Test Pit Exploration
Old Eatonton Road Tract
Old Eatonton Road
Greene County, Georgia
Greencastle Project No. 8961

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July 4, 2024

VTC 307 LLC
744 Noah Drive, Ste. 113-121
Jasper, Georgia 30143

Subject: **Test Pit Exploration**
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Gentlemen:

Greencastle Engineering, Inc. (Greencastle) is pleased to provide this report of the test pit exploration for the referenced project.

The purpose of the exploration was to obtain general subsurface data so that we could evaluate general earthwork procedures and potential excavation problems. This report presents our understanding of the project, the subsurface conditions encountered, and our recommendations for excavation conditions.

Greencastle appreciates the opportunity to be of service to you on this project. If you have any questions concerning this report, please contact us.

Respectfully submitted,

Greencastle Engineering, Inc.

Ernie Green
Project Engineer

GEORGIA REGISTERED No. 23817 PROFESSIONAL ENGINEER GREG A. WOMBOUGH

Greg A. Womboush, P.E.
Senior Registered Engineer
GA. Reg. No. 23817

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REPORT OVERVIEW

The following summary provides an overview of our findings. Design recommendations are presented in the report text.

1. Twenty-nine test pits were performed across the property. The test pits encountered topsoil and residual soils to the termination depths of 3 to 19 feet or refusal.

2. No partially weathered rock encountered in the test pits to their termination depths of 3 to 19 feet or refusal. Refusal was encountered in test pits TP-8 at a depth of 12 feet and TP-9 at a depth of 13 feet. No refusal was encountered in the remaining test pits. No refusal was encountered in the remaining test pits to their termination depths of 3 to 19 feet.

3. Excavations in the residual soils can be accomplished using conventional heavy earthmoving equipment such as dozers and large tracked excavators. Based on the depths at which test pit refusal was encountered, difficult excavation techniques will be required during site grading and utility installation. Difficult excavation techniques are discussed in the Excavation Conditions section of this report.

4. No groundwater was encountered in the remaining test pits after the completion of the excavation.

5. The residual soils encountered are suitable for use as structural fill.

6. It is our opinion that the planned residential structures can be supported by conventional shallow spread foundations bearing in the residual soils or new structural fill.

PROJECT INFORMATION

Our understanding of the project is based upon a review of a test pit location plan provided by Mr. Ralph Davia, P.E. with Greyden Engineering via email. We understand that 119 single-family lots will be constructed on approximately 22.61 acres located along Old Eatonton Road in Greene County, Georgia. A proposed sanitary sewer lift station will be constructed in the southwest corner of the property adjacent to Old Eatonton Road. Based upon the test pit depths listed on the test pit location plan, we anticipate that cuts and fills will approach 20 feet or less to achieve finished grades on the property and for utility construction.

EXPLORATION AND TESTING PROCEDURES

The site was explored by a combination of a visual site reconnaissance and the performance of twenty-nine pits designated as TP-1 through TP-30. Test pit TP-1 was not performed due to access. The test pits were performed at the provided locations.

The test pits were located on site by utilizing a handheld capable GPS device and the coordinates provided on the test pit location plan. The test pit locations are shown on the *Test Pit Location Plan* in the Appendix. The locations should be considered approximate

The test pits were excavated using a CAT 318 tracked excavator. The soil types were identified by visual examination of the test pit excavation material by a member of our engineering staff.

SITE AND SUBSURFACE CONDITIONS

Site Conditions

The property is located along the north and east side of Old Eatonton Road, approximately 0.10 miles west of its intersection with Highway 44 in Greene County, Georgia. The property is undeveloped wooded land with mature trees and heavy underbrush. An asphalt paved roadway was observed traversing the property in the eastern portion from Old Eatonton Road. The property slopes downward to the north from the southern portion.

Area Geology

The site is located in Georgia's Piedmont Physiographic Province. The residual soils in the Piedmont are the result of the chemical and physical weathering of the underlying parent metamorphic and igneous rock. A common soil profile usually consists of fine-grained clayey silts and silty clays near the surface, where weathering is more advanced. With depth, less clayey, coarser grained soils such as sandy silts and silty sands with varying mica content are encountered. Separating the completely weathered soil overburden from the unaltered parent rock is a transition zone of very high consistency weathered rock locally referred to as Partially Weathered Rock (PWR). Partially weathered rock is arbitrarily defined as residual soils with Standard Penetration Resistances in excess of 100 blows per foot (50 blows per 6 inches).

Subsurface Conditions

The test pits encountered topsoil and Piedmont residual soils. A topsoil layer of 6 to 12 inches in thickness was initially encountered in the test pits. Beneath the topsoil layer, the test pits encountered residual soils to the termination depths of 3 to 19 feet or refusal. The residual soils consisted of sandy silts, silty sands and silty sands with rock fragments.

No partially weathered rock encountered in the test pits to their termination depths of 3 to 19 feet or refusal. Refusal was encountered in test pits TP-8 at a depth of 12 feet and TP-9 at a depth of 13 feet. No refusal was encountered in the remaining test pits. No refusal was encountered in the remaining test pits to their termination depths of 3 to 19 feet.

No groundwater was encountered in the test pits after the completion of the excavation. It should be expected that the groundwater levels will fluctuate due to several factors, such as variations in precipitation and site development activities. Therefore, groundwater may be encountered at different elevations in the future.

LIMITATIONS OF CONCLUSIONS AND RECOMMENDATIONS

This evaluation of the geotechnical aspects of the proposed design and construction has been based on our understanding of the project and the data obtained during this study. The general subsurface conditions used in our evaluation were based on interpolation of the subsurface data between the test pits. Regardless of the thoroughness of a test pit exploration, there is the possibility that conditions will differ between test pits, that conditions are not as anticipated by the designers, or that the construction process has modified the soil conditions.

The recommendations contained in this report have been developed on the basis of the previously described project characteristics and subsurface conditions. If project criteria change, we should be permitted to determine if the recommendations should be modified. The findings of such a review will be presented in a supplemental report. Even after completion of a test pit study, the nature and extent of variation between test pits may not become evident until the course of construction. If such variations then become evident, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

These professional services have been performed, the findings derived, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all warranties either expressed or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the data gathered during this exploration, our understanding of the proposed construction, our experience with similar site and subsurface conditions and generally accepted principles and practices of geotechnical engineering. Should the proposed construction change significantly from that described in this report, we request that we be advised so that we may amend these recommendations accordingly. This report, and the conclusions and recommendations provided herein, are provided exclusively for the use of VTC 307 LLC and their design professionals and is intended solely for design of the referenced project.

Earthwork Recommendations

The majority of the soils encountered at the site are sandy and silty, moisture-sensitive, and will erode readily if exposed. When exposed to excessive moisture, the workability and strength of these type soils deteriorates significantly and construction delays may result. Surface water management will be an important component of construction. We recommend that construction grades be maintained throughout this project in such a manner to establish positive drainage away from working surfaces and subgrades. Vehicular traffic should be avoided or minimized where possible.

The initial step in site preparation should be the clearing of trees and vegetation and the stripping of topsoil within proposed construction limits. Stumps will need to be grubbed. Stripping and

clearing should extend 10 feet beyond planned construction limits. Topsoil should be stockpiled outside of structural areas and may be reused as landscaping materials or hauled off-site.

After the clearing of trees and vegetation and the stripping of topsoil, subgrade soils should be evaluated within at-grade areas and areas to receive fill. This evaluation should include proofrolling the subgrade with a fully loaded tandem axle dump truck (20 tons) during a period of dry weather and under the observation of the geotechnical engineer. Any areas which "pump" or "rut" excessively under the weight of the proofrolling vehicle should be further evaluated and may require undercutting or other remediation. Proofrolling can occasionally detect pits where stumps or other debris may have been buried, or other areas where weak surface conditions exist.

After subgrade evaluations are complete, the site can be brought to final grades by excavation or structural fill placement. Excavations within the residual soils can be accomplished using conventional heavy earthmoving equipment such as dozers and large tracked excavators. Based on the depths at which test pit refusal was encountered, difficult excavation techniques will be required during site grading and utility installation. Difficult excavation techniques are discussed in the *Excavation Conditions* section of this report.

We recommend that all soils used as structural fill be classified as SM, SC, CL, and ML according to the Unified Soil Classification system. Structural fill should be compacted to at least 95 percent of the soil's standard Proctor maximum dry density, as determined by ASTM standard D-698. The upper foot of fill which will support pavements or slabs should be compacted to at least 98 percent of the soil's standard Proctor maximum dry density for improved support. In areas which are at or above the finished grade, and which will support pavements or slabs, the upper 8 inches immediately below these systems should be scarified and recompacted to the 98 percent criteria. Structural fill should be free of organic material, have a plasticity index (PI) less than 20, and contain rock sizes no larger than 4 inches.

Moisture control of the soils reused as structural fill may be necessary, primarily depending on the weather conditions at the time of construction.

In sloped areas, structural fill should extend horizontally beyond the outer edge of the building foundations at least 10 feet or a distance equal to the height of the fill to be placed, whichever is greater, prior to sloping. In paved areas, fill slopes should extend at least five feet beyond the edge of pavement prior to sloping.

Density testing should be performed by a soils technician to determine the degree of compaction and verify compliance with the project specifications. In structural areas, at least one field density test should be made per 3,000 square feet of fill area for each two-foot lift. Testing frequency should be increased in confined areas. Areas which do not meet the compaction specifications should be recompacted to achieve compliance. In confined areas, such as utility trenches, the use of portable compaction equipment and thin lifts of 3 to 4 inches may be required to adequately achieve the compaction requirements.

Excavation Conditions

Excavations in the residual soils can be accomplished using conventional heavy earthmoving equipment such as dozers and large tracked excavators.

No partially weathered rock encountered in the test pits to their termination depths of 3 to 19 feet or refusal. Refusal was encountered in test pits TP-8 at a depth of 12 feet and TP-9 at a depth of 13 feet. No refusal was encountered in the remaining test pits. No refusal was encountered in the remaining test pits to their termination depths of 3 to 19 feet.

Based on the depths at which test pit refusal was encountered and anticipated finished grades, difficult excavation techniques will be required to effectively remove any bedrock during site grading. Difficult excavation techniques will also be required in areas where foundation or utility excavations extend below the depths at which test pit refusal was encountered. We recommend that final site and utility grades be established above the depths at which test pit refusal was encountered in the test pits, if feasible.

Heavy, tracked excavating equipment with single tooth ripping tools will be required to remove the PWR. The ease of excavation of PWR cannot be specifically quantified and depends on the quality of grading equipment, skill of the equipment operators, and geologic structure of the material itself, such as the direction of bedding, planes of weakness and spacing between discontinuities. The confined excavations in PWR could require pneumatic hammers if large tracked excavators are not effective. Blasting may be necessary to efficiently remove more resistant rock and large boulders that could be present within the PWR.

In a large, open excavation, a particularly resistant area could be approached from any direction with the ripper and thus align with a plane of weakness. PWR that is excavated by ripping may be removed in large slabs or boulders, which are difficult to move and/or break into smaller pieces for reuse.

Due to the erratic and unpredictable nature of PWR, materials requiring blasting may be erratic within its mass. The materials on which our drilling equipment encountered refusal will likely require blasting or an extreme amount of ripping to be removed. If these materials are to be ripped, we recommend that this effort be carried out while the site is undergoing mass grading for ease of removal. Consideration should be given to over-excavating 4 to 5 feet of PWR and/or rock below final grades. This will lessen the potential for difficult excavation within confined areas and allow foundations and utilities to be installed with typical light to moderate sized excavation equipment.

We recommend that the requirement for blasting be defined in terms of equipment performance. For general excavation, we recommend that rock be defined as material that cannot be excavated with a single tooth-ripper drawn by a Caterpillar D-8K or equivalent bulldozer. For trench excavation, we recommend that rock be defined as material that cannot be excavated by a Caterpillar 315C or equivalent track mounted hoe.

Foundation Recommendations

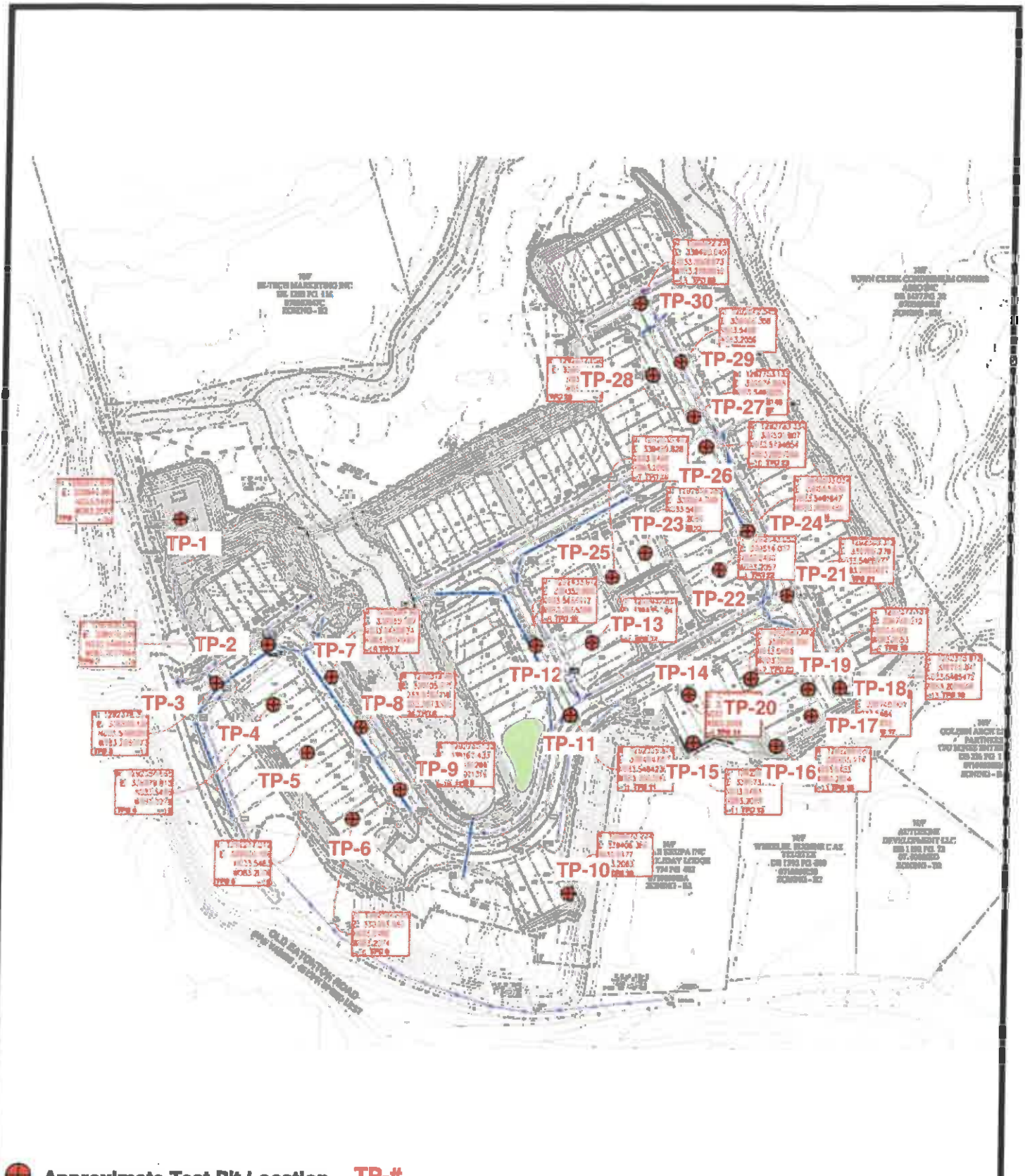
It is our opinion that the planned residential structures can be supported by conventional shallow spread foundations bearing in the residual soils or new structural fill. A more detailed geotechnical exploration is recommended to obtain the design bearing capacity for the proposed residential structures.

All foundation excavations should be evaluated by a geotechnical engineer, who will verify that the design bearing pressure is available and that foundations are not immediately underlain by undesired conditions. If the engineer finds localized conditions unsatisfactory to support the recommended soil bearing pressure below an individual foundation, they should be undercut.

Temporary and Permanent Slopes

Permanent and temporary slopes may be used to accommodate grade changes. If temporary slopes are used, they should be constructed no steeper than 1.5H:1V for slopes less than 15 feet high. All OSHA guidelines should be followed for temporary slopes. Permanent slopes should be constructed no steeper than 2H:1V if they are less than 15 feet in height. We recommend that a slope stability analysis be performed on all slopes taller than 15 feet. These recommendations are based on experience with similar conditions and no detailed slope stability analyses have been performed. Buildings should be set back at least 10 feet from the top of slopes and a minimum of 5-foot setback from the top of slopes is considered sufficient for pavement areas. All finished slopes should be suitably protected from erosion.

APPENDIX



Approximate Test Pit Location TP-#

Test Pit Location Plan

Greencastle Engineering, Inc.
PO Box 21144
Peachtree City, Georgia 30269

Project: Old Eatonton Road Tract
Location: Old Eatonton Road, Greene County, Georgia
Date: 6/16/2024
Project No: 8961

Test Pit Record
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Test Pit No.	Description
1	**Not performed**
2	**(0 – 12") Topsoil** **(12" – 12') Residuum:** Tan, red and brown sandy silt **(12' – 16')** Gray, tan and brown silty sand, w/trace rock fragments *Test Pit terminated at 16 feet.*
3	**(0 – 8") Topsoil** **(8" – 12') Residuum:** Tan, red and brown sandy silt **(12' – 17')** Gray, tan and brown silty sand, w/trace rock fragments *Test Pit terminated at 17 feet.*
4	**(0 – 12") Topsoil** **(12" – 6') Residuum:** Tan, red and brown sandy silt **(6' – 16')** Gray, tan and red silty sand, w/trace rock fragments *Test Pit terminated at 16 feet.*
5	**(0 – 12") Topsoil** **(12" – 3') Residuum:** Tan, red and brown sandy silt **(3' – 16')** Gray, tan and red silty sand, w/trace rock fragments *Test Pit terminated at 16 feet.*
6	**(0 – 12") Topsoil** **(12" – 3') Residuum:** Tan, red and brown sandy silt **(3' – 16')** Gray, tan and red silty sand, w/trace rock fragments *Test Pit terminated at 16 feet.*

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Test Pit No.	Description
7	**(0 – 8") Topsoil** **(8" – 4') Residuum:** Tan, red and brown sandy silt (4' – 19') Gray, tan and red silty sand, w/trace rock fragments *Test Pit terminated at 19 feet.*
8	**(0 – 8") Topsoil** **(8" – 1 ½') Residuum:** Tan, red and brown sandy silt **(1 ½' – 12')** Gray, tan and brown silty sand, w/rock fragments *Test Pit refusal at 12 feet.*
9	**(0 – 12") Topsoil** **(12" – 5') Residuum:** Tan, red and brown sandy silt **(5' – 13')** Gray and tan silty sand, w/rock fragments *Test Pit refusal at 13 feet.*
10	**(0 – 8") Topsoil** **(8" – 3') Residuum:** Tan, red and brown sandy silt **(3' – 9')** Gray, tan and brown silty sand, w/trace rock fragments *Test Pit terminated at 9 feet.*
11	**(0 – 12") Topsoil** **(12" – 6') Residuum:** Tan, red and brown sandy silt **(6' – 11')** Gray, tan and brown silty sand *Test Pit terminated at 11 feet.*
12	**(0 – 6") Topsoil** **(6" – 5') Residuum:** Tan, red and brown sandy silt **(5' – 8')** Red, tan and brown silty sand *Test Pit terminated at 8 feet.*

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Test Pit No.	Description
13	**(0 – 12") Topsoil** **(12" – 3') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 3 feet.*
14	**(0 – 8") Topsoil** **(8" – 7') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 7 feet.*
15	**(0 – 8") Topsoil** **(8" – 8') Residuum:** Tan, red and brown sandy silt **(8' – 11')** Gray, tan and red silty sand *Test Pit terminated at 11 feet.*
16	**(0 – 12") Topsoil** **(12" – 8') Residuum:** Tan, red and brown sandy silt **(8' – 13')** Gray, tan and red silty sand *Test Pit terminated at 13 feet.*
17	**(0 – 12") Topsoil** **(12" – 10') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 10 feet.*
18	**(0 – 12") Topsoil** **(12" – 11') Residuum:** Tan, red and brown sandy silt **(11' – 13')** Gray, tan and red silty sand *Test Pit terminated at 13 feet.*
19	**(0 – 12") Topsoil** **(12" – 6') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 6 feet.*

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Test Pit No.	Description
20	**(0 – 12") Topsoil** **(12" – 7') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 7 feet.*
21	**(0 – 12") Topsoil** **(12" – 6') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 6 feet.*
22	**(0 – 12") Topsoil** **(12" – 5') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 5 feet.*
23	**(0 – 12") Topsoil** **(12" – 7') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 7 feet.*
24	**(0 – 8") Topsoil** **(8" – 7') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 7 feet.*
25	**(0 – 8") Topsoil** **(8" – 7') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 7 feet.*
26	**(0 – 8") Topsoil** **(8" – 10') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 10 feet.*
27	**(0 – 12") Topsoil** **(12" – 12') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 12 feet.*

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Test Pit No.	Description
28	**(0 – 8") Topsoil** **(8" – 8') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 8 feet.*
29	**(0 – 8") Topsoil** **(8" – 8') Residuum:** Tan, red and brown sandy silt *Test Pit terminated at 8 feet.*
30	**(0 – 6") Topsoil** **(6" – 4') Residuum:** Tan, red and brown sandy silt **(4' – 13')** Gray, tan and red silty sand, w/trace rock fragments *Test Pit terminated at 13 feet.*