ADDENDUM #1

June 26, 2018

PROJECT: **Rocky River Creek / Antiquity Greenway**

Changes and Clarifications - General

1. There were two geotechnical reports prepared for this project. Both reports are attached.

Response to Bidder Questions

1. Q: Is the clearing work currently being performed part of the Antiquity Greenway project?

   A: The clearing currently being completed is part of a separate Charlotte Water project. The bids for the clearing work should be based on the construction drawings.

2. Q: Will alternatives to the timber piles shown on the plans be considered?

   A: Alternatives to timber piles may be considered after the contract award. The submitted bids, however, should be based on the construction documents.

Changes and Clarifications to Specifications

1. This project will be constructed along roadways that are classified as local roads and therefore is exempt from the Davis Bacon requirements in accordance with Section IV of FHWA-1273.

2. All references to the 2012 Standard Specifications should be revised to reference the 2018 Standard Specifications.

Changes and Clarifications to Drawings

1. The turn-down concrete sidewalk should be installed from station 27+83 to station 32+18 and from station 32+33 to station 33+52. The cross-slope of the concrete sidewalk should match the asphalt trail (2.0%). The riprap shown on the detail *Concrete Sidewalk at Underpass (Turndown Edge)*, sheet C9.1, should be installed adjacent to the channel and/or where directed by the owner/engineer.

2. The construction documents reflect a 2% cross-slope for entire trail except for the boardwalk section. The minimum acceptable cross-slope will be 1.5%.

3. Replace Plan Sheet C10.2 with the attached plan sheet C10.2 (top of wall elevation revised).

All other terms, conditions and descriptions remain the same. Contractor must acknowledge issuance of this addendum in their Single Prime General Contract Proposal. The bid closing date remains July 2, 2018 at 2:00 PM; the bid opening date remains July 2, 2018 at 2:00 PM.

Attachments:

1. **Report of Geotechnical Exploration, dated September 2015, prepared by GTA Associates, Inc.**
2. **Results of Soil Test Borings and Environmental Sampling, dated December 15, 2017, prepared by Geoscience Group, Inc.**
3. **Plan Sheet C10.2.**

End of Addendum 1

REPORT OF GEOTECHNICAL EXPLORATION

ANTIQUITY GREENWAY

Cornelius, North Carolina

September 2015

Prepared For:

Town of Cornelius
21445 Catawba Avenue
Cornelius, North Carolina 28031

Attn: Mr. Troy Fitzsimmons

Prepared By:

GTA ASSOCIATES, INC.
Geotechnical and Environmental Consultants
710 Peninsula Lane, Suite B
Charlotte, NC 28273
(704) 553-2300 - Office
(704) 553-2400 - Facsimile

GTA Job No: 35151653

GTA ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm

September 22, 2015

Town of Cornelius
21445 Catawba Avenue
Cornelius, North Carolina 28031

Attn: Mr. Troy Fitzsimmons

Re: Report of Geotechnical Exploration
Antiquity Greenway
Cornelius, North Carolina
GTA Project No. 35151653

Dear Mr. Fitzsimmons:

In accordance with our agreement dated June 23, 2015, GTA Associates, Inc. (GTA) has performed a geotechnical exploration for the proposed pedestrian bridge and walking trail located adjacent to Old Canal Street between Zion Avenue and South Street in Cornelius, North Carolina. The results of the field testing and recommendations regarding design and construction of the proposed pedestrian bridge and walking trail are included in this report. Unless other arrangements are made by the Town of Cornelius, GTA will discard all soil samples within sixty days from the date of this report.

GTA appreciates the opportunity to assist you with this project. Should you have questions or require additional information, please do not hesitate to contact our office.

Sincerely,

GTA ASSOCIATES, INC.

NORTH CAROLINA PROFESSIONAL SEAL 024901 ENGINEER JOHN P. WILLE

John P. Wille, P.E.
Associate

Craig Rodano
Vice President

Copies Submitted: (3)

C:\GTA\Project\Dewberry\Antiquity Greenway\Documents\Report.doc
Job No. 3515165

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REPORT OF GEOTECHNICAL EXPLORATION
ANTIQUITY GREENWAY
CORNELIUS, NORTH CAROLINA
SEPTEMBER 2015

INTRODUCTION

The Town of Cornelius plans to construct a new walking trail with a pedestrian bridge located adjacent to Old Canal Street in Cornelius, North Carolina. The project will begin at Zion Avenue just north of its intersection with Market Street and proceed along the west side of Old Canal Street in the northeast direction across South Street to southwest of the existing Davidson Parks and Recreation Department Building. Please refer to the Site Location Plan included as Figure 1 in Appendix A for the approximate location of the site.

GTA Associates, Inc. (GTA) was retained to perform a geotechnical subsurface exploration of the project site to characterize the general subsurface conditions along the proposed walking trail. The scope of this study included a field exploration and engineering analysis. Included in our field exploration were 6 Standard Penetration Test (SPT) borings. Conclusions and recommendations regarding the site development were derived from the engineering analysis of the field data.

SITE CONDITIONS

The proposed site is currently a permanent utility easement with tall grass and overgrown weeds along with areas of dense tree growth. There are both underground utilities and overhead power lines located in the vicinity of the proposed walking trail. The entire length of the walking trail consists of approximately 3,500 linear feet. Specific elevations were not provided at this time; however, the site topography slopes gently downward in the northeast direction along the proposed trail. Please refer to the photographs included in Appendix C for more detailed information regarding the existing site conditions.

PROPOSED CONSTRUCTION

Based on the preliminary site plans prepared by Dewberry, the proposed construction will include a pedestrian bridge crossing over South Prong West Branch Rocky River as well as an asphalt paved walking trail. Based on our communications with Dewberry and review of the project plans, the pedestrian bridge will be a cast-in-place concrete low-water structure with design live loads of “H5 AASHTO Design Vehicle” for maintenance vehicles and 90 pounds per square foot (psf) for pedestrian traffic.

SITE GEOLOGY

The site is located in the Charlotte Belt of the Piedmont Plateau Geologic Province. According to the *Geologic Map of North Carolina* (1985), the site is reportedly underlain by Metamorphosed Quartz Diorite (PzZq), locally pinkish gray, foliated to massive. Ground elevations within the Piedmont Plateau vary from approximately 400 feet above sea level in the east to 2,000 feet in the west.

The typical residual soil profile consists of fine-grained soils (clays/silts) near the surface, where soil weathering is more advanced, underlain by more coarse-grained soils (sandy silts/silty sands) with depth. The boundary between the soil and rock is not sharply defined. This transitional zone, termed weathered rock, is normally found overlying the parent bedrock. The degree of weathering is facilitated by fractures, joints, and by the presence of less resistant rock types. Therefore, the profile of the weathered rock and hard rock is quite irregular and erratic, even over short horizontal distances. Lenses, boulders, hard rock, and zones of weathered rock are often encountered within the soil mantle, well above the general bedrock level.

The topography of the Piedmont Plateau consists of well-rounded hills and long rolling ridges with a northeast-southwest trend. This rolling topography is the result of streams flowing across and acting on rocks of unequal hardness. The Piedmont Plateau region is underlain by older crystalline (metamorphic and igneous) rock formations that trend northeast-southwest and vary greatly in their resistance to weathering and erosion. The major streams generally flow across these rock structures. Please refer to the referenced publications for a more detailed description of the geologic units.

SUBSURFACE EXPLORATION

For this exploration, six (6) SPT borings, designated as B-1 through B-6, were drilled in the areas of the proposed development. The approximate locations of the borings are shown on the attached Exploration Location Plans presented as Figures 2, 3 and 4 in Appendix A. The soil test boring locations were selected by Dewberry and field located by GTA using existing site features and utilities as references for measuring distances. The borings have not been surveyed. Therefore, the boring location should be considered approximate.

Borings B-1 through B-6 were drilled to depths ranging between 10 and 20 feet below the existing ground surface with an ATV-mounted CME-550 drilling rig using hollow-stem augers. Standard Penetration Testing was performed in the boreholes with soil samples obtained at approximate 2 ½-foot intervals in the upper 10 feet and then at 5-foot intervals thereafter.

Samples collected from the borings were submitted to GTA's laboratory for visual classification. Material descriptions provided on the logs are visual approximations in accordance with the Unified Soil Classification System (USCS) and the American Association of State Highway and Transportation Officials (AASHTO) classification system. Logs of the borings are included in Appendix B.

SUBSURFACE CONDITIONS

A layer of topsoil approximately 1 to 4 inches thick was encountered at the surface of Borings B-1 through B-6. Beneath the topsoil in Borings B-1, B-3, B-4, B-5 and B-6, existing fill material was encountered to depths ranging from approximately 3.5 to 20 feet below the existing ground surface. The existing fill encountered in the borings generally consists of sandy lean clay, sandy silt and silty sand. SPT 'N' values in the existing fill soils ranged from 2 to 15 bpf, indicating very soft to stiff and very loose relative consistency. The existing fill soils observed in the borings was relatively free of organics and construction debris; with the exception of B-1 where asphalt was encountered at a depth of approximately 13.5 feet below the existing ground surface.

Underlying the existing fill soils at Borings B-5 and B-6, alluvial (creek deposited) soils were encountered at depths ranging from approximately 8.5 to 13.5 feet below the existing ground surface. The alluvial soils generally consist of sandy clay and silty clayey sand. SPT 'N' values in the alluvial soils ranged from 2 to 4 bpf, indicating soft and very loose relative consistency.

Beneath the topsoil at Boring B-2, underlying the existing fill soils at Borings B-3 and B-4 and below the alluvial soils at Borings B-5 and B-6, residual soils were encountered. The residual soils generally consist of sandy lean clay, sandy silt, and clayey/silty sand. SPT 'N' values in the clayey silty soils ranged from 7 to 15 bpf, indicating medium stiff to stiff relative consistency. SPT 'N' values in the silty sandy soils ranged from 15 to 40 bpf, indicating medium dense to dense relative consistency. The residual materials were generally classified as CL, ML, and SM per the USCS and as A-2-4, A-4, A-6, and A-7-6 per the AASHTO classification system.

Groundwater was encountered at Borings B-5 and B-6 at depths ranging from approximately 4.3 and 9.4 feet below the existing ground surface. The remaining borings were dry when groundwater level measurements were attempted at the termination of drilling. Boring cave-in depths ranged from approximately 5 to 18 feet below the existing ground surface. The boring cave-in depths can be an indication of the groundwater level at or near the boring cave-in depth or may result from the soil falling in as the drilling equipment is removed from the borehole upon its completion. Please be advised that groundwater levels are expected to fluctuate with changes in precipitation, drainage, and other factors. Please refer to the boring logs in Appendix B for further information.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of this exploration, it is GTA's opinion that the proposed construction is feasible, given that the geotechnical recommendations are followed, and that the standard level of care is maintained during construction. Please note that the presence of the very loose to loose and very soft existing fill soils and alluvial soils will impact the design and construction of the proposed development and associated costs. A discussion of GTA's preliminary assessment and conclusions with respect to the proposed construction is presented in the following paragraphs.

1. Existing Fill/Alluvial Soils

   Existing fill soils were encountered in Borings B-1 and B-3 through B-6 along the proposed walking trail to depths ranging from approximately 3.5 to 20 feet below the existing ground surface. In general, the existing fill soils consist of very soft to stiff sandy/clayey silt, sandy lean clay and silty sand. Standard Penetration Testing (SPT) 'N' values in the existing fill soils ranged from 2 to 15 blows per foot (bpf). Very loose near-surface fill soils were encountered at Boring B-5 in the upper 3.5. In addition, soft existing fill soils were encountered in Boring B-1 at a depth ranging from approximately 8 to 20 feet below the existing ground surface.

   In addition, very loose and very soft alluvial soils were encountered in Borings B-5 and B-6 to depths ranging from approximately 8.5 to 13.5 feet. Standard Penetration Testing (SPT) 'N' values in the alluvial soils ranged from 2 to 4 blows per foot (bpf).

   Based on the boring data, it appears that the existing fill at Borings B-1, B-5 and B-6 were placed with little or no compactive effort. Therefore, depending on final design grades along the walking trail, GTA recommends undercutting and/or recompacting the upper 2 feet of very soft to soft near-surface soils. A thorough field evaluation should be performed during construction to further access the suitability of the existing fill. This evaluation should consist of stripping the topsoil/rootmat, proofrolling the subgrade soils, and evaluating the near-surface subgrade soils for any soft, wet, or unsuitable soils. Any soft or unsuitable materials will require removal and replacement with controlled, compacted fill, as necessary.

2. Foundations – Pedestrian Bridge

   Based on the results of Boring B-5 performed in the vicinity of the proposed pedestrian bridge, very loose existing fill soils were encountered in the upper 3.5 feet. In addition, very soft and very loose alluvial soils were encountered at Borings B-5 and B-6 below the existing fill soils to depths ranging from approximately 9 to 13 feet below the existing ground surface. Therefore, GTA recommends the following alternative recommendations to provide adequate foundation support for the pedestrian bridge.

Alternative 1: Driven Timber Piles

A driven timber pile foundation can provide proper support of the pedestrian bridge. Timber piles have the advantage of being easy to handle, easy to cut off, relatively inexpensive, readily available and naturally tapered. The timber piles should extend through the variable density soils to bear in competent residual soils. Pile driving should terminate when adequate bearing material is reached to prevent damage to the pile. Due to irregularities in the soil conditions, variations in the pile tip elevations, even between adjacent piles, should be expected.

One typically available timber pile is an eight-inch tip Southern Pine that can be designed for an allowable bearing capacity of up to 25 tons per pile, as determined by the North Carolina State Building Code, Section 1811.3. The timber piles should be installed in accordance with the North Carolina State Building Code and ASTM D 25. Based on the soil conditions encountered, we anticipate pile lengths on the order of 25 to 30 feet may be required. Borings B-5 and B-6 were extended to depths of 10 and 20 feet below the existing ground surface. Therefore, deeper borings may be required to further evaluate the soil conditions below a depth of 20 feet.

The pile hammer should be compatible with the type and capacity of the pile system selected. We recommend that a proper cushion system be located between the pile head and the ram, and be compatible with the pile type and hammer size. All piles should be driven to a specified penetration resistance as outlined by the North Carolina Building Code.

Alternative 2: Geo-Pier Foundations

An alternative to driven timber piles is the implementation of the Geopier system. The Geopier system consists of a proprietary soil improvement method that allows the use of conventional spread footings at higher than typical bearing pressures. Geopier elements consist of highly densified, well-graded crushed stone placed in pre-drilled holes. The crushed stone is densified using a special high energy impact hammer with a 45 degree bevel tamper. The bevel tamper transfers the impact energy down into the sides of the hole as it compacts the crushed stone. This tamping action pre-stresses the soils adjacent to the Geopier element which provides significant lateral confinement to the Geopier element.

Based upon a preliminary review of the data, footings supported by Geopier elements can be designed using a bearing pressure of 3,000 to 4,000 pounds per square foot (psf). The conventional spread footings can be sized using these values. As previously indicated, groundwater was encountered in Borings B-5 and B-6 at depths ranging from approximately 4 to 9 feet below the existing ground surface. Therefore, temporary casing will likely be required to prevent the hole from caving in. Should Geopiers be implemented, the contractor should provide design build services.

3. Pavement Areas

GTA understands that a flexible asphalt pavement will be used for the walking trail. GTA recommends the following pavement section be used for the walking trail. This section was designed based on an assumed traffic volume of one 6-ton capacity vehicle per day, in accordance with AASHTO methods for low volume pavement design:

Flexible Pavement Section

2.0-inch Bituminous Concrete Surface Course (SF)
6.0-inch Graded Aggregate Base (GAB) subbase,
12.0-inch stable compacted subgrade (AASHTO A-4 or more granular)

This preliminary design section assumes that the pavement subgrade and aggregate base course materials have been uniformly compacted to at least 95 percent of the Standard Proctor maximum dry density. Pavement subgrade and aggregate base course stone materials not meeting the above mentioned requirements and compacted to less than the recommended levels will likely result in premature pavement distress. The above referenced section is not designed to carry heavy construction traffic.

GTA anticipates that the proposed pavement areas along the walking trail will be constructed within approximately one to three feet of the existing grade. The borings drilled along the proposed walking trail generally encountered variable density existing fill soils and native residual soils consisting of medium stiff to stiff fine-grained silts and very loose silty sands in the upper 5 feet.

It is recommended that the upper 12 inches of pavement subgrade be constructed with soils meeting the following characteristics:

Liquid Limit (AASHTO T-89)	40 or less
Plastic Index (AASHTO T-89, T-90)	12 or less
Subgrade	CBR 5 minimum

Based on GTA's test borings, the granular/non-plastic soils (USCS ML and SM) are likely to meet these criteria, and are considered suitable for pavement support. The more fine-grained silty/clayey soils (USCS ML and CL) may not meet requirements for subgrade, and are not considered suitable for direct pavement support. Therefore, depending on final design grades, some undercutting and/or recompaction of the very soft to soft and very loose to loose near-surface soils should be anticipated along the proposed walking trail. Undercut depths below 2 feet are not anticipated along the proposed walking trail. Over-excavation or in-place stabilization, such as Mirafi 500X or approved equivalent, will be required where these materials are present at or near the subgrade. This should be further evaluated in the field during site grading. A contingency for subgrade preparation should be considered. Over-excavations should be backfilled with suitable granular fill material.

GTA recommends that a testing program, including moisture-density relationship (proctor), plasticity, and CBR testing be performed during grading. Prior to construction of pavement sections, the pavement subgrade should be proof-rolled with a loaded tandem-axle dump truck under the direct supervision of the geotechnical engineer to verify stability. Unstable soil should be over-excavated to a stable bearing layer. Grades may be reestablished with approved, controlled, compacted granular fill.

4. Site Grading

Based on the information provided to us, we anticipate that site grading will consist of cut and fill depths of less than 3 feet to establish final design grades along the proposed walking trail. However, as previously indicated, very soft to soft and very loose to loose near-surface soils were encountered in the upper 5 feet at Borings B-5 and B-6. Some undercutting and/or recompaction of the very soft to soft and very loose existing fill and soft native near-surface soils should be performed as directed by the project geotechnical engineer.

Prior to the placement of fill, where required, the existing subgrade surface should be stripped and grubbed to remove all surface vegetation, topsoil/rootmat, and other deleterious matter. GTA anticipates a stripping thickness in the range of 6 to 12 inches along a majority of the walking trail. However, stripping thickness in upward of 12 inches should be anticipated in some areas of the site, particularly in low-lying areas or in swales. The actual stripping thickness will be dependent on soil moisture, construction traffic disturbance, and contractor care.

After stripping, fill subgrade should be proof-rolled with a loaded 10-wheel tandem-axle dump truck. The proof-rolling should be observed by a geotechnical engineer or their qualified representative. Any soft, wet, or otherwise unsuitable soils should be dried and re-compacted or removed prior to placement of fill. No fill should be placed until the subgrade is approved by the geotechnical engineer. In addition, any existing fill left in-place at the pavement subgrade should be evaluated by GTA. Localized undercutting and replacement of soft and very loose near-surface soils will be required.

Off-site soils meeting AASHTO classification A-4 or more granular material are suitable for use as structural fill. The on-site fine-grained soils may be suitable for use as structural fill. If plans are to reuse the existing on-site soils for structural fill, moisture conditioning of the soils will likely be required during grading activities and prior to construction.

To minimize the economic impact associated with poor workability and/or trafficability of wet subgrade soils due to moisture sensitive soils, GTA recommends construction during the dry season to reduce the effort and cost required for drying of the wet soils. GTA recommends that a contingency be established for drying and/or over-excavating and replacing unsuitable soils.

Material selected for structural fill should be free of deleterious materials, and approved by the geotechnical engineer. Structural fill should be placed in lifts not to exceed 8 inches in thickness, and compacted to 95 percent of its Standard Proctor maximum dry density (ASTM D-698). Fill construction should be monitored by a full-time soils technician under the direct supervision of a registered geotechnical engineer. All compactive effort should be verified by in-place density testing.

ADDITIONAL SERVICES

We recommended that during construction of the subject project, a geotechnical engineer be retained to provide observation and testing services for the following items.

- Review final site and architectural plans to evaluate if they conform with the intent of this report.
- Observe and test preparation of the pavement areas.
- Provide testing observation and services during fill placement to evaluate if the work is being performed in accordance with the project specifications and intent of this report.
- Review foundation construction for compliance with the project drawings and the intent of this geotechnical report.

LIMITATIONS

This report has been prepared for the exclusive use of Dewberry and the Town of Cornelius in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is made.

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the surface materials. The borings indicate soil conditions only at specific locations and times, and only to the depths penetrated. They do not necessarily reflect strata variations that may exist between boring locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations in subsurface conditions from those described are noted during construction, recommendations in this report may need to be re-evaluated.

In the event that any changes in the nature, design, or location of the pedestrian bride or walking trail are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report are verified in writing. GTA Associates, Inc. is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the express written authorization of GTA Associates, Inc.

In accordance with the guidelines of ASFE/The Association of Engineering firms practicing in the Geosciences, it is recommended that GTA Associates, Inc. be retained to provide continuous soils engineering services for this project. Participation of GTA will facilitate compliance with GTA's recommendations, and allow changes to be made in these recommendations, in the event that subsurface conditions are found to vary from those anticipated prior to the start of construction.

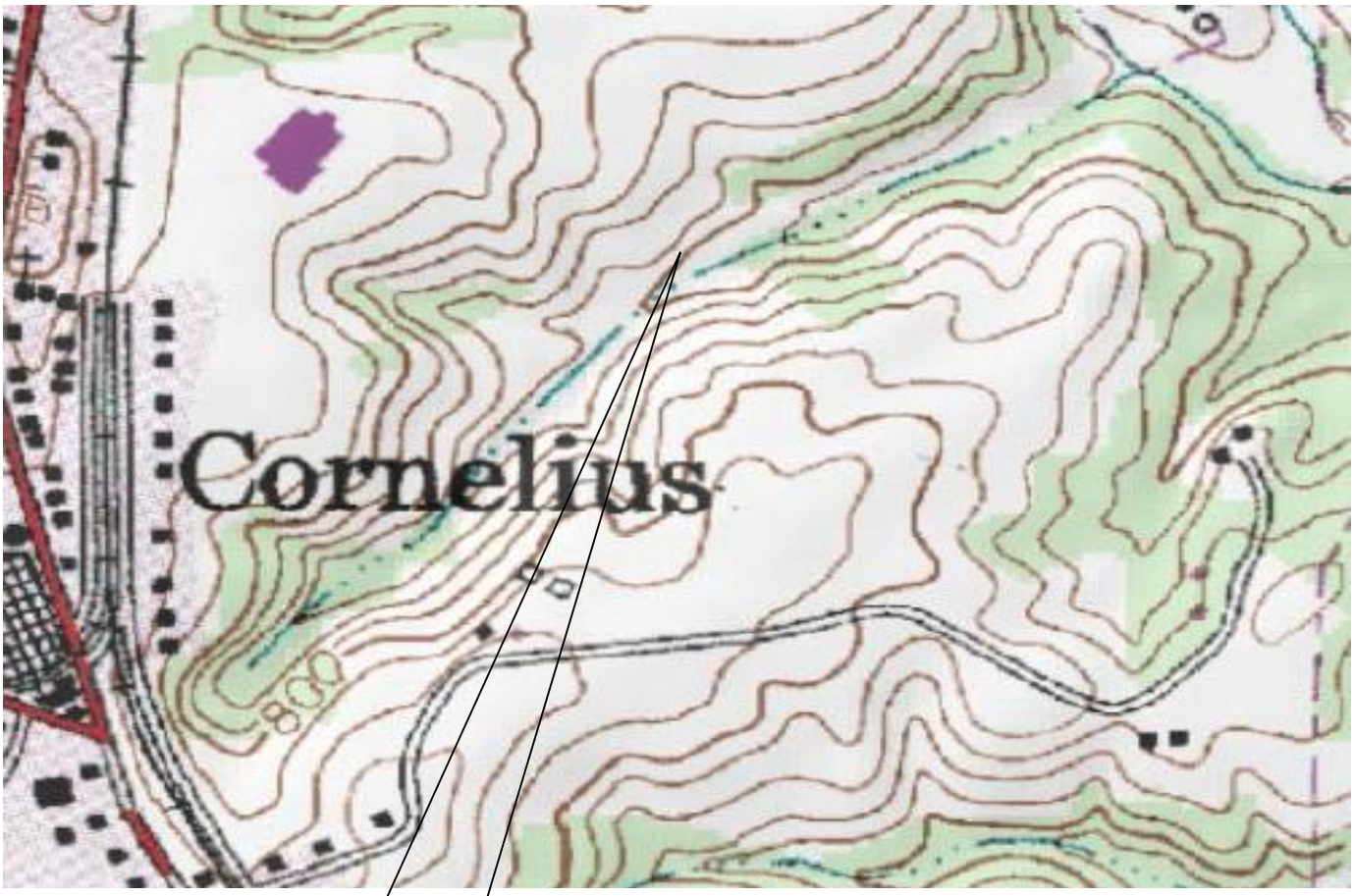
This report and the attached logs are instruments of service. If certain conditions or items are noted during our investigation, GTA Associates, Inc. may be required by prevailing statutes to notify and provide information to regulatory or enforcement agencies. GTA Associates, Inc. will notify our Client should a required disclosure condition exist.

This report was prepared by GTA Associates, Inc. (GTA) for the sole and exclusive use of GTA Associates, Inc., Dewberry and the Town of Cornelius. Use and reproduction of this report by any other person without the expressed written permission of GTA, Dewberry and the Town of Cornelius is unauthorized and such use is at the sole risk of the user.

35151653 **GTA ASSOCIATES, INC.**

APPENDIX A

FIGURES



Base map obtained from Polaris 3G
Cornelius, North Carolina
2015

GTA ASSOCIATES, INC.
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710 Peninsula Lane, Suite B
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Ph. (704) 553-2300
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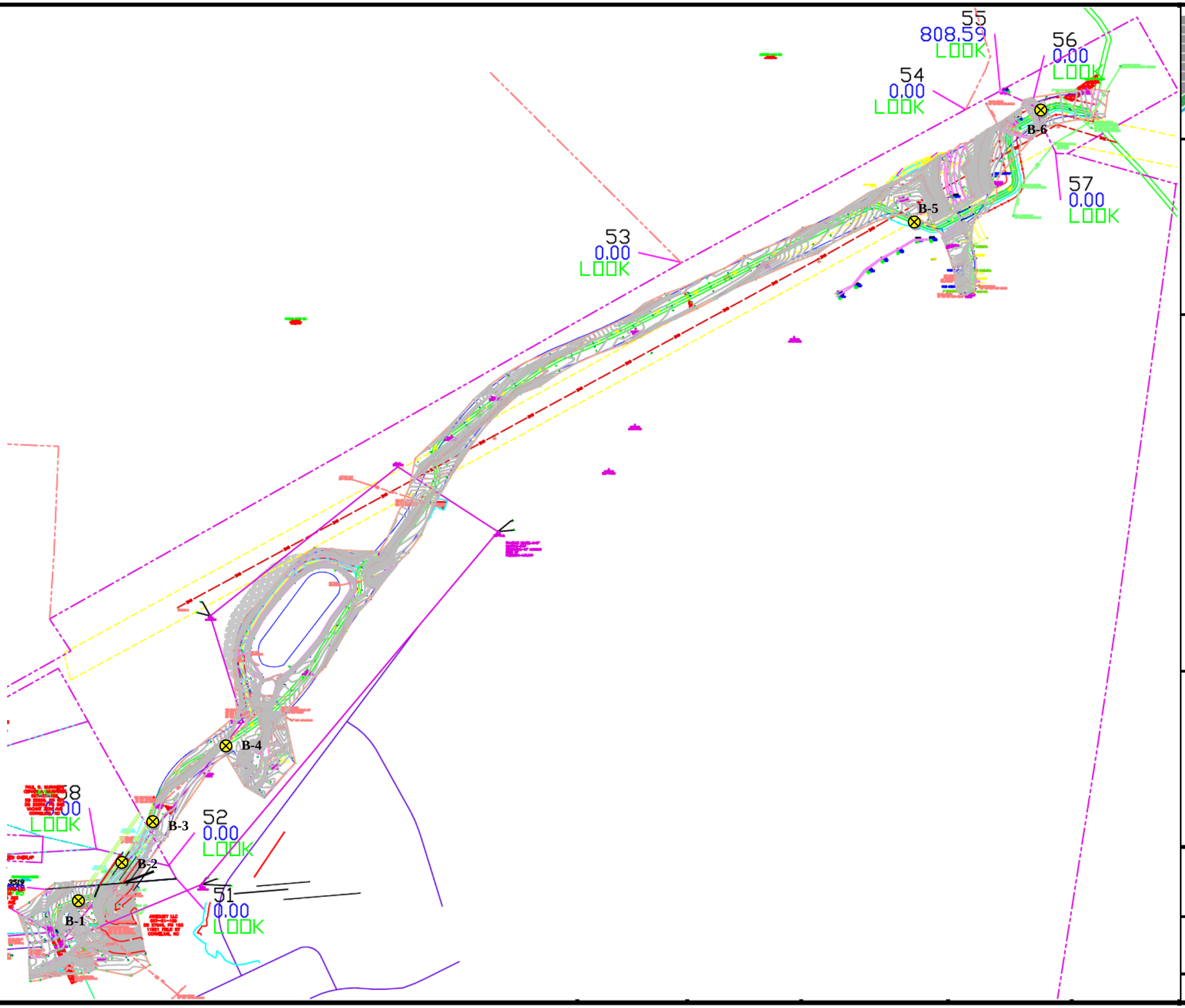
ANTIQUITY GREENWAY

SITE LOCATION PLAN

CORNELIUS, NORTH CAROLINA

JOB NO:	DATE:	SCALE:	DRAWN BY:	REVIEWED BY:	FIGURE NO:
35151653	SEPTMEBER 2015	NTS	GTA	JPW	**1**



GTA
ASSOCIATES

710 PENINSULA
LANE, SUITE B

CHARLOTTE,
N.C.28273
(704) 553-2300 O
(704) 553-2400 F

EXPLORATION
LOCATION
PLAN

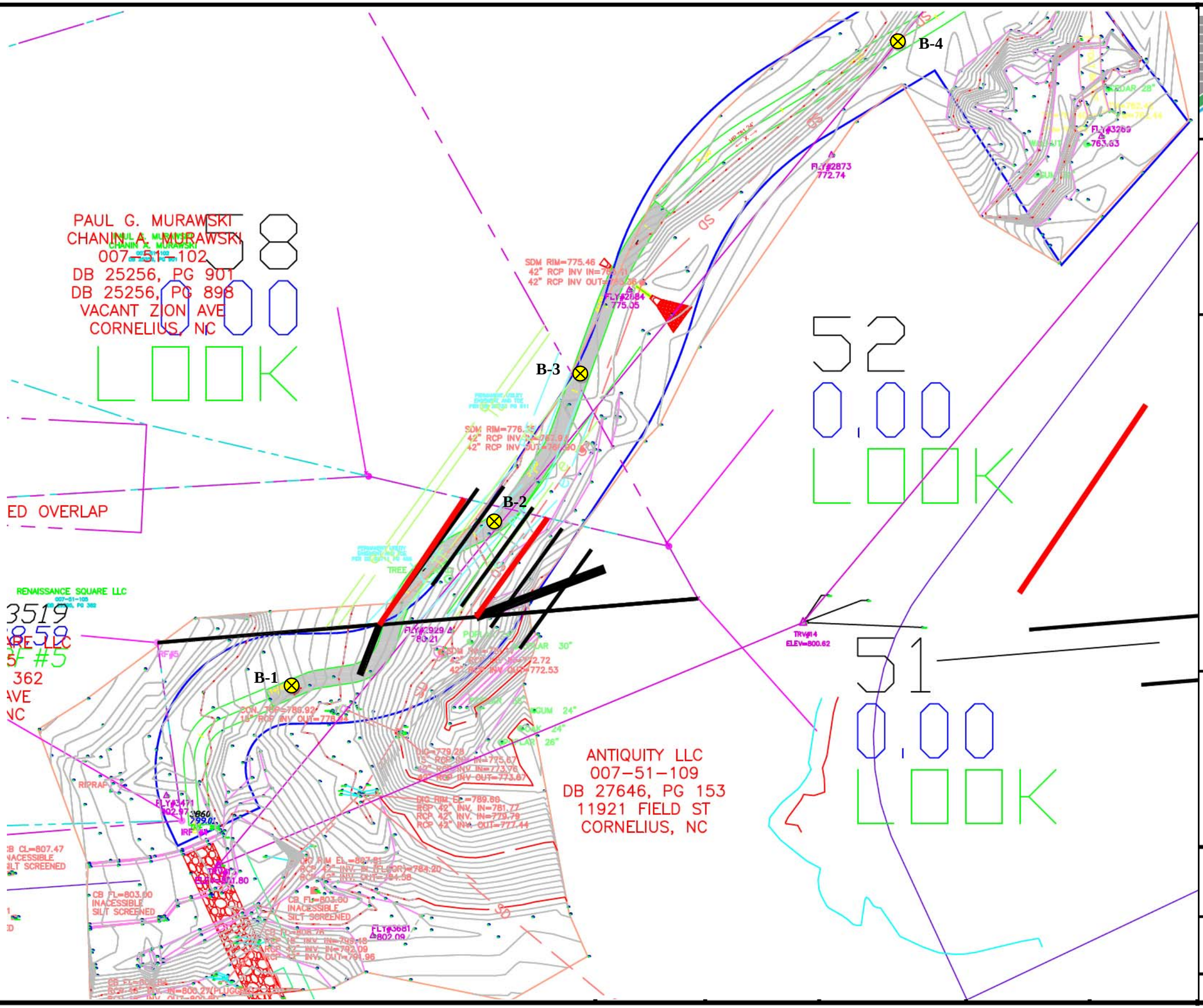
ANTIQUITY
GREENWAY
DAVIDSON,
N.C.

DATE:

SEPT. 2015

FIGURE NO.

2



GTA
ASSOCIATES

710 PENINSULA
LANE, SUITE B

CHARLOTTE,
N.C.28273
(704) 553-2300 O
(704) 553-2400 F

EXPLORATION
LOCATION
PLAN

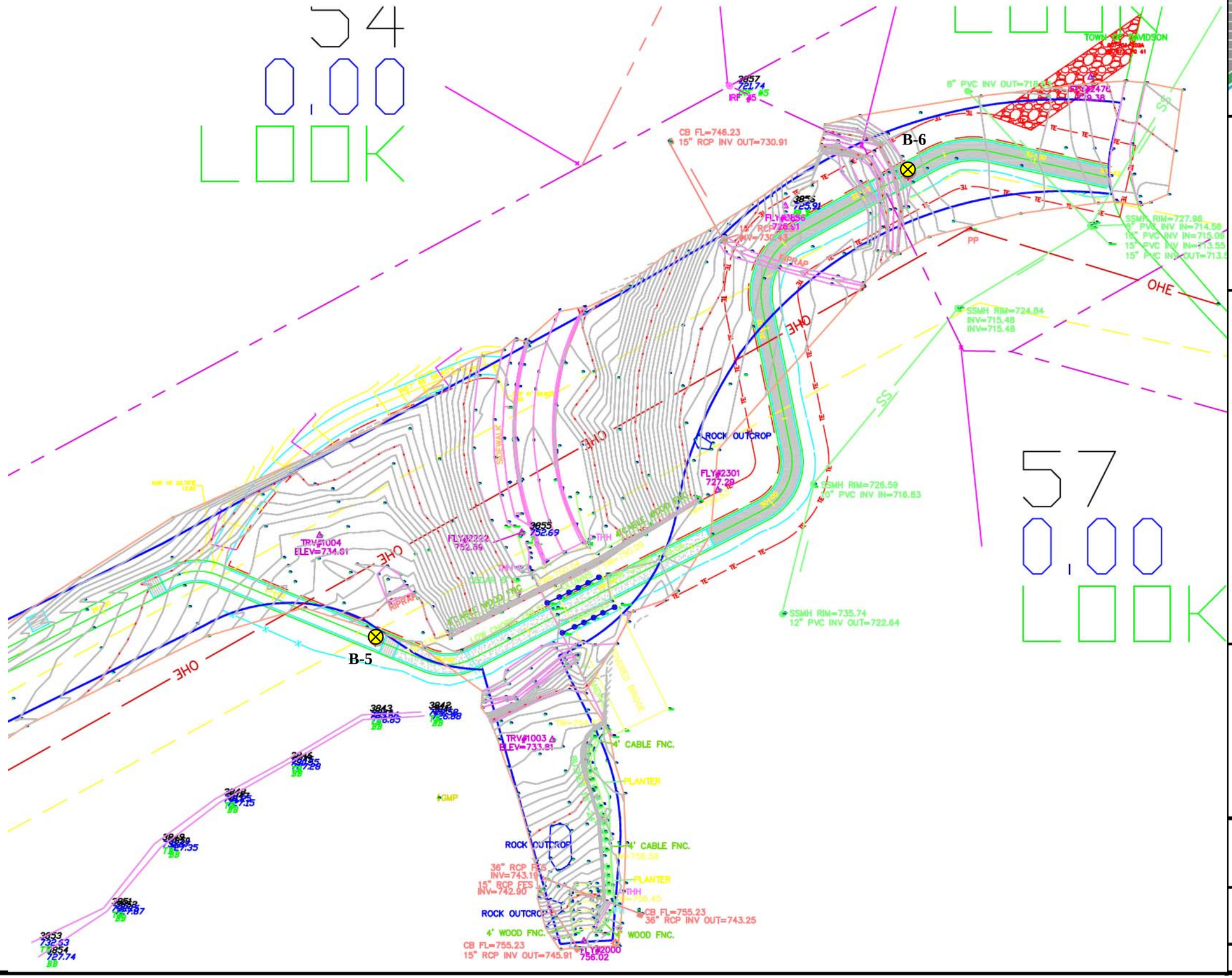
ANTIQUITY
GREENWAY
DAVIDSON,
N.C.

DATE:

SEPT. 2015

FIGURE NO.

3



GTA ASSOCIATES

710 PENINSULA LANE, SUITE B

CHARLOTTE, N.C.28273
(704) 553-2300 O
(704) 553-2400 F

EXPLORATION LOCATION PLAN

ANTIQUITY GREENWAY DAVIDSON, N.C.

DATE:

SEPT. 2015

FIGURE NO.

4

APPENDIX B

SOIL SAMPLE LOGS

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)				SYMBOLS GRAPHIC	SYMBOLS LETTER
COARSE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 15% PASSING THE NO. 200 SIEVE)			GW
					GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)			GM
					GC
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 15% PASSING THE NO. 200 SIEVE)			SW
					SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)			SM
					SC
FINE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT OR CLAY (<15% RETAINED ON THE NO. 200 SIEVE) SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED ON THE NO. 200 SIEVE) SANDY OR GRAVELLY SILT OR CLAY (>30% RETAINED ON THE NO. 200 SIEVE)	SILTS AND LEAN CLAYS LIQUID LIMIT LESS THAN 50			ML
					CL
					OL
		ELASTIC SILTS AND FAT CLAYS LIQUID LIMIT GREATER THAN 50			MH
					CH
					OH
HIGHLY ORGANIC SOILS					PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS WHICH CONTAIN AN ESTIMATED 5 TO 15% FINES BASED ON VISUAL CLASSIFICATION OR BETWEEN 5 AND 12% FINES BASED ON LABORATORY TESTING; AND FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSS-HATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC (OL OR OH) WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D 2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

	DESCRIPTION		GRAPHIC SYMBOLS
ADDITIONAL DESIGNATIONS	TOPSOIL		
	MAN MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATIONS	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" OF PENETRATION OR LESS, AUGER PENETRABLE	

COARSE-GRAINED SOILS
(GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D 1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SOIL SAMPLE	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	▽
UPON COMPLETION OF DRILLING	▼
24 HOURS AFTER COMPLETION	▼

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

REVISED JUNE 2009

LOG OF BORING NO. B-1

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **Dry**
DATE: **9-4-2015**
CAVED (ft): **17.9**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft) **Dry**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (2")	
SS-1	1.0	10	5-3-4	7			FILL		Brown, Red, Gray, Olive, Moist to Wet, Medium Stiff to Soft Micaceous Sandy SILT	
SS-2	3.5	18	4-4-4	8		4				
SS-3	6.0	8	3-2-3	5						
						8				
SS-4	8.5	18	0-1-1	2						
						12				
SS-5	13.5	2	2-2-2	4						Asphalt Observed in Sample
						16				
SS-6	18.5	18	1-2-2	4			FILL		Brown, Red, Gray, Wet, Soft Micaceous Silty Sandy Lean CLAY	
						20			Boring Terminated @ 20.0 Feet.	
						24				

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
710 Peninsula Lane, Suite B
Charlotte, NC 28273

LOG OF BORING NO. B-1

LOG OF BORING NO. B-2

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **Dry**
DATE: **9-4-2015**
CAVED (ft): **5.0**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft): **Dry**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (2")	
SS-1	1.0	18	5-5-7	12			CL		Tan, Orange, Gray, Stiff Silty Fine-Medium Sandy Lean CLAY	
SS-2	3.5	18	4-7-8	15		4				
SS-3	6.0	18	5-4-5	9						
						8				
SS-4	8.5	18	4-5-6	11						
									Boring Terminated @ 10 Feet.	
						12				
						16				
						20				
						24				

NOTES:

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LOG OF BORING NO. B-2

LOG OF BORING NO. B-3

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **Dry**
DATE: **9-4-2015**
CAVED (ft): **5.5**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft) **Dry**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (4")	
SS-1	1.0	18	3-4-10	14			FILL		Brown, Red, Wet, Stiff Micaceous Silty Fine-Medium Sandy Lean CLAY	
SS-2	3.5	18	2-3-3	6		4	ML		Brown, Orange, White, Wet, Medium Stiff, Micaceous Fine-Medium Sandy SILT	
SS-3	6.0	18	3-3-3	6		8				
SS-4	8.5	18	3-3-4	7						
									Boring Terminated @ 10.0 Feet.	
						12				
						16				
						20				
						24				

NOTES:

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LOG OF BORING NO. B-3

LOG OF BORING NO. B-4

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **Dry**
DATE: **9-4-2015**
CAVED (ft): **5.0**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft) **Dry**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (3")	
SS-1	1.0	12	5-7-8	15			FILL		Tan, Orange, Stiff Micaceous Sandy Lean CLAY	
						4				
SS-2	3.5	18	5-6-7	13						
							FILL		Gray, Tan, Wet, Medium Stiff Silty Fine-Medium Sandy Lean CLAY	
SS-3	6.0	18	5-4-3	7		8				
							ML		Tan, Orange, White, Wet, Medium Stiff Micaceous Fine-Medium Sandy SILT	
SS-4	8.5	18	5-3-4	7					Boring Terminated @ 10.0 Feet.	
						12				
						16				
						20				
						24				

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
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Charlotte, NC 28273

LOG OF BORING NO. B-4

LOG OF BORING NO. B-5

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **4.3**
DATE: **9-4-2015**
CAVED (ft): **6.7**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft) **4.3**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (4")	
SS-1	1.0	18	2-2-2	4			FILL		Tan, Orange, Gray, Moist, Very Loose Micaceous Silty SAND	
SS-2	3.5	18	0-1-1	2		4			Gray, Orange, Soft Fine-Coarse Sandy CLAY (Alluvial)	▽
SS-3	6.0	10	2-2-1	3						
						8				
SS-4	8.5	12	5-7-8	15			SM		Gray, Olive, White, Moist, Medium Dense Micaceous Silty Fine-Medium SAND	
									Boring Terminated @ 10.0 Feet.	
						12				
						16				
						20				
						24				

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
710 Peninsula Lane, Suite B
Charlotte, NC 28273

LOG OF BORING NO. B-5

LOG OF BORING NO. B-6

PROJECT: **Anitquity Greenway**
PROJECT NO.: **35151653**
PROJECT LOCATION: **Cornelius, North Carolina**

WATER LEVEL (ft): **9.4**
DATE: **9-4-2015**
CAVED (ft): **11.2**

DATE STARTED: **9-4-2015**
DATE COMPLETED: **9-4-2015**
DRILLING CONTRACTOR: **HPC Land Services**
DRILLER: **ER**
DRILLING METHOD: **SPT**
SAMPLING METHOD: **HSA**

WATER ENCOUNTERED DURING DRILLING (ft) **9.4**
GROUND SURFACE ELEVATION: **N/A**
DATUM: **N/A**
EQUIPMENT: **D50-T**
LOGGED BY: **ROC**
CHECKED BY: **JPW**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
							TS		Topsoil (1")	
SS-1	1.0	18	2-3-2	5			FILL		Brown, Red, Gray, Moist, Medium Stiff Micaceous Sandy Clayey SILT	
SS-2	3.5	18	1-3-2	5		4	FILL		Brown, Wet, Loose Silty Fine-Coarse SAND	
SS-3	6.0	18	0-1-1	2					Gray, Olive, White Wet, Very Loose Micaceous Silty Clayey Fine-Medium SAND (Alluvial)	
						8				
SS-4	8.5	18	1-2-2	4						▼
						12				
SS-5	13.5	12	20-20-20	40			SM		Gray, Moist, Dense Silty Fine-Medium SAND	
									Boring Terminated @ 15.0 Feet.	
						16				
						20				
						24				

NOTES:

GEO-TECHNOLOGY ASSOCIATES, INC.
710 Peninsula Lane, Suite B
Charlotte, NC 28273

LOG OF BORING NO. B-6

APPENDIX C
PHOTOGRAPHS

Town of Cornelius
Re: ***Antiquity Greenway***
Date of Photographs: August 28, 2015

Photograph 1: Picture of start of proposed greenway trail from Zion Avenue facing towards B-1.

Photograph 2: Picture of start of proposed greenway trail from Zion Avenue facing towards B-1.

Photograph 3: Picture of start of proposed greenway trail from Zion Avenue facing towards B-1.

Photograph 4: Picture of start of proposed greenway trail from Zion Avenue facing towards B-1.

Photograph 5: Picture of proposed greenway trail from South Street facing southwest towards B-5.

Photograph 6: Picture of proposed greenway trail from South Street facing northeast towards B-6.

December 15, 2017

Consulting Engineers

GEOSCIENCE GROUP

Town of Cornelius
214456 Catawba Avenue
Cornelius, North Carolina 28031

Attention: Mr. Troy Fitzsimmons
Director, Cornelius PARC Department

Reference: Results of Soil Test Borings and Environmental Sampling
Antiquity Greenway – Elevated Boardwalk
Cornelius, North Carolina
Geoscience Project No. CH17.0175.GE

Geoscience Group, Inc. (Geoscience) has completed the requested soil test borings and environmental sampling for the referenced project. The purpose of this work was to determine the general subsurface conditions along the western portion of the Greenway alignment where an elevated boardwalk will be constructed. This report presents our findings along with our geotechnical recommendations for foundation support of the elevated boardwalk.

PROJECT DESCRIPTION

The South Prong Rocky River/Antiquity Greenway project will involve the construction of approximately 2,800 linear feet of an asphalt paved walkway between Zion Avenue and South Street in Cornelius, North Carolina. Our geotechnical and environmental testing services focused on the elevated boardwalk between station 0+82 and station 4+50. The boardwalk will be elevated up 17 feet above the underlying ground surface elevation. In accordance with the November 29, 2016, *South Prong Rocky River/Antiquity Greenway Construction Documents* prepared by Dewberry Engineers, Inc., micropiles have currently been selected as the foundation support system for the elevated boardwalk. The micropiles will need to be designed in accordance with the AASHTO LRFD bridge design specifications and the LRFD guide specification for the design of pedestrian bridges to resist vertical and lateral service loads of 21.1 kips and 1.3 kips, respectively.

The elevated boardwalk between approximate station 2+25 and station 2+95 is situated in a property that is in the N.C. Brownfields Program (Methods Cleaners, Brownfields Site No. 18023-14-060). The soils on portions of the Methods Cleaners property have been impacted with 4-Isopropyltoluene; 1,2,4 Trimethylbenzene; TPH-GRO; TPH-DRO; and tetrachloroethylene (PCE). Although the soils in the proposed elevated boardwalk work area are not known to be contaminated, previous environmental sampling has determined that groundwater beneath the elevated boardwalk work area is impacted with PCE. The development of this part of the project will need to be completed under the terms of the approved *Brownfields Environmental Management Plan* (EMP) dated October 26, 2017 prepared by Geoscience.

SCOPE OF INVESTIGATION

Geotechnical Field Exploration: The subsurface exploration included the execution of nine (9) soil test borings (B-1 through B-9) at the approximate locations shown on the *Boring Location Diagram*, Drawing No. CH17.0175.GE-1, included in the Appendix. The boring locations were established in the field by an engineer from Geoscience using a hand-held GPS unit, the above referenced construction documents and the existing site features as reference. The soil test borings were performed with an ATV mounted CME-550X drill using continuous-flight, hollow stem augers to advance the borings into partially weathered rock (PWR) or to auger refusal. The overall boring depths ranged from approximately 20¼ to 55 feet below the ground surface. Drilling fluid was not used in this process.

Standard Penetration Tests were performed in the soil test borings at designated intervals in general accordance with ASTM D 1586-84. The Standard Penetration Test is used to provide an index for estimating soil strength and density. In conjunction with the penetration testing, split-barrel soil samples were recovered for soil classification and potential laboratory testing. A brief description of the geotechnical field testing procedures and copies of the Test Boring Records are included in the Appendix. Elevations referenced in this report were interpolated from the above referenced construction documents and should be considered approximate.

Environmental Sampling: On November 20, 2017, Geoscience personnel mobilized to the site to screen the cuttings from the nine (9) geotechnical borings (B-1 through B-9). In accordance the approved EMP for the Methods Cleaners Brownfields Site, the cuttings from the borings had been placed in 55-gallon steel drums pending characterization sampling. With the exception of borings B-4 and B-9, one (1) drum of cuttings was present beside each boring. Two (2) drums were located beside Boring B-4, and no drum was present beside boring B-9. It should be noted that groundwater was not encountered at boring B-9.

The soils in each drum were screened for volatile organic compounds (VOCs) using a RAE Systems ppbRAE-3000 photoionization detector (PID). The PID readings were obtained with the meter configured to read both PCE and trichloroethylene (TCE) concentrations. After screening, one (1) soil sample was retrieved from each drum. These collected soil samples (B-1 through B-4, B-4A, and B-5 through B-8) were placed in laboratory-provided containers, packed on ice, and transported in a cooler under appropriate chain-of-custody procedures to Prism Laboratories, Inc. (Prism) of Charlotte, North Carolina for chemical analysis. Each soil sample was analyzed for VOCs by Method 8260. In addition, the soil sample retrieved from drum B-5 (the boring located on the Methods Cleaners Brownfields Site) was analyzed for VOCs using the Toxicity Characteristic Leaching Procedure (TCLP).

GEOTECHNICAL SUBSURFACE FINDINGS

The subsurface conditions at the project site, as indicated by the soil test borings, generally consist of a residual soil profile that has formed from the in-place weathering of the underlying parent bedrock. However, existing fill was encountered in seven (7) of the soil test borings to depths ranging between approximately 3 and 21 feet below the ground surface. The generalized

subsurface conditions are described below and illustrated on the *Generalized Subsurface Profile*, Drawing No. CH17.0175.GE-2, included in the Appendix. For soil descriptions and general stratification at a particular boring location, the respective Test Boring Record should be reviewed. Please note that the stratification lines designating the interface between various layers represent approximate boundaries. The actual transition between different strata across the site will vary in both the horizontal and vertical directions.

Groundcover: Beginning at the ground surface in the majority of the soil test borings, a surface layer of topsoil and roots was encountered to depths ranging from approximately ¼ to ½ foot. Deeper topsoil deposits are anticipated in the more heavily vegetated and wooded areas of the site. Also, it should be noted that the root systems of large trees can be quite extensive and normally extend 2 to 3 feet below the ground surface.

Existing Fill: Existing fill was encountered in soil test borings B-1, B-2, B-3, B-5, B-6, B-7 and B-8, to depths ranging from approximately 3 to 21 feet below the ground surface. However, it should be noted that existing fill could extend to a greater depth at test location B-1 since this boring encountered auger refusal before penetrating the existing fill. The deeper existing fill encountered in soil test borings B-1 and B-2 appears to be associated with earthwork operations pertaining to the realignment of Zion Avenue and the installation of an erosion control pond between Zion Avenue and Old Canal Street circa 2009/2010. The shallower existing fill encountered in borings B-3, B-5, B-6, B-7 and B-8 appears to be associated with the installation of the below grade storm water conduit. The fill materials generally consist of very silty CLAY, very clayey SILT, clayey SILT and sandy SILT soils with varying amounts of rock fragments, concrete pieces and/or trace organics. The Standard Penetration Test results within the existing fill were erratic and ranged from 3 to 12 Blows Per Foot (BPF).

Residual Soils: Residual soils are present beneath the groundcover and/or existing fill in all the soil test borings performed for this phase of the project with exception to boring B-1. As noted above, soil test boring B-1 encountered auger refusal within existing fill at a depth of approximately 21 feet below the ground surface. When sampled, the residual soils generally consisted of near-surface very silty CLAY, sandy CLAY and very clayey SILT soils that transitioned into clayey SILT, sandy SILT and silty SAND soils with increasing depth below the ground surface. These residual CLAY, SILT and SAND soils, where present, extend to depths ranging from approximately 17 to 47 feet below the ground surface. The Standard Penetration Test results exhibited by these residual soils range from 3 to 78 BPF.

Partially Weathered Rock: Partially weathered rock was initially encountered in soil test borings B-2 through B-7 and B-9 at depths ranging from approximately 17 to 47 feet below the ground surface. These depths to partially weathered rock correspond to elevations ranging from approximately 739 to 758 feet (MSL). For engineering purposes, partially weathered rock is considered any dense residual soil exhibiting a Standard Penetration resistance value in excess of 100 BPF. When sampled, the partially weathered rock generally consists of a silty SAND.

Auger Refusal: Auger refusal was encountered within existing fill at a depth of approximately 21 feet below the ground surface. Generally, auger refusal indicates the presence of dense pockets of debris within existing fill or a buried obstruction.

Auger refusal was encountered within residual soils in soil test borings B-5, B-7, B-8 and B-9 at depths ranging from approximately 20¼ to 32½ feet below the ground surface. These depths to auger refusal correspond to elevations ranging from approximately 741½ to 754¾ feet (MSL). Generally, auger refusal within residual soils is encountered at bedrock or on top boulders.

Groundwater Observations: Groundwater measurements were attempted at each of the soil test borings performed for this project. Groundwater levels were recorded within the existing fill in soil test borings B-1 and B-2 at the respective depths of 16½ and 16 feet below the ground surface. These groundwater levels appear to have been influenced by trapped water within the existing fill soils that infiltrated the open auger hole during the drilling activities.

Groundwater was also observed in soil test borings B-3, B-4, B-5, B-6, B-7 and B-8 at depths ranging from approximately 5½ to 18⅓ feet below the ground surface. These depths to groundwater correspond to elevations ranging from 760¾ to 768½ feet (MSL). It should be noted that the observed groundwater levels can fluctuate several feet through climatic and seasonal variations.

ENVIRONMENTAL SAMPLING RESULTS

The field screening PID readings are summarized on Table CH17.0175.GE-1: Summary Of Soil Sampling Results, included in the Appendix. As shown, PCE reading ranged from 0 to 573 parts per billion (ppb), while TCE readings ranged from 0 to 554 ppb. It should be noted that although the meter was configured to read concentrations of PCE and TCE, the meter is not specific to those compounds and the presence of other VOCs in the samples will influence the levels recorded in the field.

The results of the laboratory chemical analyses, included in the Appendix of this report, confirmed the presence of VOCs in the cuttings that were detected by the PID meter. As shown on Table CH17.0175.GE-3, PCE was detected in the samples from borings B-1, B-7, and B-8. In addition, low concentrations of petroleum constituents were detected in the samples from borings B-4 and B-8, and trichlorofluoromethane was detected in the sample from B-3. Acetone was detected at very low levels in every sample except B-7. It should be noted that acetone is used by the testing laboratory and it is not uncommon for the prescence of acetone to be a false positive. However, the quality control checks run by the laboratory as part of these analyses do not suggest issues with the acetone results.

CONCLUSIONS AND RECOMMENDATIONS

The soil test borings performed at this site represent the subsurface conditions at the location of the borings only. Due to the prevailing geology and the presence of existing fill, there can be changes in the subsurface conditions over relatively short distances that have not been disclosed by the results of the borings performed.

FOUNDATION SUPPORT

As noted earlier in this report, micropiles are currently selected as the foundation support system for the elevated boardwalk. However, because of the high groundwater readings, variability in the depth to partially weathered rock and rock, and the potential impact of environmental issues, driven timber piles may be a more economically suitable foundation system. We are presenting geotechnical recommendations for both micropiles and driven timber piles; the actual foundation system chosen for this project should be based on its relative merits and economics.

Micropiles: Micropiles are drilled deep foundation elements comprised of high-strength steel casing, rebar and grout. The design (number and spacing) of the micropiles should be done by a qualified foundation contractor who has experience with these types of foundations. However, based on the results of the soil test borings, it appears that the compressive service load of 21.2 kips could be carried by extending the bonded zone of the micropile into dense to very dense residual SAND soils, partially weathered rock or bedrock. The following table (Table CH17.0175.GE-2) presents the anticipated micropile length at each soil test boring location.

Table CH17.0175.GE-2

Soil Test Boring	Anticipated Micropile Length*
B-1	>21 feet
B-2	32
B-3	37
B-4	30
B-5	25
B-6	25
B-7	20
B-8	25
B-9	20

*Anticipated micropile length is from current ground surface elevation

As noted earlier in this report, soil test boring B-1 encountered auger refusal before penetrating existing fill materials present in the western portion of the elevated boardwalk. Therefore, offset soil test borings should be performed adjacent to boring B-1 to determine the anticipated micropile lengths in this area of the elevated boardwalk.

Based on preliminary LPILE analyses, it is anticipated that properly designed and installed vertical micropiles can carry the service lateral load of 1.3 kips and maintain lateral tip deflections below ¼ inch. Geoscience can perform detailed LPILE analyses to determine lateral deflections of vertical micropiles once the size and type of micropile have been selected. Micropiles could also be installed at a batter or concrete pile caps designed to carry the lateral loads.

Driven Timber Piles: Driven timber piles could be used to support the elevated walkway. Based on the results of the soil test borings, it appears that the compressive service load of 21.2 kips could be achieved by driving 8-inch diameter timber piles into the dense to very dense SAND soils or partially weathered rock. The following table (Table CH17.0175.GE-3) presents the anticipated driven timber pile length at each soil test boring location.

Table CH17.0175.GE-3

Soil Test Boring	Anticipated Timber Pile Length*
B-1	>21 feet
B-2	30
B-3	25
B-4	25
B-5	25
B-6	22
B-7	17
B-8	25
B-9	17

*Anticipated timber pile length is from current ground surface elevation

Based on preliminary LPILE analyses, it is anticipated that a vertical 8-inch timber pile driven to capacity can carry the service lateral load of 1.3 kips and maintain a tip deflection below ¼ inch. Detailed LPILE analyses can be performed and provided to the project team if driven timber piles are selected as the foundation support system. Timber piles could also be installed at a batter or concrete pile caps designed to carry the lateral loads.

As noted in the table above, additional soil test borings should be performed in the area of boring B-1 to determine the anticipated pile length in the westernmost portion of the elevation walkway. In addition, due to the apparent presence of debris within the existing fill, the foundation contractor must be prepared to pre-drill the piles through the fill materials and then drive the piles to capacity within the residual soils.

A geotechnical engineer should observe the installation of the driven pile foundations. The geotechnical engineer or his authorized representative should keep accurate records of the pile installation and driving records. These records should reflect the pile driving resistances and depths to which the piles were driven. In addition, it should be verified that the pile driving equipment is in proper operating condition and that the piles are free of any visual defects prior to and during installation.

DISPOSAL OF CUTTINGS

The PCE in the groundwater beneath the project area is considered to be a "Listed Waste". Therefore, in accordance with State guidelines, the results of the auger cuttings sample analyses were compared to the "levels for disposal in a municipal solid waste landfill" listed in the "Contained-in" Policy for Soil Contaminated with Listed Hazardous Waste dated June

28, 2016 published by the North Carolina Department of Environmental Quality Division of Waste Management Hazardous Waste Section. The compounds detected in the soil samples are all well below their respective "Contained-in" levels. As such, the drummed cuttings are suitable for disposal in a Subtitle D lined municipal solid waste landfill as a non-hazardous waste. Geoscience is in the process of arranging for the removal and proper disposal of the drums.

Given the presence of the contaminants detected in the cuttings from the geotechnical borings, Geoscience recommends that any cuttings generated during the installation of the proposed walkway foundation system be handled in a manner consistent with the approved EMP for the Methods Cleaners Brownfields Site. Specifically, cuttings should be either drummed or placed in appropriately lined roll-off boxes pending the results of characterization sampling. Disposal of the resulting soils will be dependent upon the results of the characterization sample results. However, based on the sample results from the recently completed geotechnical borings, we anticipate that the cuttings will be classified as non-hazardous.

CLOSURE

Geoscience appreciates having had the opportunity to assist you during this phase of the project. If you have any questions concerning this report, please contact us.

Respectfully,
GEOSCIENCE GROUP, INC.

Thomas C. Hassett, P.E.
Senior Engineer
North Carolina License No. 035050

NORTH CAROLINA PROFESSIONAL SEAL 24977 ENGINEER DANIEL A. MICKNEY

Daniel A. Mickney, P.E.
Senior Vice President
North Carolina License No. 24977

Enclosures
P:\Workfiles\Geotech\2017\0175 Antiquity Greenway

APPENDIX

Boring Location Diagram

Generalized Subsurface Profile

Geotechnical Investigative Procedures

Test Boring Records

Table CH17.0175.GE-1: Summary Of Soil Sampling Results

Environmental Sampling Results

PROPOSED 10' CONCRETE GREENWAY

PROPOSED BARRIER SEAT WALL
SEE DETAIL

RENAISSANCE SQUARE LLC
00751105
DB: 29395 PG: 365
20042 ZION AV.

PAUL G MURAWSKI
00751102
DB: 25256 PG: 901
ZION AV.

LIMITS OF DISTURBANCE
(4.4 ACRES)

SILT FENCE (TYP)
SEE DETAIL SHEET C9.0

PROPOSED 10' ASPHALT GREEN
SEE DETAIL SHEET

10' ELEVATED BOARDWA

CONSTRUCTION ENTRANCE (TYP)
SEE DETAIL SHEET C9.0

SILT FENCE OUTLET
SEE DETAIL SHEET C9.2

APPROXIMATE LOCATION
OF 30' PCCO BUFFER

EXISTING TOP OF BANK

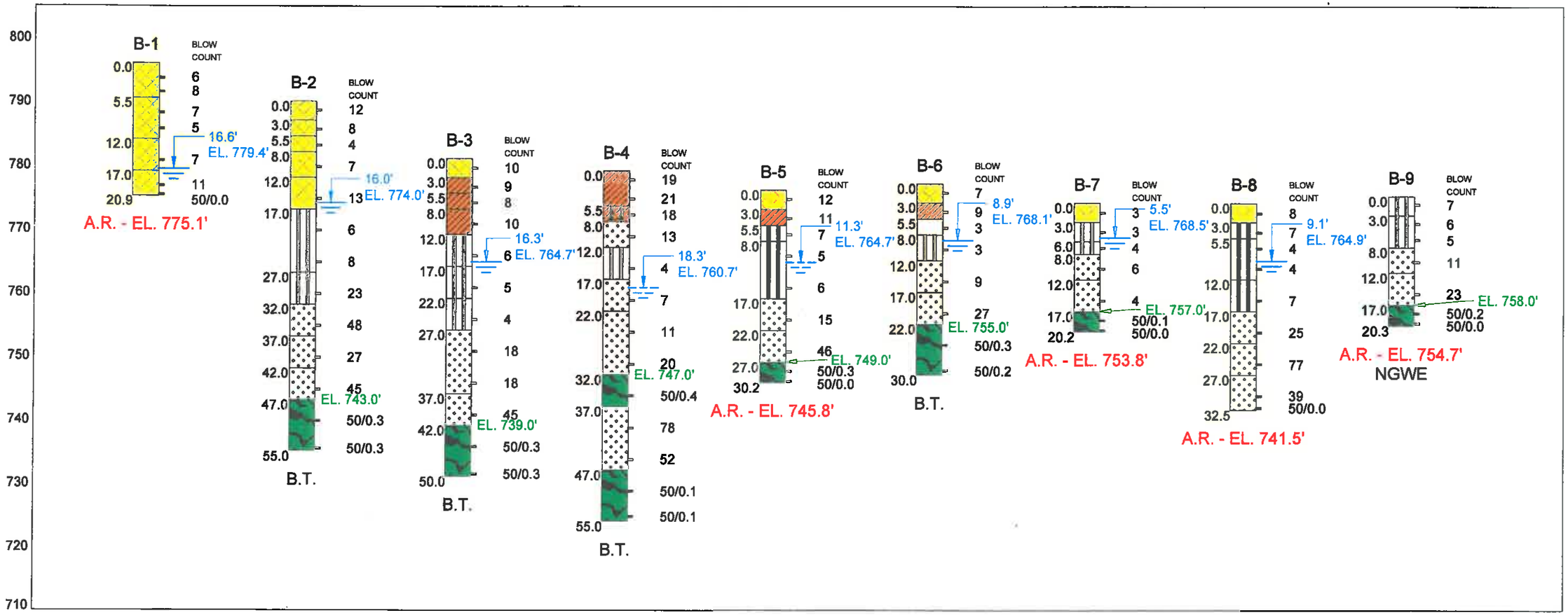
ANTIQUITY LLC
00751109
DB: 27646 PG: 153
11921 FIELD ST
CORNELIUS, NC

ANTIQUITY GREENWAY
CORNELIUS, NORTH CAROLINA
BORING LOCATION DIAGRAM
DRAWING NO. CH17.0175.GE-1
SCALE: 1" = 30'
APPROXIMATE BORING LOCATION

30 0 15 30 60
SCALE: 1" = 30'

GEOSCIENCE GROUP
Incorporated
500-K Clanton Road
Charlotte, NC 28217
Phone: 704.525.2003
Fax: 704.525.2051
www.geosciencegroup.com

ELEV.



LEGEND

- Topsoil And Roots
- Existing Fill
- Clayey SILT/Sandy SILT
- Silty SAND/Clayey SAND
- Weathered Rock
- Sandy CLAY/Very Silty CLAY
- Very Clayey SILT
- No Sample Recovery
- - Water Table - 1 HR.
- - Water Table - 24 HR.
- - Loss of Drilling Water
- - Cavein Depth
- B.T. - Boring Terminated
- A.R. - Auger Refusal
- C.T. - Coring Terminated
- NGWE - No Groundwater Encountered
- WOH - Weight Of Hammer

GEOSCIENCE GROUP INC.

DRAWN BY: RDB	APPROVED BY	VERTICAL: AS SHOWN
DATE: 11/28/17		HORIZONTAL: N.T.S.

ANTIQUITY GREENWAY

CORNELIUS, NORTH CAROLINA

GENERALIZED SUBSURFACE PROFILE

DRAWING NUMBER

CH17.0175.GE-2

FIELD

Soil Test Borings: Nine (9) soil test borings (B-1 through B-9) were drilled at the approximate locations shown on the attached *Boring Location Diagram*, Drawing No. CH17.0175.GE-1. Soil sampling and penetration testing were performed in accordance with ASTM D 1586-84.

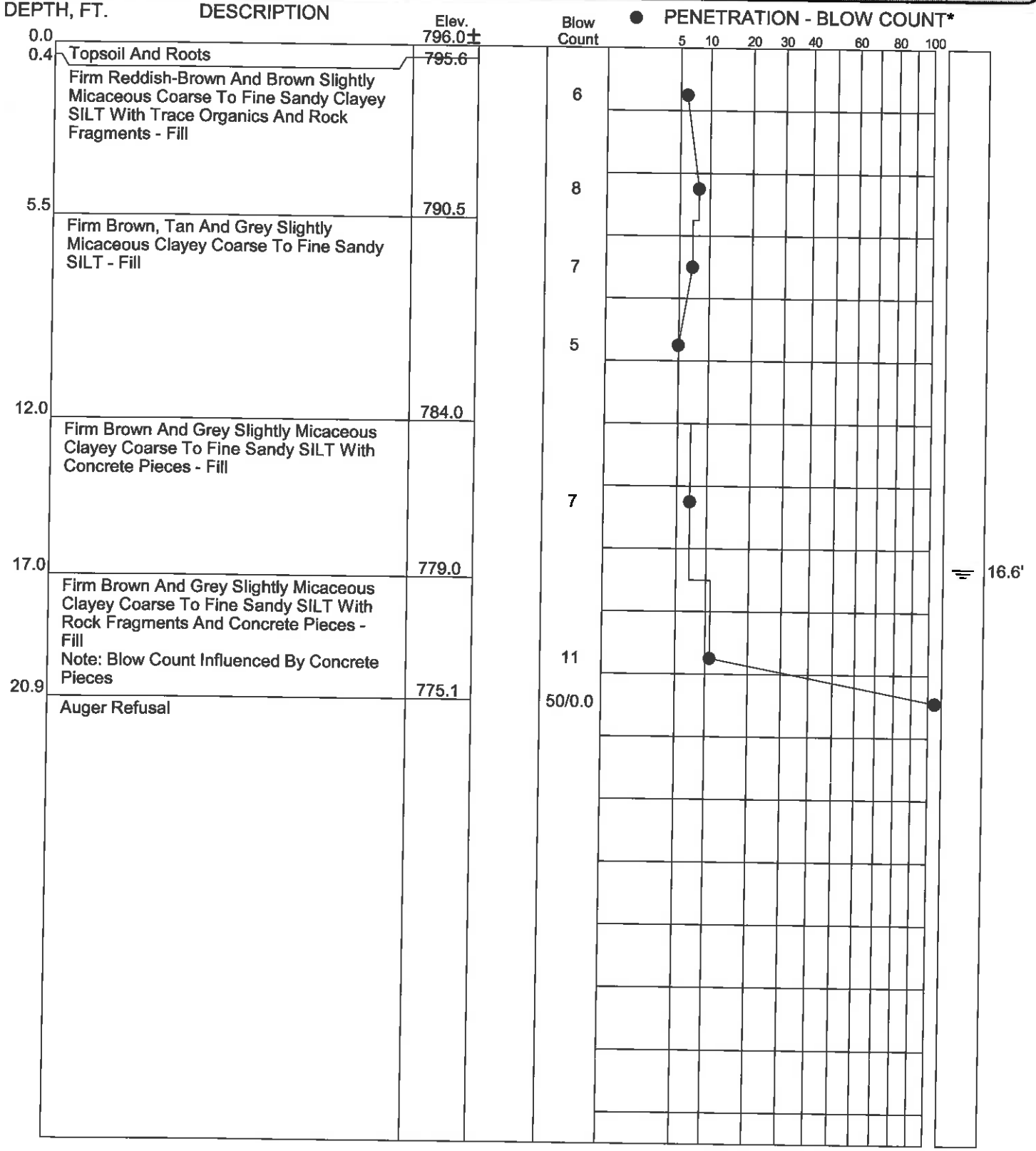
The borings were advanced with hollow-stem, continuous-flight augers and, at standard intervals, soil samples were obtained with a standard 1.4-inch (3.6cm) I.D., 2-inch (5.1cm) O.D., split-tube sampler. The sampler was first seated 6 inches (15.2cm) to penetrate any loose cuttings, then driven an additional 12 inches (30.5cm) with blows of a 140-pound (63.5kg) hammer falling 30 inches (76.2cm). The number of hammer blows required to drive the sampler the final 12 inches (30.5cm) was recorded and is designated the "Standard Penetration Resistance" (N-Value). The Standard Penetration Resistance, when properly evaluated, is an index to soil strength, density and ability to support foundations.

Representative portions of each soil sample were placed in glass jars and taken to our laboratory. The samples were then examined by an engineer to verify the driller's field classifications. Test Boring Records are attached indicating the soil descriptions and Standard Penetration Resistances.

BORING NO. B-1
DATE DRILLED. 11/13/17
DRILLING CONTRACTOR HPC
JOB NO. CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-2
DATE DRILLED 11/13/17
DRILLING CONTRACTOR HPC
JOB NO. CH17.0175.GE
PROJECT. ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION	Elev. 790.0±	Blow Count
0.0	Stiff Brown And Grey Slightly Micaceous Medium To Fine Sandy Very Clayey SILT With Trace Organics - Fill		12
3.0	Firm Brown And Grey Slightly Micaceous Coarse To Fine Sandy Clayey SILT - Fill	787.0	8
5.5	Soft Brown And Grey Slightly Micaceous Coarse To Fine Sandy Clayey SILT - Fill Note: Sample Moist	784.5	4
8.0	Firm Brown And Grey Slightly Micaceous Medium To Fine Sandy Very Clayey SILT - Fill Note: Sample Moist	782.0	7
12.0	Stiff Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy Very Clayey SILT With Rock Fragments - Fill	778.0	13
17.0	Firm Brown And Tan Slightly Micaceous Clayey Coarse To Fine Sandy SILT - Residual	773.0	6
27.0	Very Stiff Brown And Tan Slightly Micaceous Clayey Coarse To Fine Sandy SILT	763.0	8
32.0	Dense Brown And Grey Slightly Micaceous Silty Coarse To Fine SAND	758.0	23
37.0		753.0	48

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

▽ 16.0'

Continued Next Page

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

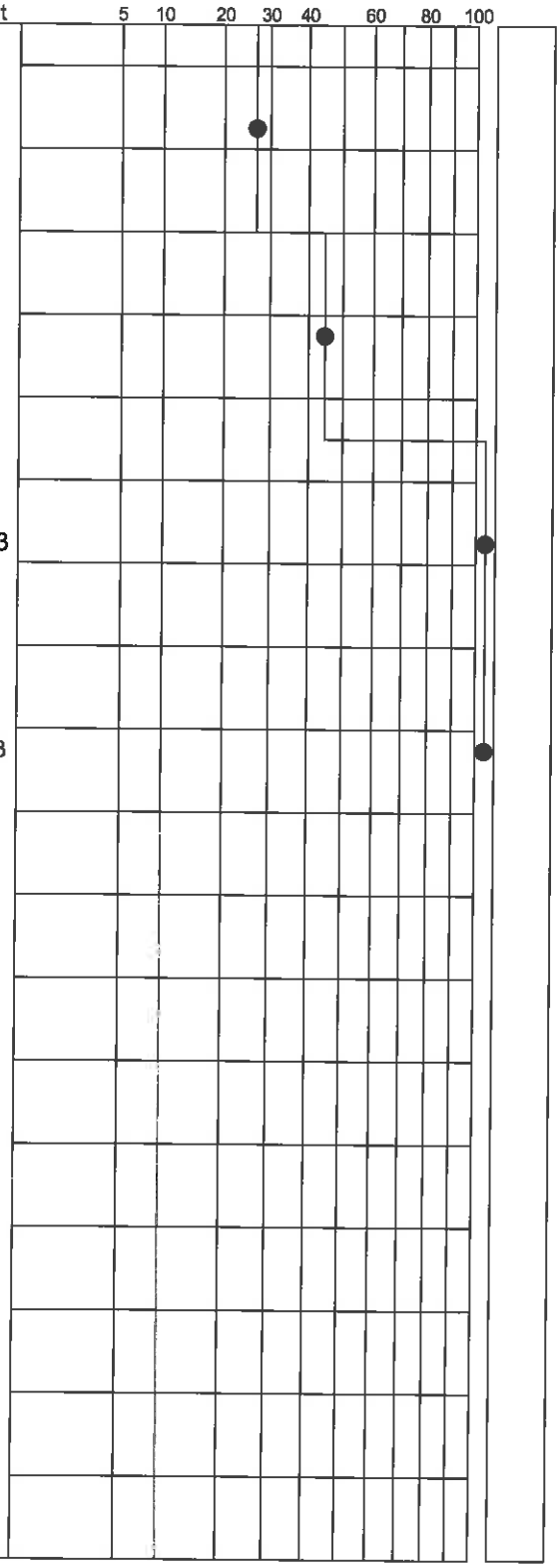
PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
▽ WATER TABLE - 24 HR.
▽ WATER TABLE - 1 HR.
▮ CAVE-IN DEPTH

BORING NO. B-2
DATE DRILLED 11/13/17
DRILLING CONTRACTOR. HPC
JOB NO. CH17.0175.GE
PROJECT. ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION (continued)	Elev. 753.0±	Blow Count	● PENETRATION - BLOW COUNT* 5 10 20 30 40 60 80 100
37.0	Very Firm Brown And Grey Slightly Micaceous Silty Coarse To Fine SAND		27	
42.0	Dense Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	748.0	45	
47.0	Partially Weathered Rock When Sampled Becomes Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	743.0	50/0.3	
55.0	Boring Terminated	735.0	50/0.3	



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-3
DATE DRILLED 11/16/17
DRILLING CONTRACTOR. HPC
JOB NO. CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION	Elev. 781.0±	Blow Count
0.0			
0.2	Topsoil And Roots	780.8	
3.0	Stiff Reddish-Brown And Brown Slightly Micaceous Medium To Fine Sandy Very Clayey SILT With Trace Organics - Fill Note: Sample Moist	778.0	10
5.5	Stiff Grey And White Coarse To Fine Sandy Very Silty CLAY - Residual	775.5	9
8.0	Firm Reddish-Brown And Brown Silty Coarse To Fine Sandy CLAY Note: Sample Moist	773.0	8
12.0	Stiff Reddish-Brown, Brown And Tan Coarse To Fine Sandy Very Silty CLAY Note: Sample Moist	769.0	10
17.0	Firm Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT Note: Sample Moist	764.0	6
22.0	Firm Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT	759.0	5
27.0	Soft Brown, Tan And Grey Slightly Micaceous Medium To Fine Sandy SILT	754.0	4
37.0	Firm Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	744.0	18 18

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

16.3'

Continued Next Page

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO: B-3
DATE DRILLED: 11/16/17
DRILLING CONTRACTOR: HPC
JOB NO: CH17.0175.GE
PROJECT: ANTIQUITY GREENWAY

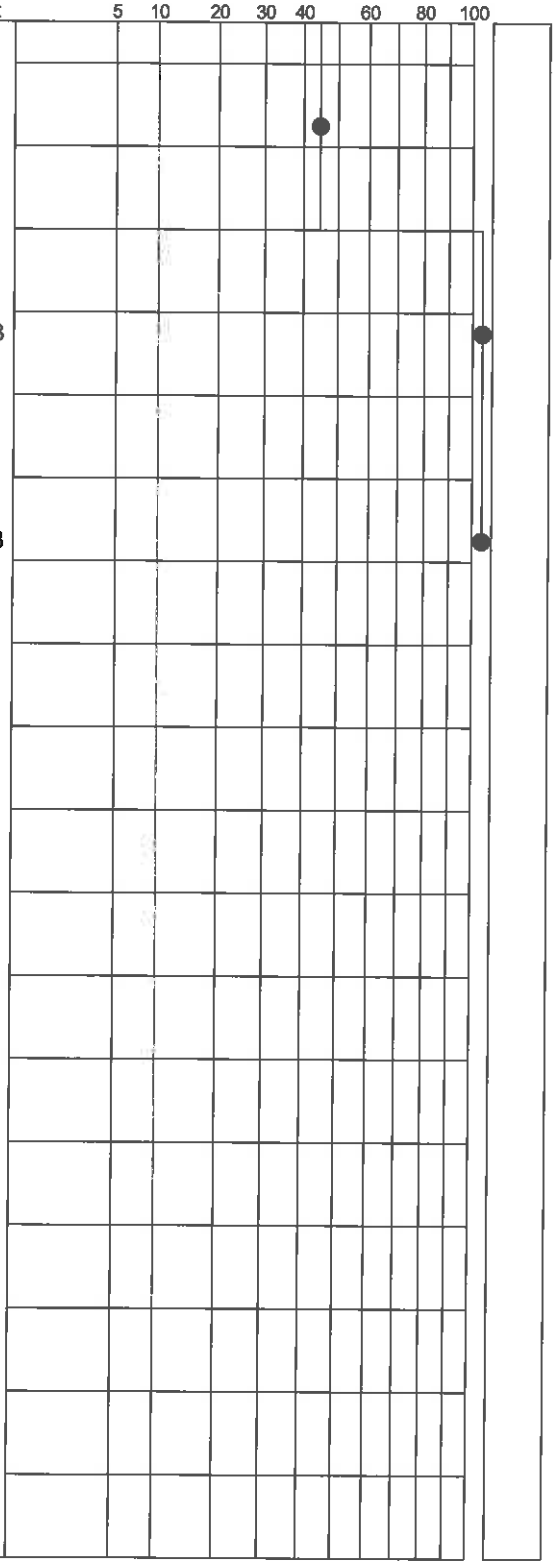
TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION (continued)	Elev. 744.0±	Blow Count
37.0	Dense Reddish-Brown And Brown Slightly Micaceous Silty Coarse To Fine SAND		45
42.0	Partially Weathered Rock When Sampled Becomes Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	739.0	50/0.3
50.0	Boring Terminated	731.0	50/0.3

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

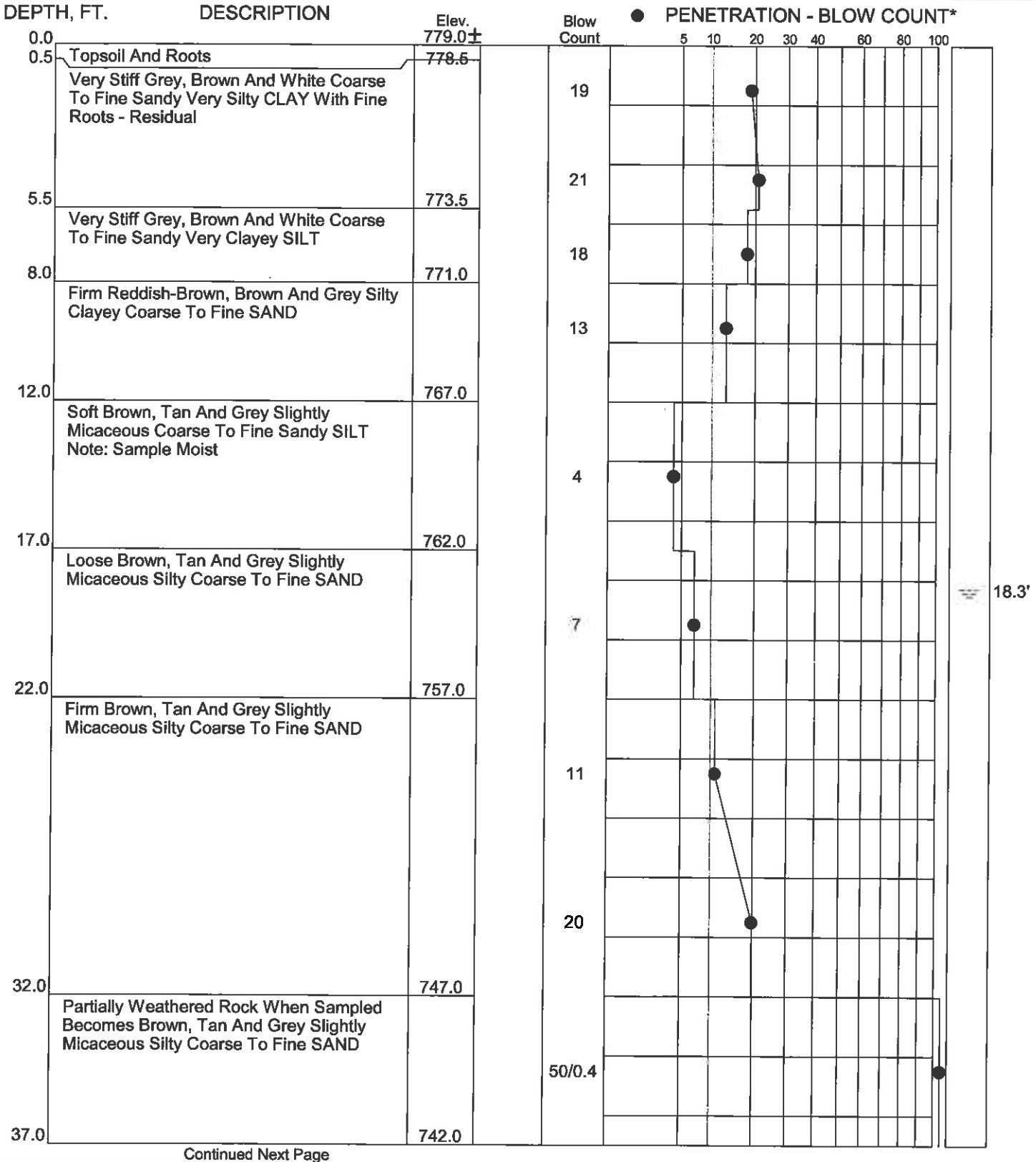
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-4
DATE DRILLED 11/17/17
DRILLING CONTRACTOR HPC
JOB NO. CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.



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BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◀ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-4
DATE DRILLED 11/17/17
DRILLING CONTRACTOR HPC
JOB NO CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION	Elev.	Blow Count
37.0	(continued)	742.0±	
	Very Dense Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		78
			52
47.0		732.0	
	Partially Weathered Rock When Sampled Becomes Brown And Grey Slightly Micaceous Silty Coarse To Fine SAND		50/0.1
55.0		724.0	50/0.1
	Boring Terminated		

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
|50|% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-5
DATE DRILLED 11/17/17
DRILLING CONTRACTOR HPC
JOB NO CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Blow Count
0.0	Stiff Grey, Tan And White Coarse To Fine Sandy Very Silty CLAY - Fill	776.0±	12
3.0	Stiff Brown, Tan And Grey Silty Coarse To Fine Sandy CLAY - Residual	773.0	11
5.5	Firm Brown And Tan Slightly Micaceous Clayey Coarse To Fine Very Sandy SILT	770.5	7
8.0	Firm Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT	768.0	5
17.0	Firm Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	759.0	6
22.0	Dense Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	754.0	15
27.0	Partially Weathered Rock When Sampled Becomes Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND	749.0	46
30.2	Auger Refusal	745.8	50/0.3 50/0.0

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

11.3'

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

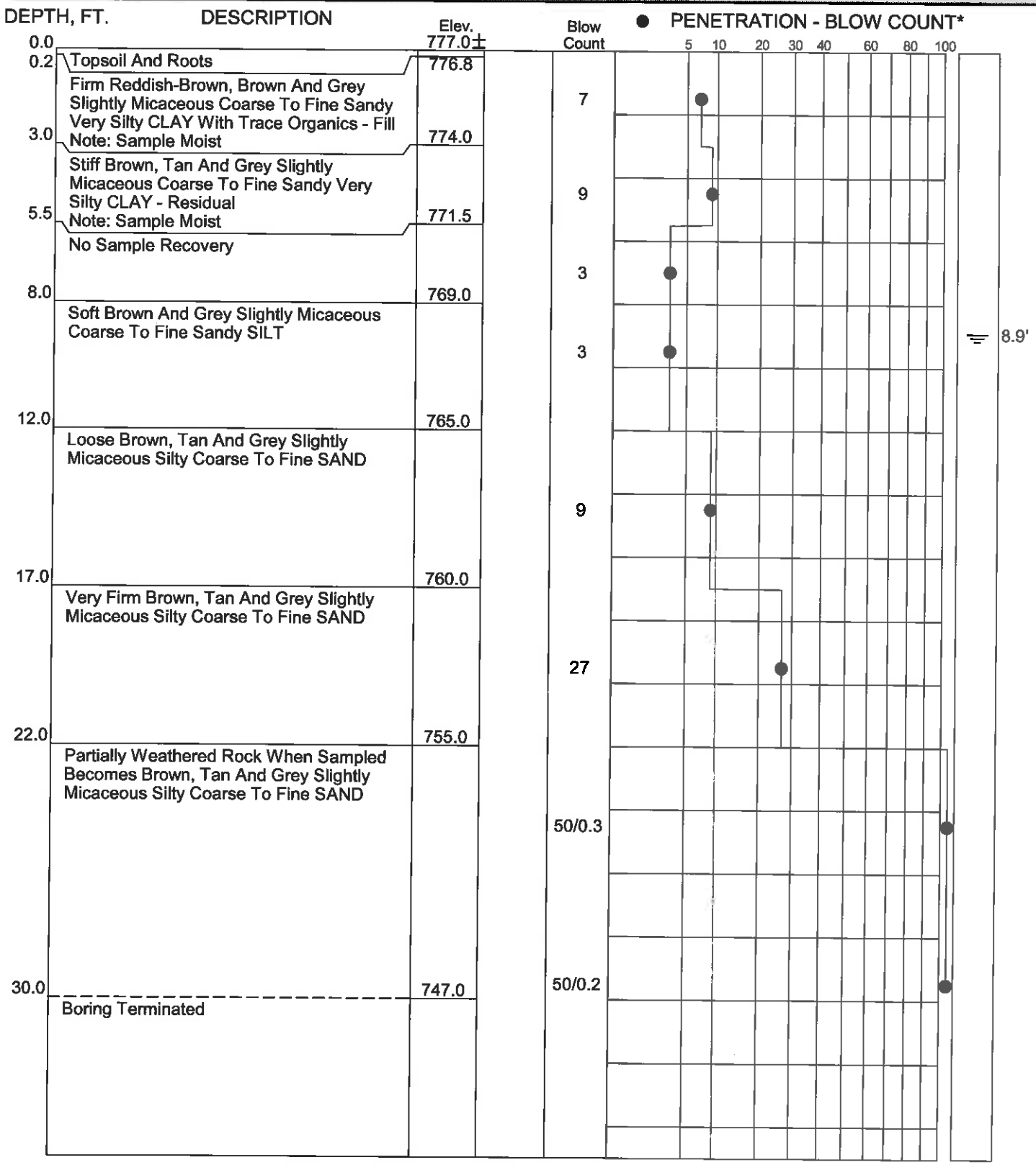
*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO: B-6
DATE DRILLED: 11/16/17
DRILLING CONTRACTOR: HPC
JOB NO: CH17.0175.GE
PROJECT: ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO: B-7
DATE DRILLED: 11/16/17
DRILLING CONTRACTOR: IIPC
JOB NO: CH17.0175.GE
PROJECT: ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP, INC.

DEPTH, FT.	DESCRIPTION	Elev.	Blow Count
0.0		774.0±	
0.2	Topsoil And Roots	773.8	
	Soft Reddish-Brown And Brown Slightly Micaceous Medium To Fine Sandy Very Silty CLAY With Trace Organics - Fill		3
3.0	Note: Sample Moist	771.0	
	Soft Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT - Residual		3
6.0	Note: Sample Moist	768.0	
	Soft Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT		4
8.0		766.0	
	Loose Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		6
12.0		762.0	
	Very Loose Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		4
17.0		757.0	
	Partially Weathered Rock When Sampled Becomes Brown And Grey Slightly Micaceous Silty Coarse To Fine SAND		50/0.1
20.2		753.8	50/0.0
	Auger Refusal		

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

5.5'

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO. B-8
DATE DRILLED 11/16/17
DRILLING CONTRACTOR. HPC
JOB NO.: CH17.0175.GE
PROJECT ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION	Elev. 774.0±	Blow Count
0.0			
0.2	Topsoil And Roots	773.8	
	Firm Reddish-Brown And Brown Medium To Fine Sandy Very Clayey SILT With Trace Organics - Fill		8
3.0		771.0	
	Firm Brown, Tan And Grey Slightly Micaceous Clayey Coarse To Fine Sandy SILT - Residual		7
5.5	Note: Sample Moist	768.5	
	Soft Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT		4
			4
12.0		762.0	
	Firm Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT		7
17.0		757.0	
	Very Firm Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		25
22.0		752.0	
	Very Dense Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		77
27.0		747.0	
	Dense Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		39
32.5		741.5	
	Auger Refusal		50/0.0

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

9.1'

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
50/% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

BORING NO: B-9
DATE DRILLED: 11/16/17
DRILLING CONTRACTOR: HPC
JOB NO: CH17.0175.GE
PROJECT: ANTIQUITY GREENWAY

TEST BORING RECORD

GEOSCIENCE GROUP INC.

DEPTH, FT.	DESCRIPTION	Elev.	Blow Count
0.0		775.0±	
0.2	Topsoil And Roots	774.8	
	Firm Brown, Tan And Grey Slightly Micaceous Clayey Coarse To Fine Sandy SILT - Residual		7
3.0		772.0	
	Firm Brown, Tan And Grey Slightly Micaceous Coarse To Fine Sandy SILT Note: Samples Moist		6
			5
8.0		767.0	
	Firm Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		11
12.0		763.0	
	Very Firm Brown, Tan And Grey Slightly Micaceous Silty Coarse To Fine SAND		23
17.0		758.0	
	Partially Weathered Rock When Sampled Becomes Brown And Grey Slightly Micaceous Silty Coarse To Fine SAND		50/0.2
20.3		754.7	50/0.0
	Auger Refusal No Groundwater Encountered		

● PENETRATION - BLOW COUNT*

5 10 20 30 40 60 80 100

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

*PENETRATION IS THE NUMBER OF BLOWS OF A 140 LB. (63.5kg) HAMMER FALLING 30 IN. (76.2cm) REQUIRED TO DRIVE A 1.4 IN. (3.6cm) I.D. SAMPLER 1 FT. (30.5cm)

PRESSUREMETER TEST
|50|% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WOH WEIGHT OF HAMMER
WATER TABLE - 24 HR.
WATER TABLE - 1 HR.
CAVE-IN DEPTH

CH17.0175.GE-1: Summary of Soil Sampling Results

Revision Date: 12/13/2017 Project Name: Antiquity Greenway Project No.: CH17.0175.GE

Analytical Method		PID (ppb)		VOCs by 8260 (mg/kg)								TCLP VOCs
Contaminant of Concern		TCE Readings	PCE Readings	4-Isopropyltoluene	Acetone	Tetrachloroethylene	Toluene	Methyl Butyl Ketone (2-Hexanone)	o-Xylene	Trichlorofluoromethane	Xylenes, Total	All Target Compounds
Sample ID	Date Collected											
B-1	11/20/2017	297	4	<0.00027	0.011 J	0.0025 J	<0.00032	<0.00051	<0.00023	<0.00037	<0.0011	NA
B-2	11/20/2017	304	573	<0.00014	0.044	<0.00014	<0.00017	<0.00027	<0.00012	<0.00019	<0.00055	NA
B-3	11/20/2017	554	288	<0.00015	0.038	<0.00014	<0.00018	<0.00028	<0.00013	0.0033	<0.00058	NA
B-4	11/20/2017	287	130	0.0043 J	0.026 J	<0.00022	0.0030 J	<0.00041	<0.00019	<0.00029	<0.00085	NA
B-4A	11/20/2017	283	152	0.0049 J	0.0055 J	<0.00027	<0.0057	<0.00052	<0.00024	<0.00037	0.0011	NA
B-5	11/20/2017	404	0	<0.00020	0.029 J	<0.00020	<0.00024	<0.00038	<0.00017	<0.00027	<0.00078	BRL
B-6	11/20/2017	102	262	<0.00022	0.051	<0.00022	<0.00026	<0.00041	<0.00019	<0.00030	<0.00086	NA
B-7	11/20/2017	4	0	<0.00031	<0.0016	0.0070	<0.00037	<0.00058	<0.00026	<0.00042	<0.0012	NA
B-8	11/20/2017	0	0	0.0085	0.033 J	0.14	<0.00033	0.0086 J	0.0024 J	<0.00037	0.0024 J	NA
"Contained In" Policy - Levels for Disposal in a MSW LF		N/A	N/A	NL	1,400	14	100	560	300	300	300	N/A

Notes:

J - Detected but below Reporting Limit; therefore, result is an estimated concentration

NA - Not Analyzed

N/A - Not Appicable

NL - Not Listed

NL - Not Listed

Level for Disposal in Municipal Solid Waste Land Fill (MSW LF) Values Obtained from NCDEQ Division of Waste Management - Hazardous Waste Section "Contained In" Policy for Soil Contaminated with Listed Hazardous Waste (July 28, 2016)

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
NC Drinking Water Cert No. 37735
SC Certification No. 99012

Case Narrative

12/07/2017

Geoscience Group
Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Lab Submittal Date: 11/21/2017
Prism Work Order: 7110418

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

Angela D. Overcash
VP Laboratory Services

Reviewed By Angela D. Overcash
VP Laboratory Services

Data Qualifiers Key Reference:

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
L	Parameter reported with possible low bias. LCS recovery below the QC limit.
L1	LCS recovery outside of the QC limits. LCSD recovery within the limits. No further action taken.
LH	High LCS recovery. Analyte not detected in the sample(s). No further action taken.
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

PRISM LABORATORIES, INC. | Full-Service Analytical & Environmental Solutions

Sample Receipt Summary

12/07/2017

Prism Work Order: 7110418

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
B-1	7110418-01	Solid	11/20/17	11/21/17
B-2	7110418-02	Solid	11/20/17	11/21/17
B-3	7110418-03	Solid	11/20/17	11/21/17
B-4	7110418-04	Solid	11/20/17	11/21/17
B-5	7110418-05	Solid	11/20/17	11/21/17
B-6	7110418-06	Solid	11/20/17	11/21/17
B-7	7110418-07	Solid	11/20/17	11/21/17
B-8	7110418-08	Solid	11/20/17	11/21/17
B-4A	7110418-09	Solid	11/20/17	11/21/17

Samples were received in good condition at 4.0 degrees C unless otherwise noted.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Summary of Detections

12/07/2017

Prism Work Order: 7110418

Prism ID	Client ID	Parameter	Method	Result		Units
7110418-01	B-1	Acetone	8260B	0.011	J	mg/kg dry
7110418-01	B-1	Tetrachloroethylene	8260B	0.0025	J	mg/kg dry
7110418-02	B-2	Acetone	8260B	0.044		mg/kg dry
7110418-03	B-3	Acetone	8260B	0.038		mg/kg dry
7110418-03	B-3	Trichlorofluoromethane	8260B	0.0033		mg/kg dry
7110418-04	B-4	4-Isopropyltoluene	8260B	0.0043	J	mg/kg dry
7110418-04	B-4	Acetone	8260B	0.026	J	mg/kg dry
7110418-04	B-4	Toluene	8260B	0.0030	J	mg/kg dry
7110418-05	B-5	Acetone	8260B	0.029	J	mg/kg dry
7110418-06	B-6	Acetone	8260B	0.051		mg/kg dry
7110418-07	B-7	Tetrachloroethylene	8260B	0.0070		mg/kg dry
7110418-08	B-8	4-Isopropyltoluene	8260B	0.0085		mg/kg dry
7110418-08	B-8	Acetone	8260B	0.033	J	mg/kg dry
7110418-08	B-8	Methyl Butyl Ketone (2-Hexanone)	8260B	0.0086	J	mg/kg dry
7110418-08	B-8	o-Xylene	8260B	0.0024	J	mg/kg dry
7110418-08	B-8	Tetrachloroethylene	8260B	0.14		mg/kg dry
7110418-08	B-8	Xylenes, total	8260B	0.0024	J	mg/kg dry
7110418-09	B-4A	4-Isopropyltoluene	8260B	0.0049	J	mg/kg dry
7110418-09	B-4A	Acetone	8260B	0.055	J	mg/kg dry

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Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-1
Prism Sample ID: 7110418-01
Prism Work Order: 7110418
Time Collected: 11/20/17 12:25
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**74.3**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0056	0.00046	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0056	0.00027	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0056	0.00038	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0056	0.00050	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0056	0.00016	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0056	0.00025	1	8260B	11/30/17 14:35	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0056	0.00031	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0056	0.00032	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0056	0.00072	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0056	0.00042	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0056	0.00043	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0056	0.00023	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0056	0.00026	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0056	0.00034	1	8260B	11/30/17 14:35	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0056	0.00035	1	8260B	11/30/17 14:35	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0056	0.00043	1	8260B	11/30/17 14:35	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0056	0.00037	1	8260B	11/30/17 14:35	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0056	0.00028	1	8260B	11/30/17 14:35	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0056	0.00022	1	8260B	11/30/17 14:35	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0056	0.00027	1	8260B	11/30/17 14:35	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0056	0.00029	1	8260B	11/30/17 14:35	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0056	0.00034	1	8260B	11/30/17 14:35	ANG	P7K0551
4-Isopropyltoluene	BRL	mg/kg dry	0.0056	0.00027	1	8260B	11/30/17 14:35	ANG	P7K0551
Acetone	**0.011 J**	**mg/kg dry**	**0.056**	**0.0014**	**1**	**8260B**	**11/30/17 14:35**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0034	0.00033	1	8260B	11/30/17 14:35	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0056	0.00047	1	8260B	11/30/17 14:35	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0056	0.00031	1	8260B	11/30/17 14:35	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0056	0.00031	1	8260B	11/30/17 14:35	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0056	0.00064	1	8260B	11/30/17 14:35	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.011	0.00070	1	8260B	11/30/17 14:35	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0056	0.00028	1	8260B	11/30/17 14:35	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0056	0.00030	1	8260B	11/30/17 14:35	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.011	0.00047	1	8260B	11/30/17 14:35	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0056	0.00041	1	8260B	11/30/17 14:35	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0056	0.00038	1	8260B	11/30/17 14:35	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0056	0.00024	1	8260B	11/30/17 14:35	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0056	0.00019	1	8260B	11/30/17 14:35	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0056	0.00023	1	8260B	11/30/17 14:35	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0056	0.00026	1	8260B	11/30/17 14:35	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-1
Prism Sample ID: 7110418-01
Prism Work Order: 7110418
Time Collected: 11/20/17 12:25
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0056	0.00022	1	8260B	11/30/17 14:35	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0056	0.00023	1	8260B	11/30/17 14:35	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0056	0.00033	1	8260B	11/30/17 14:35	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.011	0.00052	1	8260B	11/30/17 14:35	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.056	0.00051	1	8260B	11/30/17 14:35	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.11	0.00051	1	8260B	11/30/17 14:35	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.056	0.00048	1	8260B	11/30/17 14:35	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.011	0.00032	1	8260B	11/30/17 14:35	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 14:35	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 14:35	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0056	0.00029	1	8260B	11/30/17 14:35	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0056	0.00033	1	8260B	11/30/17 14:35	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0056	0.00023	1	8260B	11/30/17 14:35	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0056	0.00027	1	8260B	11/30/17 14:35	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0056	0.00034	1	8260B	11/30/17 14:35	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0056	0.00019	1	8260B	11/30/17 14:35	ANG	P7K0551
Tetrachloroethylene	**0.0025 J**	**mg/kg dry**	**0.0056**	**0.00027**	**1**	**8260B**	**11/30/17 14:35**	**ANG**	**P7K0551**
Toluene	BRL	mg/kg dry	0.0056	0.00032	1	8260B	11/30/17 14:35	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0056	0.00034	1	8260B	11/30/17 14:35	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0056	0.00030	1	8260B	11/30/17 14:35	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0056	0.00037	1	8260B	11/30/17 14:35	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0056	0.00036	1	8260B	11/30/17 14:35	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.028	0.00077	1	8260B	11/30/17 14:35	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0056	0.00027	1	8260B	11/30/17 14:35	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.017	0.0011	1	8260B	11/30/17 14:35	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*98 %*	*70-130*
Dibromofluoromethane	*98 %*	*84-123*
Toluene-d8	*88 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-2
Prism Sample ID: 7110418-02
Prism Work Order: 7110418
Time Collected: 11/20/17 13:20
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**76.6**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0029	0.00024	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0029	0.00020	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0029	0.00026	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0029	0.000082	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0029	0.00013	1	8260B	11/30/17 15:03	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0029	0.00016	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0029	0.00037	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0029	0.00022	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0029	0.00022	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0029	0.00018	1	8260B	11/30/17 15:03	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0029	0.00022	1	8260B	11/30/17 15:03	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0029	0.00019	1	8260B	11/30/17 15:03	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0029	0.00015	1	8260B	11/30/17 15:03	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0029	0.00015	1	8260B	11/30/17 15:03	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
4-Isopropyltoluene	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
Acetone	**0.044**	**mg/kg dry**	**0.029**	**0.00072**	**1**	**8260B**	**11/30/17 15:03**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0018	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0029	0.00024	1	8260B	11/30/17 15:03	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0029	0.00016	1	8260B	11/30/17 15:03	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0029	0.00016	1	8260B	11/30/17 15:03	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0029	0.00033	1	8260B	11/30/17 15:03	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.0059	0.00036	1	8260B	11/30/17 15:03	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0029	0.00015	1	8260B	11/30/17 15:03	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0029	0.00016	1	8260B	11/30/17 15:03	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.0059	0.00024	1	8260B	11/30/17 15:03	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0029	0.00021	1	8260B	11/30/17 15:03	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0029	0.00020	1	8260B	11/30/17 15:03	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0029	0.000099	1	8260B	11/30/17 15:03	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0029	0.00013	1	8260B	11/30/17 15:03	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-2
Prism Sample ID: 7110418-02
Prism Work Order: 7110418
Time Collected: 11/20/17 13:20
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0029	0.00011	1	8260B	11/30/17 15:03	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.0059	0.00027	1	8260B	11/30/17 15:03	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.029	0.00027	1	8260B	11/30/17 15:03	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.059	0.00027	1	8260B	11/30/17 15:03	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.029	0.00025	1	8260B	11/30/17 15:03	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.0059	0.00016	1	8260B	11/30/17 15:03	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.0059	0.000094	1	8260B	11/30/17 15:03	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.0059	0.000093	1	8260B	11/30/17 15:03	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0029	0.00015	1	8260B	11/30/17 15:03	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0029	0.00012	1	8260B	11/30/17 15:03	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0029	0.00018	1	8260B	11/30/17 15:03	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0029	0.000099	1	8260B	11/30/17 15:03	ANG	P7K0551
Tetrachloroethylene	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
Toluene	BRL	mg/kg dry	0.0029	0.00017	1	8260B	11/30/17 15:03	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0029	0.00018	1	8260B	11/30/17 15:03	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0029	0.00015	1	8260B	11/30/17 15:03	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0029	0.00019	1	8260B	11/30/17 15:03	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0029	0.00019	1	8260B	11/30/17 15:03	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.015	0.00040	1	8260B	11/30/17 15:03	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0029	0.00014	1	8260B	11/30/17 15:03	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.0088	0.00055	1	8260B	11/30/17 15:03	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*97 %*	*70-130*
Dibromofluoromethane	*98 %*	*84-123*
Toluene-d8	*89 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-3
Prism Sample ID: 7110418-03
Prism Work Order: 7110418
Time Collected: 11/20/17 14:10
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**77.5**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0031	0.00026	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0031	0.00021	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0031	0.00028	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1-Dichloroethane	BRL	mg/kg dry	0.0031	0.000087	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1-Dichloroethylene	BRL	mg/kg dry	0.0031	0.00014	1	8260B	12/1/17 16:20	ANG	P7L0031
1,1-Dichloropropylene	BRL	mg/kg dry	0.0031	0.00017	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0031	0.00018	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0031	0.00040	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0031	0.00023	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0031	0.00024	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2-Dibromoethane	BRL	mg/kg dry	0.0031	0.00013	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2-Dichloroethane	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
1,2-Dichloropropane	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0031	0.00024	1	8260B	12/1/17 16:20	ANG	P7L0031
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0031	0.00021	1	8260B	12/1/17 16:20	ANG	P7L0031
1,3-Dichloropropane	BRL	mg/kg dry	0.0031	0.00016	1	8260B	12/1/17 16:20	ANG	P7L0031
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0031	0.00012	1	8260B	12/1/17 16:20	ANG	P7L0031
2,2-Dichloropropane	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
2-Chlorotoluene	BRL	mg/kg dry	0.0031	0.00016	1	8260B	12/1/17 16:20	ANG	P7L0031
4-Chlorotoluene	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
4-Isopropyltoluene	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
Acetone	**0.038**	**mg/kg dry**	**0.031**	**0.00076**	**1**	**8260B**	**12/1/17 16:20**	**ANG**	**P7L0031**
Benzene	BRL	mg/kg dry	0.0019	0.00018	1	8260B	12/1/17 16:20	ANG	P7L0031
Bromobenzene	BRL	mg/kg dry	0.0031	0.00026	1	8260B	12/1/17 16:20	ANG	P7L0031
Bromochloromethane	BRL	mg/kg dry	0.0031	0.00017	1	8260B	12/1/17 16:20	ANG	P7L0031
Bromodichloromethane	BRL	mg/kg dry	0.0031	0.00017	1	8260B	12/1/17 16:20	ANG	P7L0031
Bromoform	BRL	mg/kg dry	0.0031	0.00035	1	8260B	12/1/17 16:20	ANG	P7L0031
Bromomethane	BRL	mg/kg dry	0.0062	0.00038	1	8260B	12/1/17 16:20	ANG	P7L0031
Carbon Tetrachloride	BRL	mg/kg dry	0.0031	0.00016	1	8260B	12/1/17 16:20	ANG	P7L0031
Chlorobenzene	BRL	mg/kg dry	0.0031	0.00017	1	8260B	12/1/17 16:20	ANG	P7L0031
Chloroethane	BRL	mg/kg dry	0.0062	0.00026	1	8260B	12/1/17 16:20	ANG	P7L0031
Chloroform	BRL	mg/kg dry	0.0031	0.00023	1	8260B	12/1/17 16:20	ANG	P7L0031
Chloromethane	BRL	mg/kg dry	0.0031	0.00021	1	8260B	12/1/17 16:20	ANG	P7L0031
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0031	0.00013	1	8260B	12/1/17 16:20	ANG	P7L0031
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0031	0.00010	1	8260B	12/1/17 16:20	ANG	P7L0031
Dibromochloromethane	BRL	mg/kg dry	0.0031	0.00013	1	8260B	12/1/17 16:20	ANG	P7L0031
Dichlorodifluoromethane	BRL	mg/kg dry	0.0031	0.00014	1	8260B	12/1/17 16:20	ANG	P7L0031

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-3
Prism Sample ID: 7110418-03
Prism Work Order: 7110418
Time Collected: 11/20/17 14:10
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0031	0.00012	1	8260B	12/1/17 16:20	ANG	P7L0031
Isopropyl Ether	BRL	mg/kg dry	0.0031	0.00013	1	8260B	12/1/17 16:20	ANG	P7L0031
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0031	0.00018	1	8260B	12/1/17 16:20	ANG	P7L0031
m,p-Xylenes	BRL	mg/kg dry	0.0062	0.00029	1	8260B	12/1/17 16:20	ANG	P7L0031
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.031	0.00028	1	8260B	12/1/17 16:20	ANG	P7L0031
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.062	0.00028	1	8260B	12/1/17 16:20	ANG	P7L0031
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.031	0.00027	1	8260B	12/1/17 16:20	ANG	P7L0031
Methylene Chloride	BRL	mg/kg dry	0.0062	0.00018	1	8260B	12/1/17 16:20	ANG	P7L0031
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.0062	0.00010	1	8260B	12/1/17 16:20	ANG	P7L0031
Naphthalene	BRL	mg/kg dry	0.0062	0.000099	1	8260B	12/1/17 16:20	ANG	P7L0031
n-Butylbenzene	BRL	mg/kg dry	0.0031	0.00016	1	8260B	12/1/17 16:20	ANG	P7L0031
n-Propylbenzene	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
o-Xylene	BRL	mg/kg dry	0.0031	0.00013	1	8260B	12/1/17 16:20	ANG	P7L0031
sec-Butylbenzene	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
Styrene	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
tert-Butylbenzene	BRL	mg/kg dry	0.0031	0.00011	1	8260B	12/1/17 16:20	ANG	P7L0031
Tetrachloroethylene	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
Toluene	BRL	mg/kg dry	0.0031	0.00018	1	8260B	12/1/17 16:20	ANG	P7L0031
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0031	0.00019	1	8260B	12/1/17 16:20	ANG	P7L0031
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0031	0.00016	1	8260B	12/1/17 16:20	ANG	P7L0031
Trichloroethylene	BRL	mg/kg dry	0.0031	0.00020	1	8260B	12/1/17 16:20	ANG	P7L0031
Trichlorofluoromethane	**0.0033**	**mg/kg dry**	**0.0031**	**0.00020**	**1**	**8260B**	**12/1/17 16:20**	**ANG**	**P7L0031**
Vinyl acetate	BRL	mg/kg dry	0.016	0.00043	1	8260B	12/1/17 16:20	ANG	P7L0031
Vinyl chloride	BRL	mg/kg dry	0.0031	0.00015	1	8260B	12/1/17 16:20	ANG	P7L0031
Xylenes, total	BRL	mg/kg dry	0.0094	0.00058	1	8260B	12/1/17 16:20	ANG	P7L0031

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*97 %*	*70-130*
Dibromofluoromethane	*104 %*	*84-123*
Toluene-d8	*95 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-4
Prism Sample ID: 7110418-04
Prism Work Order: 7110418
Time Collected: 11/20/17 14:54
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**76.8**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0046	0.00037	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0046	0.00031	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0046	0.00040	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0046	0.00013	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00020	1	8260B	11/30/17 15:58	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00025	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0046	0.00026	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0046	0.00058	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0046	0.00034	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0046	0.00035	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0046	0.00018	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00021	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0046	0.00028	1	8260B	11/30/17 15:58	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0046	0.00034	1	8260B	11/30/17 15:58	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00030	1	8260B	11/30/17 15:58	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 15:58	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00018	1	8260B	11/30/17 15:58	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 15:58	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 15:58	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
4-Isopropyltoluene	**0.0043 J**	**mg/kg dry**	**0.0046**	**0.00022**	**1**	**8260B**	**11/30/17 15:58**	**ANG**	**P7K0551**
Acetone	**0.026 J**	**mg/kg dry**	**0.046**	**0.0011**	**1**	**8260B**	**11/30/17 15:58**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0027	0.00026	1	8260B	11/30/17 15:58	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0046	0.00038	1	8260B	11/30/17 15:58	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0046	0.00025	1	8260B	11/30/17 15:58	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0046	0.00025	1	8260B	11/30/17 15:58	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0046	0.00052	1	8260B	11/30/17 15:58	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.0091	0.00056	1	8260B	11/30/17 15:58	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 15:58	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0046	0.00024	1	8260B	11/30/17 15:58	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.0091	0.00038	1	8260B	11/30/17 15:58	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0046	0.00033	1	8260B	11/30/17 15:58	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0046	0.00031	1	8260B	11/30/17 15:58	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 15:58	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00015	1	8260B	11/30/17 15:58	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 15:58	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0046	0.00021	1	8260B	11/30/17 15:58	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-4
Prism Sample ID: 7110418-04
Prism Work Order: 7110418
Time Collected: 11/20/17 14:54
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0046	0.00017	1	8260B	11/30/17 15:58	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 15:58	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.0091	0.00042	1	8260B	11/30/17 15:58	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.046	0.00041	1	8260B	11/30/17 15:58	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.091	0.00041	1	8260B	11/30/17 15:58	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.046	0.00039	1	8260B	11/30/17 15:58	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.0091	0.00026	1	8260B	11/30/17 15:58	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.0091	0.00015	1	8260B	11/30/17 15:58	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.0091	0.00014	1	8260B	11/30/17 15:58	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 15:58	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 15:58	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 15:58	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0046	0.00015	1	8260B	11/30/17 15:58	ANG	P7K0551
Tetrachloroethylene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 15:58	ANG	P7K0551
Toluene	**0.0030 J**	**mg/kg dry**	**0.0046**	**0.00026**	**1**	**8260B**	**11/30/17 15:58**	**ANG**	**P7K0551**
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 15:58	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00024	1	8260B	11/30/17 15:58	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0046	0.00029	1	8260B	11/30/17 15:58	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0046	0.00029	1	8260B	11/30/17 15:58	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.023	0.00062	1	8260B	11/30/17 15:58	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 15:58	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.014	0.00085	1	8260B	11/30/17 15:58	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*99 %*	*70-130*
Dibromofluoromethane	*97 %*	*84-123*
Toluene-d8	*88 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-5
Prism Sample ID: 7110418-05
Prism Work Order: 7110418
Time Collected: 11/20/17 15:20
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**78.5**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
TCLP Extraction by EPA 1311									
TCLP Extraction	Complete	N/A			1	*1311 ZHE	12/5/17 9:00	ANG	P7L0034
TCLP Volatile Organic Compounds by GC/MS									
1,1-Dichloroethylene	BRL	mg/L	0.035	0.00083	1	*8260B	12/6/17 18:06	KDM	P7L0102
1,2-Dichloroethane	BRL	mg/L	0.025	0.00066	1	*8260B	12/6/17 18:06	KDM	P7L0102
1,4-Dichlorobenzene	BRL	mg/L	0.38	0.00050	1	*8260B	12/6/17 18:06	KDM	P7L0102
Benzene	BRL	mg/L	0.025	0.00048	1	*8260B	12/6/17 18:06	KDM	P7L0102
Carbon Tetrachloride	BRL	mg/L	0.025	0.0011	1	*8260B	12/6/17 18:06	KDM	P7L0102
Chlorobenzene	BRL	mg/L	5.0	0.00062	1	*8260B	12/6/17 18:06	KDM	P7L0102
Chloroform	BRL	mg/L	0.30	0.00076	1	*8260B	12/6/17 18:06	KDM	P7L0102
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/L	10	0.0024	1	*8260B	12/6/17 18:06	KDM	P7L0102
Tetrachloroethylene	BRL	mg/L	0.035	0.00098	1	*8260B	12/6/17 18:06	KDM	P7L0102
Trichloroethylene	BRL	mg/L	0.025	0.00078	1	*8260B	12/6/17 18:06	KDM	P7L0102
Vinyl chloride	BRL	mg/L	0.020	0.00097	1	*8260B	12/6/17 18:06	KDM	P7L0102

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*86 %*	*80-124*
Dibromofluoromethane	*87 %*	*75-129*
Toluene-d8	*88 %*	*77-123*

Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0042	0.00034	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0042	0.00028	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0042	0.00037	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0042	0.00012	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0042	0.00018	1	8260B	11/30/17 16:25	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0042	0.00023	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0042	0.00024	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0042	0.00053	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0042	0.00031	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0042	0.00032	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0042	0.00017	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0042	0.00026	1	8260B	11/30/17 16:25	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0042	0.00031	1	8260B	11/30/17 16:25	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0042	0.00028	1	8260B	11/30/17 16:25	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0042	0.00021	1	8260B	11/30/17 16:25	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0042	0.00016	1	8260B	11/30/17 16:25	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0042	0.00021	1	8260B	11/30/17 16:25	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-5
Prism Sample ID: 7110418-05
Prism Work Order: 7110418
Time Collected: 11/20/17 15:20
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
4-Chlorotoluene	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
4-Isopropyltoluene	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
Acetone	**0.029 J**	**mg/kg dry**	**0.042**	**0.0010**	**1**	**8260B**	**11/30/17 16:25**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0025	0.00024	1	8260B	11/30/17 16:25	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0042	0.00035	1	8260B	11/30/17 16:25	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0042	0.00023	1	8260B	11/30/17 16:25	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0042	0.00023	1	8260B	11/30/17 16:25	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0042	0.00047	1	8260B	11/30/17 16:25	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.0083	0.00051	1	8260B	11/30/17 16:25	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0042	0.00021	1	8260B	11/30/17 16:25	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0042	0.00022	1	8260B	11/30/17 16:25	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.0083	0.00035	1	8260B	11/30/17 16:25	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0042	0.00030	1	8260B	11/30/17 16:25	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0042	0.00028	1	8260B	11/30/17 16:25	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0042	0.00018	1	8260B	11/30/17 16:25	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0042	0.00014	1	8260B	11/30/17 16:25	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0042	0.00017	1	8260B	11/30/17 16:25	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0042	0.00019	1	8260B	11/30/17 16:25	ANG	P7K0551
Ethylbenzene	BRL	mg/kg dry	0.0042	0.00016	1	8260B	11/30/17 16:25	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0042	0.00017	1	8260B	11/30/17 16:25	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.0083	0.00038	1	8260B	11/30/17 16:25	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.042	0.00038	1	8260B	11/30/17 16:25	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.083	0.00038	1	8260B	11/30/17 16:25	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.042	0.00035	1	8260B	11/30/17 16:25	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.0083	0.00023	1	8260B	11/30/17 16:25	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.0083	0.00013	1	8260B	11/30/17 16:25	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.0083	0.00013	1	8260B	11/30/17 16:25	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0042	0.00021	1	8260B	11/30/17 16:25	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0042	0.00017	1	8260B	11/30/17 16:25	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0042	0.00014	1	8260B	11/30/17 16:25	ANG	P7K0551
Tetrachloroethylene	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
Toluene	BRL	mg/kg dry	0.0042	0.00024	1	8260B	11/30/17 16:25	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0042	0.00025	1	8260B	11/30/17 16:25	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0042	0.00022	1	8260B	11/30/17 16:25	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0042	0.00027	1	8260B	11/30/17 16:25	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0042	0.00027	1	8260B	11/30/17 16:25	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.021	0.00057	1	8260B	11/30/17 16:25	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0042	0.00020	1	8260B	11/30/17 16:25	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.012	0.00078	1	8260B	11/30/17 16:25	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-5
Prism Sample ID: 7110418-05
Prism Work Order: 7110418
Time Collected: 11/20/17 15:20
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*98 %*	*70-130*
Dibromofluoromethane	*98 %*	*84-123*
Toluene-d8	*87 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-6
Prism Sample ID: 7110418-06
Prism Work Order: 7110418
Time Collected: 11/20/17 15:44
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**79.4**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0046	0.00038	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0046	0.00031	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0046	0.00041	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0046	0.00013	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00020	1	8260B	11/30/17 16:53	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00025	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0046	0.00026	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0046	0.00059	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0046	0.00034	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0046	0.00035	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0046	0.00018	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0046	0.00028	1	8260B	11/30/17 16:53	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0046	0.00035	1	8260B	11/30/17 16:53	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00030	1	8260B	11/30/17 16:53	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 16:53	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0046	0.00018	1	8260B	11/30/17 16:53	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0046	0.00024	1	8260B	11/30/17 16:53	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
4-Isopropyltoluene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
Acetone	**0.051**	**mg/kg dry**	**0.046**	**0.0011**	**1**	**8260B**	**11/30/17 16:53**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0028	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0046	0.00038	1	8260B	11/30/17 16:53	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0046	0.00025	1	8260B	11/30/17 16:53	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0046	0.00026	1	8260B	11/30/17 16:53	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0046	0.00052	1	8260B	11/30/17 16:53	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.0092	0.00057	1	8260B	11/30/17 16:53	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 16:53	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0046	0.00024	1	8260B	11/30/17 16:53	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.0092	0.00038	1	8260B	11/30/17 16:53	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0046	0.00033	1	8260B	11/30/17 16:53	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0046	0.00031	1	8260B	11/30/17 16:53	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00020	1	8260B	11/30/17 16:53	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00015	1	8260B	11/30/17 16:53	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 16:53	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0046	0.00021	1	8260B	11/30/17 16:53	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-6
Prism Sample ID: 7110418-06
Prism Work Order: 7110418
Time Collected: 11/20/17 15:44
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0046	0.00018	1	8260B	11/30/17 16:53	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 16:53	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.0092	0.00042	1	8260B	11/30/17 16:53	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.046	0.00041	1	8260B	11/30/17 16:53	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.092	0.00041	1	8260B	11/30/17 16:53	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.046	0.00039	1	8260B	11/30/17 16:53	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.0092	0.00026	1	8260B	11/30/17 16:53	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.0092	0.00015	1	8260B	11/30/17 16:53	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.0092	0.00015	1	8260B	11/30/17 16:53	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0046	0.00023	1	8260B	11/30/17 16:53	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0046	0.00019	1	8260B	11/30/17 16:53	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0046	0.00028	1	8260B	11/30/17 16:53	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0046	0.00016	1	8260B	11/30/17 16:53	ANG	P7K0551
Tetrachloroethylene	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
Toluene	BRL	mg/kg dry	0.0046	0.00026	1	8260B	11/30/17 16:53	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0046	0.00027	1	8260B	11/30/17 16:53	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0046	0.00024	1	8260B	11/30/17 16:53	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0046	0.00030	1	8260B	11/30/17 16:53	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0046	0.00030	1	8260B	11/30/17 16:53	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.023	0.00063	1	8260B	11/30/17 16:53	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0046	0.00022	1	8260B	11/30/17 16:53	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.014	0.00086	1	8260B	11/30/17 16:53	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*98 %*	*70-130*
Dibromofluoromethane	*97 %*	*84-123*
Toluene-d8	*88 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-7
Prism Sample ID: 7110418-07
Prism Work Order: 7110418
Time Collected: 11/20/17 16:08
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**74.8**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0036**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0064	0.00053	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0064	0.00031	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0064	0.00044	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0064	0.00057	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0064	0.00018	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0064	0.00028	1	8260B	11/30/17 17:20	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0064	0.00035	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0064	0.00037	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0064	0.00082	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0064	0.00048	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0064	0.00049	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0064	0.00026	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0064	0.00030	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0064	0.00038	1	8260B	11/30/17 17:20	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0064	0.00040	1	8260B	11/30/17 17:20	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0064	0.00049	1	8260B	11/30/17 17:20	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0064	0.00043	1	8260B	11/30/17 17:20	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0064	0.00032	1	8260B	11/30/17 17:20	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0064	0.00025	1	8260B	11/30/17 17:20	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0064	0.00031	1	8260B	11/30/17 17:20	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0064	0.00033	1	8260B	11/30/17 17:20	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0064	0.00038	1	8260B	11/30/17 17:20	ANG	P7K0551
4-Isopropyltoluene	BRL	mg/kg dry	0.0064	0.00031	1	8260B	11/30/17 17:20	ANG	P7K0551
Acetone	BRL	mg/kg dry	0.064	0.0016	1	8260B	11/30/17 17:20	ANG	P7K0551
Benzene	BRL	mg/kg dry	0.0039	0.00038	1	8260B	11/30/17 17:20	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0064	0.00054	1	8260B	11/30/17 17:20	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0064	0.00035	1	8260B	11/30/17 17:20	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0064	0.00036	1	8260B	11/30/17 17:20	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0064	0.00073	1	8260B	11/30/17 17:20	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.013	0.00080	1	8260B	11/30/17 17:20	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0064	0.00032	1	8260B	11/30/17 17:20	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0064	0.00034	1	8260B	11/30/17 17:20	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.013	0.00054	1	8260B	11/30/17 17:20	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0064	0.00047	1	8260B	11/30/17 17:20	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0064	0.00043	1	8260B	11/30/17 17:20	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0064	0.00027	1	8260B	11/30/17 17:20	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0064	0.00022	1	8260B	11/30/17 17:20	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0064	0.00027	1	8260B	11/30/17 17:20	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0064	0.00029	1	8260B	11/30/17 17:20	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-7
Prism Sample ID: 7110418-07
Prism Work Order: 7110418
Time Collected: 11/20/17 16:08
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0064	0.00025	1	8260B	11/30/17 17:20	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0064	0.00026	1	8260B	11/30/17 17:20	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0064	0.00038	1	8260B	11/30/17 17:20	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.013	0.00059	1	8260B	11/30/17 17:20	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.064	0.00058	1	8260B	11/30/17 17:20	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.13	0.00058	1	8260B	11/30/17 17:20	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.064	0.00055	1	8260B	11/30/17 17:20	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.013	0.00036	1	8260B	11/30/17 17:20	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.013	0.00021	1	8260B	11/30/17 17:20	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.013	0.00020	1	8260B	11/30/17 17:20	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0064	0.00033	1	8260B	11/30/17 17:20	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0064	0.00038	1	8260B	11/30/17 17:20	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0064	0.00026	1	8260B	11/30/17 17:20	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0064	0.00031	1	8260B	11/30/17 17:20	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0064	0.00039	1	8260B	11/30/17 17:20	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0064	0.00022	1	8260B	11/30/17 17:20	ANG	P7K0551
Tetrachloroethylene	**0.0070**	**mg/kg dry**	**0.0064**	**0.00031**	**1**	**8260B**	**11/30/17 17:20**	**ANG**	**P7K0551**
Toluene	BRL	mg/kg dry	0.0064	0.00037	1	8260B	11/30/17 17:20	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0064	0.00039	1	8260B	11/30/17 17:20	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0064	0.00034	1	8260B	11/30/17 17:20	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0064	0.00042	1	8260B	11/30/17 17:20	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0064	0.00042	1	8260B	11/30/17 17:20	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.032	0.00088	1	8260B	11/30/17 17:20	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0064	0.00031	1	8260B	11/30/17 17:20	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.019	0.0012	1	8260B	11/30/17 17:20	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*98 %*	*70-130*
Dibromofluoromethane	*99 %*	*84-123*
Toluene-d8	*87 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-8
Prism Sample ID: 7110418-08
Prism Work Order: 7110418
Time Collected: 11/20/17 16:22
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	**75.0**	**% by Weight**	**0.100**	**0.100**	**1**	***SM2540 G**	**12/1/17 16:00**	**JLB**	**P7L0038**
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0057	0.00047	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0057	0.00039	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0057	0.00051	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0057	0.00016	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00025	1	8260B	11/30/17 17:48	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00031	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0057	0.00033	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0057	0.00073	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0057	0.00043	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0057	0.00044	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00027	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 17:48	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0057	0.00036	1	8260B	11/30/17 17:48	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0057	0.00043	1	8260B	11/30/17 17:48	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00038	1	8260B	11/30/17 17:48	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 17:48	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 17:48	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0057	0.00027	1	8260B	11/30/17 17:48	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 17:48	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 17:48	ANG	P7K0551
4-Isopropyltoluene	**0.0085**	**mg/kg dry**	**0.0057**	**0.00028**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**
Acetone	**0.033 J**	**mg/kg dry**	**0.057**	**0.0014**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**
Benzene	BRL	mg/kg dry	0.0034	0.00033	1	8260B	11/30/17 17:48	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0057	0.00048	1	8260B	11/30/17 17:48	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0057	0.00032	1	8260B	11/30/17 17:48	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0057	0.00032	1	8260B	11/30/17 17:48	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0057	0.00065	1	8260B	11/30/17 17:48	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.011	0.00071	1	8260B	11/30/17 17:48	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 17:48	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 17:48	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.011	0.00048	1	8260B	11/30/17 17:48	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0057	0.00041	1	8260B	11/30/17 17:48	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0057	0.00039	1	8260B	11/30/17 17:48	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00024	1	8260B	11/30/17 17:48	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00019	1	8260B	11/30/17 17:48	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0057	0.00024	1	8260B	11/30/17 17:48	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0057	0.00026	1	8260B	11/30/17 17:48	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-8
Prism Sample ID: 7110418-08
Prism Work Order: 7110418
Time Collected: 11/20/17 16:22
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0057	0.00022	1	8260B	11/30/17 17:48	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 17:48	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 17:48	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.011	0.00053	1	8260B	11/30/17 17:48	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	**0.0086 J**	**mg/kg dry**	**0.057**	**0.00052**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.11	0.00052	1	8260B	11/30/17 17:48	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.057	0.00049	1	8260B	11/30/17 17:48	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.011	0.00032	1	8260B	11/30/17 17:48	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 17:48	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 17:48	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 17:48	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 17:48	ANG	P7K0551
o-Xylene	**0.0024 J**	**mg/kg dry**	**0.0057**	**0.00024**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**
sec-Butylbenzene	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 17:48	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0057	0.00035	1	8260B	11/30/17 17:48	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0057	0.00019	1	8260B	11/30/17 17:48	ANG	P7K0551
Tetrachloroethylene	**0.14**	**mg/kg dry**	**0.0057**	**0.00027**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**
Toluene	BRL	mg/kg dry	0.0057	0.00033	1	8260B	11/30/17 17:48	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 17:48	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 17:48	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0057	0.00037	1	8260B	11/30/17 17:48	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0057	0.00037	1	8260B	11/30/17 17:48	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.029	0.00079	1	8260B	11/30/17 17:48	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 17:48	ANG	P7K0551
Xylenes, total	**0.0024 J**	**mg/kg dry**	**0.017**	**0.0011**	**1**	**8260B**	**11/30/17 17:48**	**ANG**	**P7K0551**

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*96 %*	*70-130*
Dibromofluoromethane	*98 %*	*84-123*
Toluene-d8	*88 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-4A
Prism Sample ID: 7110418-09
Prism Work Order: 7110418
Time Collected: 11/20/17 16:34
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
% Solids	74.1	% by Weight	0.100	0.100	1	*SM2540 G	12/1/17 16:00	JLB	P7L0038
Volatile Organic Compounds by GC/MS									
1,1,1,2-Tetrachloroethane	BRL	mg/kg dry	0.0057	0.00047	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1,1-Trichloroethane	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1,2,2-Tetrachloroethane	BRL	mg/kg dry	0.0057	0.00039	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1,2-Trichloroethane	BRL	mg/kg dry	0.0057	0.00051	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1-Dichloroethane	BRL	mg/kg dry	0.0057	0.00016	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00025	1	8260B	11/30/17 18:15	ANG	P7K0551
1,1-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00031	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2,3-Trichlorobenzene	BRL	mg/kg dry	0.0057	0.00033	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2,3-Trichloropropane	BRL	mg/kg dry	0.0057	0.00073	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2,4-Trichlorobenzene	BRL	mg/kg dry	0.0057	0.00043	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2,4-Trimethylbenzene	BRL	mg/kg dry	0.0057	0.00044	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2-Dibromoethane	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00027	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2-Dichloroethane	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 18:15	ANG	P7K0551
1,2-Dichloropropane	BRL	mg/kg dry	0.0057	0.00036	1	8260B	11/30/17 18:15	ANG	P7K0551
1,3,5-Trimethylbenzene	BRL	mg/kg dry	0.0057	0.00043	1	8260B	11/30/17 18:15	ANG	P7K0551
1,3-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00038	1	8260B	11/30/17 18:15	ANG	P7K0551
1,3-Dichloropropane	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 18:15	ANG	P7K0551
1,4-Dichlorobenzene	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 18:15	ANG	P7K0551
2,2-Dichloropropane	BRL	mg/kg dry	0.0057	0.00027	1	8260B	11/30/17 18:15	ANG	P7K0551
2-Chlorotoluene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 18:15	ANG	P7K0551
4-Chlorotoluene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 18:15	ANG	P7K0551
4-Isopropyltoluene	0.0049 J	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 18:15	ANG	P7K0551
Acetone	0.055 J	mg/kg dry	0.057	0.0014	1	8260B	11/30/17 18:15	ANG	P7K0551
Benzene	BRL	mg/kg dry	0.0034	0.00033	1	8260B	11/30/17 18:15	ANG	P7K0551
Bromobenzene	BRL	mg/kg dry	0.0057	0.00048	1	8260B	11/30/17 18:15	ANG	P7K0551
Bromochloromethane	BRL	mg/kg dry	0.0057	0.00032	1	8260B	11/30/17 18:15	ANG	P7K0551
Bromodichloromethane	BRL	mg/kg dry	0.0057	0.00032	1	8260B	11/30/17 18:15	ANG	P7K0551
Bromoform	BRL	mg/kg dry	0.0057	0.00065	1	8260B	11/30/17 18:15	ANG	P7K0551
Bromomethane	BRL	mg/kg dry	0.011	0.00071	1	8260B	11/30/17 18:15	ANG	P7K0551
Carbon Tetrachloride	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 18:15	ANG	P7K0551
Chlorobenzene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 18:15	ANG	P7K0551
Chloroethane	BRL	mg/kg dry	0.011	0.00048	1	8260B	11/30/17 18:15	ANG	P7K0551
Chloroform	BRL	mg/kg dry	0.0057	0.00041	1	8260B	11/30/17 18:15	ANG	P7K0551
Chloromethane	BRL	mg/kg dry	0.0057	0.00039	1	8260B	11/30/17 18:15	ANG	P7K0551
cis-1,2-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00024	1	8260B	11/30/17 18:15	ANG	P7K0551
cis-1,3-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00019	1	8260B	11/30/17 18:15	ANG	P7K0551
Dibromochloromethane	BRL	mg/kg dry	0.0057	0.00024	1	8260B	11/30/17 18:15	ANG	P7K0551
Dichlorodifluoromethane	BRL	mg/kg dry	0.0057	0.00026	1	8260B	11/30/17 18:15	ANG	P7K0551

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Sample Matrix: Solid

Client Sample ID: B-4A
Prism Sample ID: 7110418-09
Prism Work Order: 7110418
Time Collected: 11/20/17 16:34
Time Submitted: 11/21/17 09:15

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Ethylbenzene	BRL	mg/kg dry	0.0057	0.00022	1	8260B	11/30/17 18:15	ANG	P7K0551
Isopropyl Ether	BRL	mg/kg dry	0.0057	0.00023	1	8260B	11/30/17 18:15	ANG	P7K0551
Isopropylbenzene (Cumene)	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 18:15	ANG	P7K0551
m,p-Xylenes	BRL	mg/kg dry	0.011	0.00053	1	8260B	11/30/17 18:15	ANG	P7K0551
Methyl Butyl Ketone (2-Hexanone)	BRL	mg/kg dry	0.057	0.00052	1	8260B	11/30/17 18:15	ANG	P7K0551
Methyl Ethyl Ketone (2-Butanone)	BRL	mg/kg dry	0.11	0.00052	1	8260B	11/30/17 18:15	ANG	P7K0551
Methyl Isobutyl Ketone	BRL	mg/kg dry	0.057	0.00049	1	8260B	11/30/17 18:15	ANG	P7K0551
Methylene Chloride	BRL	mg/kg dry	0.011	0.00032	1	8260B	11/30/17 18:15	ANG	P7K0551
Methyl-tert-Butyl Ether	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 18:15	ANG	P7K0551
Naphthalene	BRL	mg/kg dry	0.011	0.00018	1	8260B	11/30/17 18:15	ANG	P7K0551
n-Butylbenzene	BRL	mg/kg dry	0.0057	0.00029	1	8260B	11/30/17 18:15	ANG	P7K0551
n-Propylbenzene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 18:15	ANG	P7K0551
o-Xylene	BRL	mg/kg dry	0.0057	0.00024	1	8260B	11/30/17 18:15	ANG	P7K0551
sec-Butylbenzene	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 18:15	ANG	P7K0551
Styrene	BRL	mg/kg dry	0.0057	0.00035	1	8260B	11/30/17 18:15	ANG	P7K0551
tert-Butylbenzene	BRL	mg/kg dry	0.0057	0.00019	1	8260B	11/30/17 18:15	ANG	P7K0551
Tetrachloroethylene	BRL	mg/kg dry	0.0057	0.00027	1	8260B	11/30/17 18:15	ANG	P7K0551
Toluene	BRL	mg/kg dry	0.0057	0.00033	1	8260B	11/30/17 18:15	ANG	P7K0551
trans-1,2-Dichloroethylene	BRL	mg/kg dry	0.0057	0.00034	1	8260B	11/30/17 18:15	ANG	P7K0551
trans-1,3-Dichloropropylene	BRL	mg/kg dry	0.0057	0.00030	1	8260B	11/30/17 18:15	ANG	P7K0551
Trichloroethylene	BRL	mg/kg dry	0.0057	0.00037	1	8260B	11/30/17 18:15	ANG	P7K0551
Trichlorofluoromethane	BRL	mg/kg dry	0.0057	0.00037	1	8260B	11/30/17 18:15	ANG	P7K0551
Vinyl acetate	BRL	mg/kg dry	0.029	0.00079	1	8260B	11/30/17 18:15	ANG	P7K0551
Vinyl chloride	BRL	mg/kg dry	0.0057	0.00028	1	8260B	11/30/17 18:15	ANG	P7K0551
Xylenes, total	BRL	mg/kg dry	0.017	0.0011	1	8260B	11/30/17 18:15	ANG	P7K0551

Surrogate	Recovery	Control Limits
4-Bromofluorobenzene	*97 %*	*70-130*
Dibromofluoromethane	*99 %*	*84-123*
Toluene-d8	*88 %*	*76-129*

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0551 - 5035										
Blank (P7K0551-BLK1)				Prepared & Analyzed: 11/30/17						
1,1,1,2-Tetrachloroethane	BRL	0.0050	mg/kg wet							
1,1,1-Trichloroethane	BRL	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	BRL	0.0050	mg/kg wet							
1,1,2-Trichloroethane	BRL	0.0050	mg/kg wet							
1,1-Dichloroethane	BRL	0.0050	mg/kg wet							
1,1-Dichloroethylene	BRL	0.0050	mg/kg wet							
1,1-Dichloropropylene	BRL	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	BRL	0.0050	mg/kg wet							
1,2,3-Trichloropropane	BRL	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	BRL	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	BRL	0.0050	mg/kg wet							
1,2-Dibromoethane	BRL	0.0050	mg/kg wet							
1,2-Dichlorobenzene	BRL	0.0050	mg/kg wet							
1,2-Dichloroethane	BRL	0.0050	mg/kg wet							
1,2-Dichloropropane	BRL	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	BRL	0.0050	mg/kg wet							
1,3-Dichlorobenzene	BRL	0.0050	mg/kg wet							
1,3-Dichloropropane	BRL	0.0050	mg/kg wet							
1,4-Dichlorobenzene	BRL	0.0050	mg/kg wet							
2,2-Dichloropropane	BRL	0.0050	mg/kg wet							
2-Chlorotoluene	BRL	0.0050	mg/kg wet							
4-Chlorotoluene	BRL	0.0050	mg/kg wet							
4-Isopropyltoluene	BRL	0.0050	mg/kg wet							
Acetone	BRL	0.050	mg/kg wet							
Benzene	BRL	0.0030	mg/kg wet							
Bromobenzene	BRL	0.0050	mg/kg wet							
Bromochloromethane	BRL	0.0050	mg/kg wet							
Bromodichloromethane	BRL	0.0050	mg/kg wet							
Bromoform	BRL	0.0050	mg/kg wet							
Bromomethane	BRL	0.010	mg/kg wet							
Carbon Tetrachloride	BRL	0.0050	mg/kg wet							
Chlorobenzene	BRL	0.0050	mg/kg wet							
Chloroethane	BRL	0.010	mg/kg wet							
Chloroform	BRL	0.0050	mg/kg wet							
Chloromethane	BRL	0.0050	mg/kg wet							
cis-1,2-Dichloroethylene	BRL	0.0050	mg/kg wet							
cis-1,3-Dichloropropylene	BRL	0.0050	mg/kg wet							
Dibromochloromethane	BRL	0.0050	mg/kg wet							
Dichlorodifluoromethane	BRL	0.0050	mg/kg wet							
Ethylbenzene	BRL	0.0050	mg/kg wet							
Isopropyl Ether	BRL	0.0050	mg/kg wet							
Isopropylbenzene (Cumene)	BRL	0.0050	mg/kg wet							
m,p-Xylenes	BRL	0.010	mg/kg wet							
Methyl Butyl Ketone (2-Hexanone)	BRL	0.050	mg/kg wet							
Methyl Ethyl Ketone (2-Butanone)	BRL	0.10	mg/kg wet							
Methyl Isobutyl Ketone	BRL	0.050	mg/kg wet							

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0551 - 5035										
Blank (P7K0551-BLK1)				Prepared & Analyzed: 11/30/17						
Methylene Chloride	BRL	0.010	mg/kg wet							
Methyl-tert-Butyl Ether	BRL	0.010	mg/kg wet							
Naphthalene	BRL	0.010	mg/kg wet							
n-Butylbenzene	BRL	0.0050	mg/kg wet							
n-Propylbenzene	BRL	0.0050	mg/kg wet							
o-Xylene	BRL	0.0050	mg/kg wet							
sec-Butylbenzene	BRL	0.0050	mg/kg wet							
Styrene	BRL	0.0050	mg/kg wet							
tert-Butylbenzene	BRL	0.0050	mg/kg wet							
Tetrachloroethylene	BRL	0.0050	mg/kg wet							
Toluene	BRL	0.0050	mg/kg wet							
trans-1,2-Dichloroethylene	BRL	0.0050	mg/kg wet							
trans-1,3-Dichloropropylene	BRL	0.0050	mg/kg wet							
Trichloroethylene	BRL	0.0050	mg/kg wet							
Trichlorofluoromethane	BRL	0.0050	mg/kg wet							
Vinyl acetate	BRL	0.025	mg/kg wet							
Vinyl chloride	BRL	0.0050	mg/kg wet							
Xylenes, total	BRL	0.015	mg/kg wet							
Surrogate: 4-Bromofluorobenzene	*48.9*		*ug/L*	*50.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*47.4*		*ug/L*	*50.00*		*95*	*84-123*			
Surrogate: Toluene-d8	*45.0*		*ug/L*	*50.00*		*90*	*76-129*			
LCS (P7K0551-BS1)				Prepared & Analyzed: 11/30/17						
1,1,1,2-Tetrachloroethane	0.0514	0.0050	mg/kg wet	0.05000		103	72-115			
1,1,1-Trichloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	67-131			
1,1,2,2-Tetrachloroethane	0.0403	0.0050	mg/kg wet	0.05000		81	56-126			
1,1,2-Trichloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-133			
1,1-Dichloroethane	0.0514	0.0050	mg/kg wet	0.05000		103	74-127			
1,1-Dichloroethylene	0.0556	0.0050	mg/kg wet	0.05000		111	67-149			
1,1-Dichloropropylene	0.0559	0.0050	mg/kg wet	0.05000		112	71-130			
1,2,3-Trichlorobenzene	0.0460	0.0050	mg/kg wet	0.05000		92	68-130			
1,2,3-Trichloropropane	0.0407	0.0050	mg/kg wet	0.05000		81	60-137			
1,2,4-Trichlorobenzene	0.0461	0.0050	mg/kg wet	0.05000		92	66-125			
1,2,4-Trimethylbenzene	0.0445	0.0050	mg/kg wet	0.05000		89	69-129			
1,2-Dibromoethane	0.0475	0.0050	mg/kg wet	0.05000		95	70-132			
1,2-Dichlorobenzene	0.0442	0.0050	mg/kg wet	0.05000		88	72-123			
1,2-Dichloroethane	0.0492	0.0050	mg/kg wet	0.05000		98	68-128			
1,2-Dichloropropane	0.0516	0.0050	mg/kg wet	0.05000		103	73-130			
1,3,5-Trimethylbenzene	0.0400	0.0050	mg/kg wet	0.05000		80	69-128			
1,3-Dichlorobenzene	0.0438	0.0050	mg/kg wet	0.05000		88	71-120			
1,3-Dichloropropane	0.0468	0.0050	mg/kg wet	0.05000		94	75-124			
1,4-Dichlorobenzene	0.0437	0.0050	mg/kg wet	0.05000		87	71-123			
2,2-Dichloropropane	0.0535	0.0050	mg/kg wet	0.05000		107	50-142			
2-Chlorotoluene	0.0430	0.0050	mg/kg wet	0.05000		86	67-124			
4-Chlorotoluene	0.0443	0.0050	mg/kg wet	0.05000		89	71-126			
4-Isopropyltoluene	0.0428	0.0050	mg/kg wet	0.05000		86	68-129			
Acetone	0.100	0.050	mg/kg wet	0.1000		100	29-198			

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0551 - 5035										
LCS (P7K0551-BS1)				Prepared & Analyzed: 11/30/17						
Benzene	0.0520	0.0030	mg/kg wet	0.05000		104	74-127			
Bromobenzene	0.0420	0.0050	mg/kg wet	0.05000		84	73-125			
Bromochloromethane	0.0526	0.0050	mg/kg wet	0.05000		105	72-134			
Bromodichloromethane	0.0555	0.0050	mg/kg wet	0.05000		111	75-122			
Bromoform	0.0509	0.0050	mg/kg wet	0.05000		102	66-135			
Bromomethane	0.0443	0.010	mg/kg wet	0.05000		89	20-180			
Carbon Tetrachloride	0.0550	0.0050	mg/kg wet	0.05000		110	64-143			
Chlorobenzene	0.0478	0.0050	mg/kg wet	0.05000		96	74-118			
Chloroethane	0.0418	0.010	mg/kg wet	0.05000		84	33-149			
Chloroform	0.0545	0.0050	mg/kg wet	0.05000		109	73-127			
Chloromethane	0.0561	0.0050	mg/kg wet	0.05000		112	45-143			
cis-1,2-Dichloroethylene	0.0531	0.0050	mg/kg wet	0.05000		106	76-134			
cis-1,3-Dichloropropylene	0.0528	0.0050	mg/kg wet	0.05000		106	71-125			
Dibromochloromethane	0.0516	0.0050	mg/kg wet	0.05000		103	73-122			
Dichlorodifluoromethane	0.0778	0.0050	mg/kg wet	0.05000		156	26-146			LH
Ethylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	74-128			
Isopropyl Ether	0.0492	0.0050	mg/kg wet	0.05000		98	59-159			
Isopropylbenzene (Cumene)	0.0431	0.0050	mg/kg wet	0.05000		86	68-126			
m,p-Xylenes	0.105	0.010	mg/kg wet	0.1000		105	75-124			
Methyl Butyl Ketone (2-Hexanone)	0.0407	0.050	mg/kg wet	0.05000		81	61-157			J
Methyl Ethyl Ketone (2-Butanone)	0.0430	0.10	mg/kg wet	0.05000		86	63-149			J
Methyl Isobutyl Ketone	0.0459	0.050	mg/kg wet	0.05000		92	57-162			J
Methylene Chloride	0.0506	0.010	mg/kg wet	0.05000		101	74-129			
Methyl-tert-Butyl Ether	0.0525	0.010	mg/kg wet	0.05000		105	70-130			
Naphthalene	0.0418	0.010	mg/kg wet	0.05000		84	57-157			
n-Butylbenzene	0.0424	0.0050	mg/kg wet	0.05000		85	65-135			
n-Propylbenzene	0.0433	0.0050	mg/kg wet	0.05000		87	67-130			
o-Xylene	0.0480	0.0050	mg/kg wet	0.05000		96	74-126			
sec-Butylbenzene	0.0433	0.0050	mg/kg wet	0.05000		87	66-131			
Styrene	0.0491	0.0050	mg/kg wet	0.05000		98	77-121			
tert-Butylbenzene	0.0431	0.0050	mg/kg wet	0.05000		86	67-132			
Tetrachloroethylene	0.0530	0.0050	mg/kg wet	0.05000		106	68-130			
Toluene	0.0522	0.0050	mg/kg wet	0.05000		104	71-129			
trans-1,2-Dichloroethylene	0.0553	0.0050	mg/kg wet	0.05000		111	73-132			
trans-1,3-Dichloropropylene	0.0532	0.0050	mg/kg wet	0.05000		106	68-123			
Trichloroethylene	0.0538	0.0050	mg/kg wet	0.05000		108	75-133			
Trichlorofluoromethane	0.0421	0.0050	mg/kg wet	0.05000		84	44-146			
Vinyl acetate	0.0528	0.025	mg/kg wet	0.05000		106	85-161			
Vinyl chloride	0.0575	0.0050	mg/kg wet	0.05000		115	48-147			
Xylenes, total	0.153	0.015	mg/kg wet	0.1500		102	74-126			
Surrogate: 4-Bromofluorobenzene	*49.2*		*ug/L*	*50.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*49.6*		*ug/L*	*50.00*		*99*	*84-123*			
Surrogate: Toluene-d8	*45.5*		*ug/L*	*50.00*		*91*	*76-129*			

Geoscience Group
Attn: Tom Hassett
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Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0551 - 5035										
LCS Dup (P7K0551-BSD1)				Prepared & Analyzed: 11/30/17						
1,1,1,2-Tetrachloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	72-115	0.6	20	
1,1,1-Trichloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	67-131	0.9	20	
1,1,2,2-Tetrachloroethane	0.0424	0.0050	mg/kg wet	0.05000		85	56-126	5	20	
1,1,2-Trichloroethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-133	4	20	
1,1-Dichloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	74-127	0.9	20	
1,1-Dichloroethylene	0.0550	0.0050	mg/kg wet	0.05000		110	67-149	1	20	
1,1-Dichloropropylene	0.0549	0.0050	mg/kg wet	0.05000		110	71-130	2	20	
1,2,3-Trichlorobenzene	0.0456	0.0050	mg/kg wet	0.05000		91	68-130	0.8	20	
1,2,3-Trichloropropane	0.0425	0.0050	mg/kg wet	0.05000		85	60-137	4	20	
1,2,4-Trichlorobenzene	0.0457	0.0050	mg/kg wet	0.05000		91	66-125	0.9	20	
1,2,4-Trimethylbenzene	0.0449	0.0050	mg/kg wet	0.05000		90	69-129	0.9	20	
1,2-Dibromoethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-132	4	20	
1,2-Dichlorobenzene	0.0448	0.0050	mg/kg wet	0.05000		90	72-123	1	20	
1,2-Dichloroethane	0.0511	0.0050	mg/kg wet	0.05000		102	68-128	4	20	
1,2-Dichloropropane	0.0518	0.0050	mg/kg wet	0.05000		104	73-130	0.3	20	
1,3,5-Trimethylbenzene	0.0404	0.0050	mg/kg wet	0.05000		81	69-128	1	20	
1,3-Dichlorobenzene	0.0442	0.0050	mg/kg wet	0.05000		88	71-120	1	20	
1,3-Dichloropropane	0.0485	0.0050	mg/kg wet	0.05000		97	75-124	3	20	
1,4-Dichlorobenzene	0.0444	0.0050	mg/kg wet	0.05000		89	71-123	1	20	
2,2-Dichloropropane	0.0527	0.0050	mg/kg wet	0.05000		105	50-142	1	20	
2-Chlorotoluene	0.0436	0.0050	mg/kg wet	0.05000		87	67-124	1	20	
4-Chlorotoluene	0.0448	0.0050	mg/kg wet	0.05000		90	71-126	1	20	
4-Isopropyltoluene	0.0425	0.0050	mg/kg wet	0.05000		85	68-129	0.8	20	
Acetone	0.100	0.050	mg/kg wet	0.1000		100	29-198	0.05	20	
Benzene	0.0521	0.0030	mg/kg wet	0.05000		104	74-127	0.2	20	
Bromobenzene	0.0429	0.0050	mg/kg wet	0.05000		86	73-125	2	20	
Bromochloromethane	0.0533	0.0050	mg/kg wet	0.05000		107	72-134	1	20	
Bromodichloromethane	0.0560	0.0050	mg/kg wet	0.05000		112	75-122	0.8	20	
Bromoform	0.0519	0.0050	mg/kg wet	0.05000		104	66-135	2	20	
Bromomethane	0.0425	0.010	mg/kg wet	0.05000		85	20-180	4	20	
Carbon Tetrachloride	0.0560	0.0050	mg/kg wet	0.05000		112	64-143	2	20	
Chlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	74-118	0.4	20	
Chloroethane	0.0426	0.010	mg/kg wet	0.05000		85	33-149	2	20	
Chloroform	0.0552	0.0050	mg/kg wet	0.05000		110	73-127	1	20	
Chloromethane	0.0486	0.0050	mg/kg wet	0.05000		97	45-143	14	20	
cis-1,2-Dichloroethylene	0.0532	0.0050	mg/kg wet	0.05000		106	76-134	0.2	20	
cis-1,3-Dichloropropylene	0.0537	0.0050	mg/kg wet	0.05000		107	71-125	2	20	
Dibromochloromethane	0.0532	0.0050	mg/kg wet	0.05000		106	73-122	3	20	
Dichlorodifluoromethane	0.0733	0.0050	mg/kg wet	0.05000		147	26-146	6	20	LH
Ethylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	74-128	0.7	20	
Isopropyl Ether	0.0504	0.0050	mg/kg wet	0.05000		101	59-159	2	20	
Isopropylbenzene (Cumene)	0.0433	0.0050	mg/kg wet	0.05000		87	68-126	0.6	20	
m,p-Xylenes	0.105	0.010	mg/kg wet	0.1000		105	75-124	0.02	20	
Methyl Butyl Ketone (2-Hexanone)	0.0426	0.050	mg/kg wet	0.05000		85	61-157	5	20	J
Methyl Ethyl Ketone (2-Butanone)	0.0442	0.10	mg/kg wet	0.05000		88	63-149	3	20	J
Methyl Isobutyl Ketone	0.0474	0.050	mg/kg wet	0.05000		95	57-162	3	20	J

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7K0551 - 5035										
LCS Dup (P7K0551-BSD1)			Prepared & Analyzed: 11/30/17							
Methylene Chloride	0.0512	0.010	mg/kg wet	0.05000		102	74-129	1	20	
Methyl-tert-Butyl Ether	0.0542	0.010	mg/kg wet	0.05000		108	70-130	3	20	
Naphthalene	0.0421	0.010	mg/kg wet	0.05000		84	57-157	0.9	20	
n-Butylbenzene	0.0421	0.0050	mg/kg wet	0.05000		84	65-135	0.7	20	
n-Propylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	67-130	0.2	20	
o-Xylene	0.0478	0.0050	mg/kg wet	0.05000		96	74-126	0.5	20	
sec-Butylbenzene	0.0434	0.0050	mg/kg wet	0.05000		87	66-131	0.2	20	
Styrene	0.0495	0.0050	mg/kg wet	0.05000		99	77-121	0.8	20	
tert-Butylbenzene	0.0430	0.0050	mg/kg wet	0.05000		86	67-132	0.2	20	
Tetrachloroethylene	0.0520	0.0050	mg/kg wet	0.05000		104	68-130	2	20	
Toluene	0.0522	0.0050	mg/kg wet	0.05000		104	71-129	0.08	20	
trans-1,2-Dichloroethylene	0.0547	0.0050	mg/kg wet	0.05000		109	73-132	1	20	
trans-1,3-Dichloropropylene	0.0542	0.0050	mg/kg wet	0.05000		108	68-123	2	20	
Trichloroethylene	0.0536	0.0050	mg/kg wet	0.05000		107	75-133	0.4	20	
Trichlorofluoromethane	0.0411	0.0050	mg/kg wet	0.05000		82	44-146	2	20	
Vinyl acetate	0.0513	0.025	mg/kg wet	0.05000		103	85-161	3	20	
Vinyl chloride	0.0550	0.0050	mg/kg wet	0.05000		110	48-147	4	20	
Xylenes, total	0.153	0.015	mg/kg wet	0.1500		102	74-126	0.1	20	
Surrogate: 4-Bromofluorobenzene	*48.5*		*ug/L*	*50.00*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*49.2*		*ug/L*	*50.00*		*98*	*84-123*			
Surrogate: Toluene-d8	*46.1*		*ug/L*	*50.00*		*92*	*76-129*			
Batch P7L0031 - 5035										
Blank (P7L0031-BLK1)			Prepared & Analyzed: 12/01/17							
1,1,1,2-Tetrachloroethane	BRL	0.0050	mg/kg wet							
1,1,1-Trichloroethane	BRL	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	BRL	0.0050	mg/kg wet							
1,1,2-Trichloroethane	BRL	0.0050	mg/kg wet							
1,1-Dichloroethane	BRL	0.0050	mg/kg wet							
1,1-Dichloroethylene	BRL	0.0050	mg/kg wet							
1,1-Dichloropropylene	BRL	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	BRL	0.0050	mg/kg wet							
1,2,3-Trichloropropane	BRL	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	BRL	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	BRL	0.0050	mg/kg wet							
1,2-Dibromoethane	BRL	0.0050	mg/kg wet							
1,2-Dichlorobenzene	BRL	0.0050	mg/kg wet							
1,2-Dichloroethane	BRL	0.0050	mg/kg wet							
1,2-Dichloropropane	BRL	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	BRL	0.0050	mg/kg wet							
1,3-Dichlorobenzene	BRL	0.0050	mg/kg wet							
1,3-Dichloropropane	BRL	0.0050	mg/kg wet							
1,4-Dichlorobenzene	BRL	0.0050	mg/kg wet							
2,2-Dichloropropane	BRL	0.0050	mg/kg wet							
2-Chlorotoluene	BRL	0.0050	mg/kg wet							
4-Chlorotoluene	BRL	0.0050	mg/kg wet							

Geoscience Group
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500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0031 - 5035										
Blank (P7L0031-BLK1)				Prepared & Analyzed: 12/01/17						
4-Isopropyltoluene	BRL	0.0050	mg/kg wet							
Acetone	BRL	0.050	mg/kg wet							
Benzene	BRL	0.0030	mg/kg wet							
Bromobenzene	BRL	0.0050	mg/kg wet							
Bromochloromethane	BRL	0.0050	mg/kg wet							
Bromodichloromethane	BRL	0.0050	mg/kg wet							
Bromoform	BRL	0.0050	mg/kg wet							
Bromomethane	BRL	0.010	mg/kg wet							
Carbon Tetrachloride	BRL	0.0050	mg/kg wet							
Chlorobenzene	BRL	0.0050	mg/kg wet							
Chloroethane	BRL	0.010	mg/kg wet							
Chloroform	BRL	0.0050	mg/kg wet							
Chloromethane	BRL	0.0050	mg/kg wet							
cis-1,2-Dichloroethylene	BRL	0.0050	mg/kg wet							
cis-1,3-Dichloropropylene	BRL	0.0050	mg/kg wet							
Dibromochloromethane	BRL	0.0050	mg/kg wet							
Dichlorodifluoromethane	BRL	0.0050	mg/kg wet							
Ethylbenzene	BRL	0.0050	mg/kg wet							
Isopropyl Ether	BRL	0.0050	mg/kg wet							
Isopropylbenzene (Cumene)	BRL	0.0050	mg/kg wet							
m,p-Xylenes	BRL	0.010	mg/kg wet							
Methyl Butyl Ketone (2-Hexanone)	BRL	0.050	mg/kg wet							
Methyl Ethyl Ketone (2-Butanone)	BRL	0.10	mg/kg wet							
Methyl Isobutyl Ketone	BRL	0.050	mg/kg wet							
Methylene Chloride	BRL	0.010	mg/kg wet							
Methyl-tert-Butyl Ether	BRL	0.010	mg/kg wet							
Naphthalene	BRL	0.010	mg/kg wet							
n-Butylbenzene	BRL	0.0050	mg/kg wet							
n-Propylbenzene	BRL	0.0050	mg/kg wet							
o-Xylene	BRL	0.0050	mg/kg wet							
sec-Butylbenzene	BRL	0.0050	mg/kg wet							
Styrene	BRL	0.0050	mg/kg wet							
tert-Butylbenzene	BRL	0.0050	mg/kg wet							
Tetrachloroethylene	BRL	0.0050	mg/kg wet							
Toluene	BRL	0.0050	mg/kg wet							
trans-1,2-Dichloroethylene	BRL	0.0050	mg/kg wet							
trans-1,3-Dichloropropylene	BRL	0.0050	mg/kg wet							
Trichloroethylene	BRL	0.0050	mg/kg wet							
Trichlorofluoromethane	BRL	0.0050	mg/kg wet							
Vinyl acetate	BRL	0.025	mg/kg wet							
Vinyl chloride	BRL	0.0050	mg/kg wet							
Xylenes, total	BRL	0.015	mg/kg wet							
Surrogate: 4-Bromofluorobenzene	*49.3*		*ug/L*	*50.00*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*50.0*		*ug/L*	*50.00*		*100*	*84-123*			
Surrogate: Toluene-d8	*50.1*		*ug/L*	*50.00*		*100*	*76-129*			

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0031 - 5035										
LCS (P7L0031-BS1)				Prepared & Analyzed: 12/01/17						
1,1,1,2-Tetrachloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	72-115			
1,1,1-Trichloroethane	0.0670	0.0050	mg/kg wet	0.05000		134	67-131			L1
1,1,2,2-Tetrachloroethane	0.0333	0.0050	mg/kg wet	0.05000		67	56-126			
1,1,2-Trichloroethane	0.0448	0.0050	mg/kg wet	0.05000		90	70-133			
1,1-Dichloroethane	0.0551	0.0050	mg/kg wet	0.05000		110	74-127			
1,1-Dichloroethylene	0.0596	0.0050	mg/kg wet	0.05000		119	67-149			
1,1-Dichloropropylene	0.0618	0.0050	mg/kg wet	0.05000		124	71-130			
1,2,3-Trichlorobenzene	0.0410	0.0050	mg/kg wet	0.05000		82	68-130			
1,2,3-Trichloropropane	0.0373	0.0050	mg/kg wet	0.05000		75	60-137			
1,2,4-Trichlorobenzene	0.0415	0.0050	mg/kg wet	0.05000		83	66-125			
1,2,4-Trimethylbenzene	0.0396	0.0050	mg/kg wet	0.05000		79	69-129			
1,2-Dibromoethane	0.0445	0.0050	mg/kg wet	0.05000		89	70-132			
1,2-Dichlorobenzene	0.0387	0.0050	mg/kg wet	0.05000		77	72-123			
1,2-Dichloroethane	0.0646	0.0050	mg/kg wet	0.05000		129	68-128			L1
1,2-Dichloropropane	0.0535	0.0050	mg/kg wet	0.05000		107	73-130			
1,3,5-Trimethylbenzene	0.0386	0.0050	mg/kg wet	0.05000		77	69-128			
1,3-Dichlorobenzene	0.0384	0.0050	mg/kg wet	0.05000		77	71-120			
1,3-Dichloropropane	0.0437	0.0050	mg/kg wet	0.05000		87	75-124			
1,4-Dichlorobenzene	0.0390	0.0050	mg/kg wet	0.05000		78	71-123			
2,2-Dichloropropane	0.0660	0.0050	mg/kg wet	0.05000		132	50-142			
2-Chlorotoluene	0.0377	0.0050	mg/kg wet	0.05000		75	67-124			
4-Chlorotoluene	0.0374	0.0050	mg/kg wet	0.05000		75	71-126			
4-Isopropyltoluene	0.0402	0.0050	mg/kg wet	0.05000		80	68-129			
Acetone	0.138	0.050	mg/kg wet	0.1000		138	29-198			
Benzene	0.0547	0.0030	mg/kg wet	0.05000		109	74-127			
Bromobenzene	0.0350	0.0050	mg/kg wet	0.05000		70	73-125			L
Bromochloromethane	0.0534	0.0050	mg/kg wet	0.05000		107	72-134			
Bromodichloromethane	0.0643	0.0050	mg/kg wet	0.05000		129	75-122			L1
Bromoform	0.0474	0.0050	mg/kg wet	0.05000		95	66-135			
Bromomethane	0.0592	0.010	mg/kg wet	0.05000		118	20-180			
Carbon Tetrachloride	0.0711	0.0050	mg/kg wet	0.05000		142	64-143			
Chlorobenzene	0.0447	0.0050	mg/kg wet	0.05000		89	74-116			
Chloroethane	0.0398	0.010	mg/kg wet	0.05000		80	33-149			
Chloroform	0.0634	0.0050	mg/kg wet	0.05000		127	73-127			
Chloromethane	0.0706	0.0050	mg/kg wet	0.05000		141	45-143			
cis-1,2-Dichloroethylene	0.0577	0.0050	mg/kg wet	0.05000		115	76-134			
cis-1,3-Dichloropropylene	0.0594	0.0050	mg/kg wet	0.05000		119	71-125			
Dibromochloromethane	0.0467	0.0050	mg/kg wet	0.05000		93	73-122			
Dichlorodifluoromethane	0.0750	0.0050	mg/kg wet	0.05000		150	26-146			L1
Ethylbenzene	0.0459	0.0050	mg/kg wet	0.05000		92	74-128			
Isopropyl Ether	0.0575	0.0050	mg/kg wet	0.05000		115	59-159			
Isopropylbenzene (Cumene)	0.0374	0.0050	mg/kg wet	0.05000		75	68-126			
m,p-Xylenes	0.0938	0.010	mg/kg wet	0.1000		94	75-124			
Methyl Butyl Ketone (2-Hexanone)	0.0500	0.050	mg/kg wet	0.05000		100	61-157			
Methyl Ethyl Ketone (2-Butanone)	0.0580	0.10	mg/kg wet	0.05000		116	63-149			J
Methyl Isobutyl Ketone	0.0621	0.050	mg/kg wet	0.05000		124	57-162			

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0031 - 5035										
LCS (P7L0031-BS1)				Prepared & Analyzed: 12/01/17						
Methylene Chloride	0.0548	0.010	mg/kg wet	0.05000		110	74-129			
Methyl-tert-Butyl Ether	0.0588	0.010	mg/kg wet	0.05000		118	70-130			
Naphthalene	0.0407	0.010	mg/kg wet	0.05000		81	57-157			
n-Butylbenzene	0.0407	0.0050	mg/kg wet	0.05000		81	65-135			
n-Propylbenzene	0.0369	0.0050	mg/kg wet	0.05000		74	67-130			
o-Xylene	0.0476	0.0050	mg/kg wet	0.05000		95	74-126			
sec-Butylbenzene	0.0385	0.0050	mg/kg wet	0.05000		77	66-131			
Styrene	0.0460	0.0050	mg/kg wet	0.05000		92	77-121			
tert-Butylbenzene	0.0392	0.0050	mg/kg wet	0.05000		78	67-132			
Tetrachloroethylene	0.0596	0.0050	mg/kg wet	0.05000		119	68-130			
Toluene	0.0557	0.0050	mg/kg wet	0.05000		111	71-129			
trans-1,2-Dichloroethylene	0.0585	0.0050	mg/kg wet	0.05000		117	73-132			
trans-1,3-Dichloropropylene	0.0625	0.0050	mg/kg wet	0.05000		125	68-123			L1
Trichloroethylene	0.0608	0.0050	mg/kg wet	0.05000		122	75-133			
Trichlorofluoromethane	0.0668	0.0050	mg/kg wet	0.05000		134	44-146			
Vinyl acetate	0.0564	0.025	mg/kg wet	0.05000		113	85-161			
Vinyl chloride	0.0690	0.0050	mg/kg wet	0.05000		138	48-147			
Xylenes, total	0.141	0.015	mg/kg wet	0.1500		94	74-126			
Surrogate: 4-Bromofluorobenzene	*45.9*		*ug/L*	*50.00*		*92*	*70-130*			
Surrogate: Dibromofluoromethane	*49.2*		*ug/L*	*50.00*		*98*	*84-123*			
Surrogate: Toluene-d8	*50.4*		*ug/L*	*50.00*		*101*	*76-129*			
LCS Dup (P7L0031-BSD1)				Prepared & Analyzed: 12/01/17						
1,1,1,2-Tetrachloroethane	0.0439	0.0050	mg/kg wet	0.05000		88	72-115	8	20	
1,1,1-Trichloroethane	0.0607	0.0050	mg/kg wet	0.05000		121	67-131	10	20	
1,1,2,2-Tetrachloroethane	0.0319	0.0050	mg/kg wet	0.05000		64	56-126	4	20	
1,1,2-Trichloroethane	0.0379	0.0050	mg/kg wet	0.05000		76	70-133	17	20	
1,1-Dichloroethane	0.0502	0.0050	mg/kg wet	0.05000		100	74-127	9	20	
1,1-Dichloroethylene	0.0549	0.0050	mg/kg wet	0.05000		110	67-149	8	20	
1,1-Dichloropropylene	0.0563	0.0050	mg/kg wet	0.05000		113	71-130	9	20	
1,2,3-Trichlorobenzene	0.0397	0.0050	mg/kg wet	0.05000		79	68-130	3	20	
1,2,3-Trichloropropane	0.0351	0.0050	mg/kg wet	0.05000		70	60-137	6	20	
1,2,4-Trichlorobenzene	0.0396	0.0050	mg/kg wet	0.05000		79	66-125	5	20	
1,2,4-Trimethylbenzene	0.0385	0.0050	mg/kg wet	0.05000		77	69-129	3	20	
1,2-Dibromoethane	0.0427	0.0050	mg/kg wet	0.05000		85	70-132	4	20	
1,2-Dichlorobenzene	0.0369	0.0050	mg/kg wet	0.05000		74	72-123	5	20	
1,2-Dichloroethane	0.0586	0.0050	mg/kg wet	0.05000		117	68-128	10	20	
1,2-Dichloropropane	0.0493	0.0050	mg/kg wet	0.05000		99	73-130	8	20	
1,3,5-Trimethylbenzene	0.0362	0.0050	mg/kg wet	0.05000		72	69-128	6	20	
1,3-Dichlorobenzene	0.0364	0.0050	mg/kg wet	0.05000		73	71-120	5	20	
1,3-Dichloropropane	0.0411	0.0050	mg/kg wet	0.05000		82	75-124	6	20	
1,4-Dichlorobenzene	0.0367	0.0050	mg/kg wet	0.05000		73	71-123	6	20	
2,2-Dichloropropane	0.0598	0.0050	mg/kg wet	0.05000		120	50-142	10	20	
2-Chlorotoluene	0.0342	0.0050	mg/kg wet	0.05000		68	67-124	10	20	
4-Chlorotoluene	0.0367	0.0050	mg/kg wet	0.05000		73	71-126	2	20	
4-Isopropyltoluene	0.0366	0.0050	mg/kg wet	0.05000		73	68-129	9	20	
Acetone	0.120	0.050	mg/kg wet	0.1000		120	29-198	14	20	

Geoscience Group
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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0031 - 5035										
LCS Dup (P7L0031-BSD1)				Prepared & Analyzed: 12/01/17						
Benzene	0.0496	0.0030	mg/kg wet	0.05000		99	74-127	10	20	
Bromobenzene	0.0331	0.0050	mg/kg wet	0.05000		66	73-125	6	20	L
Bromochloromethane	0.0503	0.0050	mg/kg wet	0.05000		101	72-134	6	20	
Bromodichloromethane	0.0592	0.0050	mg/kg wet	0.05000		118	75-122	8	20	
Bromoform	0.0458	0.0050	mg/kg wet	0.05000		92	66-135	3	20	
Bromomethane	0.0589	0.010	mg/kg wet	0.05000		118	20-180	0.6	20	
Carbon Tetrachloride	0.0667	0.0050	mg/kg wet	0.05000		133	64-143	6	20	
Chlorobenzene	0.0409	0.0050	mg/kg wet	0.05000		82	74-118	9	20	
Chloroethane	0.0396	0.010	mg/kg wet	0.05000		79	33-149	0.3	20	
Chloroform	0.0590	0.0050	mg/kg wet	0.05000		118	73-127	7	20	
Chloromethane	0.0659	0.0050	mg/kg wet	0.05000		132	45-143	7	20	
cis-1,2-Dichloroethylene	0.0548	0.0050	mg/kg wet	0.05000		110	76-134	5	20	
cis-1,3-Dichloropropylene	0.0542	0.0050	mg/kg wet	0.05000		108	71-125	9	20	
Dibromochloromethane	0.0447	0.0050	mg/kg wet	0.05000		89	73-122	4	20	
Dichlorodifluoromethane	0.0713	0.0050	mg/kg wet	0.05000		143	26-146	5	20	
Ethylbenzene	0.0430	0.0050	mg/kg wet	0.05000		86	74-128	7	20	
Isopropyl Ether	0.0546	0.0050	mg/kg wet	0.05000		109	59-159	5	20	
Isopropylbenzene (Cumene)	0.0347	0.0050	mg/kg wet	0.05000		69	68-126	7	20	
m,p-Xylenes	0.0876	0.010	mg/kg wet	0.1000		88	75-124	7	20	
Methyl Butyl Ketone (2-Hexanone)	0.0464	0.050	mg/kg wet	0.05000		93	61-157	7	20	J
Methyl Ethyl Ketone (2-Butanone)	0.0521	0.10	mg/kg wet	0.05000		104	63-149	11	20	J
Methyl Isobutyl Ketone	0.0557	0.050	mg/kg wet	0.05000		111	57-162	11	20	
Methylene Chloride	0.0497	0.010	mg/kg wet	0.05000		99	74-129	10	20	
Methyl-tert-Butyl Ether	0.0538	0.010	mg/kg wet	0.05000		108	70-130	9	20	
Naphthalene	0.0385	0.010	mg/kg wet	0.05000		77	57-157	6	20	
n-Butylbenzene	0.0371	0.0050	mg/kg wet	0.05000		74	65-135	9	20	
n-Propylbenzene	0.0351	0.0050	mg/kg wet	0.05000		70	67-130	5	20	
o-Xylene	0.0442	0.0050	mg/kg wet	0.05000		88	74-126	7	20	
sec-Butylbenzene	0.0361	0.0050	mg/kg wet	0.05000		72	66-131	7	20	
Styrene	0.0435	0.0050	mg/kg wet	0.05000		87	77-121	6	20	
tert-Butylbenzene	0.0374	0.0050	mg/kg wet	0.05000		75	67-132	5	20	
Tetrachloroethylene	0.0544	0.0050	mg/kg wet	0.05000		109	68-130	9	20	
Toluene	0.0513	0.0050	mg/kg wet	0.05000		103	71-129	8	20	
trans-1,2-Dichloroethylene	0.0538	0.0050	mg/kg wet	0.05000		108	73-132	8	20	
trans-1,3-Dichloropropylene	0.0583	0.0050	mg/kg wet	0.05000		117	68-123	7	20	
Trichloroethylene	0.0539	0.0050	mg/kg wet	0.05000		108	75-133	12	20	
Trichlorofluoromethane	0.0641	0.0050	mg/kg wet	0.05000		128	44-146	4	20	
Vinyl acetate	0.0510	0.025	mg/kg wet	0.05000		102	85-161	10	20	
Vinyl chloride	0.0659	0.0050	mg/kg wet	0.05000		132	48-147	5	20	
Xylenes, total	0.132	0.015	mg/kg wet	0.1500		88	74-126	7	20	
Surrogate: 4-Bromofluorobenzene	*44.7*		*ug/L*	*50.00*		*89*	*70-130*			
Surrogate: Dibromofluoromethane	*47.9*		*ug/L*	*50.00*		*96*	*84-123*			
Surrogate: Toluene-d8	*51.2*		*ug/L*	*50.00*		*102*	*76-129*			

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

TCLP Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0102 - 5030B										
Blank (P7L0102-BLK1)				Prepared & Analyzed: 12/06/17						
1,1-Dichloroethylene	BRL	0.035	mg/L							
1,2-Dichloroethane	BRL	0.025	mg/L							
1,4-Dichlorobenzene	BRL	0.38	mg/L							
Benzene	BRL	0.025	mg/L							
Carbon Tetrachloride	BRL	0.025	mg/L							
Chlorobenzene	BRL	5.0	mg/L							
Chloroform	BRL	0.30	mg/L							
Methyl Ethyl Ketone (2-Butanone)	BRL	10	mg/L							
Tetrachloroethylene	BRL	0.035	mg/L							
Trichloroethylene	BRL	0.025	mg/L							
Vinyl chloride	BRL	0.020	mg/L							
Surrogate: 4-Bromofluorobenzene	*43.2*		*ug/L*	*50.00*		*86*	*80-124*			
Surrogate: Dibromofluoromethane	*43.5*		*ug/L*	*50.00*		*87*	*75-129*			
Surrogate: Toluene-d8	*42.6*		*ug/L*	*50.00*		*85*	*77-123*			
LCS (P7L0102-BS1)				Prepared & Analyzed: 12/06/17						
1,1-Dichloroethylene	0.0215	0.035	mg/L	0.02000		108	70-154			
1,2-Dichloroethane	0.0198	0.025	mg/L	0.02000		99	68-131			
1,4-Dichlorobenzene	0.0187	0.38	mg/L	0.02000		93	75-126			
Benzene	0.0235	0.025	mg/L	0.02000		118	77-128			
Carbon Tetrachloride	0.0201	0.025	mg/L	0.02000		100	72-142			
Chlorobenzene	0.0202	5.0	mg/L	0.02000		101	78-119			
Chloroform	0.0210	0.30	mg/L	0.02000		105	77-130			
Methyl Ethyl Ketone (2-Butanone)	0.0224	10	mg/L	0.02000		112	71-134			
Tetrachloroethylene	0.0199	0.035	mg/L	0.02000		100	80-129			
Trichloroethylene	0.0231	0.025	mg/L	0.02000		115	77-133			
Vinyl chloride	0.0236	0.010	mg/L	0.02000		118	57-141			
Surrogate: 4-Bromofluorobenzene	*44.2*		*ug/L*	*50.00*		*88*	*80-124*			
Surrogate: Dibromofluoromethane	*45.0*		*ug/L*	*50.00*		*90*	*75-129*			
Surrogate: Toluene-d8	*43.7*		*ug/L*	*50.00*		*87*	*77-123*			

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

TCLP Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0102 - 5030B										
LCS Dup (P7L0102-BSD1)				Prepared & Analyzed: 12/06/17						
1,1-Dichloroethylene	0.0211	0.035	mg/L	0.02000		105	70-154	2	20	
1,2-Dichloroethane	0.0200	0.025	mg/L	0.02000		100	68-131	1	20	
1,4-Dichlorobenzene	0.0185	0.38	mg/L	0.02000		93	75-126	0.7	20	
Benzene	0.0233	0.025	mg/L	0.02000		117	77-128	0.9	20	
Carbon Tetrachloride	0.0202	0.025	mg/L	0.02000		101	72-142	0.5	20	
Chlorobenzene	0.0204	5.0	mg/L	0.02000		102	78-119	1	20	
Chloroform	0.0208	0.30	mg/L	0.02000		104	77-130	0.6	20	
Methyl Ethyl Ketone (2-Butanone)	0.0230	10	mg/L	0.02000		115	71-134	2	20	
Tetrachloroethylene	0.0200	0.035	mg/L	0.02000		100	80-129	0.05	20	
Trichloroethylene	0.0230	0.025	mg/L	0.02000		115	77-133	0.4	20	
Vinyl chloride	0.0241	0.010	mg/L	0.02000		120	57-141	2	20	
Surrogate: 4-Bromofluorobenzene	*45.0*		*ug/L*	*50.00*		*90*	*80-124*			
Surrogate: Dibromofluoromethane	*45.5*		*ug/L*	*50.00*		*91*	*75-129*			
Surrogate: Toluene-d8	*44.1*		*ug/L*	*50.00*		*88*	*77-123*			

Geoscience Group
Attn: Tom Hassett
500-K Clanton Rd.
Charlotte, NC 28217

Project: Zion Ave. Site

Prism Work Order: 7110418
Time Submitted: 11/21/2017 9:15:00AM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0038 - Solids, Dry Weight										
Duplicate (P7L0038-DUP2)		**Source: 7110418-01**		Prepared & Analyzed: 12/01/17						
% Solids	73.8	0.100	% by Weight		74.3			0.7	20	
Duplicate (P7L0038-DUP3)		**Source: 7110418-05**		Prepared & Analyzed: 12/01/17						
% Solids	78.5	0.100	% by Weight		78.5			0.04	20	

Sample Extraction Data

Prep Method: Solids, Dry Weight

Lab Number	Batch	Initial	Final	Date/Time
7110418-01	P7L0038	30 g	30 g	12/01/17 16:00
7110418-02	P7L0038	30 g	30 g	12/01/17 16:00
7110418-03	P7L0038	30 g	30 g	12/01/17 16:00
7110418-04	P7L0038	30 g	30 g	12/01/17 16:00
7110418-05	P7L0038	30 g	30 g	12/01/17 16:00
7110418-06	P7L0038	30 g	30 g	12/01/17 16:00
7110418-07	P7L0038	30 g	30 g	12/01/17 16:00
7110418-08	P7L0038	30 g	30 g	12/01/17 16:00
7110418-09	P7L0038	30 g	30 g	12/01/17 16:00

Prep Method: 1311

Lab Number	Batch	Initial	Final	Date/Time
7110418-05	P7L0034	12.5 g	250 mL	12/04/17 15:00

Prep Method: 5030B

Lab Number	Batch	Initial	Final	Date/Time
7110418-05	P7L0102	1 mL	10 mL	12/06/17 8:42

Prep Method: 5035

Lab Number	Batch	Initial	Final	Date/Time
7110418-01	P7K0551	5.97 g	5 mL	11/30/17 10:36
7110418-02	P7K0551	11.13 g	5 mL	11/30/17 10:36
7110418-03	P7L0031	10.34 g	5 mL	12/01/17 8:08
7110418-04	P7K0551	7.15 g	5 mL	11/30/17 10:36
7110418-05	P7K0551	7.65 g	5 mL	11/30/17 10:36
7110418-06	P7K0551	6.86 g	5 mL	11/30/17 10:36
7110418-07	P7K0551	5.19 g	5 mL	11/30/17 10:36
7110418-08	P7K0551	5.81 g	5 mL	11/30/17 10:36
7110418-09	P7K0551	5.87 g	5 mL	11/30/17 10:36

CHAIN OF CUSTODY RECORD

PRISM LABORATORIES INC. | Full-Service Analytical & Environmental Solutions

449 Springbrook Road • Charlotte, NC 28217
Phone 704/529-6364 • Fax: 704/525-0409

PAGE ____ OF ____ QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: Zion Ave

Short Hold Analysis: (Yes) (No) UST Project: (Yes) (NO)

*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements

Invoice To: Geosolutions Group

Address: _____

Client Company Name: Geosolutions Group

Report To/Contact Name: Tom Hassett

Reporting Address: 500K Clanton Rd Charlotte, NC

Phone: 704-941-1226 Fax (Yes) (No): _____

Email Address: thassett@gmail.com

EDD Type: PDF √ Excel ____ Other ____

Site Location Name: Zion Ave

Site Location Physical Address: 20042 Zion Ave Cornelius

Purchase Order No./Billing Reference _____

Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days

"Working Days" ☐ 6-9 Days ☑ Standard 10 days ☐ Rush Work Must Be Pre-Approved

Samples received after 14:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE?	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?			✓
PROPER CONTAINERS used?	✓		

TEMP: Therm ID: IR-7 Observed: 4.5 °C / Corr. 4.0 °C

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC____ DoD____ FL____ NC____
SC____ OTHER____ N/A____

Water Chlorinated: YES___ NO___

Sample Iced Upon Collection: YES___ NO___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	SAMPLE CONTAINER NO.	SAMPLE CONTAINER SIZE	PRESERVATIVES	ANALYSIS REQUESTED 8260	ANALYSIS REQUESTED TCLP	ANALYSIS REQUESTED	ANALYSIS REQUESTED	ANALYSIS REQUESTED	ANALYSIS REQUESTED	REMARKS	PRISM LAB ID NO.
B-1	11-20	12:25	Soil	VOA	40	40ml	HCl	✓							01
B-2	11-20	13:20						✓							02
B-3		14:10						✓							03
B-4		14:54						✓							04
B-5		1520						✓	✓						05
B-6		1549						✓							06
B-7		1600						✓							07
B-8		1622						✓							08
B-4BA		1634						✓							09

Sampler's Signature _____ Sampled By (Print Name) _____ Affiliation _____

PRESS DOWN FIRMLY 3 COPIES

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

		Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)		
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature)	Received For Prism Laboratories By:	Date 11-21-17	0915

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☐ Prism Field Service ☐ Other _____

COC Group No. 7110418

Additional Comments:

PRISM USE ONLY

Site Arrival Time

Site Departure Time

Field Tech Fee

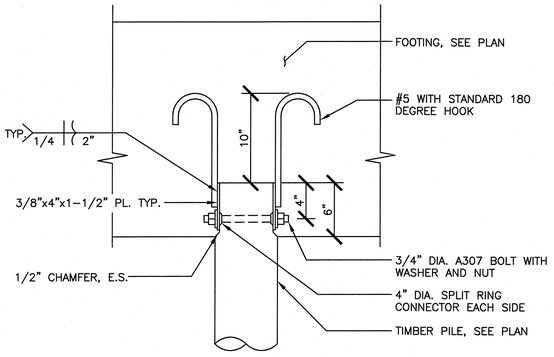
Mileage

SEE REVERSE FOR TERMS & CONDITIONS

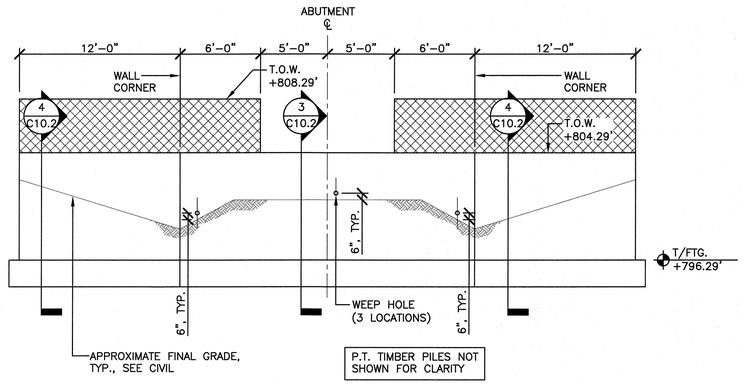
NPDES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC
☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____

*CONTAINER TYPE CODES: A = Amber C = Clear G= Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

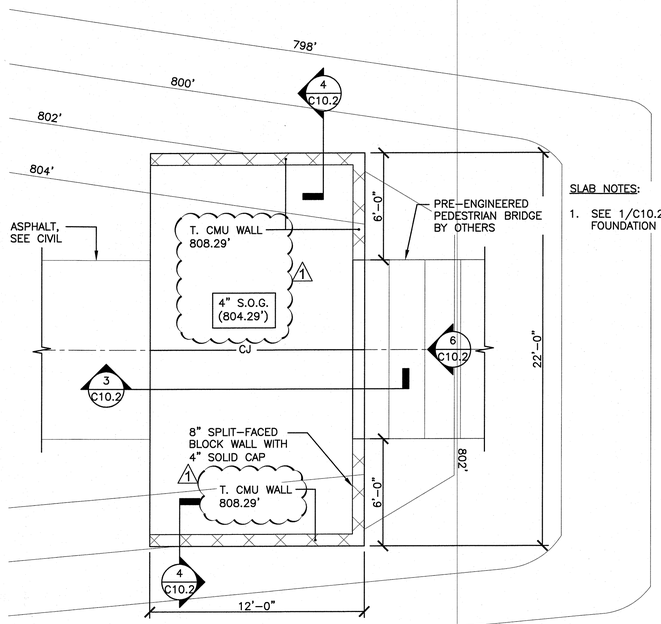
ORIGINAL



5 C10.2 UPLIFT CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



6 C10.2 RETAINING WALL ELEVATION
SCALE: 3/16" = 1'-0"

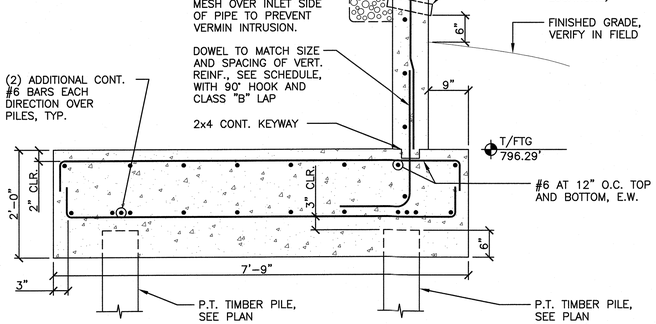


SLAB NOTES:

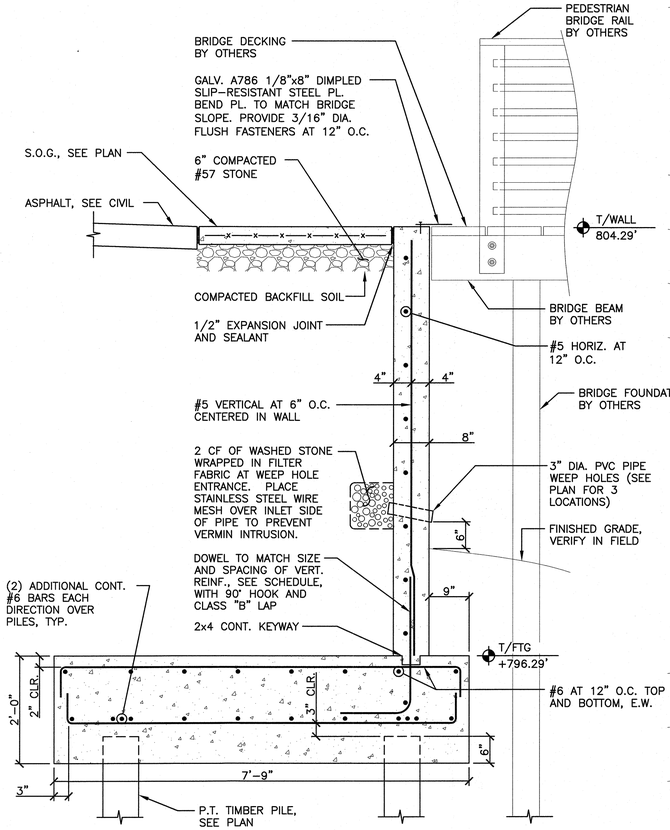
1. SEE 1/C10.2 FOR SLAB AND FOUNDATION NOTES.

NORTH

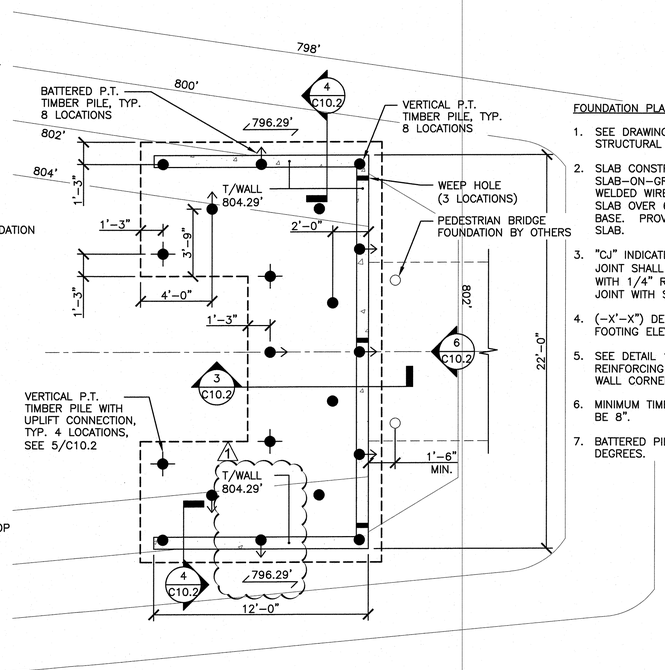
2 C10.2 RETAINING/SEAT WALL SLAB - PLAN
SCALE: 3/8" = 1'-0"



4 C10.2 RETAINING WALL SECTION
SCALE: 3/4" = 1'-0"



3 C10.2 RETAINING WALL SECTION
SCALE: 3/4" = 1'-0"



FOUNDATION PLAN AND SLAB NOTES:

1. SEE DRAWING C10.0 FOR GENERAL STRUCTURAL NOTES.
2. SLAB CONSTRUCTION SHALL BE 4" SLAB-ON-GRADE WITH 6x6 W2.9xW2.9 WELDED WIRE FABRIC AT MID-DEPTH OF SLAB OVER 6" COMPACTED #57 STONE BASE. PROVIDE BRUSHED FINISH TO SLAB.
3. "CJ" INDICATES SLAB CONTRACTION JOINT. JOINT SHALL BE 1/8" WIDE BY 1" DEEP WITH 1/4" ROUNDED TOOLED EDGES. FILL JOINT WITH SEALANT.
4. (-X'-X") DENOTES ELEVATION OF TOP OF FOOTING ELEVATION.
5. SEE DETAIL 1/C10.3 FOR ADDITIONAL REINFORCING REQUIRED AT CONCRETE WALL CORNERS.
6. MINIMUM TIMBER PILE TIP DIAMETER SHALL BE 8".
7. BATTERED PILES SHALL BE BATTERED 20 DEGREES.

NORTH

1 C10.2 RETAINING/SEAT WALL FOUNDATION - PLAN
SCALE: 3/8" = 1'-0"

Dewberry®

Dewberry Engineers Inc.
9300 Harris Corners Pkwy - Suite 220
Charlotte, NC 28269
Phone: 704.509.9918
Fax: 704.509.9937
www.dewberry.com
NCBELS #F-0929

TOWN CENTER/ ANTIQUITY GREENWAY

TOWN OF CORNELIUS
21445 CATAWBA AVENUE
CORNELIUS, NC 28031
PHONE: 704-892-6031
FAX: 704-896-2462

SEAL

NO.	DATE	BY	DESCRIPTION
1	06/26/18	ADM	COMMENT RESPONSE

REVISIONS

DRAWN BY	ADM
APPROVED BY	ADM
CHECKED BY	JAW
DATE	NOVEMBER 29, 2016

TITLE

RETAINING/SEAT WALL STRUCTURAL PLANS AND DETAILS

PROJECT NO. 50070318

C10.2