Project No. 25-335

Dear Mr. Morgan:

Southeast GeoGroup, Inc. (SEGG) has completed a subsurface evaluation for the proposed project to be constructed on the referenced parcel located in Monticello, Florida (site). A site location map is attached (**Figure 1**). The location of the proposed building was flagged by M & R Construction. A boring location map is attached (**Figure 2**). The site is to be developed for commercial use.

The work was conducted in accordance with our proposal. The procedure and methods of the investigation, the results and findings of the investigation, summary and recommendations, and limitations are discussed below.

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

SEGG conducted a subsurface evaluation at the location of the proposed building at the above mentioned site. The boring locations were flagged by M & R Construction.

The *Jefferson County Soil Survey* (National Resources Conservation Service) indicates that the site area is underlain by (5) Fuquay fine sand, ranging from 0 - 5% in slope, (6) Dothan loamy fine sand, ranging from 2 – 5% in slope, and (44) Troup fine sand, ranging from 8 - 12% in slope.

The (5) Fuquay fine sand is a fine sand to a depth of 37 inches, underlain by sandy loam to a depth of 43 inches, and a sandy clay loam from 43 to 80 inches. It is a Hydrologic Group A soil and is well drained. The depth to seasonal high groundwater table (SHGWT) is typically 43 to 54 inches.

The (6) Dothan loamy fine sand is a loamy fine sand to a depth of 9 inches, underlain by fine sandy loam to a depth of 17 inches, and a sandy clay loam from 17 to 80 inches. It is a Hydrologic Group B soil and is well drained. The depth to seasonal high groundwater table (SHGWT) is typically 39 to 55 inches.

The (44) Troup fine sand is a fine sand to a depth of 43 inches, underlain by fine sandy loam to a depth of 49 inches, and a sandy clay loam from 49 to 80 inches. It is a Hydrologic Group A soil and is

somewhat excessively drained. The depth to seasonal high groundwater table (SHGWT) is typically greater than 80 inches.

1.2 SCOPE AND PROCEDURE

On April 22, 2025, SEGG mobilized to the site to perform the Standard Penetration Test (SPT) borings and soil borings. The soil borings were conducted with a Simco 2400 drill rig in accordance with ASTM D-1452 and ASTM D-1586. Locations of soil borings are shown on **Figure 2**. Visual classification per the Unified Soil Classification System was performed for each strata encountered in the borings. Representative samples from the borings were placed in dedicated containers, sealed, labeled and brought to the SEGG's laboratory for further evaluation.

All testing was performed in accordance with ASTM or other applicable standards. Soil borings and SPT borings were backfilled with cuttings from the augering activities.

For the proposed structure, two (2) twenty foot (20') deep Standard Penetration Tests (SPT) and two (2) twenty foot (20') soil borings were conducted.

The investigation included the following:

- Review of the Jefferson County Soil Survey;
- Two (2) Twenty (20') feet Standard Penetration Tests for the Building;
- Two (2) Twenty (20') feet soil borings for the Building;
- Soil stratum classification for all borings;
- Determination of water table;
- Construction recommendations;
- Preparation of this report.

Reference standards are as follows:

Test	Standard
Soil Borings	ASTM D-1452
Visual Classification of Soils	ASTM D-2487
Standard Penetration Test (SPT)	ASTM D-1586

2.0 FIELD INVESTIGATION

2.1 BORINGS FOR PROPOSED BUILDING

Boring logs are provided in **Appendix A**. Two (2) Standard penetrations test borings and two soil borings were conducted for the building, and the results are summarized in Table 2-1, below. During the subsurface investigation, it was discovered that the site contains primarily slightly to moderately clayey sands.

The soils tended to be fairly wet, and in general did not resemble the soils described in the soil survey.

Boring SPT-1 revealed that the area is underlain by “soft” to “very stiff” (relative density) silty/clayey sand. The groundwater table was encountered at the eight and a half foot (8.5’) depth in SPT-1. The boring (SPT-1) was terminated at the twenty foot (20’) depth at the Client’s request. SPT blow counts are summarized in Table 2-1 below.

Boring SPT-2 revealed that the area is underlain by “soft” to “stiff” (relative density) silty/clayey sand and by “loose” to “medium dense” (relative density) fine to coarse sand. The groundwater table was encountered at the nine foot (9.0’) depth in SPT-2. The boring (SPT-2) was terminated at the twenty foot (20’) depth at the Client’s request.

Borings B-3 and B-4 revealed that the area is underlain by silty/clayey sand and by fine to coarse sand. The groundwater table was encountered at the nine foot (9.0’) depth in B-3 and B-4. The borings (B-3 & B-4) were terminated at the twenty foot (20’) depth at the Client’s request.

Table 2-1: Building Standard Penetration Test Results

Boring Number	Test Depth (feet)	Blows/Final 12-inches (“N” value)	Unified Symbol
SPT-1	0-2	20	SC-SM
	2-4	4	SC-SM
	4-6	2	SC-SM
	6-8	9	SC-SM
	8-10	2	SC-SM
	13.5-15	4	SC-SM
	18.5-20	3	SC-SM
SPT-2	0-2	9	SC-SM
	2-4	4	SC-SM
	4-6	2	SC-SM
	6-8	11	SP-SW
	8-10	6	SP-SW
	13.5-15	3	SC-SM
	18.5-20	7	SC-SM

It is noted that no corrections have been made to the “N” value and this is the raw field data. Relative densities are taken from Table 2-2, below.

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Table 2-2: Relative Density or Consistency

Granular Materials		
Relative Density	Safety Hammer SPT N-Value (Blow/Foot {300 mm})	Automatic Hammer SPT N-Value (Blow/Foot {300 mm})
Very Loose	Less than 4	Less than 3
Loose	4 – 10	3 – 7
Medium Dense	10 – 30	7 – 21
Dense	30 – 50	21 – 35
Very Dense	Greater than 50	Greater than 35
Silts and Clays		
Consistency	Safety Hammer SPT N-Value (Blow/Foot {300 mm})	Automatic Hammer SPT N-Value (Blow/Foot {300 mm})
Very Soft	Less than 2	Less than 1
Soft	2 – 4	1 – 3
Firm	4 – 8	3 – 6
Stiff	8 – 15	6 – 11
Very Stiff	15 – 30	11 – 21
Hard	Greater than 30	Greater than 21

Source: FDOT "Soils and Foundation Handbook", 2024

The SPT test provides a fairly reliable and inexpensive method for estimating the unconfined compressive strength of soils. Tables and graphs for granular soils are somewhat less reliable, since the SPT number is more dependent on the sample depth and overburden pressure. The estimated unconfined compressive strengths given in Table 2-3 are based on empirical data. Empirical data are derived from experience, and observation alone, and should be used only as an estimate for the tested area(s) at the tested depth(s). The foundation design engineer shall apply proper factors of safety to any empirical data presented herein, and shall require any additional testing as needed to verify and confirm the empirical test results.

The estimated unconfined compressive strength of the tested soils in SPT-1 ranged from less than or equal to 400 lbs/ft^2 to greater than or equal to 2,000 lbs/ft^2. The estimated unconfined compressive strength of the tested soils in SPT-2 ranged from less than or equal to 400 lbs/ft^2 to less than or equal to 1,980 lbs/ft^2. Table 2-3 summarizes the SPT results.

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Table 2-3: Estimated Unconfined Compressive Strength

Boring No.	Test Depth	Unified Symbol	Est. Unconfined Comp. Strength, psf
SPT-1	0 - 2	SC-SM	≥ 2000
	2 - 4	SC-SM	≤ 800
	4 - 6	SC-SM	≤ 400
	6 - 8	SC-SM	≤ 1800
	8 - 10	SC-SM	≤ 400
	13.5 – 15	SC-SM	≤ 800
	18.5 - 20	SC-SM	≤ 600
SPT-2	0 - 2	SC-SM	≤ 1800
	2 - 4	SC-SM	≤ 800
	4 - 6	SC-SM	≤ 400
	6 - 8	SP-SW	≤ 1980
	8 - 10	SP-SW	≤ 1080
	13.5 – 15	SC-SM	≤ 600
	18.5 - 20	SC-SM	≤ 1400

3.0 EVALUATION AND RECOMMENDATIONS

3.1 GENERAL RECOMMENDATIONS

Southeast GeoGroup has not been provided with the proposed foundation design for the proposed building, but it is assumed that some type of concrete foundation will be utilized. The following recommendations are for this building.

Based on the results of our exploration, we consider the subsurface conditions at the site marginal for support of the proposed structures on a conventional shallow foundation system. The site lies in a low area, and in general the soils were soft, with a high moisture content. It appears that the soils tend to stay wet, and their bearing capacity is relatively low. Therefore, we recommend that the building pad be built up above existing grade.

The foundation should bear in compacted structural fill. We recommend a minimum depth of two feet of structural fill above the existing grade. The fill soils, after compaction, should exhibit densities equivalent to 95 percent of the modified Proctor maximum dry density (ASTM D 1557) to a depth of at least two feet below foundation bearing levels.

We recommend that the soils be worked as described below to provide adequate support for properly designed foundation systems, and a more uniformly compacted soil below the foundation. The improved soils should be adequate to support both monolithic slab and shallow spread footings.

All Federal, State, and Local Government Ordinances and Codes should be observed and maintained in regard to the construction of the proposed structures. Design and specifications for the foundations must comply with the 2023 Florida Building Code.

Prior to construction, any existing underground utilities within the construction area should be located. Such utilities may act as conduits for subsurface erosion. Local utility providers should be contacted to identify the location of any such utilities.

Foundation Subgrade Preparation

Grass and other vegetation shall be removed, and the topsoil (O-horizon) and unsuitable material stripped and cut from the area. The clearing and stripping should extend approximately five feet beyond the construction perimeter. Based on the results of our field exploration, it should be anticipated that approximately six inches of topsoil and soils containing significant amounts of organic materials may be encountered across the site. Any topsoil removed from the building areas can be stockpiled and used later in areas to be grassed or landscaped.

The subgrade should be compacted to a minimum depth of 24". Heavy, kneading-type compaction equipment is recommended for the generally cohesive site soils. Jumping jacks may be used to compact the soils at the bottom of footing excavations, if properly moisture-conditioned. Ideally, the moisture content during the compaction process should be within two percent of the optimum soil moisture, as determined by the Modified Proctor test

Compaction should continue until a compaction density of at least 95% is achieved to a depth of at least two feet below the surface. Surface compaction should be performed prior to placing any structural fill. Compaction testing in the building area should be performed at a rate of at least four tests for each 12-inch fill lift.

If the native soils exhibit pumping and soil strength loss during the compaction operations, compaction work should be halted immediately. One of the following actions should then be taken:

(1) Remove the pumping soils, backfill with dry structural fill soils, and compact to 95% or greater density; or

(2) Allow the excess pore pressures within the disturbed soils to dissipate before recompacting.

Any unsatisfactory or "pumping" materials encountered up to a minimum depth of 18" below the bottom of the footing should be removed and replaced with satisfactory fill material.

Fill Soil Recommendations

Structural fill soils should meet the requirements of FDOT Index 120-001 for select soils. These include A-1, A-3, and A-2-4 soils per AASHTO classification M 145.

Common fill soils should be free of stones larger than 2", organic material, debris and any other deleterious materials. Fill should have a maximum of thirty five percent (35%) passing the 200 sieve, a maximum Liquid Limit of forty (40) and a maximum Plastic Index of ten (10). If onsite soils are to be used as fill material, a Modified Proctor test of each soil stratum will be required to measure the percent compaction of the soil. Unacceptable fill materials include construction debris, organic material, topsoil, fat clays, elastic silts, other highly plastic soils, or light weight soils with dry unit weight values less than 100 lbs/ft^3. All unacceptable soils and materials should be removed from the construction areas and stockpiled for use in landscape areas, or taken off-site and disposed of properly.

Unless otherwise specified by the Engineer of Record, fill soils should be placed in maximum twelve inch (12") lifts in loose thickness, and should have a moisture value within two percent (2%) of the soil's optimum moisture value at the time of placement. The fill soils should be compacted to greater than or equal to ninety five percent (95%) of the soil's Modified Proctor Value as determined by ASTM D-1557, unless otherwise specified. Compaction tests should be performed on each fill lift in accordance with the project specifications.

Building Pad Preparation

After any unsatisfactory soil materials have been removed, and satisfactory compaction of the subgrade has been achieved, fill material may be placed. Unless otherwise specified by the Engineer of Record, fill soils should be placed in a maximum of twelve inch (12") lifts in loose thickness, and should have a moisture value within two percent (2%) of the soil's optimum moisture value at the time of placement. The fill soils should be compacted to greater than or equal to ninety five percent (95%) of the soil's Modified Proctor Value as determined by ASTM D-1557, unless otherwise specified. Compaction tests should be performed on each fill lift in accordance with the project specifications. The number of compaction tests for building areas should be as specified by the Engineer of Record, and should meet the minimum requirements listed below.

Density testing should be conducted at a minimum rate of four test per lift in the building areas.. Recompaction of the foundation bearing soils should be performed if loosened by the excavation process.

Groundwater and Runoff Control

Based on our review of the soil survey and the field investigation, it is our opinion that a temporary perched may occur at greater than six feet (6') depth below existing grade. Groundwater may temporarily perch on top of more compacted underlying layers, especially in the rainy season. As noted earlier, this site lies in a low area, and the soils encountered were generally very wet. The groundwater table will fluctuate based on local rainfall and other conditions.

Groundwater control may be required for construction of this project. As noted above, temporary perched groundwater may impact construction operations, and dewatering may be required.

Positive drainage away from building and parking areas should be established and maintained during construction. The site grading plan should provide a finished floor at a minimum of 12 inches above the surrounding grade, with positive drainage away from the building in all directions. Runoff from roofs, parking lots and other impervious areas should be controlled through good engineering practices.

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3.2 PROPOSED BUILDING FOUNDATION RECOMMENDATIONS

The field investigation produced relatively low N-values within the SPT borings. A 24" building pad should be prepared as described above to support the proposed slab-on-grade and continuous or shallow spread footings. A soil contact pressure of 2,000 psf or less may be used in the foundation design, provided the site preparation recommendations provided herein are followed.

A building design has not been provided to Southeast GeoGroup. Based on the building size and occupancy, we recommend a minimum footing width of twenty-four inches (24") for continuous strip footings. Exterior foundations should bear to a depth of at least eighteen inches (18") below the finished exterior grade, and interior foundations should bear to a depth of at least twelve inches (12") below grade. Reinforced Slabs on grade should be at least 6" thick.

Settlement estimates are based on the proper preparation of the site in accordance with these recommendations. The majority of settlement is expected to occur fairly rapidly during construction. Using the recommended maximum bearing pressure and assumed building loads, we estimate that the total settlement of the structure could be on the order of one inch or less.

Differential settlement results from variations in applied bearing pressures and compressibility characteristics of subsurface soils. Differential settlement is expected to be in the order of one inch or less for typical building loads. This assumes that the site is properly prepared in accordance with our previously recommendations. Any deviation from these recommendations could result in an increase in the estimated settlement of the structure.

4.0 LIMITATIONS

This report is intended for use by M & R Construction to aid in selecting design parameters for the proposed building and parking areas at the project site. The following limitations apply to this report.

Subsurface conditions are expected to vary from one location to the next. The boring and field testing data provide a characterization of subsurface conditions at the test hole or test locations; however, local variations are expected to occur, and significant differences in subsurface conditions may be encountered at other locations not tested. No inference of the approximate soil bearing capacities or soil compaction characteristics is made beyond the test locations and test depths within this report.

Boring information provided in this report is based on the driller's logs, collected samples, and visual examination of soils in the field. Boring depths indicated are approximate. The Unified Soil Symbols are based on visual descriptions and estimates. Sieve analysis would be necessary to specifically identify the Unified Soil Symbol types.

No inference is made regarding the presence or absence of karst or subsidence features. Groundwater table elevations are representative of the conditions present at the time of testing. Groundwater tables are subject to fluctuation, depending on the amount of rainfall and other factors. The absence of a groundwater table does not mean it will not occur at the tested depth(s) under other conditions.

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During the course of construction, additional geotechnical issues may arise. Because of the natural limitations of the geotechnical exploration, where examination of a relatively small area is extrapolated to provide recommendations for a large construction area, it is not possible to identify and address all possible conditions. New information from additional geotechnical analyses may result in the reevaluation of the conclusions of this report.

Sincerely,

Carmen B Greene

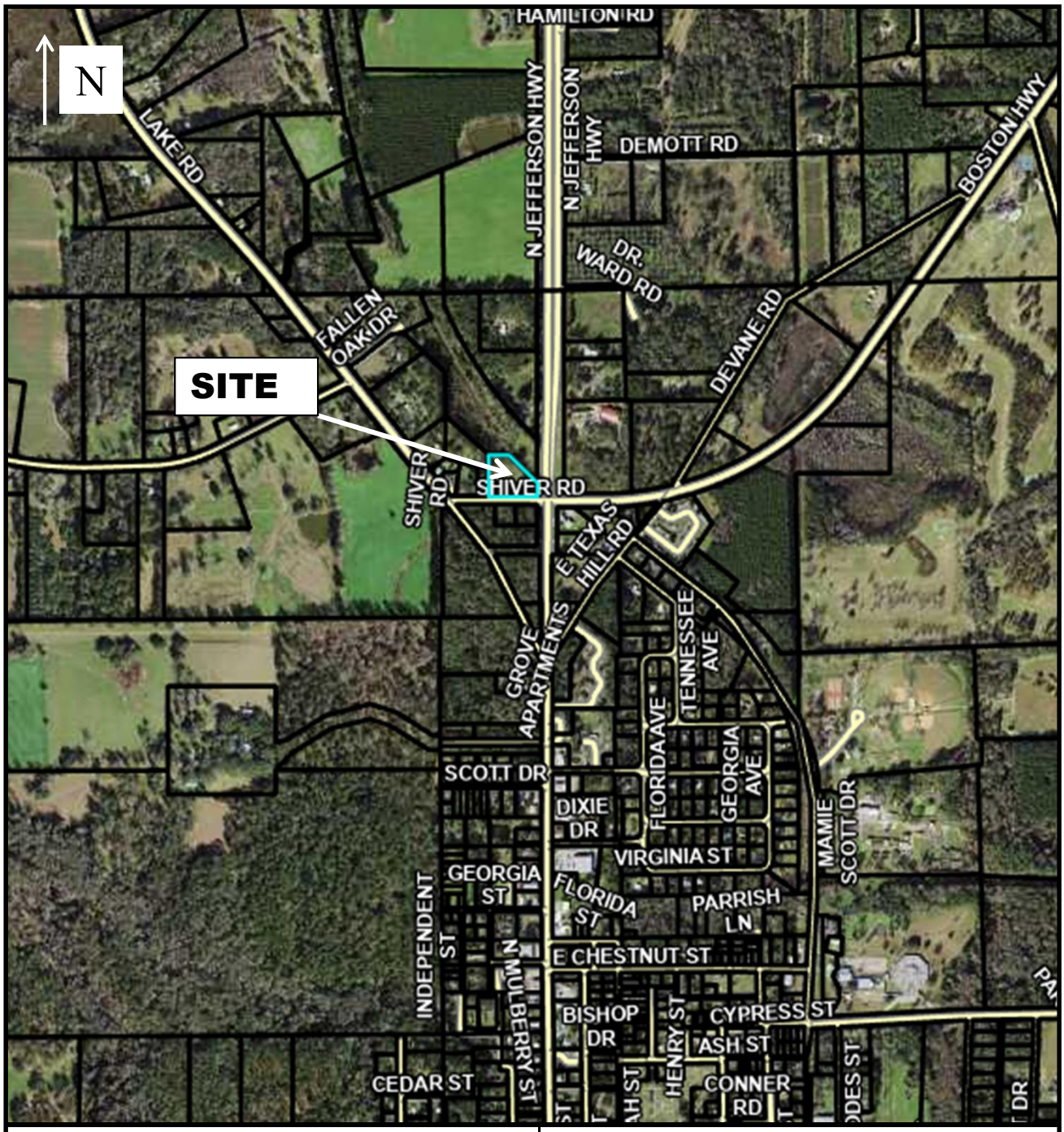
Digitally signed by Carmen B Greene
DN: c=US, o=Florida, dnQualifier=A01410D000001860F17F3E200035B09, cn=Carmen B Greene
Date: 2025.06.04 12:08:49 -04'00'

Carmen Bourgeois Greene, P.E.
Florida P.E. No. 40890

This item has been digitally signed and sealed by Carmen Bourgeois Greene, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Attachments:

Figure 1 – Site Location Map
Figure 2 – Boring Location Map
Appendix A – SPT Logs



Site Figure
36 Shiver Road
Parcel No.: 29-09S-06W-7314-0042-0280
Monticello, Jefferson County, FL

Figure 1 – Location Map
Source: Jefferson County Property Appraiser
Scale: Not to Scale
Project: 25-335
Date: April 2025

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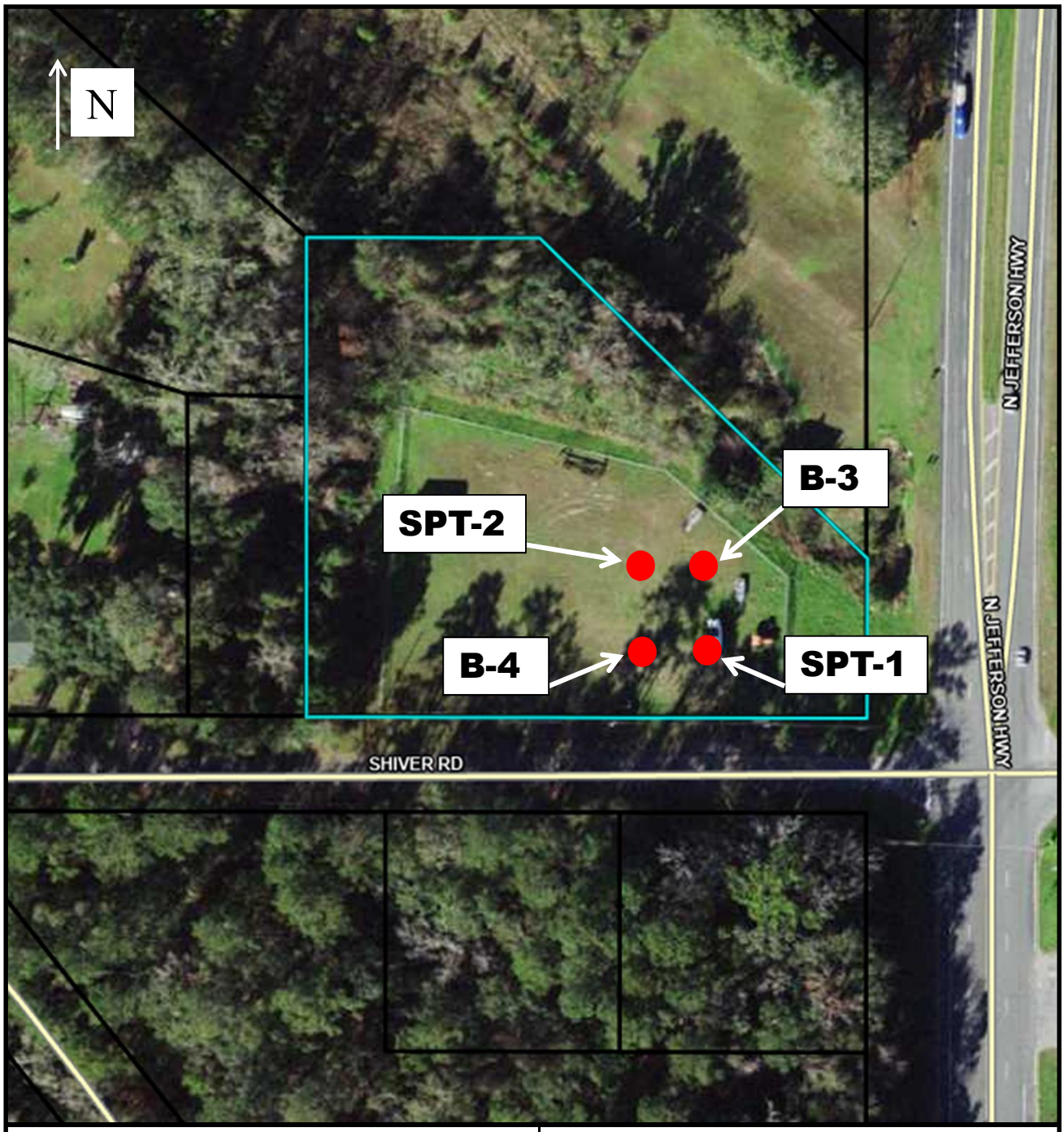

Boring Location Figure
36 Shiver Road
Parcel No.: 19-2N-5E-0000-0160-0000
Monticello, Jefferson County, FL

Figure 2 – Boring Location Map
Source: Jefferson County Property Appraiser
Scale: Not to Scale
Project #: 25-335
Date: April 2025

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APPENDIX A

Client: M & R Construction	Date Drilled: April 22, 2025
Location: 36 Shiver Road	Project No.: 25-335
Drilling Method: Flight Auger	Water Level: 8.5' Depth
Tax Id#: 19-2N-5E-0000-0160-0000	Boring No: SPT-1

Depth (ft)	Symbol	USCS	Blows/12"(N) (10 20 30 40 50)	N Value	Description:
1		SP-SW			Dark Brown Moist Sand With Roots & Gravel (Topsoil)
		SC-SM			Reddish Brown Moist Moderately Clayey Sand
2		SC-SM		20	Gray/ Reddish Brown Moist Moderately Clayey Sand
3					
4		SC-SM		4	Gray/ Reddish Brown/ Yellowish Brown Very Moist Moderately Clayey Sand
5					
6		SC-SM		2	Gray/ Light Gray Wet Slightly Clayey Sand
7					
8				9	
9		SP-SW			Yellowish Brown/ Gray/ Reddish Brown Wet Sand
10				2	
11		SC-SM			Dark Gray Wet Slightly Clayey Sand
12					
13					
14					
15		SC-SM		4	Yellowish Brown/ Light Gray Wet Slightly Clayey Sand
16					
17					
18		SC-SM			Light Gray/ Yellowish Brown Wet Slightly Clayey Sand
19					
20				3	

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APPENDIX A

Client: M & R Construction	Date Drilled: April 22, 2025
Location: 36 Shiver Road	Project No.: 25-335
Drilling Method: Flight Auger	Water Level: 9.0' Depth
Tax Id#: 19-2N-5E-0000-0160-0000	Boring No: SPT-2

Depth (ft)	Symbol	USCS	Blows/12"(N) 10 20 30 40 50	N Value	Description:
1		SC-SM			Yellowish Brown/ Light Gray/ Reddish Brown Moist Slightly Clayey Sand With Roots (Topsoil)
		SP-SW			Yellowish Brown Moist Sand
2		SC-SM		9	Gray Moist Slightly Clayey Sand
3		SC-SM			Yellowish Brown/ Light Gray/ Reddish Brown Moist Slightly Clayey Sand
4		SC-SM		4	Reddish Brown Moist Moderately Clayey Sand
5		SC-SM			Reddish Brown/ Yellowish Brown/ Dark Gray Very Moist Moderately Clayey Sand
6				2	
7		SC-SM			Reddish Brown/ Yellowish Brown Wet Slightly Clayey Sand
8		SP-SW			Yellowish Brown/ Reddish Brown Wet Sand
9				11	
10				6	
11		SP-SW			Brown Wet Sand
12					
13					
14		SC-SM			Yellowish Brown Wet Slightly Clayey Sand
15				3	
16		SC-SM			Dark Gray Wet Slightly Clayey Sand
17					
18					
19		SC-SM			Light Gray/ Yellowish Brown Wet Slightly Clayey Sand
20				7	

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APPENDIX A

Client: M & R Construction	Date Drilled: April 22, 2025
Location: 36 Shiver Road	Project No.: 25-335
Drilling Method: Flight Auger	Water Level: 9.0' Depth
Tax Id#: 19-2N-5E-0000-0160-0000	Boring No: B-3

Depth (ft)	Symbol	USCS	Blows/12"(N) 10 20 30 40 50	N Value	Description:
1		SP-SW			Yellowish Brown Moist Sand With Roots & Gravel (Topsoil)
2		SP-SW			Yellowish Brown Moist Sand
3		SC-SM			Yellowish Brown Moist Slightly Clayey Sand
4					
5		SC-SM			Yellowish Brown/ Reddish Brown Very Moist Slightly Clayey Sand
6					
7		SC-SM			Reddish Brown Very Moist Moderately Clayey Sand
8		SC-SM			Reddish Brown/ Gray/ Yellowish Brown Very Moist Moderately Clayey Sand
9					
10					
11		SC-SM			Yellowish Brown Wet Slightly Clayey Sand
12					
13					
14					
15		SC-SM			Dark Gray Wet Slightly Clayey Sand
16					
17					
18		SC-SM			Light Gray/ Yellowish Brown Wet Slightly Clayey Sand
19					
20					

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APPENDIX A

Client: M & R Construction	Date Drilled: April 22, 2025
Location: 36 Shiver Road	Project No.: 25-335
Drilling Method: Flight Auger	Water Level: 9.0' Depth
Tax Id#: 19-2N-5E-0000-0160-0000	Boring No: B-4

Depth (ft)	Symbol	USCS	Blows/12"(N) 10 20 30 40 50	N Value	Description:
1		SP-SW			Dark Brown Moist Sand With Roots & Gravel (Topsoil)
		SC-SM			Reddish Brown Moist Moderately Clayey Sand
2		SC-SM			Gray/ Reddish Brown Moist Moderately Clayey Sand
3					
4		SC-SM			Gray/ Reddish Brown/ Yellowish Brown Very Moist Moderately Clayey Sand
5					
6		SC-SM			Gray/ Light Gray Wet Slightly Clayey Sand
7					
8					
9		SP-SW			Yellowish Brown/ Gray/ Reddish Brown Wet Sand
10					
11		SC-SM			Dark Gray Wet Slightly Clayey Sand
12					
13					
14					
15		SC-SM			Yellowish Brown/ Light Gray Wet Slightly Clayey Sand
16					
17					
18		SC-SM			Light Gray/ Yellowish Brown Wet Slightly Clayey Sand
19					
20					