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LETTER OF TRANSMITTAL

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To:	Mr. John Spellman, P.E. New York State Department of Environmental Conservation Division of Environmental Remediation 625 Broadway Albany, NY 12233-7014	Date: Project No. Re:	August 16, 2017 116830-1408 Pre-Design Investigation Report OU2 Ingalls Avenue Area Troy (Smith Ave.) MGP Site

We are sending you the following enclosures:

No.	Type	Description
1	Hard copy and CD	Pre-Design Investigation Report, OU2 Ingalls Avenue Area, Troy (Smith Avenue) Former MGP Site, Troy, New York, dated August 15, 2017

These are transmitted as checked below:

☒ For Approval ☐ For Your Use ☐ For Review/Comment ☐ As Requested ☐ Other

Message:

Copy to:

James Morgan – National Grid
Daniel Kopcow, P.E. – GEI
James Edwards, P.G. – GEI

Signed:

PJ Snyder, P.E.
Senior Engineer

If enclosures are not as noted, kindly notify us at once.

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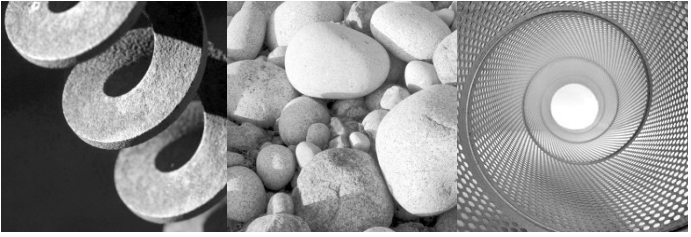
Remedial Bureau C
Div of Environmental Remediation



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Pre-Design Investigation Report

OU2 Ingalls Avenue Area
Troy (Smith Avenue) Former MGP Site
Troy, New York

NYSDEC Site # 442030

Submitted To:
National Grid
300 Erie Boulevard West
Syracuse, NY 13202

Submitted By:
GEI Consultants, Inc., P.C.
1301 Trumansburg Road, Suite N
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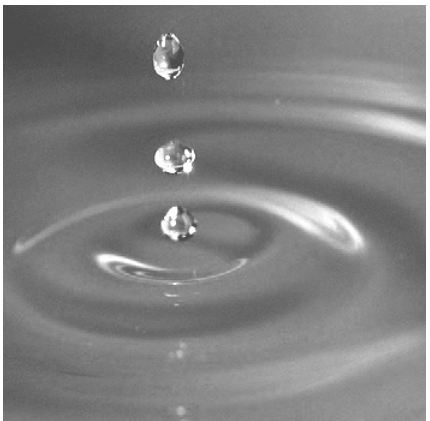
August 2017
GEI Project #: 116830-14083



PJ Snyder, P.E.
Project Manager

Daniel Kopcow, P.E., PMP
Engineer of Record

Certification

I, Daniel Kopcow, P.E., certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375, and that this Pre-Design Investigation Report was prepared in accordance with all applicable statutes and regulations, and in substantial conformance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10).

8/15/2017

Engineer's Seal
GEI Consultants, Inc., P.C.

Date

It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter in any way plans, specifications, plates, and reports to which the seal of a professional engineer has been applied. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer shall seal the item and add the notation "altered by", sign and date such alteration, and provide a specific description of the alteration.

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A. 2017 PDI Test Pit Logs and Soil Boring Logs
B. Chain-of-Custody Records, Validated Laboratory Reports, Data Usability Summary Reports, and Full Data Package (CD-ROM)
C. City of Troy Ingalls Park and Boat Launch Design (CD-ROM)

Abbreviations and Acronyms

ASP	Analytical Services Protocol
ASTM	ASTM International (formerly American Society for Testing and Materials)
CAMP	Community Air Monitoring Plan
COC	Constituents of Concern
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EPA	United States Environmental Protection Agency
FSAP	Field Sampling and Analytical Plan
GEI	GEI Consultants, Inc., P.C.
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HSA	Hollow-Stem Auger
ICP	Inductively Coupled Plasma
IDW	Investigation-Derived Waste
MGP	Manufactured Gas Plant
NAD83	North American Horizontal Datum 1983
NAVD88	North American Vertical Datum 1988
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU1	Operable Unit 1
OU2	Operable Unit 2
OU3	Operable Unit 3
PDI	Pre-Design Investigation
PID	Photo-Ionization Detector
PLS	Professional Land Surveyor
PPE	Personal Protection Equipment
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
ROD	Record of Decision
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SDG	Sample Delivery Group
SEC	Special Environmental Conditions
SI	Supplemental Investigation
SMP	Site Management Plan
SOP	Standard Operating Procedure
SPT	Standard Penetration Testing
TAL	Target Analyte List
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
VOC	Volatile Organic Compound

1. Introduction

This Pre-Design Investigation (PDI) Report has been prepared for National Grid by GEI Consultants, Inc., P.C. (GEI) for Operable Unit 2 (OU2) - Ingalls Avenue Area of the National Grid Troy (Smith Avenue) Former Manufactured Gas Plant (MGP) site. The location of the site is shown on Figure 1.

1.1 Background and Description

The Troy (Smith Avenue) MGP site is listed by the New York State Department of Environmental Conservation (NYSDEC) as Site No. 442030. The site is being addressed by National Grid, in accordance with the 2003 Order-On-Consent (Index #A4-0473-0000) between National Grid and the NYSDEC.

The NYSDEC has identified three operable units for the Troy (Smith Avenue) Former MGP site. The locations of the three operable units are shown on Figure 2. The required remedial action has been implemented in Operable Unit No. 1 (OU1), which is the area of the former MGP operations, and in Operable Unit No. 3 (OU3), which is an area located immediately adjacent (west) to OU1 in the Hudson River and southern approach to the United States Army Corps of Engineers (USACE) Troy Lock and Dam.

Based on observations made during previous investigations and remedial activities, a former disposal action has been identified at Operable Unit No. 2 (OU2) (Ingalls Avenue Area). The disposal area is within the footprint of a historic dam and canal (Old Troy Dam and Canal) which was connected to the Hudson River. It is our understanding that the canal was used by a paper company and clothing manufacturer until it was filled-in around 1915.

Some areas within OU2 contain purifier residuals which are mixed in with the historic fill material. The residuals are believed to be derived from the coal gas purification process performed during historic MGP operations at OU1. Based on the historic land use for OU2, and the observed presence of non-MGP-related fill materials, there appears to have been other sources (municipal and industrial materials) for the historic fill placed at OU2.

The current features of OU2 and the surrounding area are shown on Figure 3. The area is mostly vacant. A gravel and asphalt roadway is present near the center of the site. This roadway is primarily used for access to the Hudson River shoreline. The City of Troy has developed a plan to construct a new boat launch at OU2, in the area of the existing roadway. A new park (Ingalls Park) will be constructed around the boat launch, predominantly in the parcel located to the north on Ingalls Avenue (Figure 3).

1.2 OU2 Record of Decision

Based on the observed presence of purifier residuals at OU2, the NYSDEC has required that a remedial action be performed to address impacted material. The identified remedial action for OU2 is described in the document entitled "*NYSDEC Division of Environmental Remediation – Record of Decision, NM – Troy Smith Ave. MGP, Operable Unit Numbers: 02, 03, Ingalls Avenue Purifier Waste, Hudson River Sediments, Troy, Rensselaer County, Site No. 442030,*" dated March 2011 [NYSDEC, 2011].

The Area of Proposed Waste and Soil Removal identified in the Record of Decision (ROD) for OU2 is shown on Figure 4. The NYSDEC-selected remedy includes the following:

- **Remedial Design** – A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program.
- **Excavation** – The remedial action will be excavation and off-site disposal of historic fill impacted by purifier residuals in the boat launch area. The cleanup criteria for the remediation will be based on the concentrations of total and free cyanide (27 mg/kg free cyanide and 72 mg/kg total cyanide) [NYSDEC, 2011].
- **Soil Cover** – A soil cover will be installed to allow for Restricted - Residential Use of the site.
- **Site Management** – A Site Management Plan (SMP), including an Institutional (environmental easement) and Engineering Control Plan, a Monitoring Plan, and an Operations and Maintenance Plan (O&M) will be developed.

1.3 PDI Objectives

The scope of work for the PDI was described in the document entitled "*Pre-Design Investigation Work Plan, OU2 Ingalls Avenue Area, Troy (Smith Avenue) Former MGP site, Troy, New York, NYSDEC Site # 442030,*" dated November 2016 [GEI, 2016]. The PDI was performed to obtain additional data needed to prepare the design for implementation of the remedy for OU2. The objectives for the PDI included the following:

- Investigating and observing the subsurface conditions with test pits and soil borings to evaluate the presence or absence of visible evidence of purifier residuals.
- Analyzing samples collected during the investigation program to measure the concentrations of total and free cyanide in the identified remedial area.
- Collecting geotechnical data from the borings and test pits for the design of the engineering controls that may be required for the implementation of the remedy.
- Observing the physical characteristics and composition of the fill and subsurface soil to aid with the development of a soil management plan.

- Observing the presence or absence of groundwater in the potential remedial excavation area to aid with the development of a water management plan during the remedial action (if necessary).
- Collecting data for site topography and other existing conditions for the remedial design.
- Investigating, marking, and documenting existing utilities present at OU2 for the remedial design.

1.4 Report Organization

This report is organized as follows:

- **Section 2 – Previous Investigation and Remedial Work** – Summarizes the previous investigation and remedial work performed at OU2.
- **Section 3 – Investigation Activities** – Describes the scope of work and methods used to implement the investigation, and the collection of the samples.
- **Section 4 – Physical Characteristics** – Describes the physical characteristics of the OU2 area.
- **Section 5 – Nature and Extent of Constituents of Concern** – Presents the results of the soil analyses.
- **Section 6 – Conclusions** – Presents the PDI conclusions.
- **Section 7 – References** – Provides references to documents cited in this report.

A Photographic Record, tables, and figures follow the text of this report.

Appendices for this report include:

- **Appendix A** – PDI test pit and soil boring logs.
- **Appendix B –** Chain-of-Custody records, validated Laboratory Form I Reports, the Data Usability Study Reports (DUSRs), and the NYSDEC Full Analytical Services Protocol (ASP) Category B Deliverable Laboratory Packages for the soil samples (CD-ROM).
- **Appendix C** – Design for the City of Troy Ingalls Park and boat launch (CD-ROM).

2. Previous Investigation and Remedial Activities

The reports for the previous investigation and remedial work performed at OU2 are summarized in the following sections. The investigation and remedial reports have previously been submitted to the NYSDEC.

2.1 1998 Foster Wheeler Characterization

In 1998, the presence of purifier residuals along the portion of Ingalls Avenue located between President Street and the Hudson River were reported to the NYSDEC. The NYSDEC requested that an investigation be performed. Foster Wheeler Environmental Corporation (Foster Wheeler), on behalf of National Grid, performed characterization activities in the central area of OU2 to assess the concentrations of constituents of concern (COC) for the identified material. A comparison of the results of the analyses to the results of samples collected at OU1 was also performed. The results of the characterization were summarized in the document entitled "*Waste Characterization Report for the Ingalls Avenue Site, Troy, New York*," dated December 1998 [Foster Wheeler, 1998].

2.2 1999 Remedial Action

Based on the 1998 Foster Wheeler characterization, a limited remedial action was performed to address the identified residuals at OU2. The remedial work was performed under a NYSDEC-approved Work Plan. Excavation was performed to remove a surficial deposit of residuals, which extended approximately 2-feet-deep. Approximately 14 tons (one roll-off container) of impacted fill was excavated, and the impacted material was characterized and disposed at an off-site location. Post-excavation sampling for total cyanide was also performed.

The post-excavation sampling results for total cyanide ranged from 30 mg/kg to 372 mg/kg. The report summarizing the remedial action is entitled "*Draft Waste Removal Report for the Niagara Mohawk Power Corporation Ingalls Avenue Site, Troy, New York*," dated August 1999 [Foster Wheeler, 1999].

2.3 2001 Foster Wheeler Soil Analyses Report

Additional investigation activities were performed by Foster Wheeler in 2001. Eight soil borings were advanced and one monitoring well was installed. The analytical data is included in the letter report to National Grid entitled "*Analytical Data, Troy Ingalls Avenue, Operable Unit 2,*" dated November 2001 [Foster Wheeler, 2001].

2.4 2003 Tetra Tech Site Investigation

Tetra Tech, on behalf of National Grid, performed an additional site investigation in the approximate area of the former canal footprint in 2003. Test pits were excavated within and adjacent to the footprint of the former canal within OU2. The results of the Tetra Tech investigation were summarized in the document entitled "*Draft Site Investigation Report, Niagara Mohawk a National Grid Company, Ingalls Operable Unit, Troy, New York*," dated November 2003 [Tetra Tech, 2003].

2.5 2006 Tetra Tech Soil Assessment

Tetra Tech performed a supplemental investigation (SI) at OU2 in 2006. Two additional test pits were excavated at OU2 to assess the presence or absence of purifier residuals. The results of the soil assessment were summarized in the document entitled "*Supplemental Investigation Summary Report, National Grid Troy (Smith Ave.) Ingalls Ave Former MGP Site, Troy, New York*," dated January 2007 [Tetra Tech, 2007].

2.6 2010 Tetra Tech Special Environmental Conditions Report

A Special Environmental Conditions (SEC) Report was prepared by Tetra Tech in 2010. The report was prepared to provide background information for OU2, and also to identify requirements and procedures that were identified for implementation when the City of Troy redevelops the property. The document is entitled "*Special Environmental Conditions, Ingalls Avenue Boat Launch Project, Ingalls Avenue Site, Inactive Hazardous Waste Site #4-42-030, Operable Unit 2, City of Troy, Rensselaer County,*" dated October 2010 [Tetra Tech, 2010].

2.7 2009 H2H / City of Troy Soil Investigation

H2H Associates, LLC (H2H), on behalf of the City of Troy, performed an Environmental Site Investigation for OU2, and the adjacent area to the north in preparation to construct a new City park (Ingalls Park). The results of the soil assessment were summarized in the document entitled "*Environmental Site Investigation Report, Future Ingalls Park Site, Troy, New York*," dated October 2009, revised January 2010 [H2H, 2010]. The design drawings for the proposed City of Troy Ingalls Park and Boat Launch are included in Appendix C.

3. PDI Scope of Work

The PDI scope of work is described in the following sections. The PDI was performed in accordance with the NYSDEC Division of Environmental Remediation (DER) document entitled "*DER-10 / Technical Guidance for Site Remediation, NYSDEC Program Policy,*" dated May 3, 2010 [NYSDEC, 2010]. Representatives of the NYSDEC DER of Albany, New York were present during several of the field activities, including the excavation of the test pits, and the advancement the subsurface soil borings.

3.1 PDI Work Plan

The PDI was performed according to the methods and procedures described in the Work Plan entitled "*Pre-Design Investigation Work Plan, OU2 Ingalls Avenue Area, Troy (Smith Avenue) Former MGP Site, Troy, New York, NYSDEC Site # 442030,*" dated November 9, 2016 [GEI, 2016]. The PDI Work Plan was approved by the NYSDEC on November 26, 2016. Five companion documents were included as appendices to the PDI Work Plan, including:

- **The Field Sampling and Analytical Plan (FSAP)** provided information regarding field sampling methods and procedures that were used during the PDI.
- **The Quality Assurance Project Plan (QAPP)** specified the quality assurance/quality control (QA/QC) procedures that were implemented during the field work and in the laboratory which performed the chemical analyses of the samples collected.
- **A Community Air Monitoring Plan (CAMP)** provided information regarding the procedures to be used to monitor and control, if necessary, the potential release of airborne constituents at the downwind perimeters of the PDI work areas.
- **A Site-Specific Health and Safety Plan (HASP)** was prepared to outline procedures undertaken to protect site workers, visitors, and the public in the areas adjacent to the site from potential hazards that may exist as a result of the field work performed during the PDI.

The field activities performed during the PDI are summarized below, and are described in the following sections:

- **Utility Locating and Mapping** – The types and locations of the utilities present at the site were located and surveyed during the PDI.
- **Test Pits** – Test pits were excavated to obtain information regarding the physical characteristics of the fill and subsurface soil, observe the presence or absence of

purifier residuals, and to collect samples for chemical analyses of total and free cyanide.

- **Soil Borings** – Two soil boring tasks were performed for the PDI:
  - **Geotechnical Borings** – Soil borings were advanced to obtain geotechnical information that were to be used during the design of temporary excavation support systems for the soil excavation. Areas targeted for the soil borings include the northern, southern, eastern, and western perimeters of the remedial area identified in the ROD.
  - **Delineation Borings** – Soil borings were advanced to assess the presence or absence of purifier residuals in select areas, and evaluate the concentrations of total and free cyanide in the identified remedial area.
- **Existing Conditions and As-Built Survey** – A survey was performed to supplement the existing site topography and site features, and to locate the completed exploration locations.

3.2 Access Agreements

Two access agreements were established for the PDI. One access agreement was established between National Grid and the City of Troy for the northern parcel (Figure 3). A second access agreement was established with a private owner for the southern parcel. These agreements were established to perform the investigation activities identified in PDI Work Plan. It is our understanding that the City of Troy recently acquired the southern parcel from the private owner, and therefore now owns the entire area of OU2.

3.3 Utility Clearance and Mapping

The existing utilities were located and marked prior to beginning the intrusive PDI activities, and also to obtain additional information that can be used during the remedial design phase. The utilities identified at OU2 and in President Street are shown on Figure 3.

Dig Safely New York was contacted to arrange for the location and marking of underground utilities. A private utility locating service (Bloodhound) was contracted to trace and mark-out the identified subsurface utilities, and to obtain invert information where possible. The utility locating service performed a comprehensive site utility survey using ground penetrating radar (GPR) and a magnetometer.

PDI boring location GTSB6 was modified from the location identified in the Work Plan completion of this task, to avoid work in close proximity to the gas main in President Street (Figure 3). TP16 was relocated to the south of the identified storm sewer pipe, to avoid excavation work immediately adjacent to the pipe.

3.4 Test Pit Excavation

Ten test pits (TP12-TP21) were excavated in the identified remedial excavation area (Figure 5). The test pits were excavated to obtain information regarding the physical characteristics of the fill and subsurface soil, the presence or absence of purifier residuals, and information regarding the depth to groundwater.

Table 1 provides summary information for the PDI test pits, including: test pit designations, sampling rationale, depth of excavation, the number and depth of the analytical samples, and the laboratory analyses performed. Most of the pits were excavated to the Work Plan target depth of 12 feet. This depth is 2 feet below the bottom of the anticipated remedial excavation depth identified in the ROD.

Test pits were excavated by Abscope Environmental Services (Abscope) using a track-mounted hydraulic excavator. Each test pit excavation was photographed. To provide additional detail on the subsurface test pit logs, the test pit excavations were sub-divided as shown on Figure 5. For example, the log for TP16(140) includes information regarding subsurface conditions 140 feet from the beginning of the test pit (TP16(0)). Excavated soil was logged using the Unified Soil Classification System (USCS). Samples for laboratory analyses were collected with a remote sampler or from the excavator bucket. Upon completion, the materials from the test pit were placed back in the excavation in the reverse order from which it was removed. The location and size of the test pit was measured and described in Test Pit logs included in Appendix A.

3.4.1 Test Pit Sample Analyses

The depth and number of samples collected from each test pit are summarized on Table 1. The rationale for the samples is summarized as follows:

- If purifier residuals were observed, samples were collected from the most impacted soil interval, biased towards intervals with observed residuals. The sample intervals did not exceed 2 feet in depth.
- Soil samples were collected at the remedial excavation bottom depth identified in the ROD of 10 to 12 feet.
- Soil samples were also collected at target locations to document observations of non-impacted conditions.

The rationale for the test pit sampling was determined as the field work progressed, and for most of the samples, was discussed with the NYSDEC field representative.

As specified in the ROD, evaluation of two constituents of concern (COC) were required to assess the presence or absence of impacted soil requiring removal. The COC for the test pit task included the following:

- **Total Cyanide** – United States Environmental Protection Agency (EPA) Method 9014
- **Free Cyanide** – EPA Method 9016

3.5 Geotechnical Soil Borings and Analyses

Six borings (GTSB1-GTSB6) were advanced to obtain geotechnical data for the design of temporary excavation support systems or other engineering controls required to complete the remedial work. Details of the completed borings are provided in Table 2, and the boring locations are shown on Figure 5.

At each boring, standard penetration tests (SPTs) of the overburden were performed using 2-inch outside diameter split-spoon samplers in accordance with American Society of Testing and Materials (ASTM) D1586. SPTs were performed continuously through the borings to the final depths. As shown on the soil boring logs in Appendix A, each boring was advanced to a depth of approximately 30 feet or to the top of the bedrock unit (if shallower).

Soil recovered from each sample interval was visually characterized (soil type, grain size, color, texture, and moisture content), and screened for organic vapor using jar headspace methods using a photo-ionization detector (PID).

Following completion of the geotechnical borings, each boring was backfilled to the ground surface with bentonite chips which were hydrated following installation. The location of each boring was surveyed at the completion of the PDI field activities.

3.6 Soil Borings for Delineation of Purifier Residuals

Soil borings were also advanced around the area of TP16(140) to TP16(166) (Figure 5) to assess the horizontal and vertical extent of identified purifier residuals. The boring logs are included in Appendix A.

3.6.1 Delineation Borings – Physical Characteristics

At each boring, SPTs in the overburden materials were performed in accordance with ASTM D1586. Continuous SPT sampling was performed from the ground surface to the bottom of the boring. Soil recovered from each sample interval was visually characterized (for soil type, grain size, color, texture, and moisture content) and screened for organic vapor using the jar headspace method and a PID.

3.6.2 Delineation Boring Analyses

The number and the depth of samples collected from the borings is summarized in Table 2.

- Soil samples were collected at the target excavation bottom depth of approximately 10 to 12 feet at select locations to assess conditions at this interval identified in the ROD.
- Soil samples were collected to assess the horizontal and vertical extent of the residuals observed between TP16(140) and TP16(166).

Consistent with the test pit samples, and as specified in the ROD, evaluation of two COC was performed to assess the presence or absence of impacted soil requiring removal. The COC for delineation soil borings included the following:

- **Total Cyanide** – EPA Method 9014
- **Free Cyanide** – EPA Method 9016

3.6.3 Delineation Borehole Completion

Consistent with the geotechnical soil borings, the delineation borings were filled with bentonite and hydrated following completion of the drilling activities.

3.7 PDI Exploration Locations and Topographic Survey

A survey of the PDI exploration locations, existing utilities, and important site features was performed at the end of the field activities by a surveyor licensed in New York State (Delta Survey PLS). The results of the topographic survey are provided on Figure 3. Horizontal locations were reported in the applicable New York State horizontal coordinates (North American Horizontal Datum 1983 [NAD83] NYS East Zone) and latitude and longitude coordinates. Vertical measurements were reported in North American Vertical Datum 1988 (NAVD88).

3.8 Investigation-Derived Waste Management

Several types of investigation-derived waste (IDW) were generated during the PDI activities including: decontamination wash-water from the excavator bucket and down-hole drilling tools, soil from the drilling, personal protective equipment (PPE), and miscellaneous sampling equipment and plastic sheeting. The IDW generated during these tasks was placed in drums and properly labeled. The soil and water were sampled for waste profiling purposes. The IDW was then transported off site to a permitted disposal facility for proper disposal. Characterization and disposal was performed by a National Grid-approved waste vendor.

3.9 Community Air Monitoring

Community air monitoring was performed to provide real-time measurements of total volatile organic compounds (VOCs) and particulate (airborne dust) concentrations in air at the downwind perimeter of each designated work area when intrusive investigation activities such as excavating or drilling were being performed. The monitoring was designed to provide protection for the downwind community, such as those present at the adjacent public areas and commercial properties, from potential releases of airborne constituents resulting from the investigation activities. The procedures followed methods described in the CAMP [GEI, 2016]. The New York State Department of Health (NYSDOH)-specific action levels for VOCs and particulates were provided in the CAMP. No action level exceedances were observed during the intrusive investigation activities during the PDI, therefore no response actions were necessary.

4. Site Physical Characteristics

This section presents a summary of the field measurements and observations of the physical environment of the investigation area. Included is a discussion of the topography, geology, and hydrology of the site and the adjacent off-site areas.

4.1 Site Topography

The elevation data obtained during the survey has been used to prepare a ground surface contour map (Figure 3). As shown on the figure, the ground surface is relatively flat in the eastern area of OU2, then slopes steeply to the west towards the shoreline of the Hudson River. The ground surface slopes from President Street (approximate elevation (El.) +30 feet NAVD88) towards the Hudson River (approximately El. +2 feet NAVD88 with tidal fluctuations), with an overall change in elevation of about 28 feet.

4.2 Site Geology

Observations regarding the geology of OU2 were recorded during the test pit and soil boring tasks. Two cross sectional figures have been prepared to show the observed physical characteristics of the site. The locations of the cross-sectional views are shown on Figure 6. The cross sections are included in Figure 7 (A-A'), and Figure 8 (B-B'). The stratigraphic units identified at the site are described below.

Historic Fill

Historic fill material was identified at each of the PDI exploration locations. The fill thickness was observed to range up to 12 feet (Figures 7 and 8). The fill material was observed to consist of silt, sand and gravel, mixed with varying amounts of historic fill materials. These materials included: black and white ash in horizontal layers [Photograph 1], whole and broken red and yellow bricks, rags, foundation stone, sheet metal, broken concrete, bottles and broken glass, wire, PVC pipe, metal debris, coal fragments, shale fragments, clinkers, slag material, ash, and coal. These observed materials are shown in Photographs 2 through 7 in the Photographic Record.

Alluvium – Silty Sand and Gravel

Underlying the fill is a deposit of alluvium comprised of a heterogeneous mix of silt, sand, gravel, and cobbles. The alluvium ranges in thickness from approximately 10 to 15 feet (Figure 7).

Bedrock

The PDI scope of work did not include an extensive investigation of bedrock. However, the hollow stem auger tools and split-spoon samplers did provide information regarding the depth to bedrock at OU2. At each PDI soil boring location, the boring was advanced until split-spoon refusal. Based on the conditions for auguring reported by the driller (auger partial refusal or refusal), the split-spoon refusals, and the trace amounts of fractured shale material recovered in the split-spoon samplers, the assumed depth to bedrock was identified and recorded on the boring logs. The assumed bedrock depth is shown on the cross-sectional views in Figures 7 and 8. As shown on the figures, bedrock is believed to be approximately 25-feet-deep at OU2.

4.3 Site Hydrology

4.3.1 Site Surface Water and Drainage

There are no surface water bodies at OU2 other than the Hudson River. Surface water run-off at OU2 is via sheet flow. Surface water from storm events flows to the west towards the Hudson River, following the site topography.

One storm water drainage feature is present in the footprint of OU2. A storm sewer pipe runs from a manhole in President Street, to the west to an outfall located at the bank along the Hudson River shoreline. The location of the pipe is shown on Figure 3. A cross sectional view of the pipe and outfall is shown on Figure 7 (Section A-A').

It is our understanding that the storm water pipe conveys storm water to the river from up gradient, off-site areas including the residential and commercial parcels located to the east of President Street. During the PDI field activities, the City of Troy Department of Public Works tested and cleaned the storm sewer pipe to ensure that the drainage feature was functional. To flush the storm sewer pipe, water jet piping and hardware installed in a manhole in President Street was used. This permanent feature was built specifically to periodically flush the storm sewer pipe at OU2 on an as-needed basis. The manhole and associated piping is shown on Figure 3.

4.3.2 Groundwater

Groundwater was not observed during the PDI. However, some information regarding groundwater conditions is provided by the previous investigation performed by H2H in 2010.

Groundwater Flow Direction

H2H installed monitoring wells in the overburden soils at OU2 and in the future Ingalls Park area to the north. Depth to water measurements were obtained in the wells during both high and low tide conditions. The depth to the water table was found to range from approximately

21 feet to 26 feet. The flow direction during both the high and low tide conditions was from the east to the west, towards the Hudson River.

5. Nature and Extent of Constituents of Concern

The evaluation of the nature and extent of the MGP-related residuals at OU2 is based on the field observations made during the investigation, and the laboratory analyses performed on the soil samples. A discussion of the observations and the laboratory results, along with a comparison to applicable NYSDEC Standards, Criteria and Guidance (SCGs) values are included in the following sections.

5.1 Observed Extent of MGP-Related Purifier Residuals

During the subsurface investigation, fill containing anthropogenic materials and areas with purifier residuals mixed in the fill matrix were observed. If visible evidence of MGP-related purifier residuals was not observed during the sampling, the test pit or boring location is shown with green shading on the figures. If visible evidence of MGP-related purifier residuals was observed during the sampling, the test pit or boring location is shown with blue shading on the logs and figures. A key for the colors used to depict the impacts identified in the soil is included with the boring logs in Appendix A. The color key is consistent with the descriptions provided by the NYSDEC for describing residual impacts at MGP sites.

It is important to note that these descriptions and colored illustrations are included to provide a useful tool in representing the extent of the observed MGP-related residuals at the site. However, they are somewhat general in nature, and are intended to be used along with the boring and test pit logs and the results of the chemical analyses to fully evaluate the nature and extent of the MGP-related purifier impacts at the site.

5.1.1 Purifier Residuals

At two locations, visible evidence of purifier residuals was identified. The residual material was described as a dense, hardened layer of brown wood fibers. The material has a peat-like appearance. The purifier material has a very strong naphthalene-like odor. Based on the presence of the wood fibers (typical of MGP purifier materials), and on the naphthalene odor, this material is assumed to be purifier residuals from the gas purification process. The identified areas of impact are summarized below:

City of Troy Ingalls Avenue Boat Launch Excavation Area

- **TP16(140) / TP16(166)** – A layer of purifier residuals was identified near the ground surface at the location shown on Figure 5. The area of impact is approximately 26-feet-long by 36-feet-wide. The impacted layer is approximately 1.5-feet-thick. Photograph 8 shows the residual material which was observed at TP16(150). Photograph 9 shows the residual material collected from TP16(140). The most

visibly impacted material in this area was sent to the laboratory for analysis (TP16(140)(0-1.4)). Additional information is provided in the individual test pit logs (Appendix A). Test pits and soil borings were performed around these locations to delineate the vertical and horizontal extent of the residuals in this area.

Outside (South) of the City of Troy Ingalls Avenue Boat Launch Excavation Area

- **TP17(48)** – A thin, discrete layer of impacted residuals was observed in TP17(48) (Figure 5). The layer was observed to be approximately 4-feet-long and 1-foot-thick, and was located at a depth of about 9 feet (test pit log TP17(48)). An analytical sample was collected from this interval (TP17(48)(8-9)). In addition, an analytical sample was collected from the most impacted material observed in the temporary stock pile generated during excavation at this location (TP17(Peat)). Additional information is provided in the test pit logs in Appendix A.

5.1.2 Blue-Colored Fill Materials at OU2

Purifier residuals at MGP sites frequently have blue staining due to the presence of ferric chloride and ferro cyanide which react to form a Prussian blue color. However, the blue-stained purifier residuals identified in the previous investigation reports were not observed during the PDI. Only the brown residual material described above was observed during the PDI field work by the field geologist.

The field geologist did observe blue materials; however, they are not believed to be associated with purifier residuals. The blue fill materials were identified to be blue-colored glass-like slag, and blue-colored shale fragments. These materials are shown in Photographs 10 and 11. Therefore, the presence of blue-stained purifier residuals reported during the previous investigations was not confirmed during the PDI.

5.2 Soil Analytical Results

This section presents the results of the analyses performed on the subsurface soil samples. The concentrations of COC detected in the samples are compared to the Soil Cleanup Objectives (SCOs) provided in the document entitled "*NYSDEC Rules and Regulations, 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives,*" dated December 14, 2006 [NYSDEC, 2006].

For OU2, the specific SCOs for this project are identified in the ROD as 27 mg/kg for free cyanide, and 72 mg/kg for total cyanide [NYSDEC, 2011].

Included in Table i is a key to the data modifiers used by the laboratory and the data validators, and a key to the sample identification nomenclature.

The soil samples collected during the PDI are summarized in Table 2. The results of the total cyanide and free cyanide analyses are shown in the data summary tables (Table 3). Where a cyanide result has been detected in a concentration greater than the method reporting limit, the result has been shown with a bold font. Where a sample result is greater than the respective SCO, the result is shown with gray shading.

Soil sample locations and analytical result summary boxes are shown on Figure 9. The boxes include the sample designation, the sample depth, the results of the laboratory analyses, and whether any total or free cyanide concentrations exceeded the SCOs identified for OU2. Where exceedances exist, they are designated by gray shading.

5.2.1 Total Cyanide

Fifty five (55) samples were analyzed for total cyanide (Table 3). Total cyanide was not detected in 20 of the samples. Where total cyanide was detected, the concentrations ranged from 0.19 mg/kg at GTSB5(10-12), to 180 mg/kg at TP16(140)(0-1.4).

Exceedances of the total cyanide SCO (72 mg/kg) were identified at three sample locations. Total cyanide was detected at TP16(140)(0-1.4) in a concentration of 180 mg/kg. This sample was collected from the most visibly impacted soil encountered during the PDI [Photograph 9]. Exceedances for total cyanide were also identified for two samples collected from the central area of TP17 (Figure 5). The sample collected from TP17(48)(8-9) had a total cyanide concentration of 130 mg/kg, and a sample collected from the excavated soil from the central area of TP17 (the sample designated TP17(Peat)) had a total cyanide concentration of 96 mg/kg.

5.2.2 Free Cyanide

Free cyanide was identified in one of the 55 samples analyzed during the PDI.

For the sample collected from the most visually impacted material identified during the PDI (TP16(140)(0-1.4), a low-level, estimated ("J") concentration of 12 mg/kg for free cyanide was identified by the laboratory. This concentration is below the identified free cyanide SCO of 27 mg/kg.

5.3 Data Validation and DUSR Review

For quality control purposes, the comprehensive NYSDEC Category B ASP data packages produced by the laboratory were reviewed and validated by qualified chemists. GEI staff performed the validation and prepared Data Usability Summary Reports (DUSRs). The GEI chemist is qualified to perform this work and meets the required specifications for personnel who perform this work according to the NYSDEC DER-10 Guidance document. A DUSR was prepared for each sample delivery group (SDG), and the DUSRs are included in Appendix C. As part of the data review process, analytical results and data qualifiers were

corrected where necessary to reflect quality control issues. The Form I Report sheets in Appendix C, and the data summary spreadsheets discussed above have been modified to reflect the findings of the DUSRs.

5.3.1 Inorganic Data Review

The data validation for the inorganic analyses was performed in accordance with the document entitled "*USEPA Region 2 - Standard Operating Procedure for the Evaluation of Metals for the Contract Laboratory Program, SOP HW-2, Revision 13*," dated September 2006 [EPA, 2006], and the "*USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540/R-04/004*," dated October 2004 [EPA, 2004], modified as necessary to accommodate the non-CLP methodologies used.

Inorganic data quality was evaluated by reviewing the following parameters: holding times, matrix spike (MS), initial and continuing calibrations, contract required detection limit standard recoveries, laboratory control samples, Inductively Coupled Plasma (ICP) interference check sample results, ICP serial dilution results, and laboratory blanks. The inorganic results were found to be usable with some minor qualification due to sample matrix interferences or laboratory quality control outliers.

6. Conclusions

This section summarizes the findings of the PDI performed at OU2-Ingalls Avenue Area of the Troy (Smith Avenue) Former MGP site. An overview of the observations made during the investigation, and the nature and extent of MGP-related purifier residuals is presented by areas of concern and by media.

6.1 Site Geology

- Anthropogenic fill materials are present throughout OU2. The fill is thickest in the area of the former Troy Canal footprint, located in the central area of OU2.
- Underlying the fill is alluvium comprised of silt, sand, gravel, and cobbles.
- Bedrock is present at a depth of approximately 25 feet.

6.2 Site Hydrogeology

- There are no surface water features at OU2. Surface water during storm events flows by sheet flow to the west towards the Hudson River.
- The water table in the alluvium is believed to be approximately 21- to 26-feet-deep.
- The direction of groundwater flow in the alluvium is from east to west, towards the Hudson River.

6.3 Nature and Extent of Constituents of Concern

Two discrete areas with MGP-related purified residuals were identified during the PDI.

6.3.1 City of Troy Ingalls Avenue Boat Launch Excavation Area

- A near-surface layer of MGP-related purifier residuals was observed. The area of impact is approximately 26-feet-long, 36-feet-wide, and 1.5-feet-thick.
- Laboratory analyses of the impacted material indicates that the residuals contain total cyanide in concentrations exceeding the total cyanide SCO. However, free cyanide concentrations were less than the free cyanide SCO.
- Test pits, soil borings, and associated laboratory analyses have delineated the horizontal and vertical extent of the residuals in the impacted area.
- Management of the residuals in this area by excavation will meet the requirements identified in the ROD.

6.3.2 Outside (South) of the City of Troy Ingalls Avenue Boat Launch Excavation Area – Ingalls Park Area

- A second area of impact was identified to the south of the proposed boat launch area. This area is outside of the area identified for soil removal during construction of the proposed City of Troy boat launch.
- A thin, discrete layer of brown peat-like residual material was identified at a depth of approximately 9 feet. The layer appeared very limited in thickness and horizontal extent, based on the test pit excavation and adjacent soil borings.
- Laboratory analyses of the identified total cyanide in concentrations exceeding the total cyanide SCO. However, concentrations of free cyanide were not detected.
- The presence of blue-stained purifier residuals reported during the previous investigations were not confirmed by GEI during the PDI. Only the brown peat-like material described in Section 5.1.1 was observed during this investigation.
- As indicated in the ROD, with NYSDEC approval, a Site Management Plan may be developed to address any future excavation of soil in the area outside of the footprint of the planned Ingalls Avenue boat launch.

7. References

EPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540/R-04/004," dated October 2004.

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Tetra Tech, 2010. Special Environmental Conditions, Ingalls Avenue Boat Launch Project, Ingalls Avenue Site, Inactive Hazardous Waste Site #4-42-030, Operable Unit 2, City of Troy, Rensselaer County, dated October 2010.

Photographic Record

OU2 INGALLS AVENUE AREA PDI PHOTOGRAPHIC RECORD

Photo 1: Fill Material Test Pit 16

Photo 2: Fill Material Test Pit 16

Photo 3: Fill Material Test Pit 16

Photo 4: Fill Material Test Pit 16

Photo 5: Fill Material and Native Soil Test Pit 16

Photo 6: Fill Material Test Pit 16

Photo 7: Fill Material Test Pit 16

Photo 8: Purifier Residuals TP16(150)

Photo 9: Purifier Residual Material TP16(140)

Photo 10: Blue-Colored Fill Materials TP21

Photo 11: Blue-Colored Material in Fill TP17(45)

Photo 12: Shale Fragments from Soil Boring at Refusal

Photo 13: Shale Bedrock Material - Refusal GTSB1

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Tables

Table i
Acronym and NYSDEC Reference Key
for Analytical Summary Tables

Subsurface Soil Notes:

Units for soil samples:
ug/Kg = micrograms/Kilogram = parts per billion
mg/Kg = milligrams/Kilogram = parts per million

Validation Qualifiers:
B = For inorganic analysis - analyte detected in the associated method blank. For metals analysis - the result is an estimated quantity.
E = Analyte concentration exceeded the calibration range of the instrument.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, likely to be biased low. The associated numerical value is the approximate concentration of the analyte in the sample.
J+ = The result is an estimated quantity, likely to be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.
N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling events.
R = The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria.
U = The analyte was analyzed for, but was not detected above the level reported.
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.
BW - Analyte detected in the associated method blank and post-digest spike recovery furnace analysis was out of 85-115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.
BWN - Analyte detected in the associated method blank and post-digest spike recovery furnace analysis was out of 85-115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance. Analyte is presumptively present.
UW - Not detected at or above the reporting limit shown and post-digest spike recovery furnace analysis was out of 85-115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.
JB - Estimated value and the analyte was detected in the associated method blank.
* - Duplicate analysis not within control limits.

Other Notes:
NA = Not analyzed for, Not applicable
ND = Not detected. Total concentration is listed as ND because no compounds were detected in the group.

Table 1
Test Pit Summary
OU2 Ingalls Avenue Area
Pre-Design Investigation

Sample Summary										
Designation	**Date**	**Depth (Feet bgs)**	**Ground Surface Elevation (Feet NAVD88)**	**Target Easting (NAD83)**	**Target Northing (NAD83)**	**Latitude**	**Longitude**	**Laboratory Sample Depth (Feet)**	**Total Cyanide**	**Free Cyanide**
PDI Test Pits and Test Pit Log Locations										
TP12 (20)	5/3/2017	0 - 12' bgs	19.0	711054.159	1426909.507	42° 44' 50.23	73° 41' 05.62	TP12 (20) (4-5)	X	X
TP12 (25)	5/3/2017	0 - 12' bgs	20.0	711053.364	1426914.562	42° 44' 50.28	73° 41' 05.63	TP12 (25) (10-12)	X	X
TP12 (44)	5/3/2017	0 - 12' bgs	23.0	711052.354	1426941.887	42° 44' 50.55	73° 41' 05.64	TP12 (44) (10-12)	X	X
TP12 (65)	5/3/2017	0 - 12' bgs	25.5	711050.222	1426969.179	42° 44' 50.82	73° 41' 05.67	TP12 (65) (4-5)	X	X
TP13 (15)	5/3/2017	0 - 12' bgs	22.0	711097.344	1426919.036	42° 44' 50.32	73° 41' 05.04	NA	NA	NA
TP13 (26)	5/3/2017	0 - 12' bgs	23.0	711098.041	1426924.105	42° 44' 50.37	73° 41' 05.03	NA	NA	NA
TP13 (60)	5/3/2017	0 - 12' bgs	24.6	711128.619	1426969.179	42° 44' 50.74	73° 41' 04.99	TP13 (60) (10-12)	X	X
TP14 (22)	5/3/2017	0 - 12' bgs	24.0	711156.109	1426937.827	42° 44' 50.50	73° 41' 04.25	TP14 (22) (11-12)	X	X
TP14 (43)	5/3/2017	0-12' bgs	24.5	711161.253	1426945.976	42° 44' 50.58	73° 41' 04.18	TP14 (43) (11-12)	X	X
TP14 (44)	5/3/2017	0 - 12' bgs	24.7	711160.353	1426948.123	42° 44' 50.60	73° 41' 04.19	TP14 (44) (4-6)	X	X
TP14 (44)	5/3/2017	0 - 12' bgs	24.7	711160.353	1426948.123	42° 44' 50.60	73° 41' 04.19	TP14 (44) (11-12)	X	X
TP15 (0)	5/2/2017	0 - 12' bgs	26.0	711249.585	1426916.458	42° 44' 50.28	73° 41' 03.00	TP15 (0) (10.5-11)	X	X
TP15 (20)	5/2/2017	0 - 12' bgs	26.0	711251.637	1426935.713	42° 44' 50.47	73° 41' 02.97	TP15 (20) (10.5-11)	X	X
TP15 (38)	5/2/2017	0 - 12' bgs	26.4	711253.146	1426944.413	42° 44' 50.56	73° 41' 02.95	TP15 (38) (10.5-11)	X	X
TP16 (0)	5/2/2017	0 - 12' bgs	26.5	711249.074	1426895.837	42° 44' 50.07	73° 41' 03.01	NA	NA	NA
TP16 (15)	5/1/2017	0 - 12' bgs	26.0	711234.113	1426896.060	42° 44' 50.08	73° 41' 03.21	TP16 (15) (7-8)	X	X
TP16 (30)	5/2/2017	0 - 12' bgs	26.0	711219.181	1426896.928	42° 44' 50.09	73° 41' 03.41	NA	NA	NA
TP16 (40)	5/2/2017	0 - 12' bgs	26.0	711209.472	1426897.847	42° 44' 50.10	73° 41' 03.54	TP16 (40) (6-7)	X	X
TP16 (40)	5/2/2017	0 - 12' bgs	26.0	711209.472	1426897.847	42° 44' 50.10	73° 41' 03.54	TP16 (40) (11-12)	X	X
TP16 (50)	5/2/2017	0 - 12' bgs	26.0	711199.017	1426898.758	42° 44' 50.11	73° 41' 03.68	TP16 (50) (11- 12)	X	X
TP16 (70)	5/2/2017	0 - 12' bgs	26.0	711178.863	1426899.576	42° 44' 50.12	73° 41' 03.95	TP16 (70) (11-12)	X	X
TP16 (80)	5/2/2017	0 - 12' bgs	26.0	711169.154	1426900.494	42° 44' 50.13	73° 41' 04.08	NA	NA	NA
TP16 (100)	5/2/2017	0 - 12' bgs	25.0	711149.000	1426901.312	42° 44' 50.14	73° 41' 04.35	TP16 (100) (11-12)	X	X
TP16 (120)	5/2/2017	0 - 12' bgs	23.0	711129.582	1426903.149	42° 44' 50.16	73° 41' 04.61	TP16 (120) (11-12)	X	X
TP16 (133)	5/3/2017	0 - 12' bgs	22.0	711116.143	1426904.032	42° 44' 50.17	73° 41' 04.79	TP16 (134) (4.5)	X	X
TP16 (140)	5/3/2017	0 - 1.8' bgs	21.0	711109.418	1426904.979	42° 44' 50.18	73° 41' 04.88	TP16 (140) (0-1.4)	X	X
TP16 (141)	5/3/2017	0 - 12' bgs	21.0	711108.672	1426904.972	42° 44' 50.18	73° 41' 04.89	TP16 (141) (5-6)	X	X
TP16 (141)	5/3/2017	0 - 12' bgs	21.0	711108.672	1426904.972	42° 44' 50.18	73° 41' 04.89	TP16 (141) (10-12)	X	X
TP16 (157)	5/3/2017	0 - 12' bgs	19.0	711092.248	1426905.826	42° 44' 50.19	73° 41' 05.11	NA	NA	NA
TP16 (166)	5/3/2017	0 - 12' bgs	18.0	711083.286	1426906.751	42° 44' 50.20	73° 41' 05.23	NA	NA	NA
TP16 (185)	5/3/2017	0 - 12' bgs	17.0	711064.614	1426908.596	42° 44' 50.22	73° 41' 05.48	NA	NA	NA
TP16 (193)	5/3/2017	0 - 12' bgs	15.8	711049.394	1426909.937	42° 44' 50.23	73° 41' 05.68	TP16 (193) (10-12)	X	X
TP17 (0)	5/4/2017	0 - 12' bgs	26.0	711077.547	1426819.454	42° 44' 49.34	73° 41' 05.32	TP17 (0) (10-12)	X	X
TP17 (30)	5/4/2017	0 - 12' bgs	26.0	711107.177	1426828.016	42° 44' 49.42	73° 41' 04.92	TP17 (30) (5-6)	X	X
TP17 (30)	5/4/2017	0 - 12' bgs	26.0	711107.177	1426828.016	42° 44' 49.42	73° 41' 04.92	TP17 (30) (10-12)	X	X
TP17 (45)	5/4/2017	0 - 12' bgs	26.0	711121.314	1426832.202	42° 44' 49.46	73° 41' 04.73	TP17 (45) (10-12)	X	X
TP17 (48)	5/4/2017	0 - 12' bgs	26.0	711124.288	1426833.243	42° 44' 49.47	73° 41' 04.69	TP17 (48) (8-9)	X	X
TP17 (88)	5/4/2017	0 - 12' bgs	26.0	711155.524	1426842.767	42° 44' 49.56	73° 41' 04.27	TP17 (88) (10-12)	X	X
TP18	5/3/2017	0 - 6' bgs	20.6	711086.257	1426881.810	42° 44' 49.95	73° 41' 05.19	TP18 (3- 4)	X	X
TP19	5/3/2017	0 - 6' bgs	17.6	711063.180	1426885.194	42° 44' 49.99	73° 41' 05.50	TP19 (3-4)	X	X
TP20	5/3/2017	0 - 6' bgs	22.3	711100.927	1426884.196	42° 44' 49.98	73° 41' 05.00	TP20 (3-4)	X	X
TP21 (0)	5/4/2017	0 - 12' bgs	27.7	711193.316	1426864.276	42° 44' 49.77	73° 41' 03.76	TP21 (0) (10-12)	X	X
TP21 (26)	5/4/2017	0 - 12' bgs	28.6	711195.212	1426841.181	42° 44' 49.54	73° 41' 03.74	TP21 (26) (2.5-3.5)	X	X
TP21 (26)	5/4/2017	0 - 12' bgs	28.6	711195.212	1426841.181	42° 44' 49.54	73° 41' 03.74	TP21 (26) (10-12)	X	X

Horizontal Coordinates reported in New York State Plane, Central Zone, NAD83 North American Datum 1983 (NAD83), and latitude and longitude.
Vertical Coordinates reported in North American Datum 1988 (NAVD88).

Table 2
Soil Boring Summary
OU2 Ingalls Avenue Area
Pre-Design Investigation

Soil Boring Summary													
Soil Boring Description								Physical Characteristics				Cyanide Analyses	
Sample Designation	Sample Date	Ground Surface Elevation (Feet NAVD88)	Northing (NAD83)	Easting (NAD83)	Latitude	Longitude	Depth of Boring (feet below ground surface)	Standard Penetration Testing D1586	Visual Characterization (soil type, grain size, color, texture, moisture content)	PID Head Space	Visual Observations of Purifier Residual Impacts	Total Cyanide Method 9014A	Free Cyanide Method 9016
Geotechnical Soil Borings													
GTSB1	5/11/2017	20.4	1426917.36	711075.87	42° 44' 50.30548" N	73° 41' 05.32803" W	24.3	X	X	X	X	GTSB1 (2-4)	
												GTSB1 (6-8)	
												GTSB1 (10-12)	
GTSB2	5/10/2017	29.6	1426820.82	711079.90	42° 44' 49.35154" N	73° 41' 05.28653" W	18.0	X	X	X	X	GTSB2 (4-5)	
												GTSB2 (10-12)	
GTSB3	5/9/2017	25.1	1426967.25	711071.14	42° 44' 50.79877" N	73° 41' 05.38491" W	30.0	X	X	X	X	GTSB3 (3-4)	
												GTSB3 (10-12)	
GTSB4	5/9/2017	29.5	1426842.81	711159.53	42° 44' 49.56111" N	73° 41' 04.21650" W	22.3	X	X	X	X	GTSB4 (0.3-4)	
												GTSB4 (10-12)	
GTSB5	5/9/2017	25.1	1426939.25	711195.13	42° 44' 50.51035" N	73° 41' 03.72687" W	22.9	X	X	X	X	GTSB5 (3-4)	
												GTSB5 (10-12)	
GTSB6	5/8/2017	26.7	1426915.48	711266.27	42° 44' 50.26877" N	73° 41' 02.77647" W	24.0	X	X	X	X	GTSB6 (4-6)	
												GTSB6 (10-12)	
PDI Soil Borings													
SB1	5/10/2017	24.9	1426954.76	711128.62	42° 44' 50.66987" N	73° 41' 04.61623" W	24.2	X	X	X	X	SB1 (3-4)	
												SB1 (10-12)	
SB2	5/10/2017	22.4	1426912.01	711109.13	42° 44' 50.24949" N	73° 41' 04.88294" W	16.0	X	X	X	X	SB2 (3-4)	
												SB2 (10-12)	
SB3	5/10/2017	22.6	1426929.63	711102.61	42° 44' 50.42412" N	73° 41' 04.96812" W	16.0	X	X	X	X	SB3 (3-4)	
												SB3 (10-12)	

Horizontal Coordinates reported in New York State Plane, East Zone, NAD83 North American Datum 1983 (NAD83), and latitude and longitude.
Vertical Coordinates reported in North American Datum 1988 (NAVD88).

Table 3
Total and Free Cyanide Results
OU2 Ingalls Avenue Area
Pre-Design Investigation

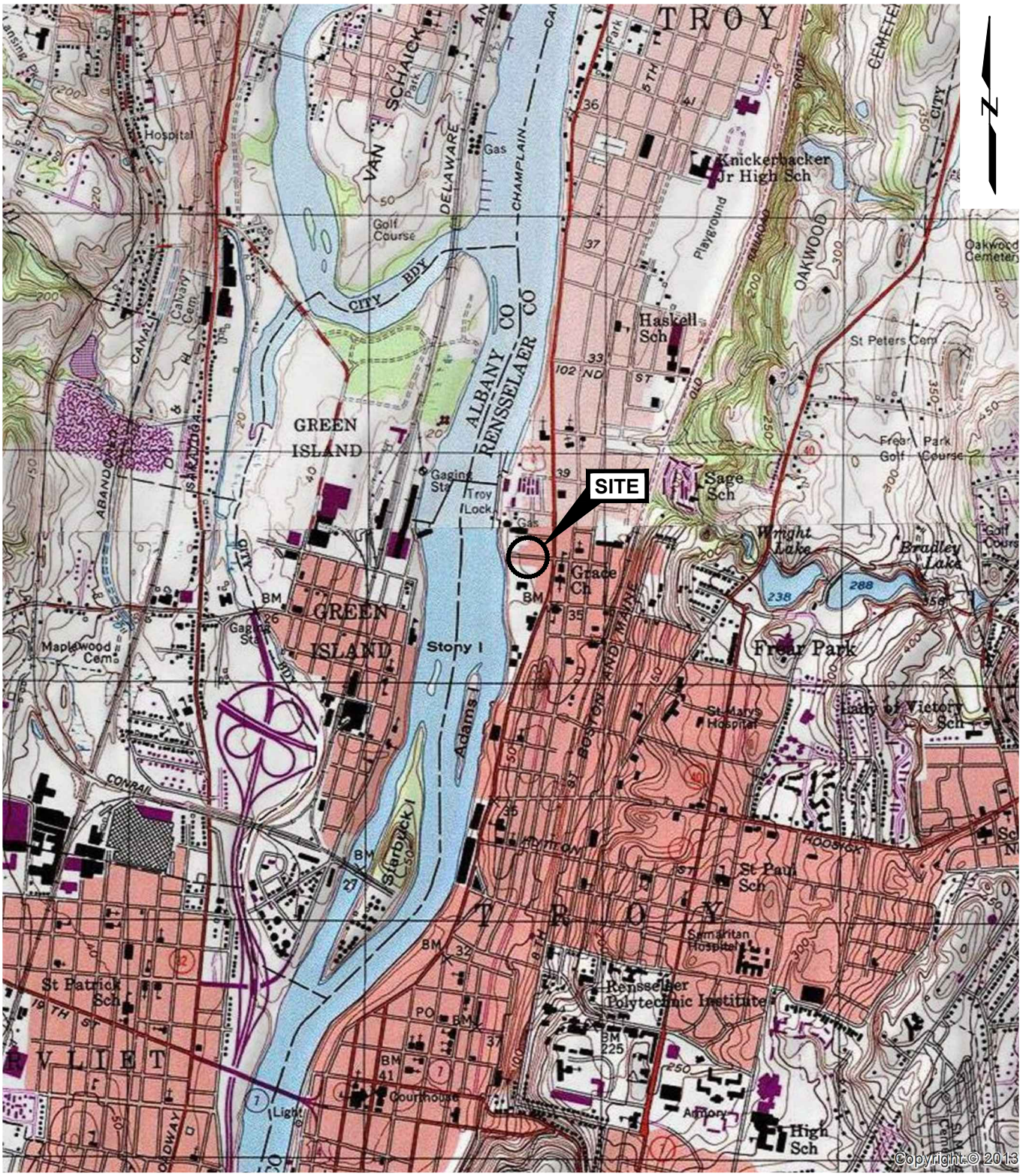
		Sample Name	GTSB-1 (2-4)	GTSB-1 (6-8)	GTSB-1 (10-12)	GTSB-2 (4-5)	GTSB-2 (10-12)	GTSB-3 (3-4)	GTSB-3 (10-12)	GTSB-4 (3-4)	GTSB-4 (10-12)	GTSB-5 (3-4)	GTSB-5 (10-12)	GTSB-6 (4-6)	GTSB-6 (10-12)
		Start Depth	2	6	10	4	10	3	10	3	10	3	10	4	10
		End Depth	4	8	12	5	12	4	12	4	12	4	12	6	12
		Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
		Sample Date	5/11/2017	5/11/2017	5/11/2017	5/10/2017	5/10/2017	5/9/2017	5/9/2017	5/9/2017	5/9/2017	5/9/2017	5/9/2017	5/8/2017	5/8/2017
Analyte	**CAS No.**	**6 NYCRR Part 375-6 SCO Identified in NYSDEC ROD**													
Cyanides (mg/kg)															
Free Cyanide	NA	27	1.1 UJ	0.94 UJ	0.99 UJ	1.1 UJ	0.86 UJ	1 UJ	1.1 UJ	1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1 UJ
Total Cyanide	57-12-5	72	**15**	**3.5**	**2.5**	**0.83 J**	**0.22 J**	**1.2**	**0.2 J**	1.1 U	**0.4 J**	**0.34 J**	**0.19 J**	**0.31 J**	1 U

		Sample Name	SB-1 (3-4)	SB-1 (10-12)	SB-2 (3-4)	SB-2 (10-12)	SB-3 (3-4)	SB-3 (10-12)	TP-12(20) (4-5)	TP-12(25) (10-12)	TP-12(44) (10-12)	TP-12(65) (4-5)	TP-13(60) (10-12)	TP-14(22) (11-12)	TP-14(43) (11-12)	TP-14(44) (4-6)
		Start Depth	3	10	3	10	3	10	4	10	10	4	10	11	11	4
		End Depth	4	12	4	12	4	12	5	12	12	5	12	12	12	6
		Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
		Sample Date	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/10/2017	5/3/2017	5/3/2017	5/3/2017	5/3/2017	5/3/2017	5/3/2017	5/3/2017	5/3/2017
Analyte	**CAS No.**	**6 NYCRR Part 375-6 SCO Identified in NYSDEC ROD**														
Cyanides (mg/kg)																
Free Cyanide	NA	27	1.1 UJ	1 UJ	0.98 UJ	0.99 UJ	1.1 UJ	1 UJ	1 UJ	1.2 UJ	0.91 UJ	1.1 UJ	0.97 UJ	0.95 UJ	0.93 UJ	1.2 UJ
Total Cyanide	57-12-5	72	**0.5 J**	0.98 U	**2.4**	**0.34 J**	**2.8**	**1.6**	1 U	1.1 U	1 U	**1.2 J**	1 U	1.2 U	1 U	1.2 U

		Sample Name	TP-15(0) (10.5-11)	TP-15(20) (10.5-11)	TP-15(38) (10.5-11)	TP-16(15) (7-8)	TP-16(40) (6-7)	TP-16(40) (11-12)	TP-16(50) (11-12)	TP-16(70) (11-12)	TP-16(100) (11-12)	TP-16(120) (11-12)	TP-16(134) (4.5)	TP-16(140) (0-1.4)	TP-16(141) (5-6)	TP-16(141) (10-12)
		Start Depth	10.5	10.5	10.5	7	6	11	11	11	11	11	4.5	0	6	10
		End Depth	11	11	11	8	7	12	12	12	12	12	4.5	1.4	6	12
		Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
		Sample Date	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/2/2017	5/3/2017	5/2/2017	5/3/2017	5/3/2017
Analyte	**CAS No.**	**6 NYCRR Part 375-6 SCO Identified in NYSDEC ROD**														
Cyanides (mg/kg)																
Free Cyanide	NA	27	0.99 UJ	0.94 UJ	0.88 UJ	1.1 UJ	1.1 UJ	0.91 UJ	1 UJ	0.91 UJ	0.86 UJ	0.91 UJ	1.3 UJ	**12 J**	1 UJ	1 UJ
Total Cyanide	57-12-5	72	**0.19 J**	1.1 UJ	1 UJ	**0.52 J**	**0.65 J**	0.97 UJ	1 UJ	**1.4 J**	1 UJ	1 UJ	**4 J**	**180**	1 U	1 U

		Sample Name	TP-16(193) (10-12)	TP-17 (0) (10-12)	TP-17 (30) (5-6)	TP-17 (30) (10-12)	TP-17 (45) (10-12)	TP-17 (48) (8-9)	TP-17 (PEAT)	TP-17 (88) (10-12)	TP-18 (3-4)	TP-19 (3-4)	TP-20 (3-4)	TP-21(0) (10-12)	TP-21(26) (2.5-3.5)	TP-21(26) (10-12)
		Start Depth	10	10	5	10	10	8	0	10	3	3	3	10	2.5	10
		End Depth	12	12	6	12	12	9	0	12	4	4	4	12	3.5	12
		Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
		Sample Date	5/3/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/4/2017	5/3/2017	5/3/2017	5/3/2017	5/4/2017	5/4/2017	5/4/2017
Analyte	**CAS No.**	**6 NYCRR Part 375-6 SCO Identified in NYSDEC ROD**														
Cyanides (mg/kg)																
Free Cyanide	NA	27	0.88 UJ	0.97 UJ	1.1 UJ	1 UJ	0.99 UJ	1.9 UJ	1.7 UJ	1 UJ	0.98 UJ	0.91 UJ	1.1 UJ	1.2 UJ	1 UJ	1.1 UJ
Total Cyanide	57-12-5	72	**1.7 J**	1.1 U	**0.22 J**	**1.4**	**9.8**	**130 J**	**96**	1.2 U	**0.25 J**	1.1 U	**0.39 J**	**1.1 J**	**0.36 J**	**0.76 J**

Figures



0 2000 4000

SCALE: 1" = 2000'

SOURCE:

USA Topo Maps Layer Obtained from ArcGIS Online, Copyright:© 2013 National Geographic Society, i-cubed.

Pre-Design Investigation Report
Ingalls Avenue Area - OU2
Troy Smith Avenue Former MGP Site
Troy, New York

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SITE LOCATION MAP

Project 116830 | August 2017 | Fig. 1

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_SLM.dwg - 8/8/2017

SOURCES:

1. Aerial Photograph From Bing Maps, Accessed Via ArcGIS Online © 2010 Microsoft Corporation and its Data Suppliers, Accessed on 8/16/2016.
2. Figure 2: Site Plan from OU-3 Basis of Design Report, Troy - Smith Avenue Former MGP Site, Prepared by GEI Consultants, Date: May 2013.

0 200 400

SCALE: 1" = 200'

Pre-Design Investigation Report
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SITE LAYOUT AND OPERABLE UNITS

Project 116830 | August 2017 | Fig. 2

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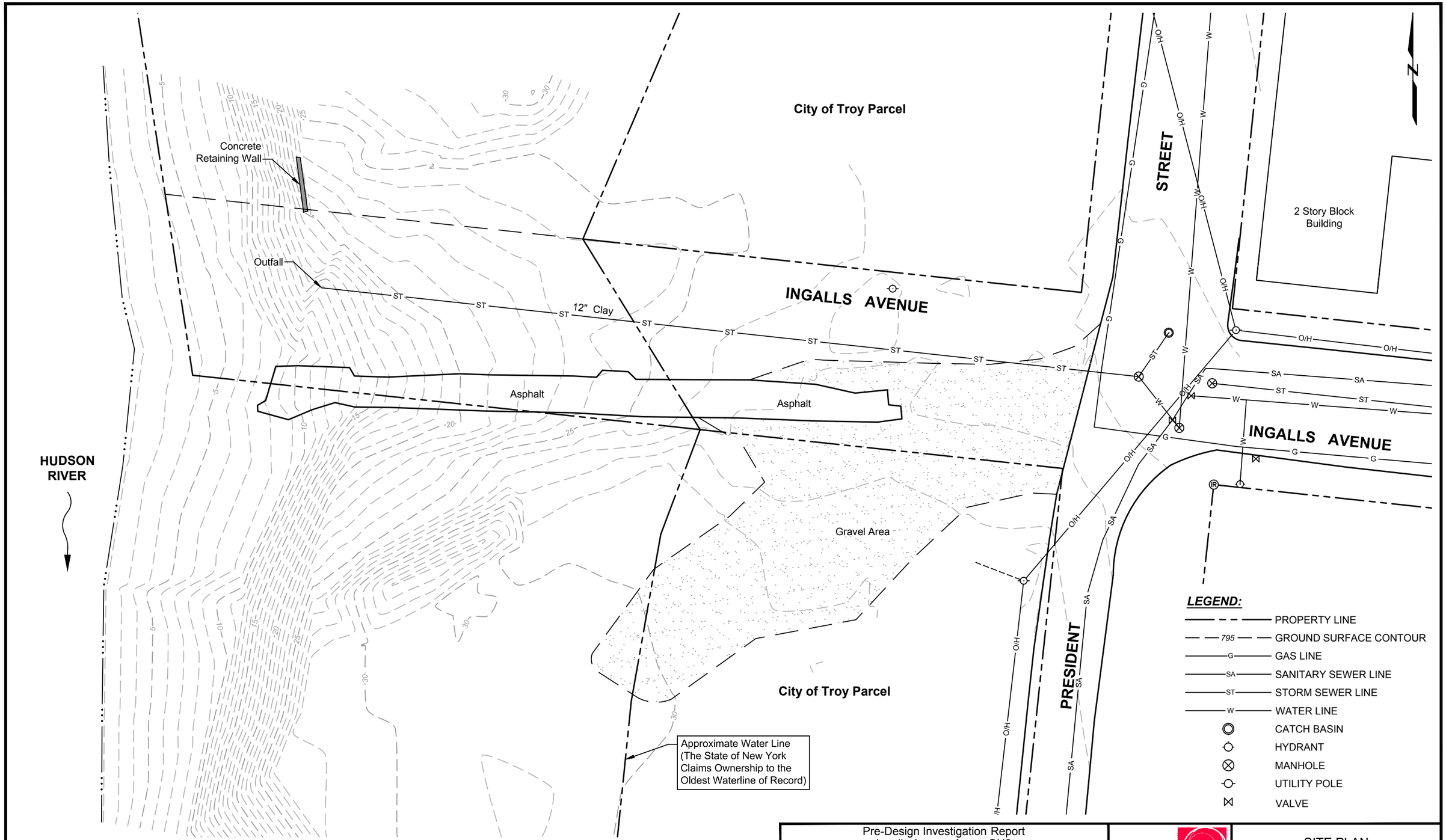

SOURCE:

Plan Based On Map Titled Former Mgp Site, Ingalls Avenue & President Street, City Of Troy - Rensselaer County, State Of New York, Prepared By Delta Engineers, Architects & Land Surveyors, Scale 1" = 20', Date: May18, 2017.

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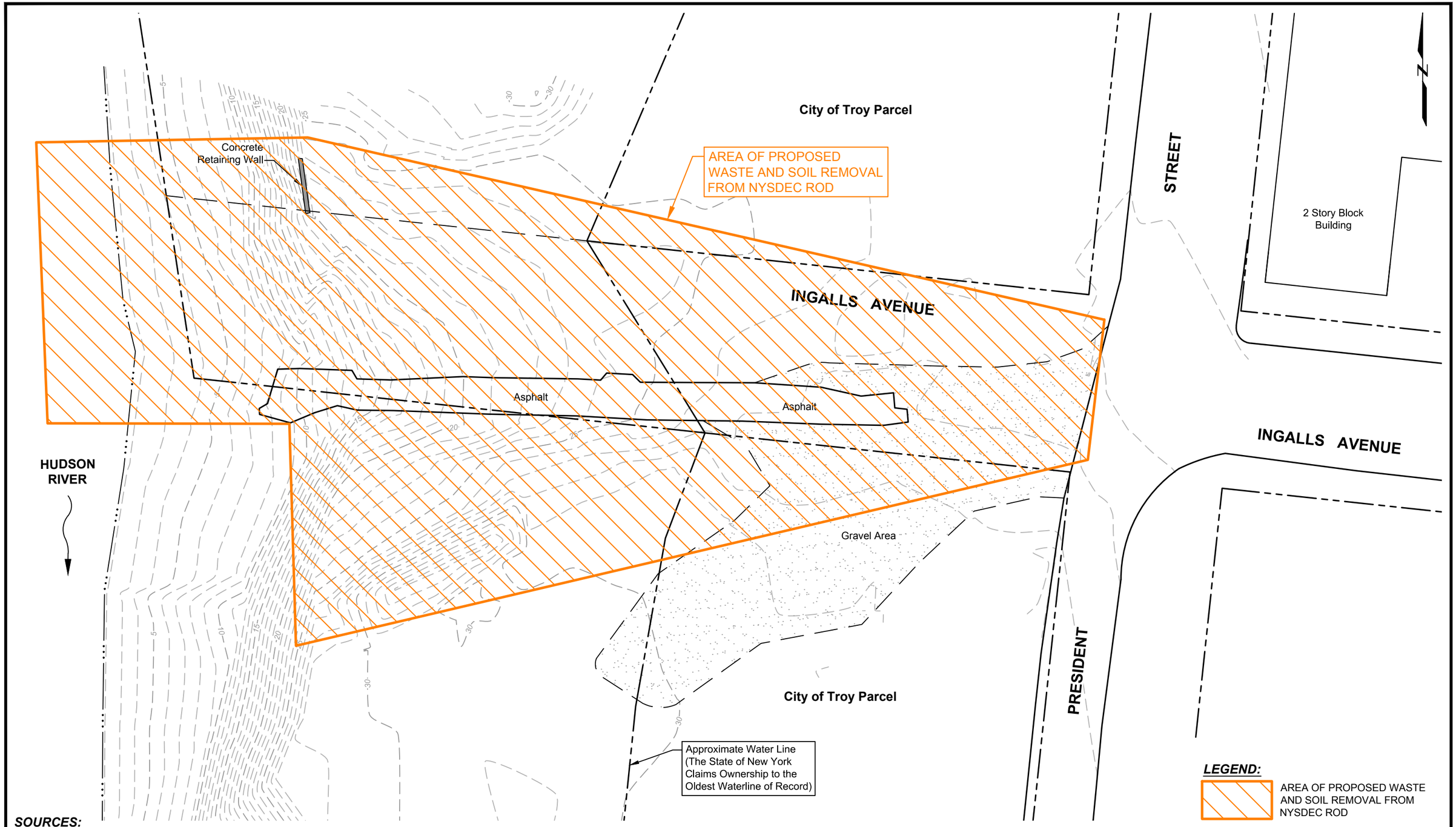
SITE PLAN
CURRENT FEATURES
AND UTILITIES

Project 116830 | August 2017 | Fig. 3

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017



SOURCES:

1. Plan Based On Map Titled *Former MGP Site, Ingalls Avenue & President Street, City Of Troy - Rensselaer County, State Of New York,* Prepared By Delta Engineers, Architects & Land Surveyors, Scale 1" = 20', Date: May18, 2017.
2. Figure 6: Troy (Smith Ave) Ingalls Avenue (OU2) Alternative 3 from *Record of Decision, NM - Troy Smith Ave. MGP, Operable Unit Numbers 02, 03, Ingalls Avenue Purifier Waste, Hudson River Sediments, Troy, Rensselaer County, Site No. 442030,* Prepared by Tetra Tech EC, Inc., Date: March 2011.

0 30 60

SCALE: 1" = 30'

Pre-Design Investigation Report
Ingalls Avenue Area - OU2
Troy Smith Avenue Former MGP Site
Troy, New York

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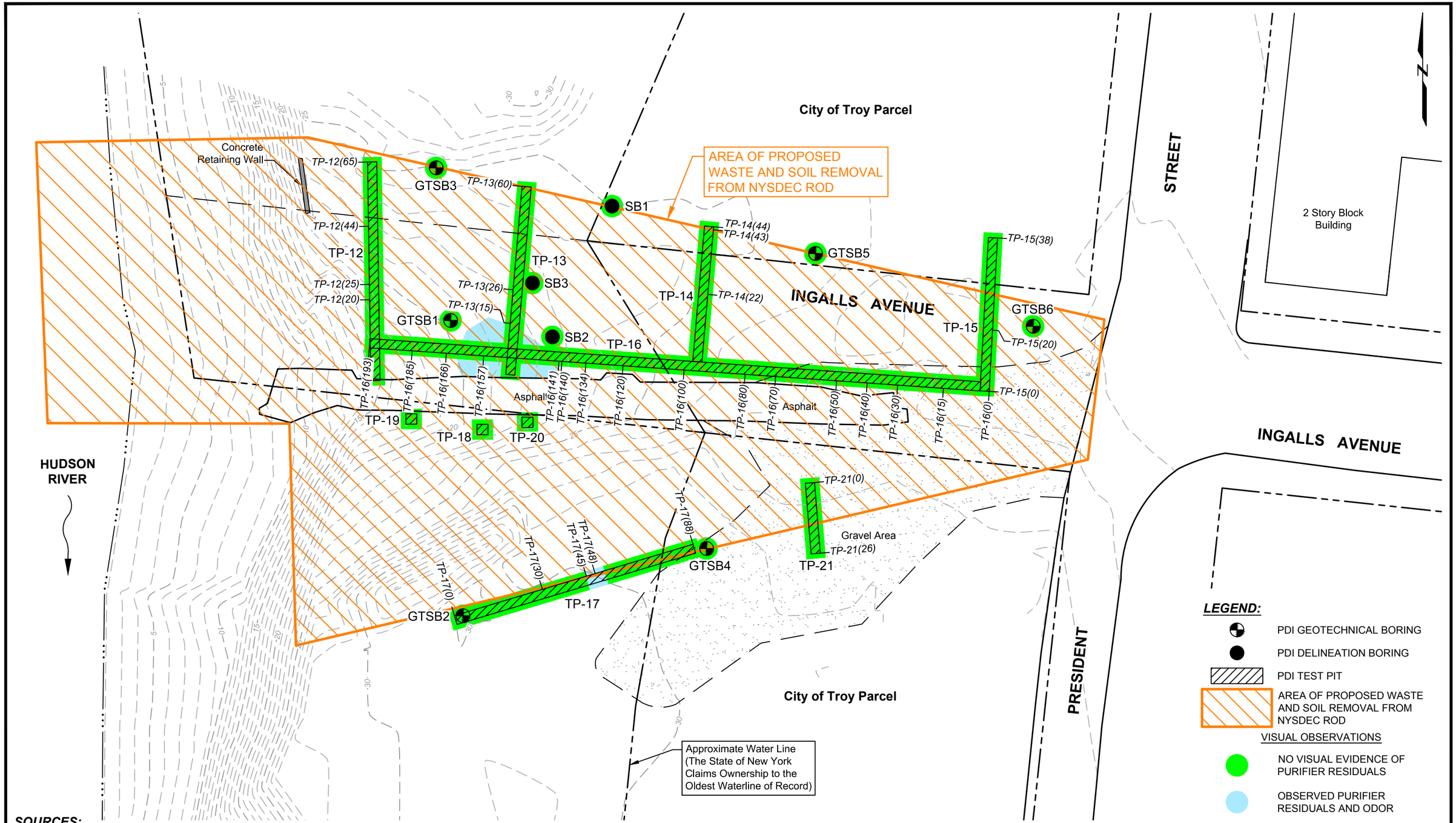
SITE PLAN AND OU2
REMEDIAL
EXCAVATION AREA

Project 116830 | August 2017 | Fig. 4

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017



LEGEND:

- PDI GEOTECHNICAL BORING
- PDI DELINEATION BORING
- PDI TEST PIT
- AREA OF PROPOSED WASTE AND SOIL REMOVAL FROM NYSDEC ROD

VISUAL OBSERVATIONS

- NO VISUAL EVIDENCE OF PURIFIER RESIDUALS
- OBSERVED PURIFIER RESIDUALS AND ODOR

SOURCES:

1. Plan Based On Map Titled *Former MGP Site, Ingalls Avenue & President Street, City Of Troy - Rensselaer County, State Of New York,* Prepared By Delta Engineers, Architects & Land Surveyors, Scale 1" = 20', Date: May18, 2017.
2. Figures 3 & 6 from *Record of Decision, NM - Troy Smith Ave. MGP, Operable Unit Numbers 02, 03, Ingalls Avenue Purifier Waste, Hudson River Sediments, Troy, Rensselaer County, Site No. 442030,* Prepared by Tetra Tech EC, Inc., Date: March 2011.

0 30 60

SCALE: 1" = 30'

Pre-Design Investigation Report
Ingalls Avenue Area - OU2
Troy Smith Avenue Former MGP Site
Troy, New York

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2017 PDI EXPLORATION LOCATIONS AND OBSERVATION SUMMARY

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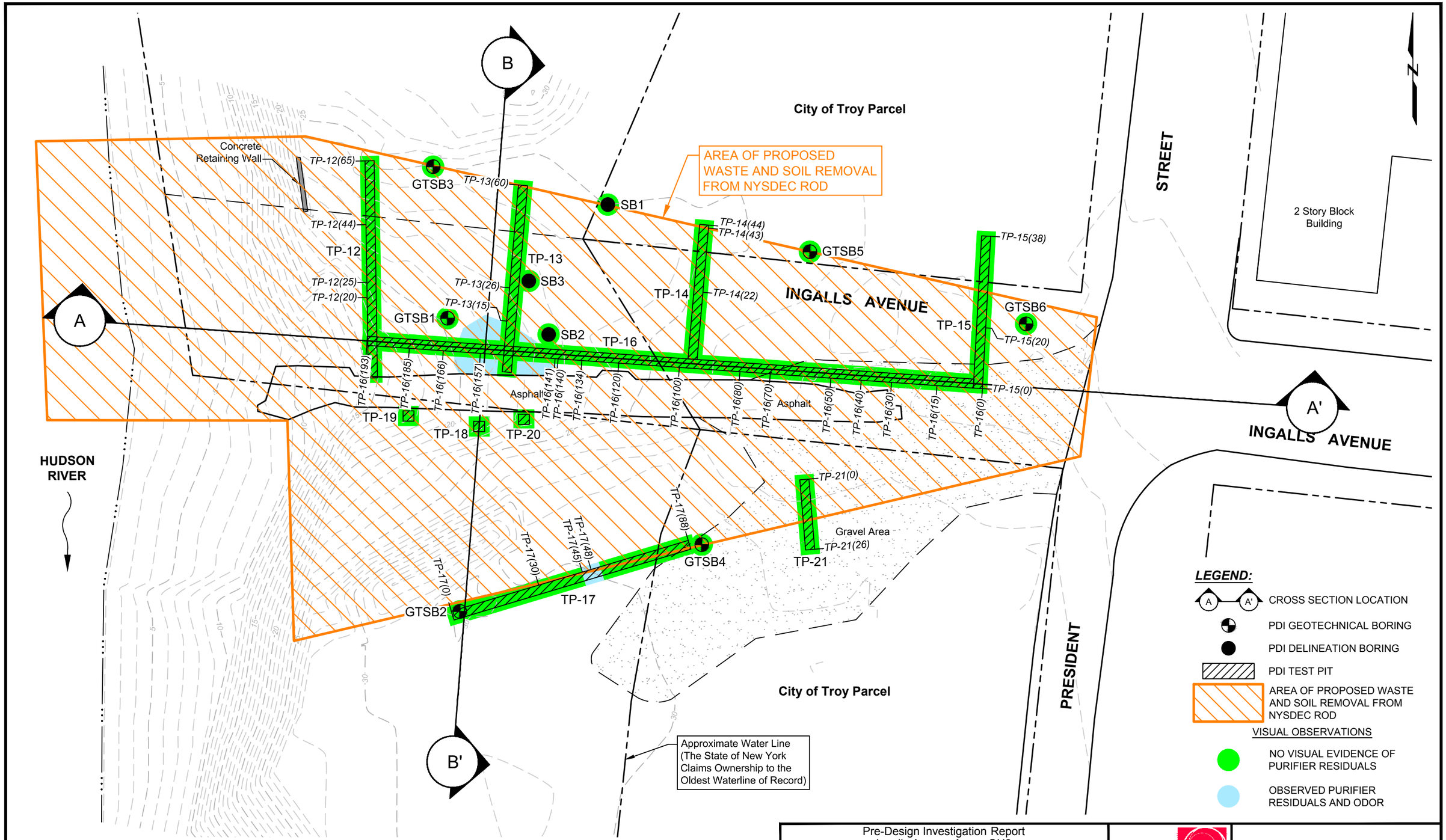
\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017



LEGEND:

- CROSS SECTION LOCATION
- PDI GEOTECHNICAL BORING
- PDI DELINEATION BORING
- PDI TEST PIT
- AREA OF PROPOSED WASTE AND SOIL REMOVAL FROM NYSDEC ROD

VISUAL OBSERVATIONS

- NO VISUAL EVIDENCE OF PURIFIER RESIDUALS
- OBSERVED PURIFIER RESIDUALS AND ODOR

SOURCE:

Plan Based On Map Titled Former Mgp Site, Ingalls Avenue & President Street, City Of Troy - Rensselaer County, State Of New York, Prepared By Delta Engineers, Architects & Land Surveyors, Scale 1" = 20', Date: May18, 2017.

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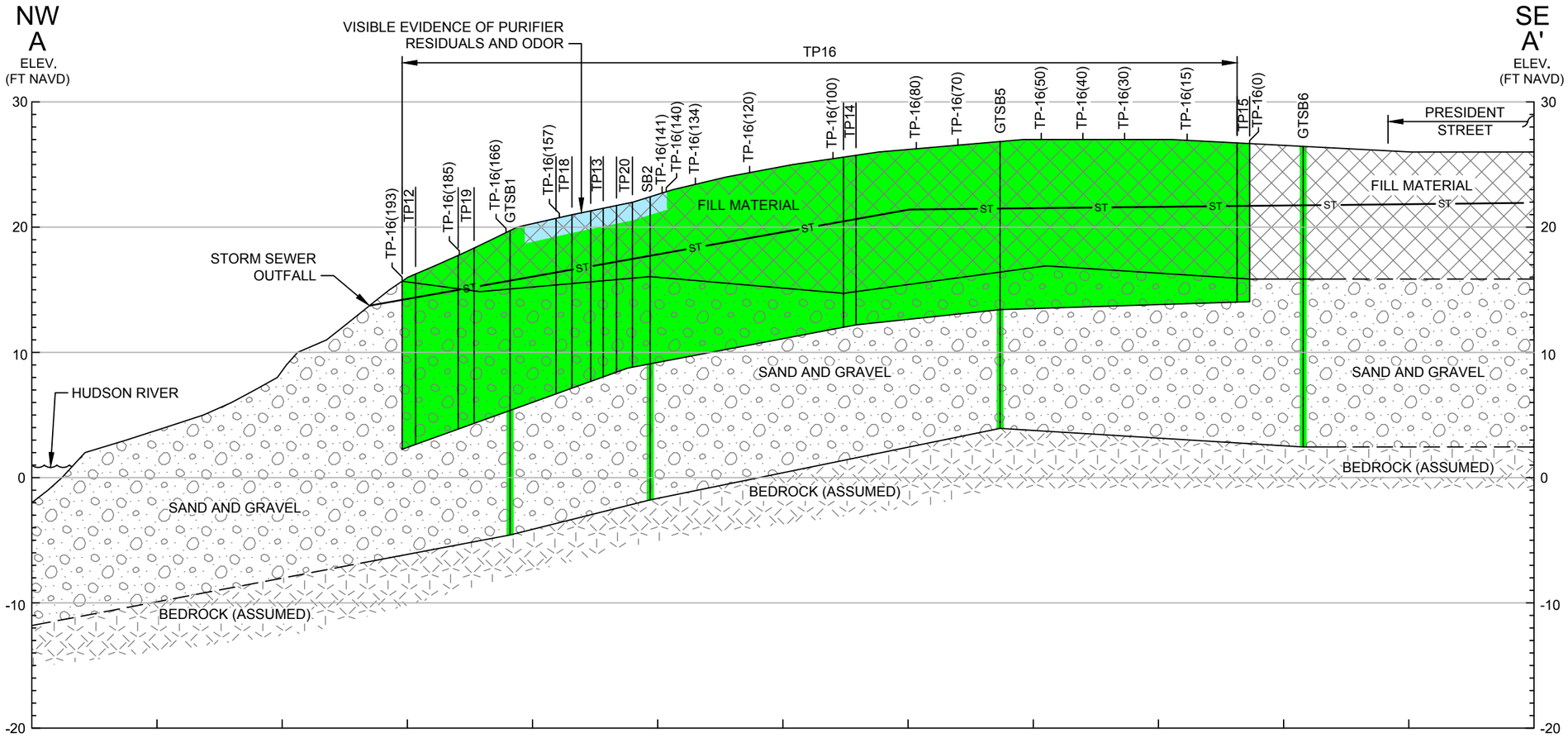
CROSS SECTION
LOCATION MAP

Project 116830 | August 2017 | Fig. 6

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017



HORIZONTAL SCALE: 1" = 30'

0 30 60

0 10 20

VERTICAL SCALE: 1" = 10'

NOTE: 3x VERTICAL EXAGGERATION

LEGEND:

- NO VISUAL EVIDENCE OF PURIFIER RESIDUALS
- OBSERVED PURIFIER RESIDUALS AND ODOR
- ST — STORM SEWER PIPE (APPROXIMATE)
- FILL MATERIAL
- SAND AND GRAVEL
- BEDROCK (ASSUMED)

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Troy Smith Avenue Former MGP Site
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CROSS SECTION
A-A'

Project 116830 | August 2017 | Fig. 7

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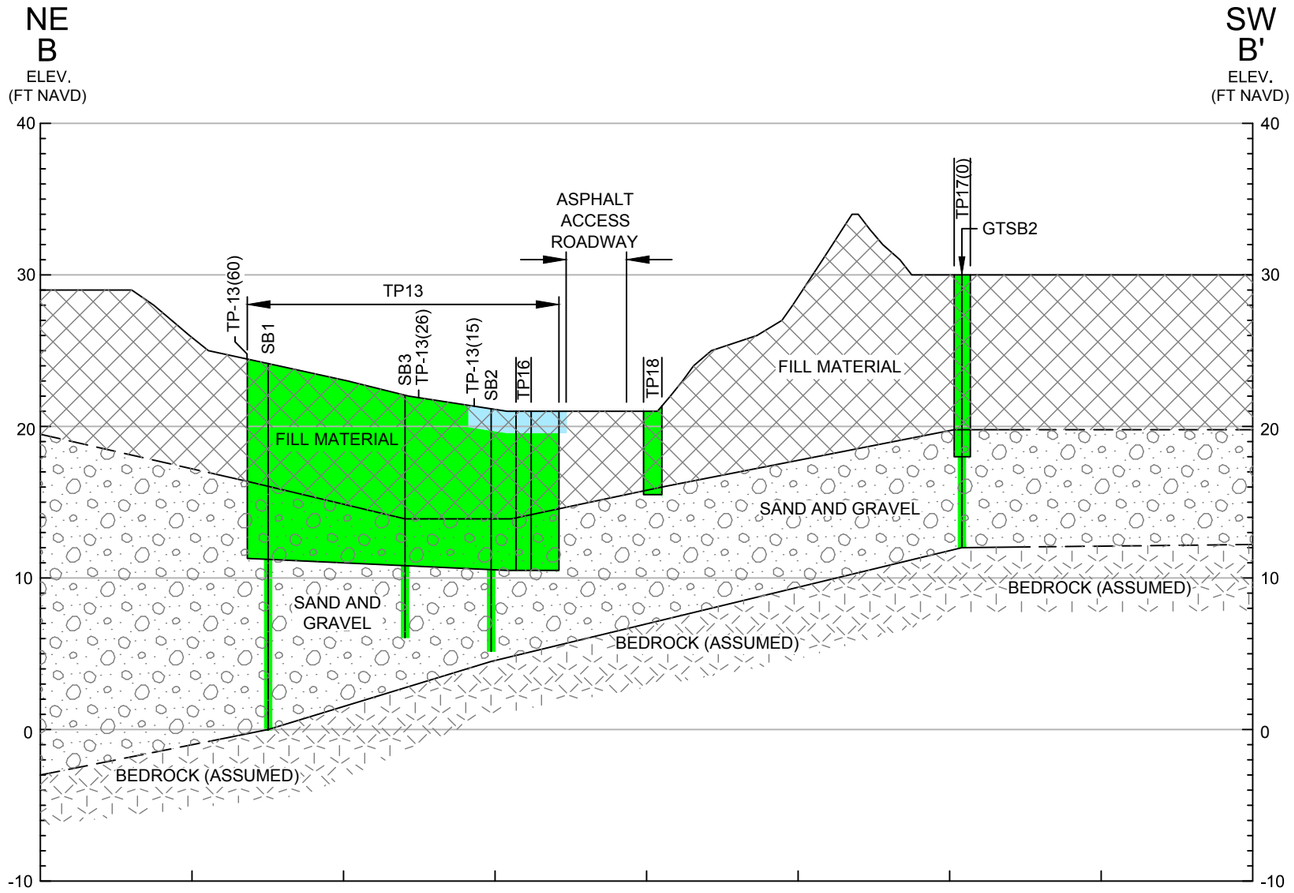

HORIZONTAL SCALE: 1" = 30'

0 30 60

0 10 20

VERTICAL SCALE: 1" = 10'

NOTE: 3x VERTICAL EXAGGERATION

LEGEND:

- NO VISUAL EVIDENCE OF PURIFIER RESIDUALS
- OBSERVED PURIFIER RESIDUALS AND ODOR
- FILL MATERIAL
- SAND AND GRAVEL
- BEDROCK (ASSUMED)

Pre-Design Investigation Report
Ingalls Avenue Area - OU2
Troy Smith Avenue Former MGP Site
Troy, New York

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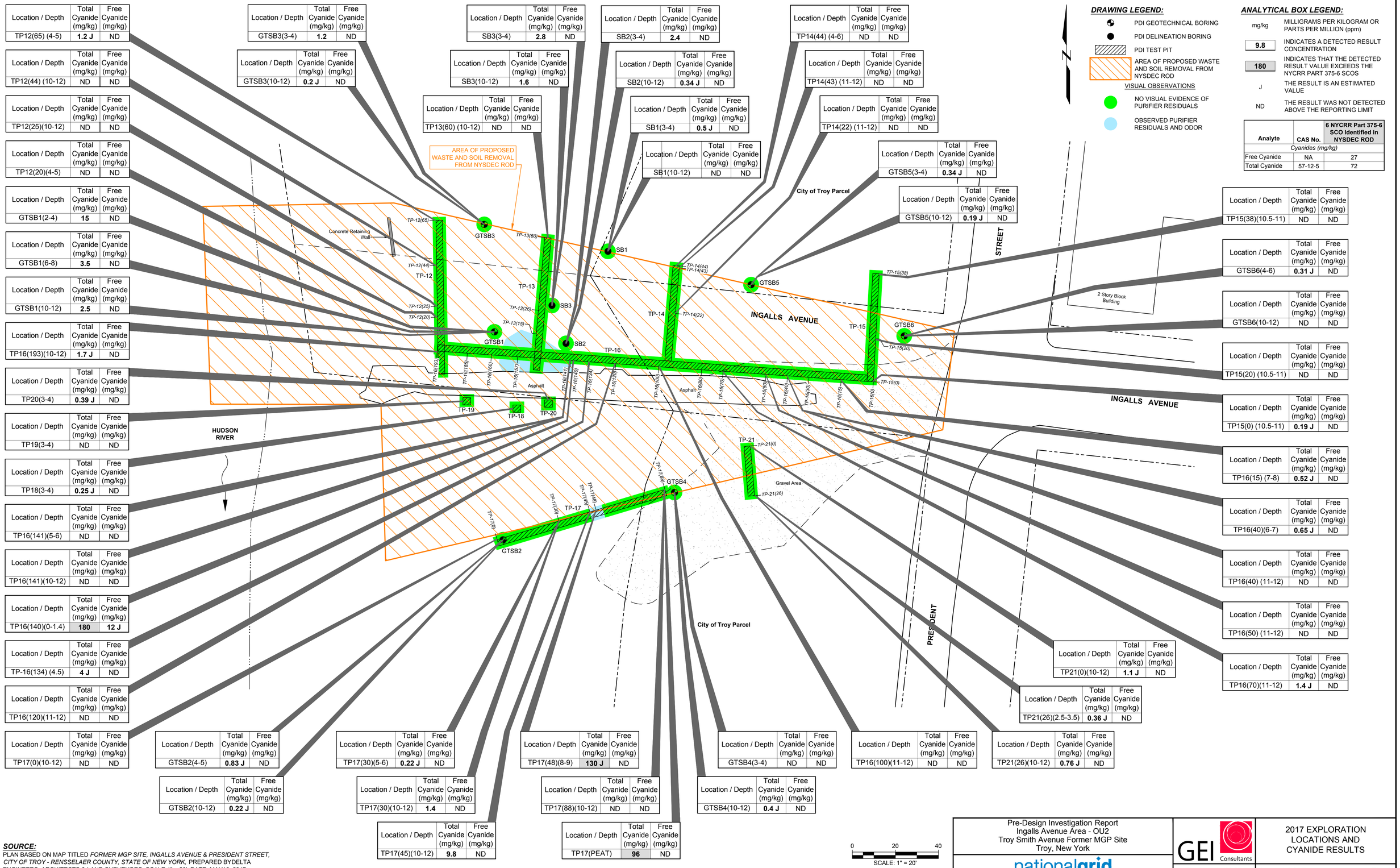
CROSS SECTION
B-B'

Project 116830 | August 2017 | Fig. 8

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017



Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP12(65) (4-5)	**1.2 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP12(44) (10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP12(25)(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP12(20)(4-5)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB1(2-4)	**15**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB1(6-8)	**3.5**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB1(10-12)	**2.5**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(193)(10-12)	**1.7 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP20(3-4)	**0.39 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP19(3-4)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP18(3-4)	**0.25 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(141)(5-6)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(141)(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(140)(0-1.4)	**180**	**12 J**

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP-16(134) (4.5)	**4 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(120)(11-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(0)(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB3(3-4)	**1.2**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB3(10-12)	**0.2 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB3(3-4)	**2.8**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB3(10-12)	**1.6**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP13(60) (10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB2(3-4)	**2.4**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB2(10-12)	**0.34 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB1(3-4)	**0.5 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
SB1(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP14(44) (4-6)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP14(43) (11-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP14(22) (11-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB5(3-4)	**0.34 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB5(10-12)	**0.19 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP15(38)(10.5-11)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB6(4-6)	**0.31 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB6(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP15(20) (10.5-11)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP15(0) (10.5-11)	**0.19 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(15) (7-8)	**0.52 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(40)(6-7)	**0.65 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(40) (11-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(50) (11-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(70)(11-12)	**1.4 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP21(0)(10-12)	**1.1 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP21(26)(2.5-3.5)	**0.36 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP21(26)(10-12)	**0.76 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB2(4-5)	**0.83 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB2(10-12)	**0.22 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(30)(5-6)	**0.22 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(30)(10-12)	**1.4**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(45)(10-12)	**9.8**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(48)(8-9)	**130 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(88)(10-12)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP17(PEAT)	**96**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB4(3-4)	ND	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
GTSB4(10-12)	**0.4 J**	ND

Location / Depth	Total Cyanide (mg/kg)	Free Cyanide (mg/kg)
TP16(100)(11-12)	ND	ND

DRAWING LEGEND:

- PDI GEOTECHNICAL BORING
- PDI DELINEATION BORING
- PDI TEST PIT
- AREA OF PROPOSED WASTE AND SOIL REMOVAL FROM NYSDEC ROD

VISUAL OBSERVATIONS

- NO VISUAL EVIDENCE OF PURIFIER RESIDUALS
- OBSERVED PURIFIER RESIDUALS AND ODOR

ANALYTICAL BOX LEGEND:

mg/kg	MILLIGRAMS PER KILOGRAM OR PARTS PER MILLION (ppm)
9.8	INDICATES A DETECTED RESULT CONCENTRATION
180	INDICATES THAT THE DETECTED RESULT VALUE EXCEEDS THE NYCRR PART 375-6 SCOS
J	THE RESULT IS AN ESTIMATED VALUE
ND	THE RESULT WAS NOT DETECTED ABOVE THE REPORTING LIMIT

Analyte	CAS No.	6 NYCRR Part 375-6 SCO Identified in NYSDEC ROD
Cyanides (mg/kg)		
Free Cyanide	NA	27
Total Cyanide	57-12-5	72

0 20 40
SCALE: 1" = 20'

SOURCE:
PLAN BASED ON MAP TITLED *FORMER MGP SITE, INGALLS AVENUE & PRESIDENT STREET, CITY OF TROY - RENSSELAER COUNTY, STATE OF NEW YORK,* PREPARED BYDELTA ENGINEERS, ARCHITECTS & LAND SURVEYORS, SCALE 1" = 20', DATE: MAY18, 2017.

Pre-Design Investigation Report
Ingalls Avenue Area - OU2
Troy Smith Avenue Former MGP Site
Troy, New York

nationalgrid

GEI Consultants

2017 EXPLORATION LOCATIONS AND CYANIDE RESULTS

Project 116830 | August 2017 | Fig. 9

\\geiconsulta B:\Working\NATIONAL GRID\116830 Troy-Ingalls Ave OU2\00_CAD\Figures\PDIR\116830_PDIR_FIGS.dwg - 6/29/2017

Appendix A

2017 PDI Test Pit Logs and Soil Boring Logs

Soil Boring, Test Pit, and Sediment Core Key
Color Code for the Description of MGP-Related and Petroleum-Related Residuals at MGP Sites

COLOR CODE		DESCRIPTION
		TAR SATURATED FILL OR SOIL
		COATED MATERIAL OR LENSES
		HARDENED TAR
		NAPL BLEBS, GLOBS, OR SHEEN
		STAINING, ODOR
		PETROLEUM IMPACTS - SATURATION AND SHEEN
		PETROLEUM IMPACTS - STAINING AND ODORS
		PURIFIER RESIDUALS AND ODOR
		NO OBSERVED IMPACTS

Test Pit Logs

Test Pit Log

TP12(20)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP12(20)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 19'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426909.507**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711054.159**
START DATE: 5.3.2017	**START TIME:**	**LATITUDE: 42° 44' 50.23**
FINISH DATE: 5.3.2017	**FINISH TIME:**	**LONGITUDE: 73° 41' 05.62**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Red bricks mixed in brown sand matrix. White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
3	0.0			FILL	**Fill Material:** White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
4				FILL	**Fill Material:** White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
5	0.0	TP12(20) (4-5)				
6				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0					
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

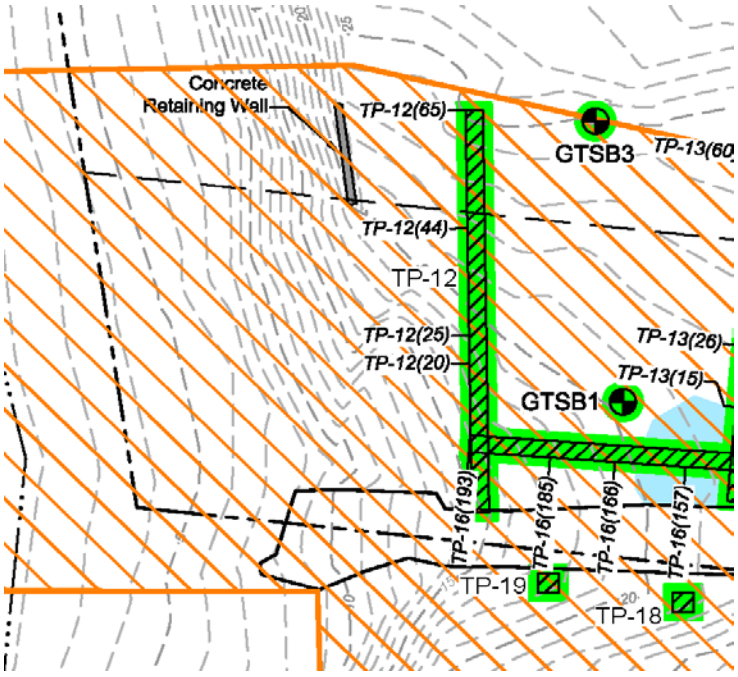
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP12(20)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP12(25)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP12(25)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 25'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426914.562**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711053.364**
START DATE: 5.3.2017	**START TIME: 1430**	**LATITUDE: 42° 44' 50.28**
FINISH DATE: 5.3.2017	**FINISH TIME: 1445**	**LONGITUDE: 73° 41' 05.63**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown. **Fill Material:** Red bricks mixed in brown sand matrix. White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
2						
3	0.0			FILL	**Fill Material:** White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
4				FILL	**Fill Material:** White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
5	0.0					
6				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10						
11	0.0	TP12(25) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

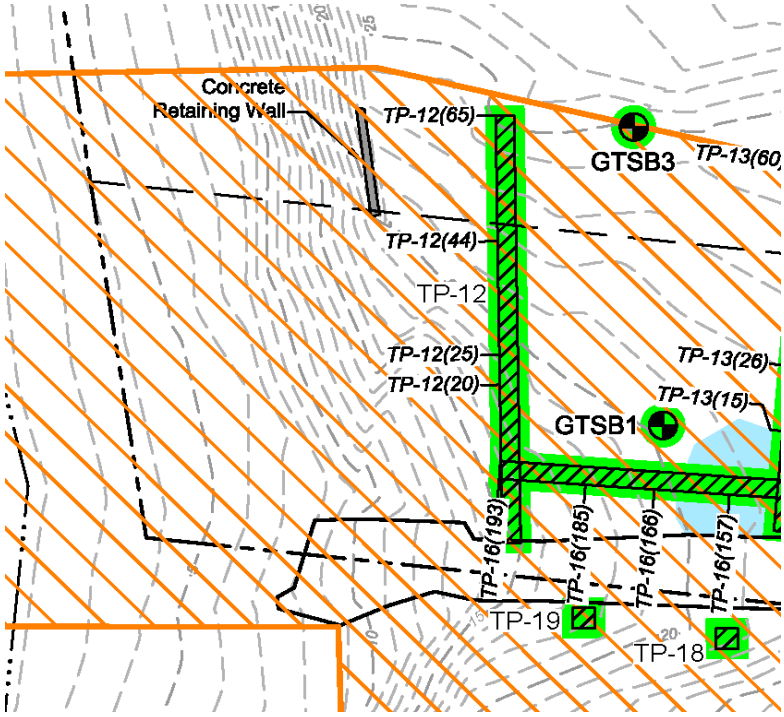
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP12(25)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP12(44)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP12(44)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 23'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426941.887
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711052.354
START DATE: 5.3.2017	START TIME: 1455	LATITUDE: 42° 44' 50.55
FINISH DATE: 5.3.2017	FINISH TIME: 1458	LONGITUDE: 73° 41' 05.64

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2					**Fill Material:** Red bricks mixed in brown sand matrix. White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
3	0.0			FILL	**Fill Material:** White and gray ashes in horizontal layers. Glass, metal, cinders, slag mixed in brown sand matrix. Loose, moist.	
4				FILL	**Fill Material:** Brick fragments and gray ash mixed in brown sand matrix.	
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10						
11	0.0	TP12(44) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

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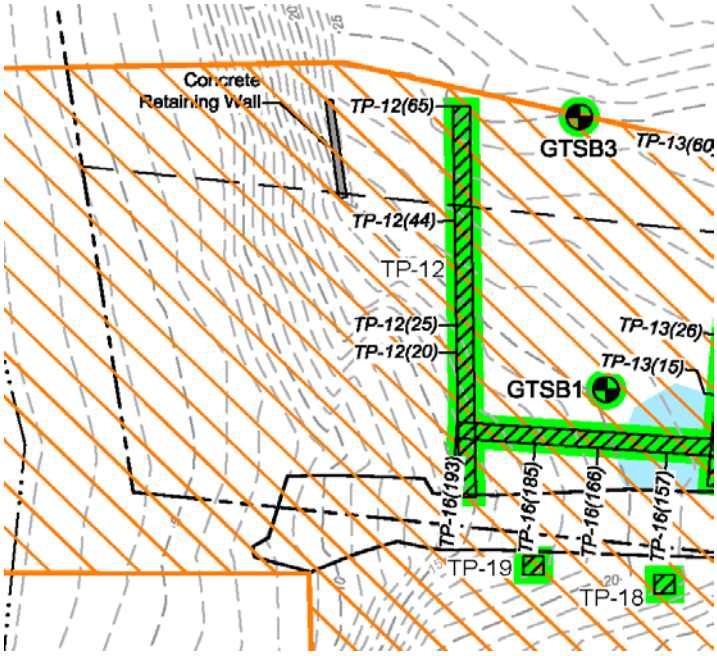
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP12(44)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP12(65)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP12(65)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 25.5'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426969.179
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711050.222
START DATE: 5.3.2017	START TIME: 1455	LATITUDE: 42° 44' 50.82
FINISH DATE: 5.3.2017	FINISH TIME: 1459	LONGITUDE: 73° 41' 05.67

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2					**Fill Material:** Red bricks mixed in brown silt matrix. Glass, rags, metal, cinders, slag mixed in gray silt matrix. Loose, moist.	
3	0.0			FILL	**Fill Material:** Red bricks mixed in brown and gray silt matrix.	
4		TP12(65) (4-5)		FILL	**Fill Material:** Red bricks mixed in brown and gray silt matrix.	
5	0.0					
6				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0					
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

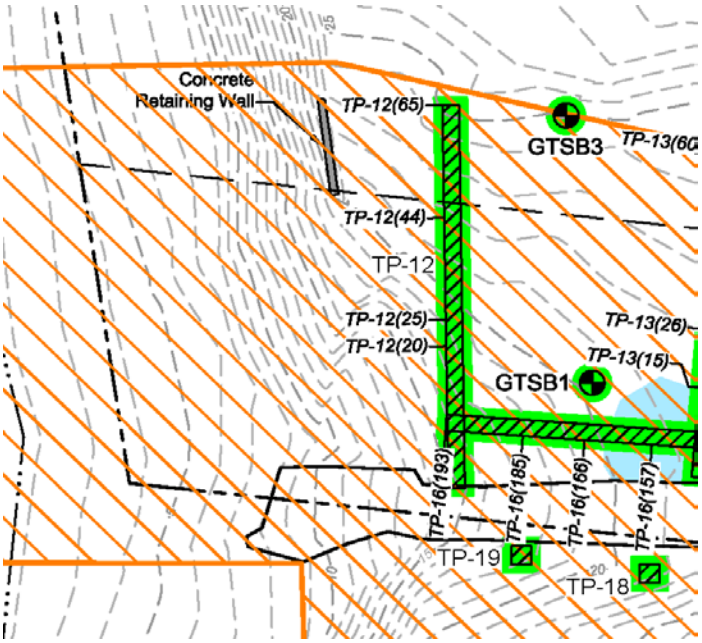
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP12(65)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP13(15)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP13(15)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 22'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426919.036
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711097.344
START DATE: 5.3.2017	START TIME: 125	LATITUDE: 42° 44' 50.32
FINISH DATE: 5.3.2017	FINISH TIME: 130	LONGITUDE: 73° 41' 05.04

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown. **Fill Material:** Red brick fragments mixed in gray silt matrix.	
2				FILL	**Fill Material:** Red brick fragments mixed in gray silt matrix.	
3	0.0			FILL	**Fill Material:** Red brick fragments mixed in gray silt matrix.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0					
10						
11	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

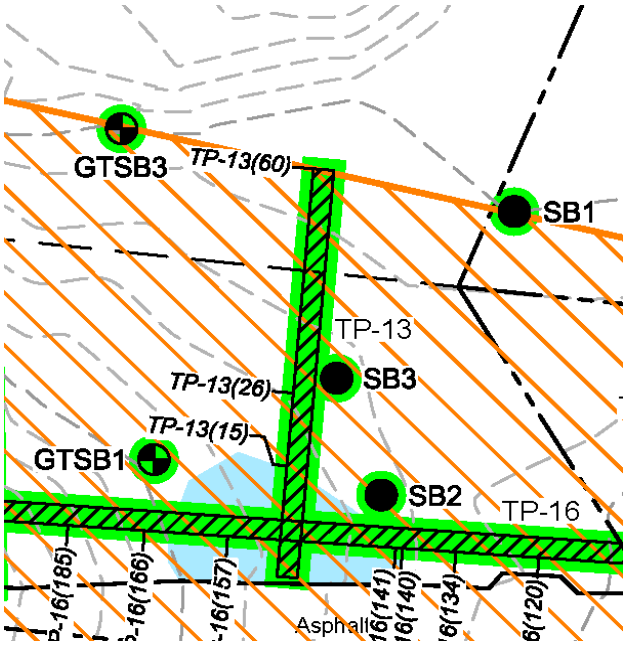
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP13(15)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP13(26)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP13(26)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 23'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426924.105**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711098.041**
START DATE: 5.3.2017	**START TIME: 145**	**LATITUDE: 42° 44' 50.37**
FINISH DATE: 5.3.2017	**FINISH TIME: 150**	**LONGITUDE: 73° 41' 05.03**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown. **Fill Material:** Red brick fragments mixed in gray and brown silt matrix. Fill in horizontal layers. Moist, loose.	
2				FILL	**Fill Material:** Red brick fragments mixed in gray and brown silt matrix. Fill in horizontal layers. Moist, loose.	
3	0.0					
4				FILL	**Fill Material:** Red brick fragments mixed in gray and brown silt matrix. Fill in horizontal layers. Moist, loose.	
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0					
10						
11	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

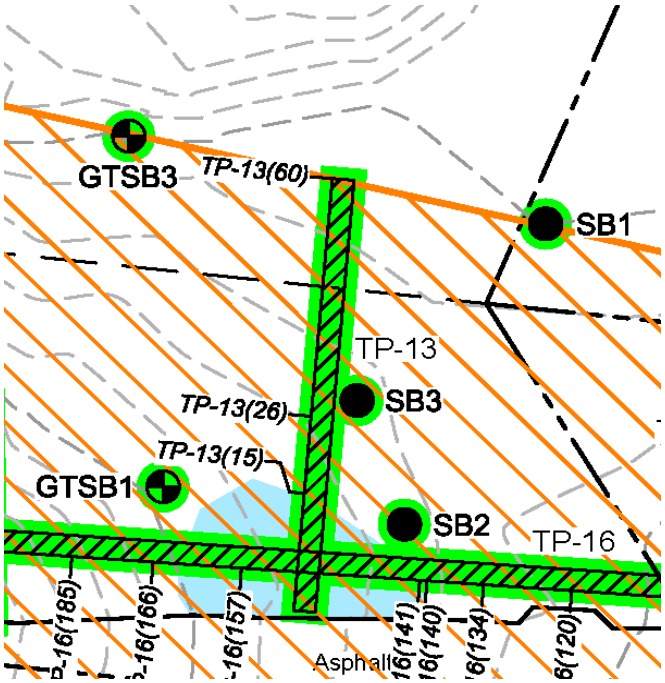
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP13(26)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP13(60)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP13(60)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 24.58'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426969.1785
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711128.619
START DATE: 5.3.2017	START TIME: 155	LATITUDE: 42° 44' 50.74
FINISH DATE: 5.3.2017	FINISH TIME: 200	LONGITUDE: 73° 41' 04.99

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2					**Fill Material:** Red bricks mixed in brown silt matrix. Glass, rags, metal, cinders, mixed in gray silt matrix. Loose, moist.	
3	0.0			FILL	**Fill Material:** Red bricks mixed in brown and gray silt matrix.	
4				FILL	**Fill Material:** Red bricks mixed in brown and gray silt matrix.	
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10						
11	0.0	TP13(60) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

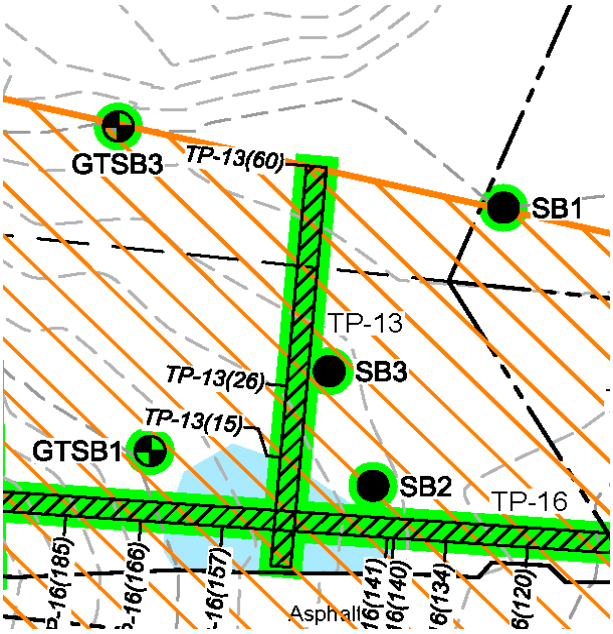
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP13(60)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP14(22)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP14(22)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 24'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426937.827**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711156.109**
START DATE: 5.3.2017	**START TIME: 755**	**LATITUDE: 42° 44' 50.50**
FINISH DATE: 5.3.2017	**FINISH TIME: 800**	**LONGITUDE: 73° 41' 04.25**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Red bricks mixed in brown sand matrix.	
3	0.0			FILL	**Fill Material:** White ash and clinkers in horizontal layer.	
4				FILL	**Fill Material:** Black ash and clinkers in horizontal layer.	
5	0.0			FILL	Vertical metal angle iron.	
6						
7	0.0			FILL	**Fill Material:** Slag fragments, silt, sand, clinkers, in orange and brown layers.	
8				FILL		
9	0.0				**Fill Material:** Brown silt and sand with bricks mixed in the soil matrix.	
10				FILL		
11	0.0	TP14(22) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

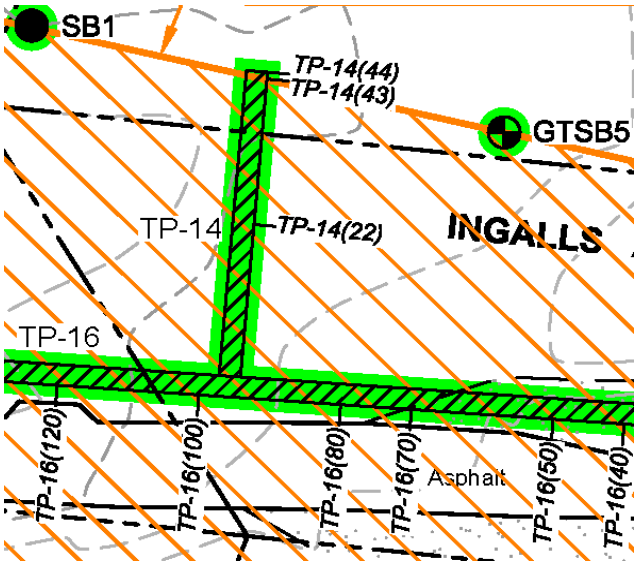
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP14(22)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP14(44)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP14(44)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 24.74'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426948.1231
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711160.3528
START DATE: 5.3.2017	START TIME: 810	LATITUDE: 42° 44' 50.60
FINISH DATE: 5.3.2017	FINISH TIME: 830	LONGITUDE: 73° 41' 04.19

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Red bricks mixed in brown sand matrix.	
3	0.0				**Fill Material:** Gray silt mixed with ashes and clinkers.	
4				FILL		
5	0.0	TP14(43) (4-6)		FILL	**Fill Material:** Gray silt mixed with ashes and clinkers. Trace brick fragments.	
6						
7	0.0			FILL	**Fill Material:** Gray silt mixed with clinkers, ashes, and metal debris.	
8				FILL	Vertical metal angle iron.	
9	0.0				**Fill Material:** Gray silt mixed with clinkers, ashes, and metal debris.	
10				FILL		
11	0.0	TP14(44) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

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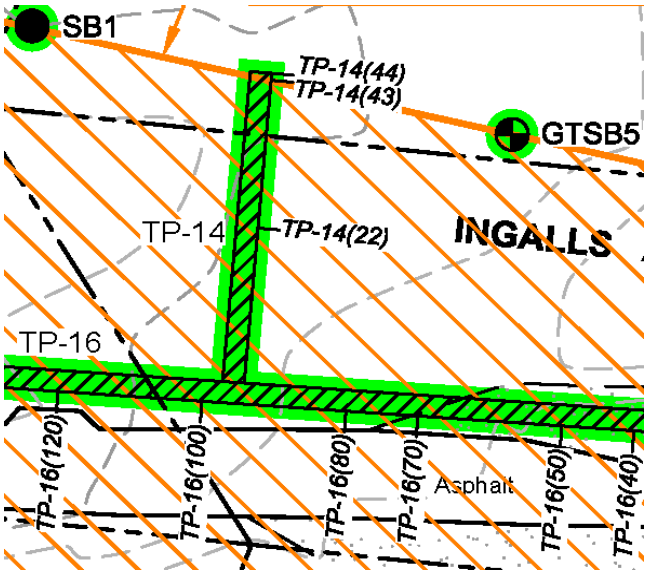
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP14(44)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP15(0)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP15(0)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426916.458
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711249.585
START DATE: 5.2.2017	START TIME: 825	LATITUDE: 42° 44' 50.28
FINISH DATE: 5.2.2017	FINISH TIME: 900	LONGITUDE: 73° 41' 03.00

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2					**Fill Material:** Dense layer of white ash in horizontal layer.	
3	0.0			FILL	**Fill Material:** Dense layer of black ash in horizontal layer.	
4				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers.	
5	0.0			FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers.	
6				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers.	
7	0.0			FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers - with gray silt between.	
8				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers - with gray silt between.	
9	0.0			FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers - with gray silt between.	
10				FILL		
11	0.0	TP15(0) (10.5-11.0)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 — Visible Evidence of MGP-Related Purifier Residuals

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

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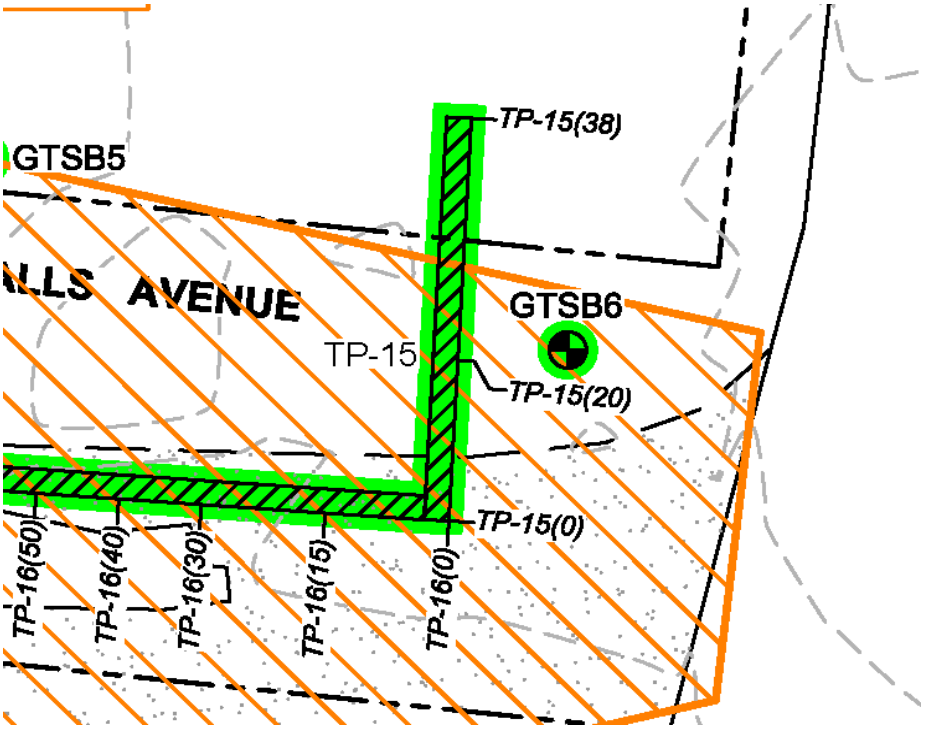
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP15(0)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP15(20)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP15(20)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88:**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88: 26'**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426935.713**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711251.637**
START DATE: 5.2.2017	**START TIME: 850**	**LATITUDE: 42° 44' 50.47**
FINISH DATE: 5.2.2017	**FINISH TIME: 920**	**LONGITUDE: 73° 41' 02.97**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2					**Fill Material:** Dense layer of white ash in horizontal layer.	
3	0.0			FILL	Dense layer of black ash in horizontal layer. Cut foundation stone mixed with silt and ash. Trace bottles. **Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers. Trace metal fragments.	
4				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers.	
5	0.0			FILL		
6					**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers. Orange to red silt layer.	
7	0.0			FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers - with gray silt between.	
8				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers - with gray silt between.	
9	0.0			FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks	
10						
11	0.0	TP15(20) (10.5-11.0)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

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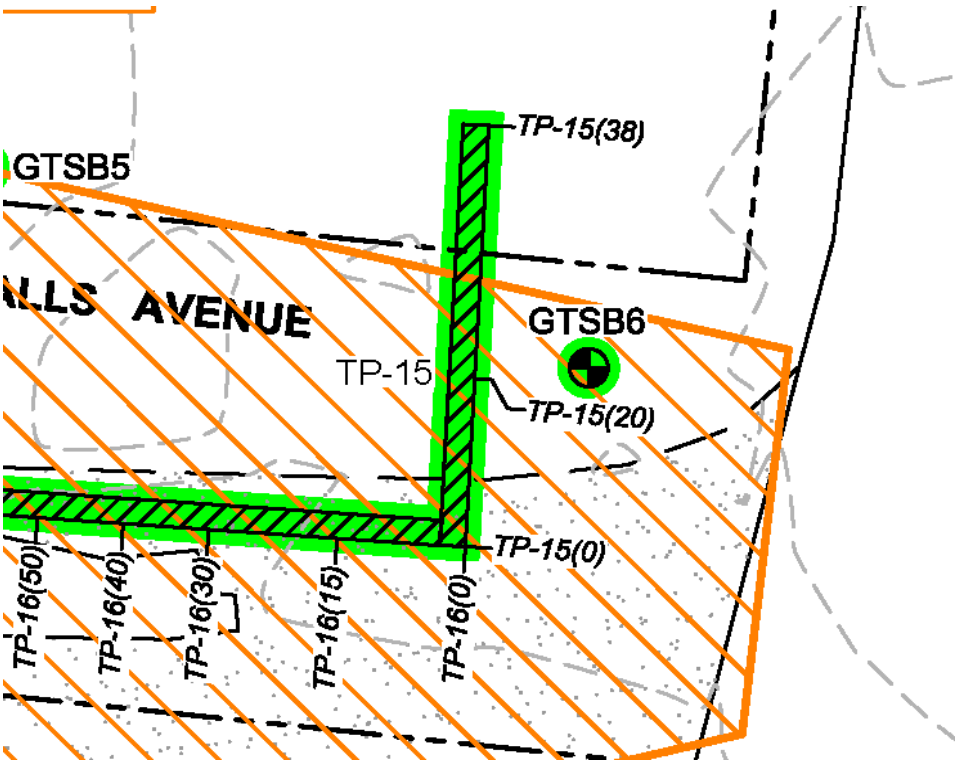
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP15(20)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP15(38)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP15(38)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 26.44'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426944.4132**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711253.1456**
START DATE: 5.2.2017	**START TIME: 920**	**LATITUDE: 42° 44' 50.56**
FINISH DATE: 5.2.2017	**FINISH TIME: 940**	**LONGITUDE: 73° 41' 02.95**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown. **Fill Material:** Dense layer of white ash and clinkers in horizontal layer.	
2				FILL	Dense layer of black ash in horizontal layer. Cut foundation stone mixed with silt and ash. Trace bottles and bricks. **Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers. Trace metal fragments.	
3	0.0					
4				FILL	**Fill Material:** Layers of ash, clinkers, slag, glass, foundation stone, coal fragments, bricks in horizontal layers.	
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0	TP15(38) (10.5-11.0)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

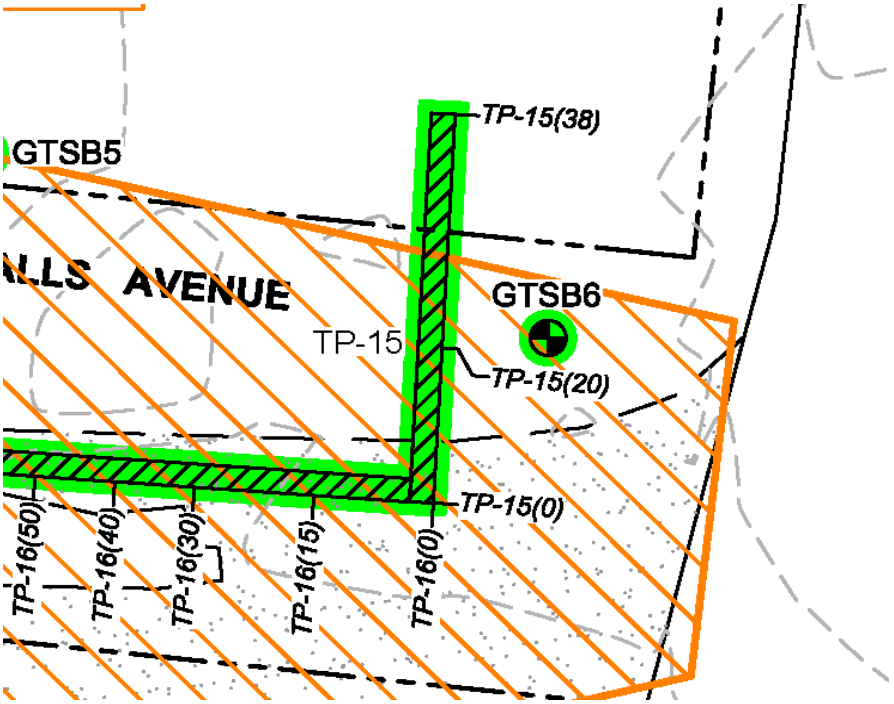
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP15(38)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(193)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP16(193)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 15.8'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426909.9372**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711049.3943**
START DATE: 5.3.2017	**START TIME: 1040**	**LATITUDE: 42° 44' 50.23**
FINISH DATE: 5.3.2017	**FINISH TIME: 1045**	**LONGITUDE: 73° 41' 05.68**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
2						
3	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0	TP16(193) (10-12)				
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

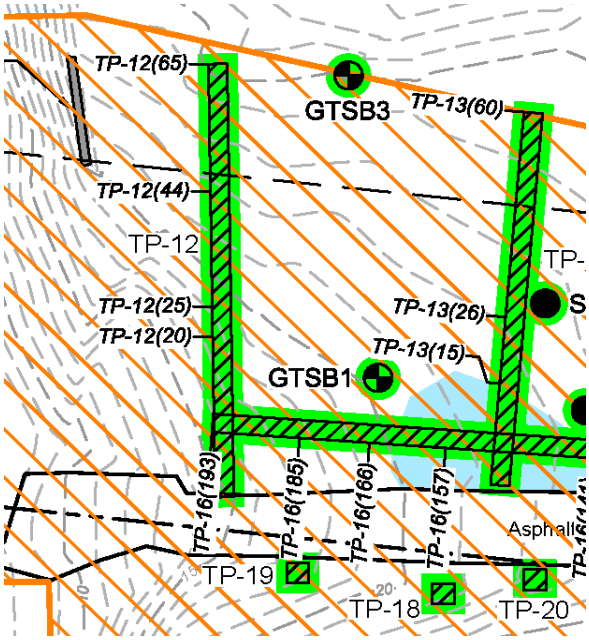
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(193)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(185)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(185)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 17'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426908.596
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711064.614
START DATE: 5.3.2017	START TIME: 1040	LATITUDE: 42° 44' 50.22
FINISH DATE: 5.3.2017	FINISH TIME: 1045	LONGITUDE: 73° 41' 05.48

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
				Fill	**Fill Material:** Fill Material: Sand with Silt and Gravel; moist; loose; dark brown. Trace brick fragments.	
1	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
2						
3	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0					
12						
					BOTTOM OF TEST PIT EXCAVATION	
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

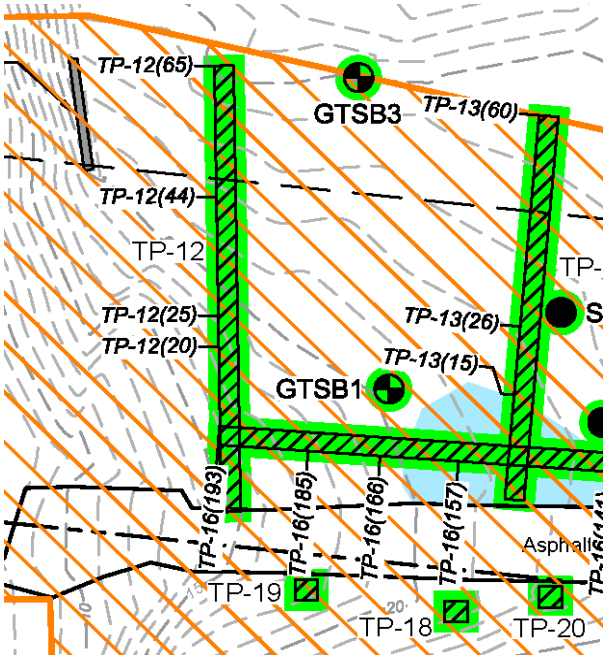
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(185)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(166)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP16(166)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 18'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426906.751**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711083.286**
START DATE: 5.3.2017	**START TIME: 1145**	**LATITUDE: 42° 44' 50.20**
FINISH DATE: 5.3.2017	**FINISH TIME: 1150**	**LONGITUDE: 73° 41' 05.23**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
0	38.2			Fill	**Fill Material:** From 0-0.5 feet - Brown wood fibers in a dense, compressed layer. Strong naphthalene-like odor. Trace white crystaline material mixed in the wood fiber matrix. Some gray ash.	Based on the physical characteristics (brown compressed dense wood fibers), and on the naphthalene-like odor, this material is assumed to be a MGP-related residual.
1						
2				Fill	**Fill Material:** Red and yellow bricks mixed with brown sand.	
3	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0					
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

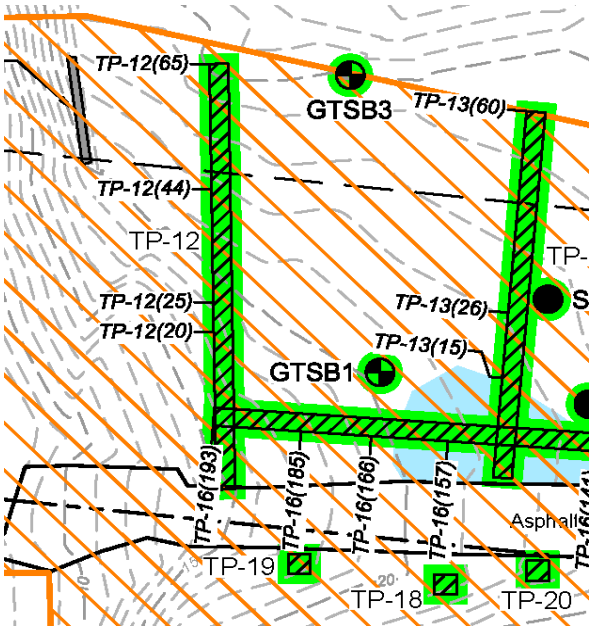
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(166)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(157)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP16(157)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 19'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426905.826**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711092.248**
START DATE: 5.3.2017	**START TIME: 1135**	**LATITUDE: 42° 44' 50.19**
FINISH DATE: 5.3.2017	**FINISH TIME: 1140**	**LONGITUDE: 73° 41' 05.11**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	49.6			Fill	**Fill Material:** From 0-1.4 feet - Brown wood fibers in a dense, compressed layer. Strong naphthalene-like odor. Trace white crystaline material mixed in the wood fiber matrix. Some gray ash.	Based on the physical characteristics (brown compressed dense wood fibers), and on the naphthalene-like odor, this material is assumed to be a MGP-related residual.
2						
3	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0					
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

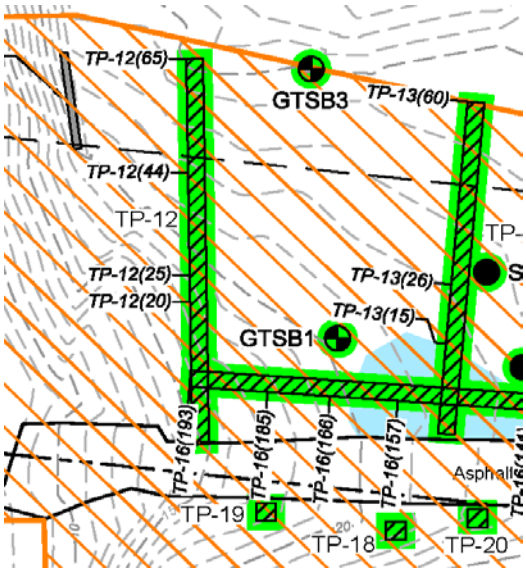
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(157)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(141)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(141)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 21'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426904.972
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711108.672
START DATE: 5.3.2017	START TIME: 1100	LATITUDE: 42° 44' 50.18
FINISH DATE: 5.3.2017	FINISH TIME: 1130	LONGITUDE: 73° 41' 04.89

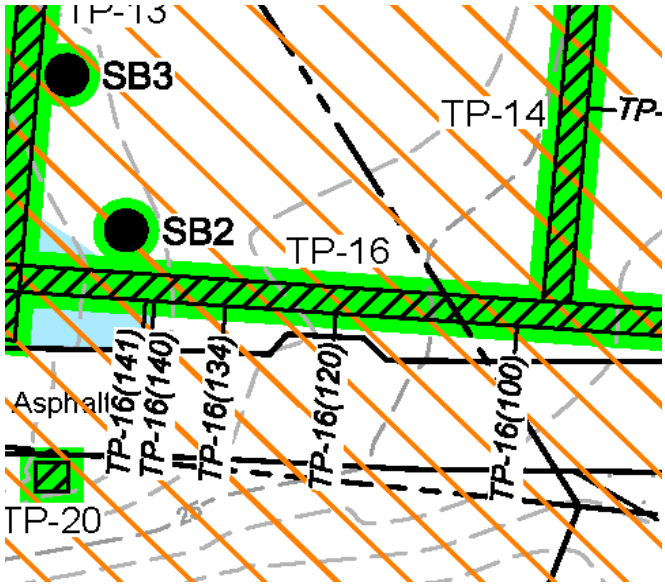
DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	59.2			Fill	**Fill Material:** From 0-1.4 feet - Brown wood fibers in a dense, compressed layer. Strong naphthalene-like odor. Trace white crystaline material mixed in the wood fiber matrix. Some gray ash.	Based on the physical characteristics (brown compressed dense wood fibers), and on the naphthalene-like odor, this material is assumed to be a MGP-related residual.
2						
3	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0	TP16(141) (5-6)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
8						
9						
10	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0	TP16(141) (10-12)				
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments:
TEST PIT LENGTH: Plan View - Page 2
TEST PIT WIDTH: 4 Feet
TEST PIT BACKFILL: Material Returned to Test Pit
LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(141)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(140)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(140)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 21'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426904.979
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711109.418
START DATE: 5.2.2017	START TIME: 1500	LATITUDE: 42° 44' 50.18
FINISH DATE: 5.2.2017	FINISH TIME: 1500	LONGITUDE: 73° 41' 04.88

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	50.8	TP16(140) (0-1.4)		Fill	**Fill Material:** From 0-1.4 feet - Brown wood fibers in a dense, compressed layer. Strong naphthalene-like odor. Trace white crystaline material mixed in the wood fiber matrix.	Based on the physical characteristics (brown compressed dense wood fibers), and on the naphthalene-like odor, this material is assumed to be a MGP-related residual.
					Fill Material: Brown coarse sand and gravel.	
2					**BOTTOM OF TEST PIT EXCAVATION**	
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

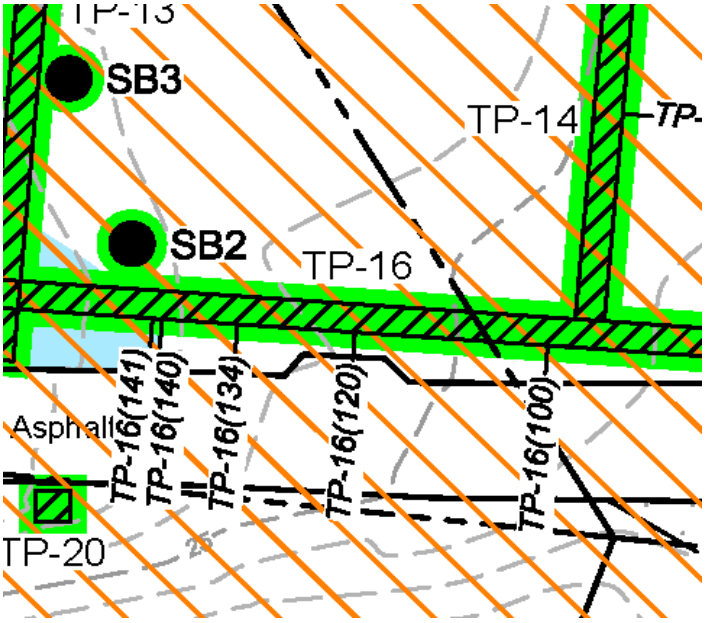
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(140)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(133)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(133)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 22'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426904.032
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711116.143
START DATE: 5.3.2017	START TIME: 745	LATITUDE: 42° 44' 50.17
FINISH DATE: 5.3.2017	FINISH TIME: 800	LONGITUDE: 73° 41' 04.79

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Red and yellow bricks in brown silt matrix. Some gray ash.	
3	0.0			FILL	**Fill Material:** Red and yellow bricks in brown silt matrix. Some gray ash.	
4		TP16(134) (4.5)		FILL	**Fill Material:** Layer of black coarse sand.	
5	0.0					
6				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
7	0.0					
8				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
9	0.0					
10						
11				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12	0.0					
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

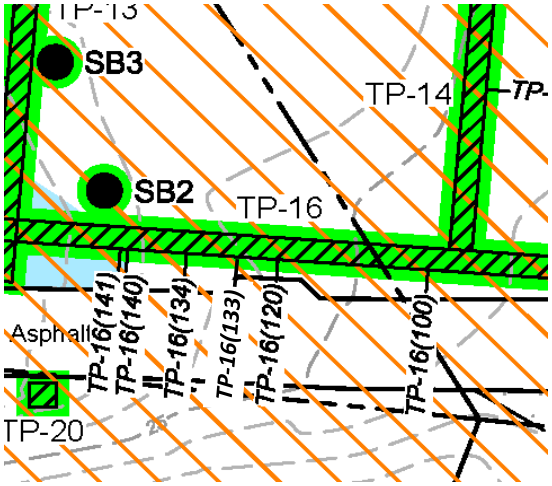
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(133)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(120)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(120)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 23'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426903.149
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711129.582
START DATE: 5.2.2017	START TIME: 1420	LATITUDE: 42° 44' 50.16
FINISH DATE: 5.2.2017	FINISH TIME: 1430	LONGITUDE: 73° 41' 04.61

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Coal fragments and brick fragments in black silt matrix.	
3	0.0			FILL	**Fill Material:** Horizontal wood fragments in brown silt and gravel.	
4						
5	0.0			FILL	**Fill Material:** Brick fragments, white ashes, mixed in black silt matrix.	
6						
7	0.0			FILL	**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
8						
9	0.0			SP - SM		
10				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0	TP16(120) (11-12)		SP - SM		
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

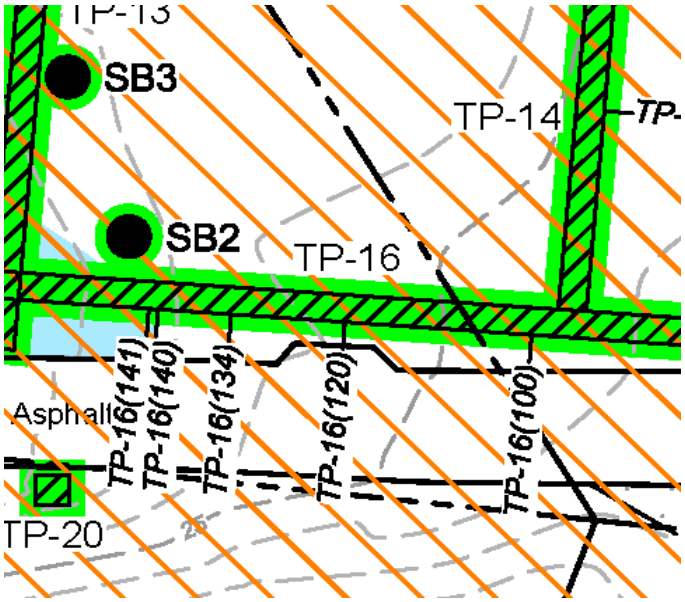
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(120)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(100)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(100)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 25'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426901.312
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711149.000
START DATE: 5.2.2017	START TIME: 1353	LATITUDE: 42° 44' 50.14
FINISH DATE: 5.2.2017	FINISH TIME: 1400	LONGITUDE: 73° 41' 04.35

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Trace cinders, ashes, brick fragments mixed in black silt matrix.	
3	0.0			FILL	**Fill Material:** Brick fragments mixed in black silt matrix.	
4				FILL		
5	0.0			FILL	**Fill Material:** Brick fragments, white ashes, mixed in black silt matrix. Bottles and glass fragments.	
6						
7	0.0			FILL	**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
8						
9	0.0			FILL	**Fill Material:** Brick fragments, black silt and white ashes.	
10				FILL	**Fill Material:** Brick fragments, black silt and white ashes.	
11	0.0					
12		TP16(100) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

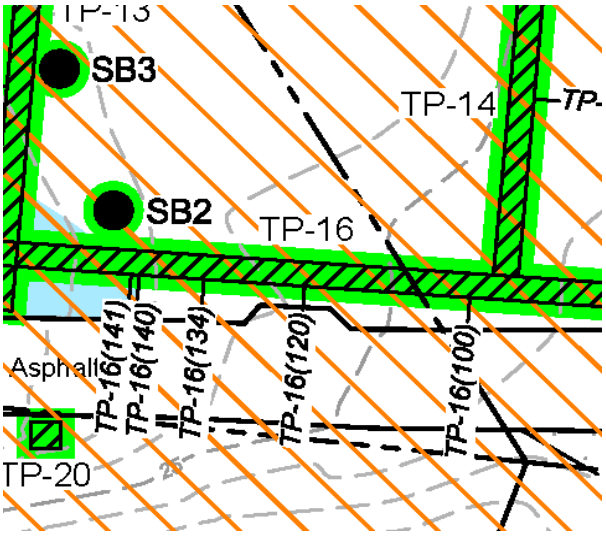
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(100)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(80)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(80)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426900.494
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711169.154
START DATE: 5.2.2017	START TIME: 130	LATITUDE: 42° 44' 50.13
FINISH DATE: 5.2.2017	FINISH TIME: 140	LONGITUDE: 73° 41' 04.08

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Brown sand mixed with cinders, rags and scrap metal.	
3	0.0			FILL	**Fill Material:** Brick fragments mixed in black silt matrix.	
4				FILL	**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
5	0.0			FILL	**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
6				FILL	**Fill Material:** Metal debris mixed in silt matrix.	
7	0.0			FILL	**Fill Material:** Brick fragments, black silt and white ashes.	
8				FILL	**Fill Material:** Brick fragments, black silt and white ashes.	
9	0.0			FILL	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10				SP - SM	**BOTTOM OF TEST PIT EXCAVATION**	
11	0.0					
12						
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

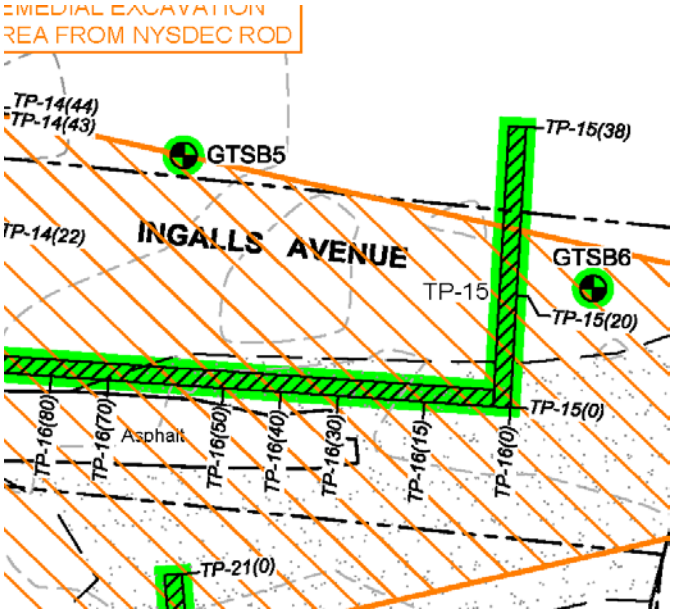
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(80)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(70)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(70)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426899.576
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711178.863
START DATE: 5.2.2017	START TIME: 1209	LATITUDE: 42° 44' 50.12
FINISH DATE: 5.2.2017	FINISH TIME: 125	LONGITUDE: 73° 41' 03.95

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
					Fill Material: Gravel; moist; loose; dark brown.	
1	0.0			FILL	**Fill Material:** Brown black silt mixed with cinders, rags and scrap metal. Trace PVC pipe.	
2				FILL	Broken concrete fragments	
3	0.0			FILL	**Fill Material:** Clinkers, ashes, and bricks mixed in silt matrix.	
4				FILL		
5	0.0			FILL	**Fill Material:** Broken concrete fragments and bricks mixed in black silt matrix.	
6					**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
7	0.0			FILL		
8					**Fill Material:** Metal debris mixed in silt matrix.	
9	0.0			FILL	**Fill Material:** Brick fragments, black silt and white ashes.	
10						
11	0.0	TP16(70) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12					**BOTTOM OF TEST PIT EXCAVATION**	
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 — Visible Evidence of MGP-Related Purifier Residuals

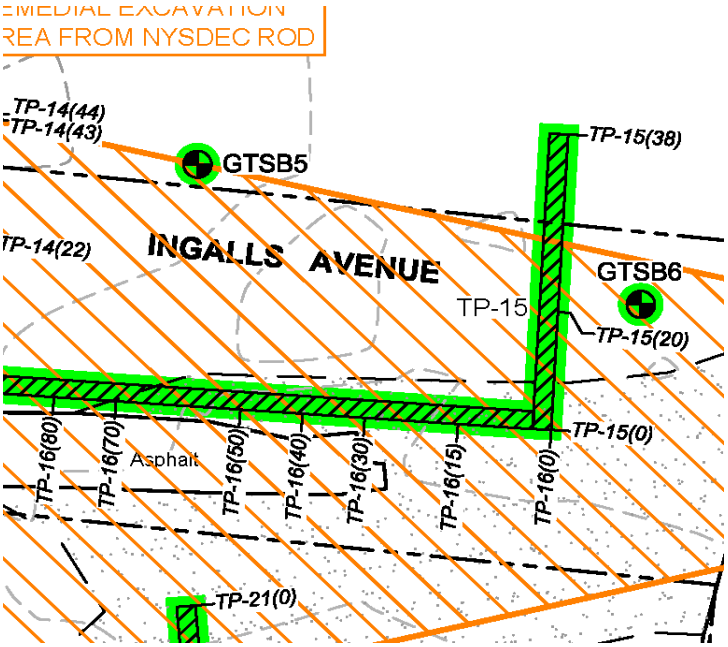
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(70)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(50)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(50)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	26'SURFACE ELEVATION CENTER NAVD88:
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426898.758
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711199.017
START DATE: 5.2.2017	START TIME: 1145	LATITUDE: 42° 44' 50.11
FINISH DATE: 5.2.2017	FINISH TIME: 1200	LONGITUDE: 73° 41' 03.68

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Brown black silt mixed with cinders, rags and scrap metal.	
3	0.0			FILL	**Fill Material:** Broken concrete fragments	
4				FILL	**Fill Material:** Broken concrete fragments and bricks.	
5	0.0			FILL	**Fill Material:** Broken concrete fragments and bricks mixed in black silt matrix.	
6					**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
7	0.0			FILL		
8				FILL	**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
9	0.0				**Fill Material:** Brick fragments, sheet metal, black silt and white ashes.	
10						
11	0.0	TP16(50) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

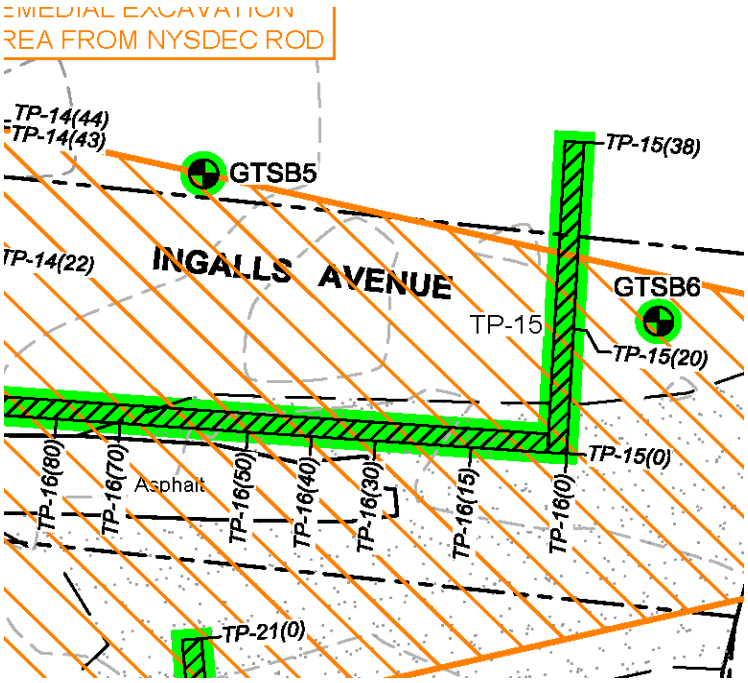
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(50)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(40)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(40)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426897.847
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711209.472
START DATE: 5.2.2017	START TIME: 1155	LATITUDE: 42° 44' 50.10
FINISH DATE: 5.2.2017	FINISH TIME: 1200	LONGITUDE: 73° 41' 03.54

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Bricks and cinders mixed in black silt matrix.	
3	0.0			FILL	**Fill Material:** Broken concrete fragments	
4				FILL	**Fill Material:** Broken concrete fragments and bricks.	
5	0.0			FILL	**Fill Material:** Layer of black silt. Layer of white ash.	
6		TP16(40) (6-7)			**Fill Material:** Layer of black silt. Trace concrete and bricks	
7	0.0			FILL	**Fill Material:** Layer of black silt.	
8				FILL	**Fill Material:** Broken concrete fragments and bricks mixed in black silt matrix.	
9	0.0			FILL	**Fill Material:** Brown orange cinders and ash in horizontal layer.	
10						
11	0.0	TP16(40) (11-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12					**BOTTOM OF TEST PIT EXCAVATION**	
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

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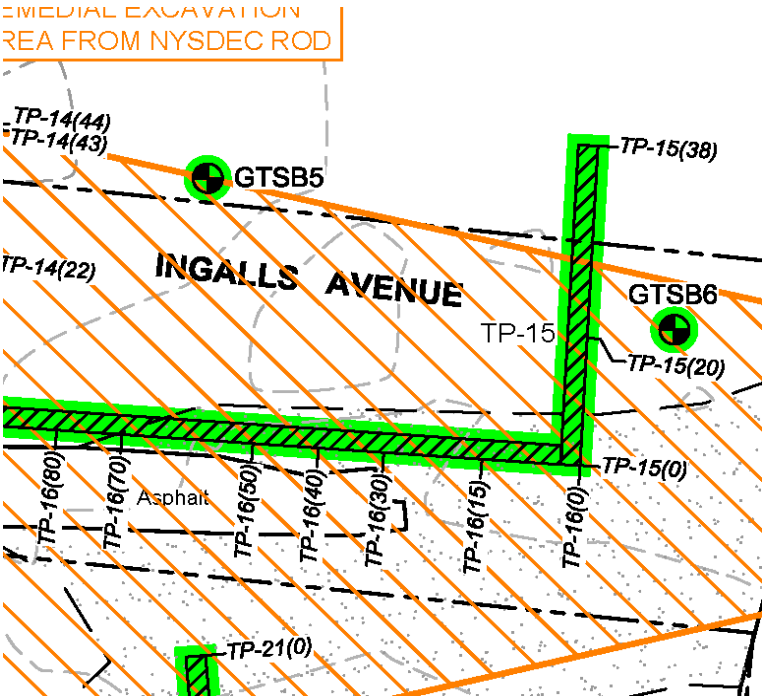
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(40)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(30)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(30)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426896.928
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711219.181
START DATE: 5.2.2017	START TIME: 1155	LATITUDE: 42° 44' 50.09
FINISH DATE: 5.2.2017	FINISH TIME: 1200	LONGITUDE: 73° 41' 03.41

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Bricks and cinders mixed in black silt matrix.	
3	0.0			FILL	Broken concrete fragments	
4				FILL	**Fill Material:** Broken concrete fragments and bricks.	
5	0.0			FILL	**Fill Material:** Layer of black silt. Layer of white ash.	
6						
7	0.0			FILL	**Fill Material:** Layer of black silt.	
8				FILL	**Fill Material:** Layer of black silt.	
9	0.0				**Fill Material:** Broken concrete fragments and bricks.	
10				FILL	**Fill Material:** Brown orange cinders and ash in horizontal layer.	
11	0.0					
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

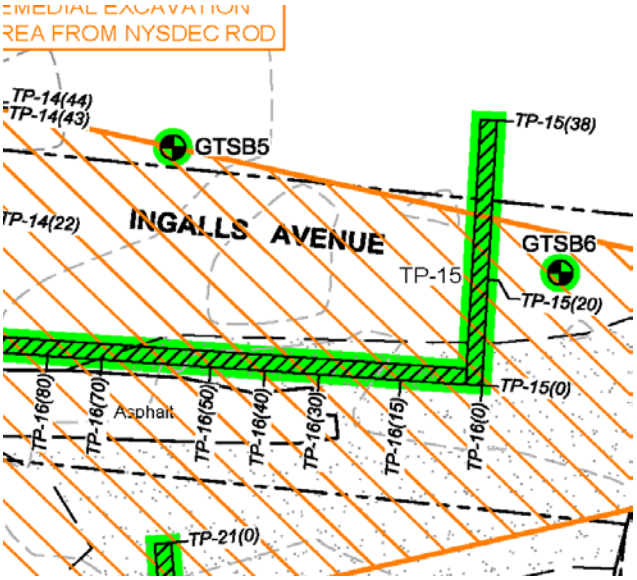
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(30)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(0)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP16(0)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26.54'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426895.837
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711249.074
START DATE: 5.2.2017	START TIME: 1015	LATITUDE: 42° 44' 50.07
FINISH DATE: 5.2.2017	FINISH TIME: 1030	LONGITUDE: 73° 41' 03.01

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Sand with Silt and Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Dense layer of brown silt and bricks. Layer of broken concrete fragments mixed with silt.	
3	0.0			FILL	**Fill Material:** Layer of silty sand, trace brick fragments. Orange red silt layer.	
4				FILL		
5	0.0			FILL	**Fill Material:** Layers of ash, clinkers, cobbles, mixed in silt matrix. Orange red silt layer.	
6				FILL		
7	0.0			FILL		
8				FILL	**Fill Material:** Layers of ash, clinkers, cobbles, mixed in silt matrix. Orange red silt layer.	
9	0.0			FILL		
10				FILL	**Fill Material:** Layers of ash, clinkers, cobbles, mixed in silt matrix.	
11	0.0					
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

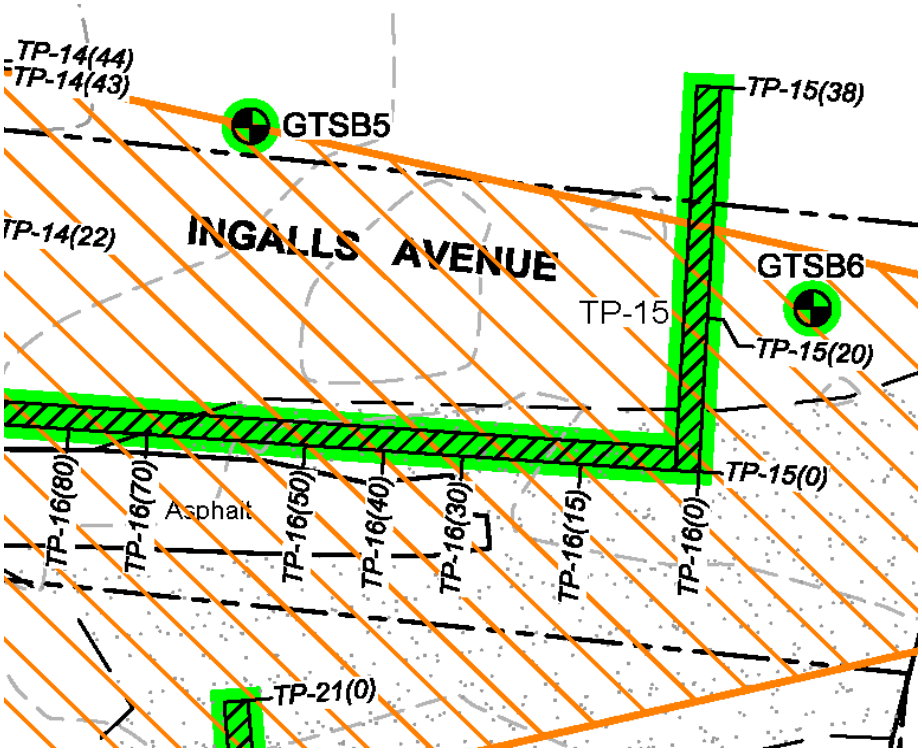
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP16(0)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP16(15)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP16(16)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 26'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426896.06**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711234.113**
START DATE: 5.1.2017	**START TIME: 1050**	**LATITUDE: 42° 44' 50.08**
FINISH DATE: 5.1.2017	**FINISH TIME: 1055**	**LONGITUDE: 73° 41' 03.21**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** Layer of broken concrete fragments is silt matrix. Layer of white ash.	
3	0.0			FILL	**Fill Material:** Layer of white ash.	
4				FILL	**Fill Material:** Layer of black silt. Layer of white ash.	
5	0.0			FILL	**Fill Material:** Layer of black silt.	
6						
7	0.0	TP16(15) (7-8)		FILL	**Fill Material:** Layers of white ash, broken rock fragments, bricks, loose wire, sheet metal.	
8				FILL	**Fill Material:** Layer of black silt.	
9	0.0					
10				FILL	**Fill Material:** Layers of ash, clinkers, cobbles, mixed in silt matrix.	
11	0.0					
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2**

TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

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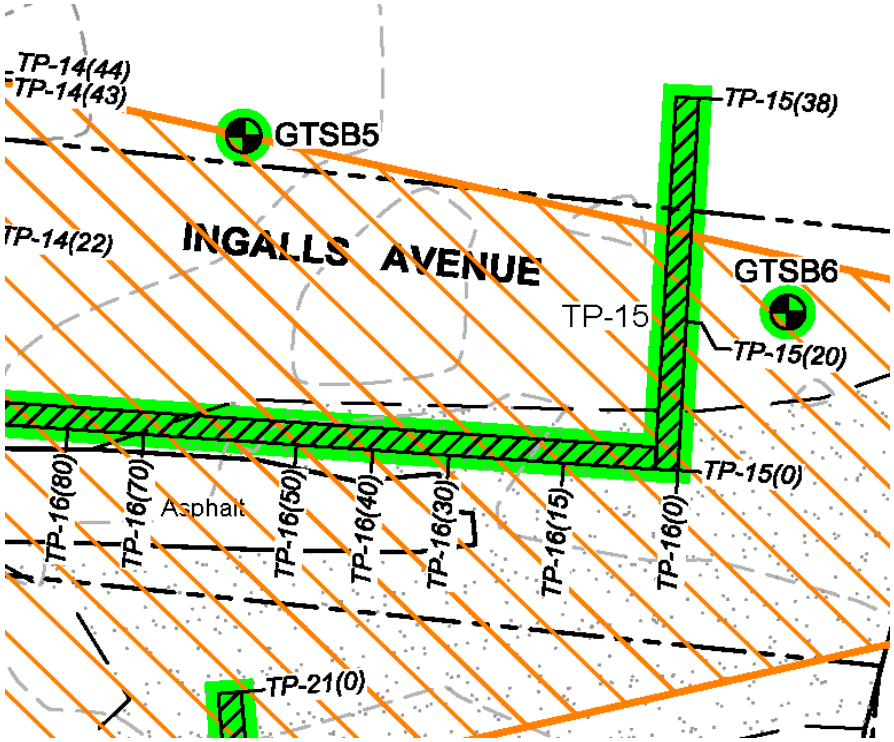
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP16(15)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP17(0)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP17(0)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426819.4536
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711077.5472
START DATE: 5.4.2017	START TIME: 910	LATITUDE: 42° 44' 49.34
FINISH DATE: 5.4.2017	FINISH TIME: 920	LONGITUDE: 73° 41' 05.32

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** White ash in horizontal layer.	
3	0.0			FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash.	
4				FILL	**Fill Material:** White ash in horizontal layer.	
5	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
6					**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
7	0.0			FILL		
8					**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
9				FILL		
10	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0	TP17(0) (10-12)				
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

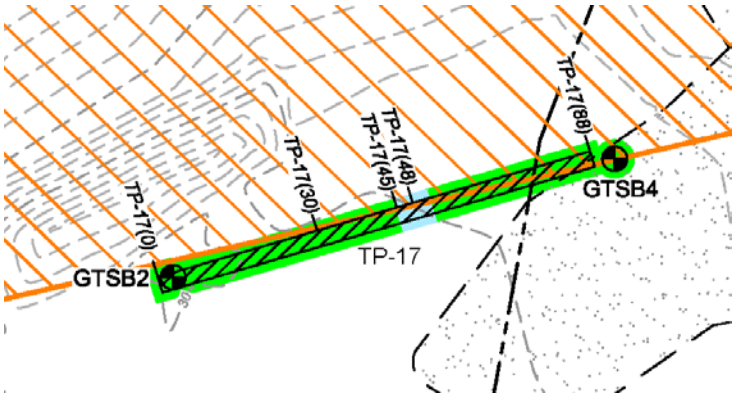
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP17(0)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP17(30)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP17(30)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 26'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426828.016**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711107.177**
START DATE: 5.4.2017	**START TIME: 910**	**LATITUDE: 42° 44' 49.42**
FINISH DATE: 5.4.2017	**FINISH TIME: 920**	**LONGITUDE: 73° 41' 04.92**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown.	
2				FILL	**Fill Material:** White ash in horizontal layer.	
3	0.0			FILL	**Fill Material:** White ash in horizontal layer.	
4				FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash.	
5	0.0			FILL	**Fill Material:** White ash in horizontal layer.	
6		TP17(30) (5-6)		FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
7	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
8				FILL	**Fill Material:** Brown coarse sand and rounded gravel.	
9	0.0			FILL	**Fill Material:** Gray ashes, slag, coal fragments, shale fragments in gray and brown silt.	
10						
11	0.0	TP17(30) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

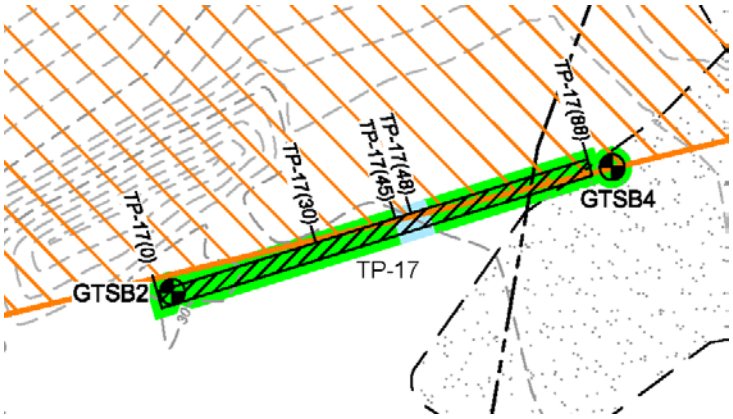
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP17(30)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP17(45)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP17(45)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 26'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426832.202**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711121.314**
START DATE: 5.4.2017	**START TIME: 950**	**LATITUDE: 42° 44' 49.46**
FINISH DATE: 5.4.2017	**FINISH TIME: 1000**	**LONGITUDE: 73° 41' 04.73**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
					Fill Material: Gravel; moist; loose; dark brown.	
1	0.0			FILL	**Fill Material:** White ash in horizontal layer.	
2				FILL	**Fill Material:** White ash in horizontal layer. Trace brick fragments.	
3	0.0			FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash.	
4				FILL	**Fill Material:** White ash in horizontal layer.	
5	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
6					**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
7	0.0			FILL		
8					**Fill Material:** Brown coarse sand and rounded gravel.	
9	0.0			FILL	**Fill Material:** Gray ashes, slag, coal fragments, shale fragments in gray and brown silt.	
10						
11	0.0	TP17(45) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

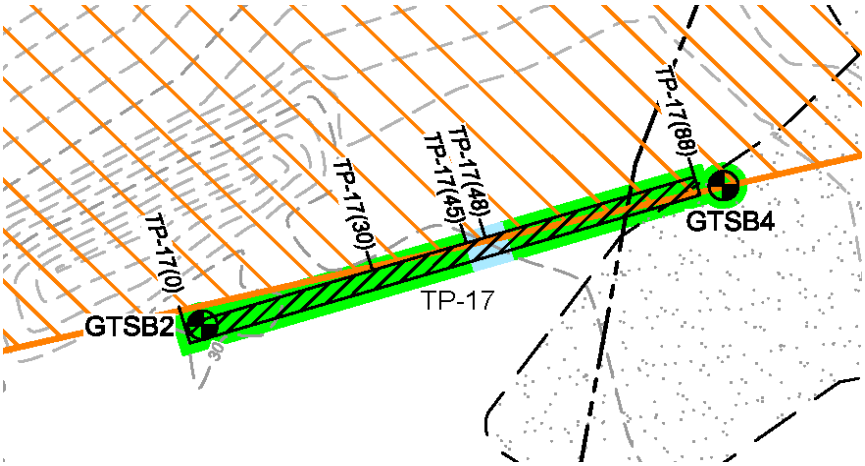
TEST PIT WIDTH: **4 Feet**

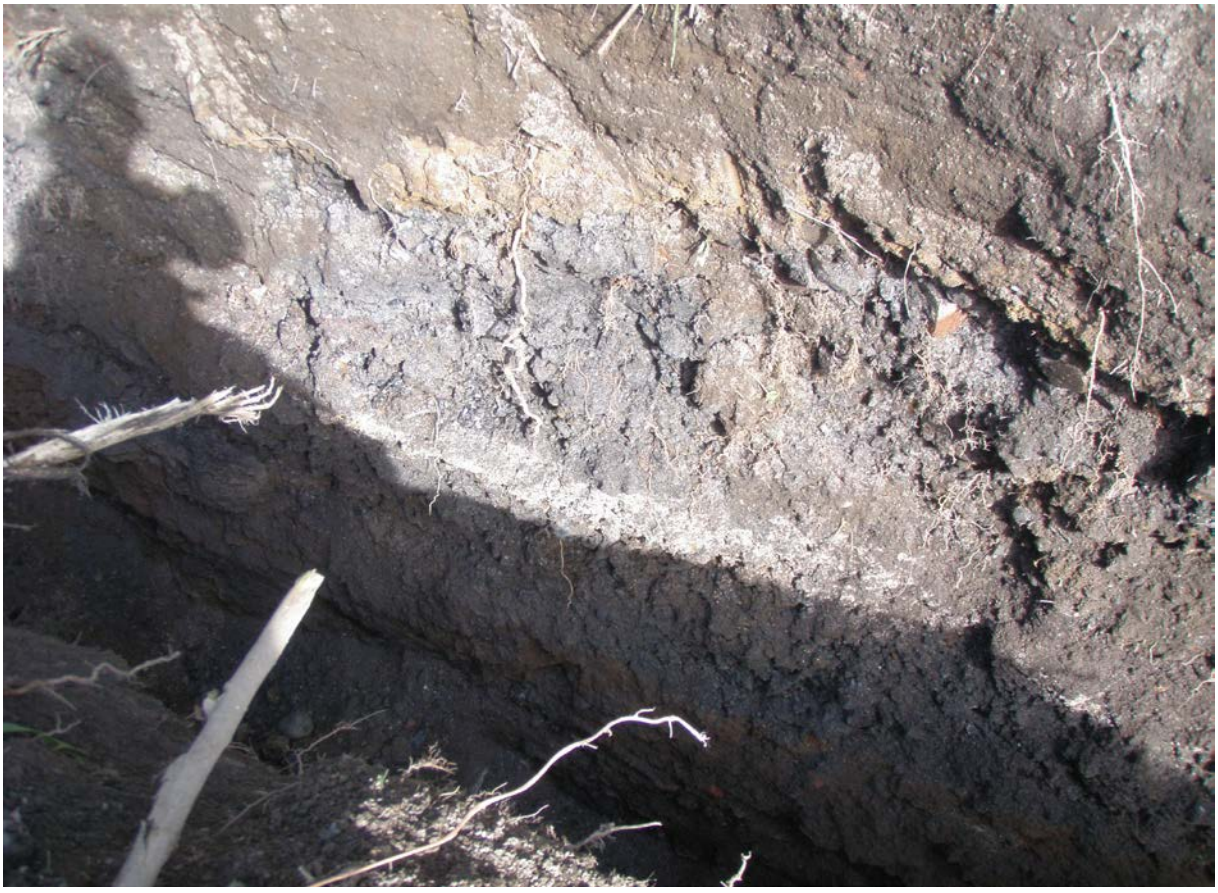
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP17(45)**





Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP17(48)

GEI PROJECT NO: 116830 - 14083	**TEST PIT DESIGNATION: TP17(48)**	**SURFACE ELEVATION END NAVD88:**
CLIENT: National Grid	**SITE LOCATION OR AREA: Ingalls Avenue OU2**	**SURFACE ELEVATION CENTER NAVD88: 26'**
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	**EQUIPMENT USED: Excavator**	**SURFACE ELEVATION END NAVD88:**
GEOLOGIST: James Edwards	**EARTHWORK SUBCONTRACTOR: Abscope Environmental Services**	**NORTHING NAD83: 1426833.243**
DEPTH WATER ENCOUNTERED: Not Encountered	**OPERATOR: Rick DenHaese**	**EASTING NAD83: 711124.288**
START DATE: 5.4.2017	**START TIME: 1000**	**LATITUDE: 42° 44' 49.47**
FINISH DATE: 5.4.2017	**FINISH TIME: 1010**	**LONGITUDE: 73° 41' 04.69**

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
					Fill Material: Gravel; moist; loose; dark brown.	
1	0.0			FILL	**Fill Material:** White ash in horizontal layer. Gray silt and ash. Bottles.	
2				FILL	**Fill Material:** White ash in horizontal layer. Trace brick fragments.	
3	0.0			FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash.	
4				FILL	**Fill Material:** White ash in horizontal layer.	
5	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
6					**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
7	0.0					
8				FILL		
9	28.6	TP17(48) (8-9)			**Fill Material:** Brown wood fibers in compressed, dense layer. Trace hydrocarbon-like odor.	Based on the physical characteristics (brown compressed dense wood fibers), and on the naphthalene-like odor, this material is assumed to be a MGP-related residual.
10				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
11	0.0					
12				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: **TEST PIT LENGTH:** **Plan View - Page 2** **Visible Evidence of MGP-Related Purifier Residuals**

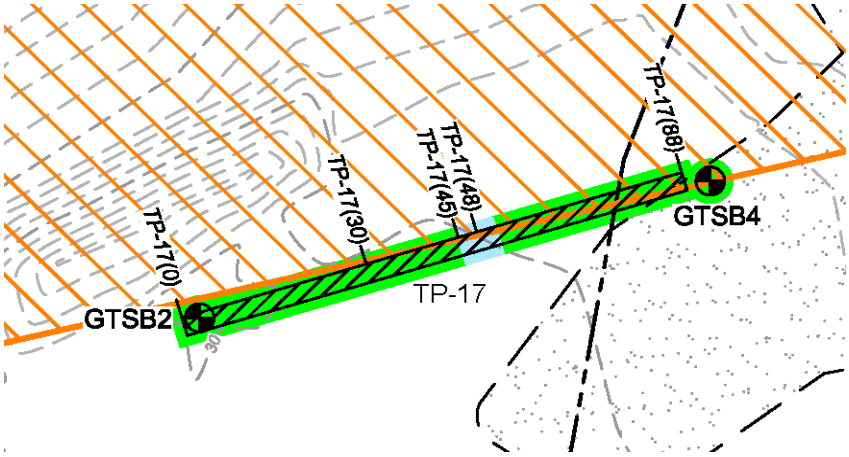
TEST PIT WIDTH: **4 Feet**

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP17(48)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP17(88)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP17(88)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 26'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426842.7671
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711155.5243
START DATE: 5.4.2017	START TIME: 1050	LATITUDE: 42° 44' 49.56
FINISH DATE: 5.4.2017	FINISH TIME: 1100	LONGITUDE: 73° 41' 04.27

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Gravel; moist; loose; dark brown. Trace bricks.	
2				FILL	**Fill Material:** White ash in horizontal layer. Gray shale fragments, trace clinkers and coal.	
3	0.0			FILL	**Fill Material:** White ash in horizontal layer. Trace brick fragments.	
4				FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash.	
5	0.0			FILL	**Fill Material:** White ash in horizontal layer.	
6				FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt. Bottles and broken glass.	
7	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
8				FILL	**Fill Material:** Brown coarse sand and rounded gravel.	
9	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
10						
11	0.0	TP17(88) (10-12)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

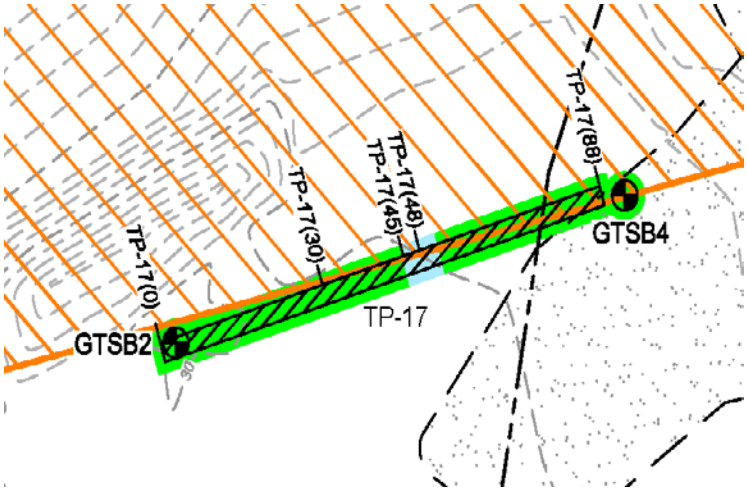
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	**Test Pit Plan View and Photographs**	**TP17(88)**



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP18

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP18	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 20.57'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426881.81
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711086.2568
START DATE: 5.3.2017	START TIME: 1540	LATITUDE: 42° 44' 49.95
FINISH DATE: 5.3.2017	FINISH TIME: 1550	LONGITUDE: 73° 41' 05.19

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
2				FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
3	0.0	TP18 (3-4)		FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
4				FILL		
5	0.0					
6				SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
7					**BOTTOM OF TEST PIT EXCAVATION**	
8						
9						
10						
11						
12						
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

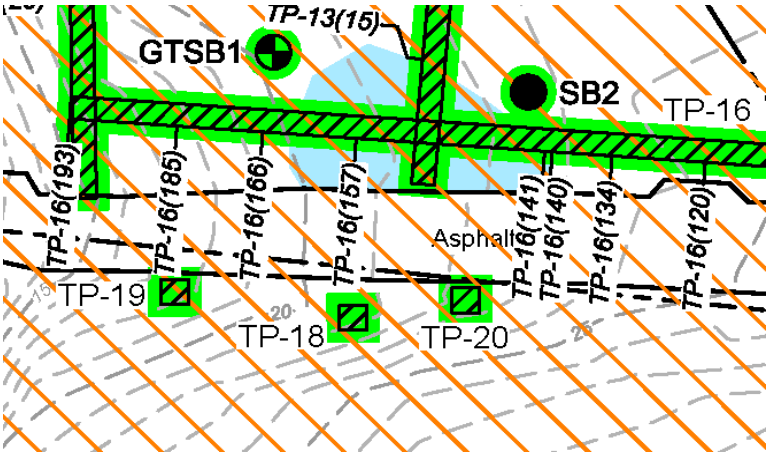
TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP18



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP19

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP19	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 17.61'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426885.1941
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711063.1802
START DATE: 5.3.2017	START TIME: 1555	LATITUDE: 42° 44' 49.99
FINISH DATE: 5.3.2017	FINISH TIME: 1600	LONGITUDE: 73° 41' 05.50

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
2						
3	0.0	TP19 (3-4)		SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
4						
5	0.0			SP - SM	(SP/SM) Narrowly Graded Sand with Silt and Gravel; 80% fine sand; 15% round and subround gravel; 5% rounded cobbles; - 5% non-plastic fines; moist; loose; dark brown.	
6						
7					BOTTOM OF TEST PIT EXCAVATION	
8						
9						
10						
11						
12						
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
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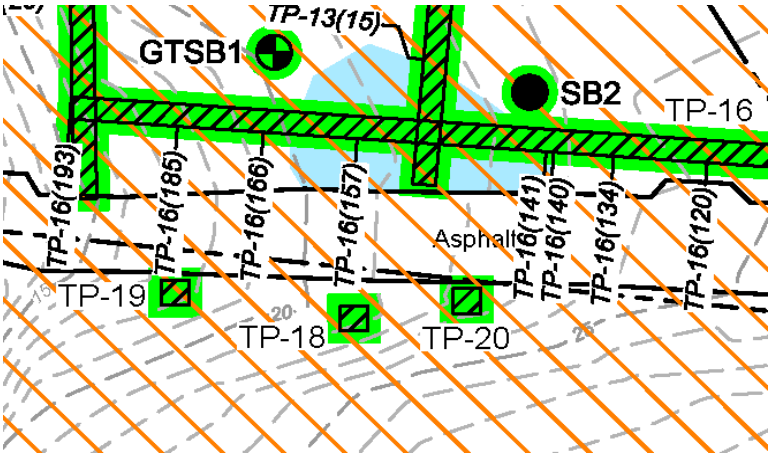
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP19



Comments:

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca New York 14850

Test Pit Log

TP20

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP20	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 22.3'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426884.1962
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711100.9274
START DATE: 5.3.2017	START TIME: 1600	LATITUDE: 42° 44' 49.98
FINISH DATE: 5.3.2017	FINISH TIME: 1610	LONGITUDE: 73° 41' 05.00

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	0.0			FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
2				FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
3	0.0	TP20 (3-4)		FILL	**Fill Material:** Trace brick fragments, cinders and ash in brown soil matrix.	
4						
5	0.0					
6						
7					**BOTTOM OF TEST PIT EXCAVATION**	
8						
9						
10						
11						
12						
13						
14						

Comments: TEST PIT LENGTH: Plan View - Page 2

TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

Visible Evidence of MGP-Related Purifier Residuals

GEI Consultants, Inc., P.C.
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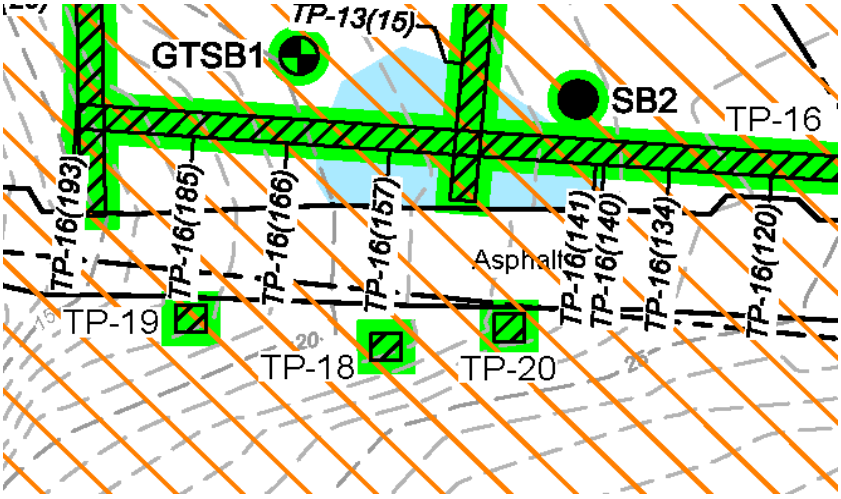
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP20



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP21(0)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP21(0)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 24.74'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426864.2755
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711193.316
START DATE: 5.4.2017	START TIME: 750	LATITUDE: 42° 44' 49.77
FINISH DATE: 5.4.2017	FINISH TIME: 800	LONGITUDE: 73° 41' 03.76

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
					Fill Material: Gravel; moist; loose; dark brown. Trace bricks.	
1	0.0			FILL	**Fill Material:** White ash in horizontal layer. Gray shale fragments, trace clinkers and coal. Broken and whole red bricks.	
2				FILL	**Fill Material:** White ash in horizontal layer. Trace brick fragments.	
3	0.0			FILL	**Fill Material:** Red bricks in brown sand matrix, trace white and gray ash. Bottles and glass fragments.	
4				FILL	**Fill Material:** White ash in horizontal layer.	
5	0.0			FILL	**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt. Bottles and broken glass.	
6					**Fill Material:** Gray cinders, slag, coal fragments, shale fragments in gray and brown silt.	
7	0.0			FILL		
8					**Fill Material:** Brown coarse sand and rounded gravel.	
9	0.0					
10				FILL	**Fill Material:** Brown coarse sand and rounded gravel. Trace gray and white ash.	
11	0.0	TP21(0) (10-12)		FILL	**Fill Material:** White ash in horizontal layer.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 — Visible Evidence of MGP-Related Purifier Residuals

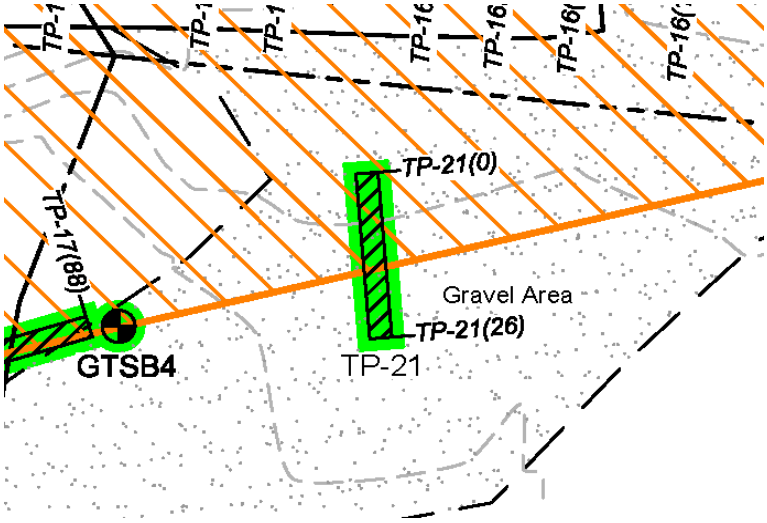
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP21(0)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Test Pit Log

TP21(26)

GEI PROJECT NO: 116830 - 14083	TEST PIT DESIGNATION: TP21(26)	SURFACE ELEVATION END NAVD88:
CLIENT: National Grid	SITE LOCATION OR AREA: Ingalls Avenue OU2	SURFACE ELEVATION CENTER NAVD88: 28.61'
SITE NAME: Troy Smith Avenue MGP - OU2 Ingalls Avenue Area	EQUIPMENT USED: Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: James Edwards	EARTHWORK SUBCONTRACTOR: Abscope Environmental Services	NORTHING NAD83: 1426841.1812
DEPTH WATER ENCOUNTERED: Not Encountered	OPERATOR: Rick DenHaese	EASTING NAD83: 711195.2118
START DATE: 5.4.2017	START TIME: 800	LATITUDE: 42° 44' 49.54
FINISH DATE: 5.4.2017	FINISH TIME: 830	LONGITUDE: 73° 41' 03.74

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
					Fill Material: Black silt and gravel. Trace bricks.	
1	0.0			FILL	**Fill Material:** Black silt in horizontal layers. Trace brick fragments. Bottles.	
2				FILL	**Fill Material:** Black silt in horizontal layers. Trace brick fragments. Bottles.	
3	0.0	TP21(26) (2.5-3.5)		FILL	**Fill Material:** Black silt in horizontal layers. Trace brick fragments.	
4				FILL	**Fill Material:** White ash in horizontal layer. Layer is 5 feet thick.	
5	0.0					
6				FILL	**Fill Material:** White ash in horizontal layer. Layer is 5 feet thick.	
7	0.0					
8						
9	0.0			FILL	**Fill Material:** Sandy brown silt, some cobbles, some bricks, trace metal debris, whole stone foundation blocks.	
10						
11	0.0	TP21(26) (10-12)		FILL	**Fill Material:** White ash in horizontal layer.	
12						
13					**BOTTOM OF TEST PIT EXCAVATION**	
14						

Comments: TEST PIT LENGTH: Plan View - Page 2 | Visible Evidence of MGP-Related Purifier Residuals

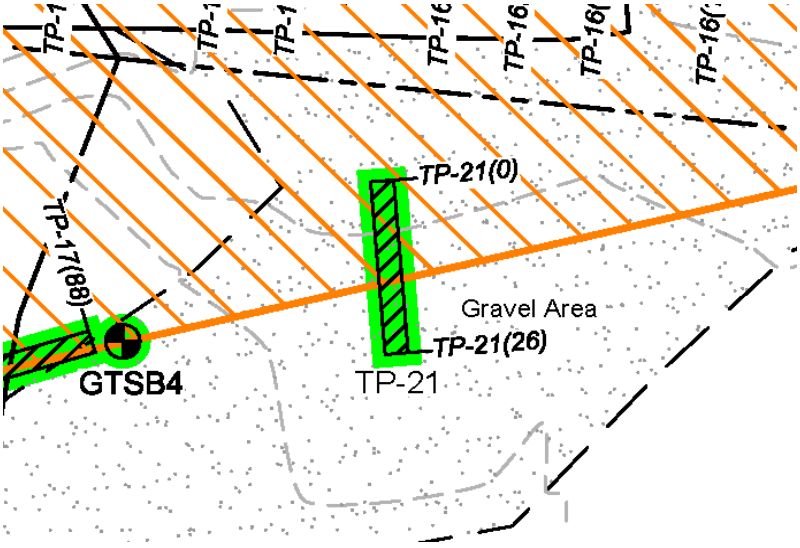
TEST PIT WIDTH: 4 Feet

TEST PIT BACKFILL: Material Returned to Test Pit

LABORATORY ANALYSES: Total Cyanide and Free Cyanide

GEI Consultants, Inc., P.C.
1301 Trumansburg Road
Suite N
Ithaca, New York 14850

GEI Consultants	Test Pit Plan View and Photographs	TP21(26)



Comments:	Visible Evidence of MGP-Related Purifier Residuals	GEI Consultants, Inc., P.C. 1301 Trumansburg Road Suite N Ithaca New York 14850

Borelogs

BORING INFORMATION

NORTHING (ft): 1426917.3581 **EASTING (ft):** 711075.8687
GROUND SURFACE EL. (ft): 20.43 **DATE START/END:** 5/11/2017 - 5/11/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 24.3 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB1

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
20		S1	0 to 2	24/11	6-4-3-5	22.1 328.1			FILL	**S1: FILL material: NARROWLY GRADED WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, ash, brick and glass fragments; moist. Dark blackish-brown. Slight naphthalene-like odors.**
		S2	2 to 4	24/11	6-5-9-5	95.1 90.2	GTSB-1 (2.0-4.0)			**S2: FILL material: NARROWLY GRADED WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, ash, brick and glass fragments; moist. Dark blackish-brown. Very slight naphthalene-like odors. Sample collected.**
	5	S3	4 to 6	24/13	5-5-4-4	55.6 54.2				**S3: FILL material: NARROWLY GRADED WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, ash, brick and glass fragments; moist. Dark blackish-brown. Very slight naphthalene-like odors.**
		S4	6 to 8	24/14	4-5-12-30	11.7 11.1	GTSB-1 (6.0-8.0)			**S4: FILL material: NARROWLY GRADED WITH SILT AND GRAVEL (SP-SM); with ~80% fine sand, ~15% fine to coarse sub-rounded gravel, ~5% non-plastic fines; few brick, coal, and ash fragments; moist. Dark blackish-brown. Sample collected.**
		S5	8 to 10	24/12	27-12-13-9	20.1 20.2			SAND, SILT AND GRAVEL	**S5: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Dark brown.**
10	10	S6	10 to 12	24/13	17-9-9-8	46.3 44.2	GTSB-1 (10.0-12.0)			**S6: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Dark brown. Sample collected.**
		S7	12 to 14	24/15	13-9-7-10	54.8 54.1				**S7: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Dark brown.**
		S8	14 to 16	24/17	24-20-11-10	21.0				**S8: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel; wet. Brown.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426917.3581 **EASTING (ft):** 711075.8687
GROUND SURFACE EL. (ft): 20.43 **DATE START/END:** 5/11/2017 - 5/11/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
						20.9				
		S9	16 to 18	24/20	12-13-11-5	50.9			SAND AND SILT	**S9: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel; wet. Brown.**
				19		48.2				
		S10	18 to 20	24/17	1-3-4-5	51.4				**S10: SILTY SAND (SM); with ~5% non-plastic fines, ~85% fine sand, combined with SILT (ML) ~15% low-plasticity fines; wet. Dark grayish-brown.**
	20					51.4				
0		S11	20 to 22	24/12	7-6-6-7	16.0				**S11: SILTY SAND (SM); with ~5% non-plastic fines, ~85% fine sand, combined with SILT (ML) ~15% low-plasticity fines; wet. Dark grayish-brown.**
						16.2				
		S12	22 to 24	24/14	4-4-12-50	8.3				**S12: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
						9.1				
		S13	24 to 26	24/3	50-0.3-2-0.3	0.0				**S13: (24-24.3 ft) weathered shale; wet. Gray. Hit refusal at 24.3 ft. bgs.**
	25									**Bottom of boring at depth 24.3 ft.**
	30									
-10										

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426820.8215 **EASTING (ft):** 711079.8978
GROUND SURFACE EL. (ft): 29.60 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 18.0 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB2

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/5	1-2-2-2	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many root, brick, glass, plastic, ash and coal fragments; moist. Dark blackish-brown.**
						0.0				
		S2	2 to 4	24/4	WOH-WOH-WOH-WOH	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many root, brick, glass, plastic, ash and coal fragments; moist. Dark blackish-brown.**
						0.0				
		S3	4 to 6	24/7	WOH-WOH-WOH-WOH	0.0	GTSB-2 (4.0-5.0)			**S3: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many root, brick, glass, plastic, ash and coal fragments; moist. Dark blackish-brown.**
5						0.0				
		S4	6 to 8	24/5	3-1-WOR-1	0.0				**S4: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many root, brick, glass, plastic, ash and coal fragments; moist. Dark blackish-brown.**
						0.0				
		S5	8 to 10	24/7	WOH-1-2-2	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many brick, coal, ash, glass, and wood fragments; moist. Blackish-brown.**
						0.0				
20										

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426820.8215 **EASTING (ft):** 711079.8978
GROUND SURFACE EL. (ft): 29.60 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB2

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S6	10 to 12	24/3	2-2-4-10	0.0	GTSB-2 (10.0-12.0)		FILL	**S6: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many brick, coal, ash, glass, and wood fragments; moist. Blackish-brown.**
		S7	12 to 14	24/17	9-5-4-3	0.0			SAND, GRAVEL, AND SILT	**S7: FILL material: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, few root fragments, few brick and coal fragments; moist. Brown.**
	15	S8	14 to 16	24/8	4-4-7-3	0.0				**S8: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Brown.**
		S9	16 to 18	24/7	3-7-9-9	0.0				**S9: NARROWLY GRADED SAND WITH SILT (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Brown.**
10	20									**Hit refusal at 18.0 ft. bgs** **Bottom of boring at depth 18 ft.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426967.2526 **EASTING (ft):** 711071.1424
GROUND SURFACE EL. (ft): 25.09 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 30.0 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB3

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/19	2-3-5-5	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, glass, plastic and metal fragments, few ash fragments; dry. Dark blackish-brown.**
						0.0				
		S2	2 to 4	24/14	6-4-5-3	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, glass, plastic and metal fragments, few ash fragments; dry. Dark blackish-brown.**
						0.2	GTSB-3 (3.0-4.0)			
		S3	4 to 6	24/12	3-2-3-5	0.0				**S3: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, glass, plastic and metal fragments, few ash fragments; dry. Dark blackish-brown.**
20	5					0.3				
		S4	6 to 8	24/5	4-4-4-4	0.1				**S4: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, glass, plastic and metal fragments, few ash fragments; dry. Dark blackish-brown.**
						0.0				
		S5	8 to 10	24/7	3-6-4-5	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~80% fine sand, ~15% fine to coarse sub-rounded gravel, ~5% nonplastic fines, many brick, coal, ash, metal fragments; moist. Dark blackish-brown.**
						0.0				
	10	S6	10 to 12	24/7	10-14-12-11	0.0	GTSB-3 (10.0-12.0)		SAND, GRAVEL, AND SILT	**S6: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
						0.0				
		S7	12 to 14	24/13	7-6-6-4	0.0				**S7: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
						0.0				
		S8	14 to 16	24/9	8-7-4-4	0.0				**S8: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426967.2526 **EASTING (ft):** 711071.1424
GROUND SURFACE EL. (ft): 25.09 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB3

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
10						0.2			SAND, GRAVEL, AND SILT	
		S9	16 to 18	24/17	6-5-4-5	0.3 0.0				**S9: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
		S10	18 to 20	24/0	14-13-10-11	NA NA				**S10: No Recovery**
	20	S11	20 to 22	24/14	8-13-9-6	0.8 0.3				**S11: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel; wet. Brown.**
		S12	22 to 24	24/9	3-1-1-1	0.2 0.0				**S12: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel; wet. Brown.**
0	25	S13	24 to 26	24/15	13-4-27-50/2	0.4 0.6				**S13 (0-12 in): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel; wet. Brown.** **S13 (12-17 in): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel; wet. Dark grayish-brown.** **S13: Hit split-spoon refual @ 25.2 ft. bgs - augered through.**
		S14	26 to 28	24/17	4-4-4-4	0.4 0.6				**S14: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel, very few wood fragments; wet. Dark grayish-brown.**
		S15	28 to 30	24/15	2-3-7-9	0.2 0.3				**S15: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel, very few wood fragments; wet. Dark grayish-brown.**
	30									**Bottom of boring at depth 30 ft.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426842.8074 **EASTING (ft):** 711159.5269
GROUND SURFACE EL. (ft): 29.49 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 22.3 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB4

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/17	3-2-1-1	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and glass fragments; moist. Dark blackish-brown.**
						0.0				
		S2	2 to 4	24/11	1-2-2-1	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and glass fragments; moist. Dark blackish-brown.**
						0.0	GTSB-4 (3.0-4.0)			
		S3	4 to 6	24/9	3-2-2-1	0.0				**S3: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and glass fragments; moist. Dark blackish-brown.**
	5					0.0				
		S4	6 to 8	24/12	1-1-3-5	0.0				**S4: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and glass fragments; moist. Dark blackish-brown.**
						0.0				
		S5	8 to 10	24/14	2-2-3-2	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, and glass fragments; moist. Blackish-brown.**
20						0.0				
	10	S6	10 to 12	24/12	5-2-4-3	0.0	GTSB-4 (10.0-12.0)			**S6: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM), with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, and glass fragments; moist. Blackish-brown.**
						0.0				
		S7	12 to 14	24/19	3-2-3-2	0.0			SAND, GRAVEL, AND SILT	**S7: NARROWLY GRADED SAND WITH SILT WITH GRAVEL (SP-SM), ~20% nonplastic fines, ~75% fine sand, ~5% fine to coarse sub-angular gravel; moist. Brown.**
						0.0				
		S8	14 to 16	24/13	4-7-3-6	0.0				**S8: NARROWLY GRADED SAND WITH SILT WITH GRAVEL (SP-SM), ~20% nonplastic fines, ~75% fine sand, ~5% fine to coarse sub-angular gravel; moist. Brown.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426842.8074 **EASTING (ft):** 711159.5269
GROUND SURFACE EL. (ft): 29.49 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB4

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
						0.0				
		S9	16 to 18	24/14	5-4-2-3	0.0				**S9: NARROWLY GRADED SAND WITH SILT WITH GRAVEL (SP-SM), ~20% nonplastic fines, ~75% fine sand, ~5% fine to coarse sub-rounded gravel; moist. Brown.**
						0.0				
		S10	18 to 20	24/20	2-3-2-11	0.0				**S10: (0-0.6 in) NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), ~20% nonplastic fines, ~75% fine sand, ~5% fine to coarse sub-rounded gravel; moist. Brown.** **S10: (0.6-2.0) NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), ~10% nonplastic fines, ~85% fine sand, ~5% fine to coarse sub-rounded gravel; moist. Grayish-brown.**
10						0.0				
	20	S11	20 to 22	24/13	15-12-50-.3	0.0				**S11: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), ~15% nonplastic fines, ~80% fine sand, ~5% fine to coarse sub-angular gravel; moist-wet. Brown.**
						0.0			SAND, GRAVEL, AND SILT	
										Hit refusal @ 22.3 ft. bgs
										Bottom of boring at depth 22.3 ft.
	25									
0										
	30									

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI

CITY/STATE: Troy, New York

GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426939.2516 **EASTING (ft):** 711195.1289
GROUND SURFACE EL. (ft): 25.12 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 22.9 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB5

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/9	10-7-5-4	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-angular gravel, many coal, brick, metal, glass, and plastic fragments; moist. Dark blackish-brown.**
						0.0				
		S2	2 to 4	24/6	3-4-3-4	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-angular gravel, many coal, brick, metal, glass, and plastic fragments; moist. Dark blackish-brown.**
						0.5	GTSB-5 (3.0-4.0)			
		S3	4 to 6	24/17	3-4-2-1	0.0				**S3: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, metal, glass, and ash fragments; moist. Dark blackish-brown.**
20	5					0.2				
		S4	6 to 8	24/8	2-3-2-2	0.3				**S4: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, metal, glass, and ash fragments; moist. Dark blackish-brown.**
						0.0				
		S5	8 to 10	24/18	7-8-8-5	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, metal, glass, and ash fragments; moist. Dark blackish-brown.**
						0.0				
	10	S6	10 to 12	24/20	10-7-10-6	0.0	GTSB-5 (10.0-12.0)			**S6 (0-12 in): FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many coal, brick, metal, glass, and ash fragments; moist. Dark blackish-brown.** **S6: (12-24 in): FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~85% fine sand, ~15% fine to coarse sub-angular gravel; moist-wet. Brown.**
						0.4				
		S7	12 to 14	24/12	7-4-6-7	0.0			SAND, GRAVEL, AND SILT	**S7: NARROWLY GRADED SAND WITH SILT WITH GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist-wet. Brown.**
						0.3				
		S8	14 to 16	24/0	7-5-4-2	NA				**S8: No Recovery**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426939.2516 **EASTING (ft):** 711195.1289
GROUND SURFACE EL. (ft): 25.12 **DATE START/END:** 5/9/2017 - 5/9/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB5

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
10						NA				
		S9	16 to 18	24/8	2-1-3-4	0.0 0.0				**S9: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
		S10	18 to 20	24/14	3-3-7-4	1.8 0.3				**S10: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel; wet. Grayish-brown.**
	20	S11	20 to 22	24/15	WOH-3-4-7	2.4 2.9				**S11: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel, few wood fragments; wet. Grayish-brown.**
		S12	22 to 24	24/0	11-50-.4	NA NA				**Hit refusal at 22.9 ft bgs**
										Bottom of boring at depth 22.9 ft.
0	25									
	30									

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426915.4817 **EASTING (ft):** 711266.2732
GROUND SURFACE EL. (ft): 26.65 **DATE START/END:** 5/8/2017 - 5/8/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 24.0 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

GTSB6

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/20	6-6-6-11	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, ash, coal, and glass fragments; dry. Dark blackish-brown.**
						0.0				
		S2	2 to 4	24/19	8-11-7-4	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, ash, coal, and glass fragments; dry. Dark blackish-brown.**
						0.0				
		S3	4 to 6	24/8	2-5-3-6	0.0	GTSB-6 (4.0-6.0)			**S3: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~75% fine sand, ~25% fine to coarse sub-rounded gravel, many brick, coal, glass, and root fragments; moist. Blackish-brown.**
5						0.0				
		S4	6 to 8	24/17	9-10-14-15	0.0				**S4: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel, many brick and coal fragments, few ash fragments; moist.**
20						0.0				
		S5	8 to 10	24/21	22-21-16-17	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel; moist. Dark brown.**
						0.0				
10		S6	10 to 12	24/17	20-15-12-12	0.0	GTSB-6 (10.0-12.0)		SAND AND GRAVEL	**S6: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel; moist. Dark brown.**
						0.0				
		S7	12 to 14	24/19	15-20-37-41	0.0				**S7: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel; moist. Dark brown.**
						0.0				
		S8	14 to 16	24/17	3-17-12-14	0.0				**S8: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel; moist. Dark brown.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426915.4817 **EASTING (ft):** 711266.2732
GROUND SURFACE EL. (ft): 26.65 **DATE START/END:** 5/8/2017 - 5/8/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING GTSB6

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
						0.0			SAND AND GRAVEL	
		S9	16 to 18	24/17	25-27-12-12	0.0				**S9: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-rounded gravel; moist. Dark brown.**
10						0.0				
		S10	18 to 20	24/6	21-17-12-14	0.0				**S10: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-angular gravel; wet. Dark brown.**
	20					0.0				
		S11	20 to 22	24/14	6-4-4-6	0.0				**S11: NARROWLY GRADED SAND WITH GRAVEL (SP-SM); with ~80% fine sand, ~20% fine to coarse sub-angular gravel; wet. Dark brown.**
						0.0				
		S12	22 to 24	24/0	12-6-11-26	0.0			SAND, GRAVEL, AND SILT	**S12: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, with ~80% fine sand, ~15% fine to coarse sub-angular gravel; wet. Dark brown.**
						0.0				
	25									**Hit refusal at 24.0 ft bgs** **Bottom of boring at depth 24 ft.**
0										
	30									

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI

CITY/STATE: Troy, New York

GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426954.7581 **EASTING (ft):** 711128.619
GROUND SURFACE EL. (ft): 24.93 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 24.2 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

SB1

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/20	3-5-6-4	0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, glass, coal, ash, metal, and root fragments; dry-moist. Dark blackish-brown.**
						0.1				
		S2	2 to 4	24/15	3-3-3-2	0.0				**S2: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, glass, coal, ash, metal, and root fragments; dry-moist. Dark blackish-brown.**
						0.0	SB-1 (3.0-4.0)			
		S3	4 to 6	24/14	3-1-2-1	0.0				**S3: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, glass, coal, ash, metal, and root fragments; dry-moist. Dark blackish-brown.**
20	5					0.1				
		S4	6 to 8	24/18	2-3-4-5	0.0				**S4: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, ash, and brick fragments; dry-moist. Dark blackish-brown.**
						0.0				
		S5	8 to 10	24/17	4-6-5-7	0.0				**S5: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, ash, and brick fragments; dry-moist. Dark blackish-brown.**
						0.0				
	10	S6	10 to 12	24/19	6-6-9-6	0.0	SB-1 (10.0-12.0)			**S6: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, few brick, coal, ash, and glass fragments; moist. Dark brown.**
						0.1				
		S7	12 to 14	24/15	6-6-5-5	0.0				**S7: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Brown.**
						0.1				
		S8	14 to 16	24/14	6-5-6-9	0.0				**S8: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

NORTHING (ft): 1426954.7581 **EASTING (ft):** 711128.619
GROUND SURFACE EL. (ft): 24.93 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.

BORING SB1

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
						0.0			SAND, SILT, AND GRAVEL	
		S9	16 to 18	24/6	9-13-14-14	0.1 0.1				**S9: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
		S10	18 to 20	24/14	8-7-4-5	0.0 0.0				**S10: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
	20	S11	20 to 22	24/13	4-4-4-7	0.0 0.0				**S11: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.**
		S12	22 to 24	24/5	32-50/.2-50-.2	0.2 0.0				**S12 (0-6 in): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.** **S12 (6-8 in): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~15% nonplastic fines, ~80% fine sand, ~5% fine to coarse sub-rounded gravel (shale fragments); wet. Dark gray.**
0	25									**S12 (9-24 in): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel; wet. Brown.** **S13: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); with ~15% nonplastic fines, ~80% fine sand, ~5% fine to coarse sub-rounded gravel (shale fragments); wet. Dark gray.** **Bottom of boring at depth 24.2 ft.**
	30									

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426912.0111 **EASTING (ft):** 711109.1307
GROUND SURFACE EL. (ft): 22.41 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 16.0 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

SB2

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/19	3-4-3-4	0.0 0.0			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, brick, ash, and glass fragments; moist. Dark blackish-brown.**
20		S2	2 to 4	24/5	3-1-1-2	0.2 0.0	SB-2 (3.0-4.0)			**S2: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, brick, ash, and glass fragments; moist. Dark blackish-brown.**
	5	S3	4 to 6	24/6	2-1-1-1	0.1 0.1				**S3: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, brick, ash, and glass fragments; moist. Dark blackish-brown.**
		S4	6 to 8	24/9	2-4-13-3	0.0 0.0				**S4: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many coal, brick, ash, and glass fragments; moist. Dark blackish-brown.**
		S5	8 to 10	24/15	5-4-3-2	0.0 0.0			SAND, SILT, AND GRAVEL	**S5: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Brown.**
	10	S6	10 to 12	24/7	5-5-5-5	0.0 0.0	SB-2 (10.0-12.0)			**S6: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist. Brown.**
10		S7	12 to 14	24/17	6-5-5-6	0.0 0.0				**S7: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist-wet. Brown.**
		S8	14 to 16	24/3	5-3-2-2	NA NA				**S8: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% non-plastic fines; ~80% fine sand, ~15% fine to coarse sub-rounded gravel; moist-wet. Brown.**
	15									**Bottom of boring at depth 16 ft.**

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

BORING INFORMATION

NORTHING (ft): 1426929.6272 **EASTING (ft):** 711102.6052
GROUND SURFACE EL. (ft): 22.569 **DATE START/END:** 5/10/2017 - 5/10/2017
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Geologic, Inc.
TOTAL DEPTH (ft): 16.0 **DRILLER NAME:** Steve Laramee
LOGGED BY: Garrett Schmidt **RIG TYPE:** Truck Mounted HSA

BORING

SB3

DRILLING INFORMATION

HAMMER TYPE: **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / NA **DRILL ROD O.D.:** NA **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not measured

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information: Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	PID (ppm)	Analyzed Sample ID	Visual Impacts	Layer Name	Soil and Rock Description
		S1	0 to 2	24/8	5-4-4-.5	0.0 0.2			FILL	**S1: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many brick, coal, ash, and glass fragments.**
20		S2	2 to 4	24/9	4-3-3-2	0.2 0.1	SB-3 (3.0-4.0)			**S2: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many brick, coal, ash, and glass fragments.**
	5	S3	4 to 6	24/5	4-3-3-3	0.0 0.4				**S3: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~80% fine sand, ~15% fine to coarse sub-rounded gravel, many brick, coal, ash, and glass fragments.**
		S4	6 to 8	24/12	5-4-4-4	0.6 0.1				**S4: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and ash fragments.**
		S5	8 to 10	24/15	2-5-4-4	0.1 0.1				**S5: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and ash fragments.**
	10	S6	10 to 12	24/5	5-7-9-8	0.2 0.6	SB-3 (10.0-12.0)			**S6: FILL material: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~75% fine sand, ~20% fine to coarse sub-rounded gravel, many brick, coal, and ash fragments.**
10		S7	12 to 14	24/17	7-5-4-5	0.2 0.1			SAND, GRAVEL, AND SILT	**S7: NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~5% nonplastic fines, ~85% fine sand, ~10% fine to coarse sub-rounded gravel; moist. Brown.**
	15	S8	14 to 16	24/0	8-6-5-6	NA NA				**S8: No Recovery**
										Bottom of boring at depth 16 ft.

NOTES:

PROJECT NAME: Troy Ingalls Ave PDI
CITY/STATE: Troy, New York
GEI PROJECT NUMBER: 116830.1408.14083

GEI Consultants

GEI WOBURN.STD_N-E NO WELL_SAMP ID TROY INGALLS PDI.GPJ GEI DATA TEMPLATE 2011.GDT 6/1/17

Appendix B

Chain-of-Custody Records, Validated Laboratory Reports, Data Usability Summary Reports, and Full Data Package

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-01
Client ID: GTSB-2 (4'-5')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 08:45
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.83	J	mg/kg	1.2	0.20	1	05/12/17 10:50	05/12/17 13:48	77,9014	LK

Free cyanide results were reported down to RL only. Detected results between MDL and RL were reported as nondetect at the RL by the laboratory

JAm

ALPHA

JAm 5/23/17

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-02
Client ID: GTSB-2 (10'-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 09:15
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.6		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.86	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.22	J	mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:48	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-03
Client ID: SB-1 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 11:45
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.5		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.27	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.50	J	mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:49	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-04
Client ID: SB-1 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 12:15
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.2		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	0.98	0.16	1	05/12/17 10:50	05/12/17 13:50	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-05
Client ID: SB-3 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 14:00
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.9		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	2.8		mg/kg	1.0	0.17	1	05/12/17 10:50	05/12/17 13:51	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-06
Client ID: SB-3 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 14:20
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ.	mg/kg	1.0	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.6		mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:51	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-07
Client ID: SB-2 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 15:15
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.0		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ.	mg/kg	0.98	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	2.4		mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:54	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-08
Client ID: SB-2 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/10/17 15:45
Date Received: 05/10/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ .	mg/kg	0.99	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.34	J .	mg/kg	1.0	0.17	1	05/12/17 10:50	05/12/17 13:55	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-09
Client ID: GTSB-1 (2'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/11/17 07:45
Date Received: 05/11/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.0		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	VJ.	mg/kg	1.1	0.26	1	05/15/17 21:45	05/16/17 17:30	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	15		mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:55	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-10
Client ID: GTSB-1 (6'-8')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/11/17 08:05
Date Received: 05/11/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.94	0.26	1	05/15/17 21:45	05/16/17 17:30	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	3.5		mg/kg	1.0	0.17	1	05/12/17 13:30	05/12/17 16:02	77,9014	LK

Project Name: TROY INGALLS AVE OU2
Project Number: 116830-1408-14082

Lab Number: L1715263
Report Date: 05/18/17

SAMPLE RESULTS

Lab ID: L1715263-11
Client ID: GTSB-1 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/11/17 08:30
Date Received: 05/11/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.2		%	0.100	NA	1	-	05/12/17 09:44	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.99	0.26	1	05/15/17 21:45	05/16/17 17:30	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	2.5		mg/kg	1.0	0.18	1	05/12/17 13:30	05/12/17 16:03	77,9014	LK

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581, 8 Walkup Dr., TEL: 508-898-9220, FAX: 508-898-9193
Mansfield, MA 02048, 320 Forbes Blvd, TEL: 508-822-9300, FAX: 508-822-3288
Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page ___ of ___

Date Rec'd in Lab: 5/11/17

ALPHA Job #: L1715263

Project Information
Project Name: Troy Ingalls Ave OU2
Project Location: Troy, NY
Project #: 116830-1408-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Client Information
Client: GEI Consultants Inc. P.C.
Address: 1301 Trumansburg Rd Suite N Ithaca, NY 14850
Phone: 607 216 8955
Fax:
Email: psnyder@geiconsultants.com

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information
☒ Same as Client Info
PO #

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐
Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: FCN 9016 / TCN 9014	Sample Specific Comments	Total Bottles
15263-01	GTSB-2 (4'-5')	5/10/17	0845	Soil	JP	X		
02	GTSB-2 (10'-12')	5/10/17	0915	Soil	JP	X		
03	SB-1 (3'-4')	5/10/17	1145	Soil	JP	X		
04	SB-1 (10'-12')	5/10/17	1215	Soil	JP	X		
05	SB-3 (3'-4')	5/10/17	1400	Soil	JP	X		
06	SB-3 (10'-12')	5/10/17	1420	Soil	JP	X		
07	SB-2 (3'-4')	5/10/17	1615	Soil	JP	X		
08	SB-2 (10'-12')	5/10/17	1645	Soil	JP	X		

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
Garrett Schmied GEI	5-10-17 1635	[signature]	5/10/17 16:35
[signature]	5/10/17 1635	[signature]	5/11/17 0027

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 5/12/17

ALPHA Job #: L1715263

Project Information
Project Name: Troy Ingalls Ave OU2
Project Location: Troy, NY
Project # 16832 - 1408 - 14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: GEI Consultants Inc. P.C.
Address: 1301 Trumansburg Rd
Suite N Ithaca, NY 14850
Phone: 607 216 8955
Fax:
Email: Psnyder@geiconsultants.com

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☒ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: FCN Soils/FCN 9014								Sample Specific Comments	Total Bottles
15263 -09	GTSB-1 (2'-4')	5/11/17	0745	Soil	JP	X									
-10	GTSB-1 (6'-8')	5/11/17	0805	Soil	JP	X									
-11	GTSB-1 (10'-12')	5/11/17	0830	Soil	JP	X									

Preservative Code:	Container Code
A = None	P = Plastic
B = HCl	A = Amber Glass
C = HNO_3	V = Vial
D = H_2SO_4	G = Glass
E = NaOH	B = Bacteria Cup
F = MeOH	C = Cube
G = $NaHSO_4$	O = Other
H = $Na_2S_2O_3$	E = Encore
K/E = Zn Ac/NaOH	D = BOD Bottle
O = Other	

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/11/17 1300	[signature] AAL	5-11-17 1300
[signature]	5-11-17 1300	[signature]	5/12/17 0115

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Site: Troy Ingalls Ave OU2
Laboratory: Alpha Analytical, Westborough, MA
Report No.: L1715263
Reviewer: Lorie MacKinnon/GEI Consultants
Date: May 31, 2017

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
GTSB-2 (4'-5')	L1715263-01	Free cyanide, Total cyanide
GTSB-2 (10'-12')	L1715263-02	Free cyanide, Total cyanide
SB-1 (3'-4')	L1715263-03	Free cyanide, Total cyanide
SB-1 (10'-12')	L1715263-04	Free cyanide, Total cyanide
SB-3 (3'-4')	L1715263-05	Free cyanide, Total cyanide
SB-3 (10'-12')	L1715263-06	Free cyanide, Total cyanide
SB-2 (3'-4')	L1715263-07	Free cyanide, Total cyanide
SB-2 (10'-12')	L1715263-08	Free cyanide, Total cyanide
GTSB-1 (2'-4')	L1715263-09	Free cyanide, Total cyanide
GTSB-1 (6'-8')	L1715263-10	Free cyanide, Total cyanide
GTSB-1 (10'-12')	L1715263-11	Free cyanide, Total cyanide

QC Samples(s): Field blanks: None associated
Field Duplicate pair: None associated

The above-listed soil samples were collected on May 10 and 11, 2017 and were analyzed for free cyanide by SW-846 method 9016 and total cyanide by SW-846 method 9014. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure (SOP) *HW-2C, Revision 15, Cyanide Data Validation for the Contract Laboratory Program* (December, 2012), which was modified for the SW-846 methodologies utilized.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Initial and Continuing Calibrations
- Blanks
- Matrix Spike (MS) and Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results

NA
- Field Duplicate Results

- Moisture Content
- Quantitation Limits and Data Assessment

- Sample Quantitation and Compound Identification

NA – A field duplicate pair was not associated with this sample set.

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The data package was complete as received by the laboratory.

Holding Times and Sample Preservation

All criteria were met.

Initial and Continuing Calibrations

All criteria were met.

Blanks

Contamination was not detected in the associated method and instrument blank samples.

MS and Laboratory Duplicate Results

MS and duplicate analyses were performed on sample GTSB-4 (3'-4') (reported in case number L1714309) for free cyanide. As laboratory recovery control limits are not established for the free cyanide method, the total cyanide validation recovery/relative percent difference (RPD) control limits of 75-125/35 were used to evaluate the analyses. All precision criteria were met. The following table lists the recoveries outside of control limits and the resulting actions.

GTSB-4 (3'-4')		
Analyte	**Recovery**	**Validation Action/Bias**
Free Cyanide	MS 72%	Estimate (UJ) the nondetect results for free cyanide in all samples; Low bias.

MS/MSD analyses were performed on non-project samples for the total cyanide analyses. Results were not used to qualify project samples due to differences in sample matrix, type, etc.

LCS Results

All criteria were met.

Moisture Content

All criteria were met.

Quantitation Limits and Data Assessment

Total cyanide results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were qualified as estimated (J) by the laboratory because as the value approaches the MDL, the accuracy of the measurement is less certain. For the free cyanide analyses, results detected above the MDL but below the RL are reported by the laboratory as nondetect at the reporting limit.

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-01
Client ID: TP-21(0) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 07:50
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.2	0.29	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.1	J	mg/kg	1.2	0.20	1	05/06/17 14:00	05/09/17 11:06	77,9014	LK

Free cyanide results reported down to RL only. Detected results between MDL and RL were reported as nondetect at the RL by the laboratory

dam

dam 5/18/17

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-02
Client ID: TP-21(26) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 08:00
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.76	J	mg/kg	1.2	0.19	1	05/06/17 14:00	05/09/17 11:09	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-03
Client ID: TP-21(26) (2.5'-3.5')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 08:10
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.27	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.36	J	mg/kg	1.1	0.18	1	05/06/17 14:00	05/09/17 11:09	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-04
Client ID: TP-17 (0) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 09:10
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.97	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.1	0.18	1	05/06/17 14:00	05/09/17 11:10	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-05
Client ID: TP-17 (30) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 09:30
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ.	mg/kg	1.0	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.4		mg/kg	1.1	0.18	1	05/06/17 14:00	05/09/17 11:11	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-06
Client ID: TP-17 (30) (5'-6')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 09:45
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	U J	mg/kg	1.1	0.28	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.22	J	mg/kg	1.1	0.19	1	05/06/17 14:00	05/09/17 11:12	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-07
Client ID: TP-17 (45) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 09:50
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.9		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.99	0.28	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	9.8		mg/kg	1.2	0.19	1	05/06/17 14:00	05/09/17 11:36	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-08
Client ID: TP-17 (48) (8'-9')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 10:20
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	42.7		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ.	mg/kg	1.9	0.56	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	130	J.	mg/kg	11	1.9	5	05/06/17 14:00	05/09/17 11:37	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-09
Client ID: TP-17 (88) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 10:50
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.29	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.20	1	05/06/17 14:00	05/09/17 11:38	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-10
Client ID: TP-17 (PEAT)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/04/17 11:00
Date Received: 05/04/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	53.2		%	0.100	NA	1	-	05/06/17 08:46	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.7	0.45	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	96		mg/kg	8.9	1.5	5	05/06/17 14:00	05/09/17 11:38	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-11
Client ID: GTSB-6 (4-6)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/08/17 11:00
Date Received: 05/08/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	05/09/17 11:58	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.27	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.31	J	mg/kg	1.1	0.19	1	05/12/17 13:30	05/12/17 16:01	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-12
Client ID: GTSB-6 (10-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/08/17 11:30
Date Received: 05/08/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.7		%	0.100	NA	1	-	05/09/17 11:58	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.25	1	05/09/17 22:10	05/10/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.0	0.17	1	05/12/17 10:50	05/12/17 13:41	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-13
Client ID: GTSB-4 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 07:15
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.28	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:41	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-14
Client ID: GTSB-4 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 07:45
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.40	J	mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:42	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-15
Client ID: GTSB-5 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 09:40
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.34	J	mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 13:45	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-16
Client ID: GTSB-5 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 10:00
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ *	mg/kg	1.1	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.19	J *	mg/kg	1.0	0.18	1	05/12/17 10:50	05/12/17 13:45	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-17
Client ID: GTSB-3 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 13:00
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ.	mg/kg	1.0	0.27	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.2		mg/kg	1.1	0.18	1	05/12/17 10:50	05/12/17 14:01	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714309
Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1714309-18
Client ID: GTSB-3 (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/09/17 13:30
Date Received: 05/09/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	05/11/17 08:17	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.26	1	05/11/17 22:30	05/12/17 16:45	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.20	J	mg/kg	1.0	0.17	1	05/12/17 10:50	05/12/17 13:47	77,9014	LK

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 5/5/17

ALPHA Job #: L1714309

Client Information

Client: GEI Consultants, Inc., P.C
Address: 1301 Trumansburg Road, Suite N
Ithaca, NY 14850
Phone: 607-216-8955
Fax:
Email: Psnyder@geiconsultants.com

Project Information

Project Name: Troy Ingalls Avenue OU2
Project Location: Troy, NY
Project #: 116830-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Send EDD to datagroup@geiconsultants.com

Please specify Metals or TAL.

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☒ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☒ NY
☐ Other: NA

Sample Filtration

☐ Done
☑ Lab to do

Preservation
☑ Lab to do

(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: FCN 9016/TCN 9014	Sample Specific Comments	# of Bottles
1430901	TP-21(0) (10-12')	5-4-17	7:50	Soil	GCS	X		1
02	TP-21 (26) (10-12')	5-4-17	8:00	Soil	GCS	X		1
03	TP-21 (26') (2.5-3.5')	5-4-17	8:10	Soil	GCS	X		1
04	TP-17 (0) (10-12')	5-4-17	9:10	Soil	GCS	X		1
05	TP-17 (30) (10-12')	5-4-17	9:30	Soil	GCS	X		1
06	TP-17 (30) (5'-6')	5-4-17	9:45	Soil	GCS	X		1
07	TP-17 (45) (10-12')	5-4-17	9:50	Soil	GCS	X		1
08	TP-17 (45) (8'-9')	5-4-17	10:20	Soil	GCS	X		1
09	TP-17 (88) (10-12')	5-4-17	10:50	Soil	GCS	X		1
10	TP-17 (Peat)	5-4-17	11:00	Soil	GCS	X		1

Container Type	G
Preservative	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5-4-17/1130	[signature]	5/4/17 1130
[signature]	5/4/17 1130	[signature]	5/5/17 0140

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

ALPHA

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581, 8 Walkup Dr., TEL: 508-898-9220, FAX: 508-898-9193
Mansfield, MA 02048, 320 Forbes Blvd, TEL: 508-822-9300, FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 5/9/17

ALPHA Job #: L1714309

Project Information
Project Name: Troy Lasalle Ave OU2
Project Location: Troy NY
Project #: 116030-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: GEI Consultants Inc P.C.
Address: 1301 Trumansburg Rd Suite N, Ithaca, NY 14850
Phone: 607 216 8955
Fax:
Email: PSnyder@geiconsultants.com

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☒ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
Send EDD to datagroup@geiconsultants.com

Please specify Metals or TAL.

ANALYSIS: Full TCL/TAL

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Full TCL/TAL	Sample Specific Comments
14309-11	GTSB-6 (4-6)	5-8-17	1100	Soil	GCS	X	
12	GTSB-6 (10-12)	5-8-17	1130	Soil	GCS	X	

Container Type: G
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
G.C.Schmidt/GEI	5-8-17/15:30	[signature] AAL	5/8/17 15:30
[signature]	5/8/17 15:30	[signature]	5/9/17 00:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA
Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288
Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of

Date Rec'd in Lab 5/10/17

ALPHA Job # L1714309

Project Information
Project Name: Troy Ingalls Ave OU2
Project Location: Troy, NY
Project # 116830 - 1408 - 14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Client Information
Client: GEI Consultants Inc. P.C.
Address: 1301 Trumansburg Rd Suite N Ithaca, NY 14850
Phone: 607 216 8955
Fax:
Email: Psnyder@geiconsultants.com

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☒ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other

Other project specific requirements/comments:
Send EDD to datagroup@geiconsultants.com
Please specify Metals or TAL.

ANALYSIS: TCN 9012 / FCN 9014

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCN 9012 / FCN 9014	Sample Specific Comments	Total Bottles
14309 .13	GTSB-4 (3'-4')	5/9/17	0715	Soil	JP	X		
.14	GTSB-4 (10'-12')	5/9/17	0745	Soil	JP	X		
.15	GTSB-5 (3'-4')	5/9/17	0940	Soil	JP	X		
.16	GTSB-5 (10'-12')	5/9/17	1000	Soil	JP	X		
.17	GTSB-3 (3'-4')	5/9/17	1300	Soil	JP	X		
.14	GTSB-3 (10'-12')	5/9/17	1330	Soil	JP	X		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type: G
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/9/17 / 1545	[signature] AAL	5/9/17 1545
[signature]	5/9/17 1545	[signature]	5/10/17 02:55

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Site: Troy Ingalls Ave OU2
Laboratory: Alpha Analytical, Westborough, MA
Report No.: L1714309
Reviewer: Lorie MacKinnon/GEI Consultants
Date: May 31, 2017

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
TP-21(0) (10-12')	L1714309-01	Free cyanide, Total cyanide
TP-21(26) (10-12')	L1714309-02	Free cyanide, Total cyanide
TP-21(26) (2.5-3.5')	L1714309-03	Free cyanide, Total cyanide
TP-17 (0) (10-12')	L1714309-04	Free cyanide, Total cyanide
TP-17 (30) (10-12')	L1714309-05	Free cyanide, Total cyanide
TP-17 (30) (5'-6')	L1714309-06	Free cyanide, Total cyanide
TP-17 (45) (10-12')	L1714309-07	Free cyanide, Total cyanide
TP-17 (48) (8'-9')	L1714309-08	Free cyanide, Total cyanide
TP-17 (88) (10-12')	L1714309-09	Free cyanide, Total cyanide
TP-17 (PEAT)	L1714309-10	Free cyanide, Total cyanide
GTSB-6 (4-6)	L1714309-11	Free cyanide, Total cyanide
GTSB-6 (10-12)	L1714309-12	Free cyanide, Total cyanide
GTSB-4 (3'-4')	L1714309-13	Free cyanide, Total cyanide
GTSB-4 (10'-12')	L1714309-14	Free cyanide, Total cyanide
GTSB-5 (3'-4')	L1714309-15	Free cyanide, Total cyanide
GTSB-5 (10'-12')	L1714309-16	Free cyanide, Total cyanide
GTSB-3 (3'-4')	L1714309-17	Free cyanide, Total cyanide
GTSB-3 (10'-12')	L1714309-18	Free cyanide, Total cyanide

QC Samples(s): Field blanks: None associated
Field Duplicate pair: None associated

The above-listed soil samples were collected on May 4, 8, and 9, 2017 and were analyzed for free cyanide by SW-846 method 9016 and total cyanide by SW-846 method 9014. The data validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure (SOP) *HW-2C, Revision 15, Cyanide Data Validation for the Contract Laboratory Program* (December, 2012), which was modified for the SW-846 methodologies utilized.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation

- Initial and Continuing Calibrations
- Blanks
- Matrix Spike (MS) and Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results

NA
- Field Duplicate Results
- Moisture Content
- Quantitation Limits and Data Assessment
- Sample Quantitation and Compound Identification

NA – A field duplicate pair was not associated with this sample set.

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The data package was complete as received by the laboratory.

Holding Times and Sample Preservation

All criteria were met.

Initial and Continuing Calibrations

All criteria were met.

Blanks

Contamination was not detected in the associated method and instrument blank samples.

MS and Duplicate Results

MS and duplicate analyses were performed on sample GTSB-4 (3'-4') for free cyanide. As laboratory recovery control limits are not established for the free cyanide method, the total cyanide validation recovery/relative percent difference (RPD) control limits of 75-125/35 were used to evaluate the analyses. All precision criteria were met. The following table lists the recoveries outside of control limits and the resulting actions.

GTSB-4 (3'-4')		
Analyte	**Recovery**	**Validation Action/Bias**
Free Cyanide	MS 72%	Estimate (J/UJ) the positive and nondetect results for free cyanide in all samples; Low bias.

MS/MSD analyses were performed on non-project samples for the total cyanide analyses. Results were not used to qualify project samples due to differences in sample matrix, type, etc.

LCS Results

All criteria were met.

Moisture Content

The moisture content for sample TP-17 (48) (8'-9') was above the control limit of 50. The positive and nondetect results for total and free cyanide were qualified as estimated (J/UJ).

Quantitation Limits and Data Assessment

Total cyanide results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were qualified as estimated (J) by the laboratory because as the value approaches the MDL, the accuracy of the measurement is less certain. For the free cyanide analyses, results detected above the MDL but below the RL are reported by the laboratory as nondetect at the reporting limit.

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-01
Client ID: TP-15(0) (10.5'-11')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 08:25
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.99	0.26	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.19	J	mg/kg	1.1	0.18	1	05/03/17 11:35	05/03/17 16:21	77,9014	LK

Free cyanide results reported down to RL only. Detected results between MDL and RL were reported as Nondetect at the RL by the laboratory dpm

dpm 5/23/17

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-02
Client ID: TP-15(20) (10.5'-11')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 08:50
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.94	0.27	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	1.1	0.18	1	05/03/17 11:35	05/03/17 15:35	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-03
Client ID: TP-15(38) (10.5'-11')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 09:20
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.88	0.25	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	1.0	0.17	1	05/03/17 11:35	05/03/17 15:36	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-04
Client ID: TP-16(15) (7-8)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 10:55
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.6		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.52	J	mg/kg	1.1	0.18	1	05/03/17 11:35	05/03/17 15:37	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-05
Client ID: TP-16(40) (6-7)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 11:30
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.3		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.27	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.65	J	mg/kg	1.1	0.19	1	05/03/17 11:35	05/03/17 16:15	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-06
Client ID: TP-16(40) (11-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 11:25
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.6		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.91	0.25	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	0.97	0.16	1	05/03/17 11:35	05/03/17 16:15	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-07
Client ID: TP-16(50) (11-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 11:45
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.26	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	1.0	0.16	1	05/03/17 11:35	05/03/17 16:16	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-08
Client ID: TP-16(70) (11-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 12:05
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.91	0.26	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.4	J	mg/kg	1.0	0.17	1	05/03/17 11:35	05/03/17 16:17	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-09
Client ID: TP-16(100) (11-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 13:53
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.86	0.25	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	1.0	0.17	1	05/03/17 11:35	05/03/17 16:18	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-10
Client ID: TP-16(120) (11-12)
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 14:20
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.91	0.26	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND	UJ	mg/kg	1.0	0.17	1	05/03/17 11:35	05/03/17 16:18	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-11
Client ID: TP-16(140) (0'-1.4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/02/17 15:00
Date Received: 05/02/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	53.9		%	0.100	NA	1	-	05/03/17 11:18	121,2540G	RI
Cyanide, Free	12.	J	mg/kg	1.8	0.44	1	05/03/17 22:15	05/04/17 16:50	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	180		mg/kg	18	3.0	10	05/03/17 17:17	05/04/17 13:14	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-13
Client ID: TP-14(22) (11'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 07:55
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.95	0.29	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.20	1	05/05/17 13:20	05/08/17 16:15	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-14
Client ID: TP-14(43) (11'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 08:20
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.93	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.0	0.17	1	05/05/17 13:20	05/08/17 16:15	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-15
Client ID: TP-14(44) (4'-6')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 08:30
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.9		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.2	0.28	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	~~0.29~~ 1.2 U	~~J~~	mg/kg	1.2	0.19	1	05/05/17 13:20	05/08/17 17:25	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-16
Client ID: TP-16(193) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 10:40
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.0		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.88	0.27	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.7	J	mg/kg	1.1	0.18	1	05/05/17 13:20	05/08/17 16:17	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-17
Client ID: TP-16(141) (5'-6')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 11:05
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.7		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	~~0.35~~ 1.0U	~~J~~	mg/kg	1.0	0.17	1	05/05/17 13:20	05/08/17 16:18	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-18
Client ID: TP-16(141) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 11:00
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.0	0.18	1	05/05/17 13:20	05/08/17 16:19	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-19
Client ID: TP-16(134) (4.5')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 11:35
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.6		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.3	0.32	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	4.0	J	mg/kg	1.3	0.22	1	05/05/17 13:20	05/08/17 16:19	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-20
Client ID: TP-13(60) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 14:00
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.6		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.97	0.25	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.0	0.17	1	05/05/17 13:20	05/08/17 16:20	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-21
Client ID: TP-12(25) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 14:30
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.2	0.30	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	~~0.39~~ 1.1U	J	mg/kg	1.1	0.19	1	05/05/17 13:20	05/08/17 16:28	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-22
Client ID: TP-12(20) (4'-5')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 14:40
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.7		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.0	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	~~0.34~~ 1.0U	~~J~~	mg/kg	1.0	0.17	1	05/05/17 13:20	05/08/17 16:29	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-23
Client ID: TP-12(44) (10'-12')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 14:55
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.91	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	~~0.20~~	1.0U ~~J~~	mg/kg	1.0	0.17	1	05/05/17 13:20	05/08/17 16:29	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-24
Client ID: TP-12(65) (4'-5')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 15:10
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	1.2	J	mg/kg	1.2	0.19	1	05/05/17 13:20	05/08/17 16:30	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-25
Client ID: TP-18 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 15:40
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	VJ	mg/kg	0.98	0.28	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.25	J	mg/kg	1.2	0.19	1	05/06/17 14:00	05/09/17 11:04	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-26
Client ID: TP-19 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 15:55
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	0.91	0.26	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.1	0.18	1	05/06/17 14:00	05/09/17 11:05	77,9014	LK

Project Name: TROY INGALLS AVENUE OU2
Project Number: 116830-14082

Lab Number: L1714069
Report Date: 05/11/17

SAMPLE RESULTS

Lab ID: L1714069-27
Client ID: TP-20 (3'-4')
Sample Location: TROY, NY
Matrix: Soil

Date Collected: 05/03/17 16:10
Date Received: 05/03/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	05/04/17 12:43	121,2540G	RI
Cyanide, Free	ND	UJ	mg/kg	1.1	0.28	1	05/08/17 22:15	05/09/17 17:05	109,9016	AT
CT RCP General Chemistry - Westborough Lab										
Cyanide, Total	0.39	J	mg/kg	1.1	0.19	1	05/06/17 14:00	05/09/17 11:39	77,9014	LK

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 5/3/17

ALPHA Job #: L1714069

Client Information

Client: GEI Consultants, Inc., P.C
Address: 1301 Trumansburg Road, Suite N
Ithaca, NY 14850
Phone: 607-216-8955
Fax:
Email: Psnyder@geiconsultants.com

Project Information

Project Name: Troy Ingalls Avenue OU2
Project Location: Troy, NY
Project # 116830-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Send EDD to datagroup@geiconsultants.com

Please specify Metals or TAL.

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☒ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

ANALYSIS

FCN 9016/TCN 9014

Sample Filtration
☐ Done
☑ Lab to do
Preservation
☑ Lab to do
(Please Specify below)

Total Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	FCN 9016/TCN 9014	Sample Specific Comments	Total Bottles
14069-01	TP-15(0) (10.5-11')	5-2-17	0825	Soil	GCS	X		1
-02	TP-15(2C) (10.5-11')	5-2-17	0850	Soil	GCS	X		1
-03	TP-15(38) (10.5-11')	5-2-17	0920	Soil	GCS	X		1
-04	TP-16(15) (7-8)	5-2-17	10:55	Soil	GCS	X		1
-05	TP-16(40) (6-7)	5-2-17	11:30	Soil	GCS	X		1
-06	TP-16(40) (11-12)	5-2-17	11:25	Soil	GCS	X		1
-07	TP-16(50) (11-12)	5-2-17	11:45	Soil	GCS	X		1
-08	TP-16(70) (11-12)	5-2-17	12:05	Soil	GCS	X		1
-09	TP-16(100) (11-12)	5-2-17	13:52	Soil	GCS	X		1
-10	TP-16(120) (11-12)	5-2-17	14:20	Soil	GCS	X		1
								1
						Container Type	G	
						Preservative	A	

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
GCS	5-2-17 14:45		
	5/3/17 ~~1440~~ 1510	AM	5/3/17 1445
			5/3/17 0835

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

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Page 1 of 1

Date Rec'd in Lab: 5/3/17

ALPHA Job #: L1714069

Client Information

Client: GEI Consultants, Inc., P.C
Address: 1301 Trumansburg Road, Suite N
Ithaca, NY 14850
Phone: 607-216-8955
Fax:
Email: Psnyder@geiconsultants.com

Project Information

Project Name: Troy Ingalls Avenue OU2
Project Location: Troy, NY
Project #: 116830-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Send EDP To datagroup@geiconsultants.com

Please specify Metals or TAL.

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☒ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other: NA

ANALYSIS

FCN 9016/TCN 9014

Sample Filtration

☐ Done
☑ Lab to do
Preservation
☑ Lab to do
(Please Specify below)

Total # Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	Total # Bottles
14069-11	TP16 140 (0'-1.4')	5-2-17	1500	Soil	GCS		1
				Soil			1
				Soil			1
				Soil			1
				Soil			1
				Soil			1
				Soil			1
				Soil			1
				Soil			1
				Soil			1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	G
Preservative	A

Relinquished By:	Date/Time	Received By:	Date/Time
Garrett Schmidt (GEI)	5-2-17 15:10	T Hauck AMC	5/3/17 15:10
T Hauck AMC	5/2/17 15:10		5/3/17 01:35

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NEW YORK CHAIN OF CUSTODY

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Page 1 of 1

Date Rec'd in Lab: 5/4/17

ALPHA Job #: L1714069

Client Information

Client: GEI Consultants, Inc., P.C
Address: 1301 Trumansburg Road, Suite N
Ithaca, NY 14850
Phone: 607-216-8955
Fax:
Email: Psnyder@geiconsultants.com

Project Information

Project Name: Troy Ingalls Avenue OU2
Project Location: Troy, NY
Project #: 116830-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time

Standard ☒
Rush (only if pre approved) ☐
Due Date:
# of Days:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Send EDD to datagroup@geiconsultants.com

Please specify Metals or TAL.

Deliverables

☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☒ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other: NA

ANALYSIS

FCN 9016/TCN 9014

Sample Filtration
☐ Done
☑ Lab to do
Preservation
☑ Lab to do
(Please Specify below)

Total Bottles

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	FCN 9016/TCN 9014	Sample Specific Comments	Total Bottles
14069-13	TP-14 (2) (11-12')	5-3-17	7:55	Soil	GCS	X		1
-14	TP-14 (43) (11-12')	5-3-17	8:20	Soil	GCS	X		1
-15	TP14 (44) (4'-6')	5-3-17	0830	Soil	GCS	X		1
-16	TP16 (193) (10-12')	5-3-17	10 40	Soil	GCS	X		1
-17	TP-16 (141) (5'-6')	5-3-17	11 05	Soil	GCS	X		1
-18	TP-16 (141) (10'-12')	5-3-17	1100	Soil	GCS	X		1
-19	TP-16 (134) (4.5')	5-3-17	11:35	Soil	GCS	X		1
-20	TP-13 (60) (10'-12')	5-3-17	1400	Soil	GCS	X		1
-21	TP-12 (25) (10-12')	5-3-17	1430	Soil	GCS	X		1
-22	TP-12 (20) (4-5')	5-3-17	1440	Soil	GCS	X		1

Container Type: G
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5-3-17 / 1647	[signature] ABL	5/4/17 16:47
[signature]	5/4/17 1645	[signature]	5/4/17 00:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

Serial_No:05111716:12

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Project Name: Troy Ingalls Avenue OU2
Project Location: Troy, NY
Project #: 116830-14082
(Use Project name as Project #) ☐
Project Manager: PJ Snyder / James Edwards
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☒ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other: NA

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
Send EDP to datagroup@geiconsultants.com

Please specify Metals or TAL.

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	FCN 9016/TCN 9014	Sample Filtration / Preservation	Total Bottles
1406 9 -23	TP-12 (4') (10-12')	5-3-17	14:55	Soil	GCS	X		1
-24	TP-12 (6.5') (4-5')	5-3-17	15:10	Soil	GCS	X		1
-25	TP-18 (3'-4')	5-3-17	15:40	Soil	GCS	X		1
-26	TP-19 (3'-4')	5-3-17	15:55	Soil	GCS	X		1
-27	TP-20 (3'-4')	5-3-17	16:10	Soil	GCS	X		1
				Soil				1
				Soil				1
				Soil				1
				Soil				1
				Soil				1

ANALYSIS

Sample Filtration
☐ Done
☑ Lab to do
Preservation
☑ Lab to do
(Please Specify below)

Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type: G
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
	5-3-17 / 1647	AAC	5/3/17 1647
	5/3/17 1647		5/4/17 00:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

Site: Troy Ingalls Ave OU2
Laboratory: Alpha Analytical, Westborough, MA
Report No.: L1714069
Reviewer: Lorie MacKinnon/GEI Consultants
Date: May 31, 2017

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
TP-15(0) (10.5'-11')	L1714069-01	Free cyanide, Total cyanide
TP-15(20) (10.5'-11')	L1714069-02	Free cyanide, Total cyanide
TP-15(38) (10.5'-11')	L1714069-03	Free cyanide, Total cyanide
TP-16(15) (7-8)	L1714069-04	Free cyanide, Total cyanide
TP-16(40) (6-7)	L1714069-05	Free cyanide, Total cyanide
TP-16(40) (11-12)	L1714069-06	Free cyanide, Total cyanide
TP-16(50) (11-12)	L1714069-07	Free cyanide, Total cyanide
TP-16(70) (11-12)	L1714069-08	Free cyanide, Total cyanide
TP-16(100) (11-12)	L1714069-09	Free cyanide, Total cyanide
TP-16(120) (11-12)	L1714069-10	Free cyanide, Total cyanide
TP-16(140) (0-1.4')	L1714069-11	Free cyanide, Total cyanide
TP-14(22) (11'-12')	L1714069-13	Free cyanide, Total cyanide
TP-14(43) (11'-12')	L1714069-14	Free cyanide, Total cyanide
TP-14(44) (4'-6')	L1714069-15	Free cyanide, Total cyanide
TP-16(193) (10'-12')	L1714069-16	Free cyanide, Total cyanide
TP-16(141) (5'-6')	L1714069-17	Free cyanide, Total cyanide
TP-16(141) (10'-12')	L1714069-18	Free cyanide, Total cyanide
TP-16(134) (4.5')	L1714069-19	Free cyanide, Total cyanide
TP-13(60) (10'-12')	L1714069-20	Free cyanide, Total cyanide
TP-12(25) (10'-12')	L1714069-21	Free cyanide, Total cyanide
TP-12(20) (4'-5')	L1714069-22	Free cyanide, Total cyanide
TP-12(44) (10'-12')	L1714069-23	Free cyanide, Total cyanide
TP-12(65) (4'-5')	L1714069-24	Free cyanide, Total cyanide
TP-18 (3'-4')	L1714069-25	Free cyanide, Total cyanide
TP-19 (3'-4')	L1714069-26	Free cyanide, Total cyanide
TP-20 (3'-4')	L1714069-27	Free cyanide, Total cyanide

QC Samples(s): Field blanks: None associated
Field Duplicate pair: None associated

The above-listed soil samples were collected on May 2 and 3, 2017 and were analyzed for free cyanide by SW-846 method 9016 and total cyanide by SW-846 method 9014. The data

validation was performed in accordance with the USEPA Region 2 Standard Operating Procedure (SOP) *HW-2C, Revision 15, Cyanide Data Validation for the Contract Laboratory Program* (December, 2012), which was modified for the SW-846 methodologies utilized.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Initial and Continuing Calibrations
- Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results

NA • Field Duplicate Results

- Moisture Content
- Quantitation Limits and Data Assessment
- Sample Quantitation and Compound Identification

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The data package was complete as received by the laboratory.

Holding Times and Sample Preservation

All criteria were met.

Initial and Continuing Calibrations

All criteria were met.

Blanks

Contamination was not detected in the associated free cyanide method blank samples. Total cyanide was detected in select method blank samples. The following table summarizes the contamination and validation actions taken. Action levels were adjusted due to sample specific preparation weights and moisture content.

Analyte	Blank Type/ Associated Samples	Maximum Concentration	10X Action Level	Validation Actions
Total Cyanide	WG1000713: TP-14(22) (11'-12'), TP-14(43) (11'-12'), TP-14(44) (4'-6'), TP-16(193) (10'-12'), TP-16(141) (5'-6'), TP-16(141) (10'-12'), TP-16(134) (4.5'), TP-13(60) (10'-12'), TP-12(25) (10'-12'), TP-12(20) (4'-5'), TP-12(44) (10'-12'), TP-12(65) (4'-5')	0.36 mg/kg	3.6 mg/kg	Qualify the results for total cyanide below the RL as nondetect (U) at RL in samples TP-14(44) (4'-6'), TP-16(141) (5'-6'), TP-12(25) (10'-12'), TP-12(20) (4'-5'), and TP-12(44) (10'-12'). Qualify the results for total cyanide as estimated (J) in samples TP-16(193) (10'-12'), TP-16(134) (4.5'), and TP-12(65) (4'-5'); High bias.
*The action level is calculated as 10x the maximum blank concentration detected.				

Blank Actions
If the sample result is < QL and < 10X action level; report the result as nondetect (U) at the reporting limit (RL).
If the sample result is ≥ QL and < 10X action level; report the sample result as estimated (J).
If the sample result is > QL and >10X action level; validation action is not required.

MS/MSD Results

MS/MSD analyses were performed on non-project samples for the total cyanide analyses. Results were not used to qualify project samples due to differences in sample matrix, type, etc.

MS and duplicate analyses were performed on samples TP-15(0) (10.5'-11') and TP-14(22) (11'-12') for free cyanide. As laboratory recovery control limits are not established for the free cyanide method, the total cyanide validation recovery/relative percent difference (RPD) control limits of 75-125/35 were used to evaluate the analyses. All precision criteria were met. The following table lists the recoveries outside of control limits and the resulting actions.

Analyte	MS Sample	Recovery	Validation Action/Bias
Free Cyanide	TP-15(0) (10.5'-11')	MS 71%	Estimate (J/UJ) the positive and nondetect results for free cyanide in all samples; Low bias.
Free Cyanide	TP-14(22) (11'-12')	MS 72%	

Laboratory Duplicate Results

Laboratory duplicate analyses were performed on samples TP-15(0) (10.5'-11') and TP-14(22) (11'-12') for free cyanide. All criteria were met.

LCS Results

All criteria were met in the free cyanide LCS analyses. The following table lists the relative percent differences in the total cyanide LCS/LCSD analyses and the resulting actions.

Analyte	LCS/LCSD ID: Associated Samples	RPD (%)	Control Limit (%)	Validation Action/Bias
Total Cyanide	WG999836-2/3: TP-15(0) (10.5'-11'), TP-15(20) (10.5'-11'), TP-15(38) (10.5'-11'), TP-16(15) (7-8), TP-16(40) (6-7), TP-16(40) (11-12), TP-16(50) (11-12), TP-16(70) (11-12), TP-16(100) (11-12), TP-16(120) (11-12)	104	35	Estimate (J/UJ) the positive and nondetect results for total cyanide in the associated samples; Indeterminate bias.

Moisture Content

All criteria were met.

Quantitation Limits and Data Assessment

Total cyanide results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were qualified as estimated (J) by the laboratory because as the value approaches the MDL, the accuracy of the measurement is less certain. For the free cyanide analyses, results detected above the MDL but below the RL are reported by the laboratory as nondetect at the reporting limit.

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

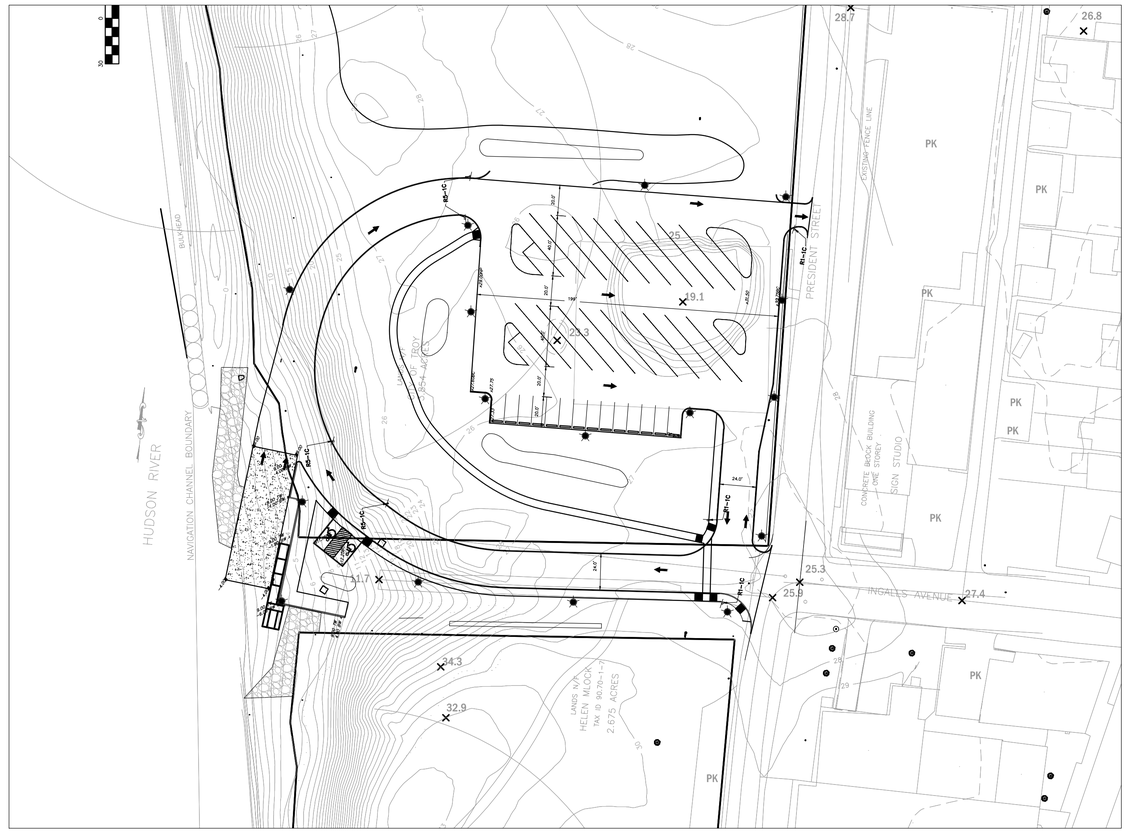
R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

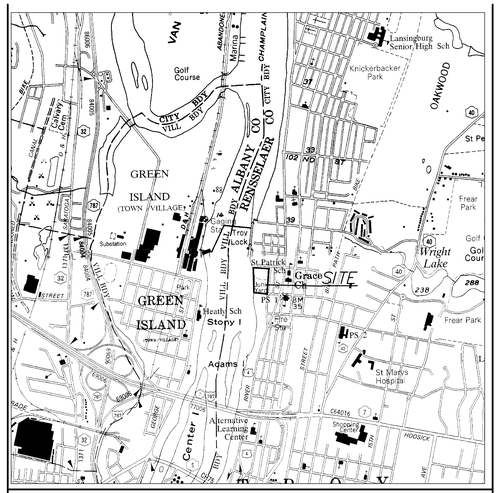
Appendix C

City of Troy Ingalls Park and Boat Launch Design

INGALLS AVENUE
BOAT LAUNCH

THE CITY OF TROY





SITE LOCATION MAP

SCHEDULE OF DRAWINGS	
SHEET NO.	DRAWING TITLE
1	COVER SHEET
2	SITE PLAN
3	GRADING PLAN
4	PROFILES
5	EROSION CONTROL PLAN
6	EROSION CONTROL DETAILS
7	SITE DETAILS
8	SITE DETAILS
9	SITE DETAILS

PROJECT NARRATIVE

THE OVERALL DESIGN FOR THIS DRAWING PACKAGE IS BASED UPON A DETAILED DESIGN REPORT ENTITLED "DESIGN MEMORANDUM (PROJECT DESIGN) BOAT LAUNCHING RAMP", PREPARED BY THE DEPARTMENT OF THE ARMY NEW YORK DISTRICT, CORPS OF ENGINEERS IN AUGUST 1976. THE DESIGN MEMORANDUM (PROJECT DESIGN) WAS PREPARED IN ACCORDANCE WITH ER1110-2-1150, "ENGINEERING AND DESIGN, POST-AUTHORIZATION STUDIES". THE MEMORANDUM PRESENTS THE BASIC AND PERTINENT DESIGN, QUANTITY AND COST ESTIMATES, ECONOMIC DATA, AND AN ENVIRONMENTAL ASSESSMENT FOR A PLAN TO DEVELOP A RECREATIONAL AREA SOUTH OF THE FEDERAL LOCK AND DAM ON THE EAST SIDE OF THE HUDSON RIVER AT TROY, NEW YORK.

GENERAL NOTES

1. THE CONTRACTOR SHALL INSPECT THE PROJECT AND ITS EXISTING CONDITIONS PRIOR TO START OF WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR PROBLEMS THAT CONFLICT WITH THE INTENT OF THESE DRAWINGS AND/OR SPECIFICATIONS.

2. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF NYSDEC GENERAL PERMIT GP10-01. ALL CONTRACTORS INVOLVED WITH EARTHWORK ACTIVITIES AT ANY TIME DURING THE BUILDOUT OF THIS PROJECT SHALL BE FAMILIAR WITH THE REGULATIONS ASSOCIATED WITH THIS PERMIT.

6. DISTURBANCES TO FEDERAL AND NYSDEC JURISDICTIONAL WATERWAY AREAS ARE SUBJECT TO THE TERMS AND CONDITIONS OF THE PERMITS ISSUED FOR THIS PROJECT. THE CONTRACTOR SHALL READ AND BE FAMILIAR WITH THESE PERMITS.

NOTE: 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL CONTACT THE U.F.P.O. TO LOCATE ALL UNDERGROUND UTILITIES. 1-800-962-7962

OWNER:
CITY OF TROY
CITY HALL, SIXTH AVENUE
TROY NY 12180
Hon. Louis Rosamilia, Mayor

DATE OF ISSUANCE - THIS SET
JUNE 26, 2012

FRANCIS J. BOSSOLINI, PE
Land Planning, Civil Engineering
2 Seymour Court, Suite 101
New Windsor, NY 12553
518-550-4821
518-273-7078 FAX

H.H ASSOCIATES, LLC
379 RIVER STREET, TROY, NY 12180
518.270.1620

COVER

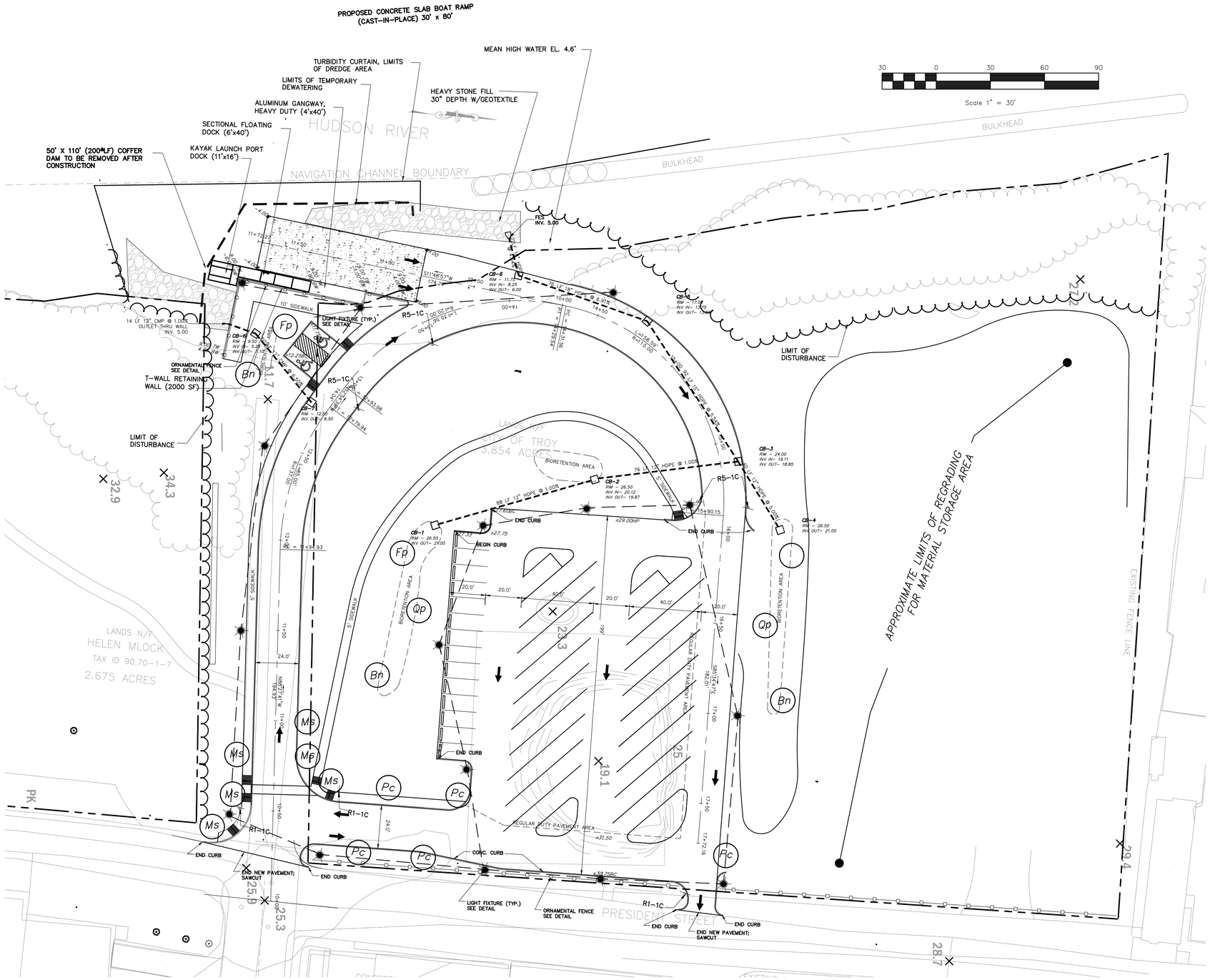
DRAWN BY: DRAWN
CADD FILE: CADD

CHECKED BY: CHECKED
JOB NO. JOB

SCALE: SCALE

DATE:
XX-XX-XXXX

SHEET 1-OF-09



SIGN SCHEDULE

SIGN	STOP R1-1	DO NOT ENTER R5-1
SIZE	30"X30"	30"X30"

1) ALL STRIPING AND SIGNAGE IS TO BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE FEDERAL MUTCD WITH NYS SUPPLEMENT; AND THE CURRENT SET OF NYSDOT STANDARD SHEETS 619-12.
2) FOR STANDARD SIGN HEIGHT AND LATERAL LOCATION REFERENCE NYSDOT STANDARD SHEET M645-14

PLANTING SCHEDULE

ABBREV.	COMMON NAME	SCIENTIFIC NAME	QTY	SIZE
Fp	GREEN ASH	FRAXUS	6	3" cal.
Ms	SARGENT CRABAPPLE	MALUS SARGENTII	30	2" cal.
Pc	FLOWERING PEAR	PYRUS CALLERYANA	14	2" cal.
Bn	RIVER BIRCH	BETULA NIGRA	6	2"-3" cal.

BIORETENTION AREA PLANTINGS (qty/area)

ABBREV.	COMMON NAME	SCIENTIFIC NAME	QTY	SIZE
	BUTTERLY BUSH	BUDDLEIA	6	
	BLUE ASTERS (PERENNIALS)	ASTER PATENS	10	
	LUPINES (PERENNIALS)	LUPINUS	10	
	PURPLE CONEFLOWER (PERENNIAL)	ENHINACEA PUPUREA	12	
	BLACK-EYED SUSAN (PERENNIAL)	RUBECKIA	12	
	MONARDA (PERENNIAL)	BEEBALM	12	

THE CITY OF TROY

DATE	REVISIONS RECORD/DESCRIPTION
	1
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LAND PLANNING, CIVIL ENGINEERING
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Troy, NY 12180-4825
518-590-4821
518-273-7078 FAX

DRAWN BY:	FJB
DESIGN BY:	FJB
CHECK BY:	FJB
PROJ. NO :	12-012
SCALE :	1"=30'
DATE :	06/26/12

SITE PLAN

INGALLS AVENUE BOAT LAUNCH - CITY OF TROY

CITY OF TROY — RENSSELAER COUNTY, NY

H2H ASSOCIATES, LLC
179 RIVER STREET, TROY, NY 12180 518.270.1620

DATE	REVISIONS RECORD/DESCRIPTION
	1
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	6

THE CITY OF TROY

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518-273-7078 FAX

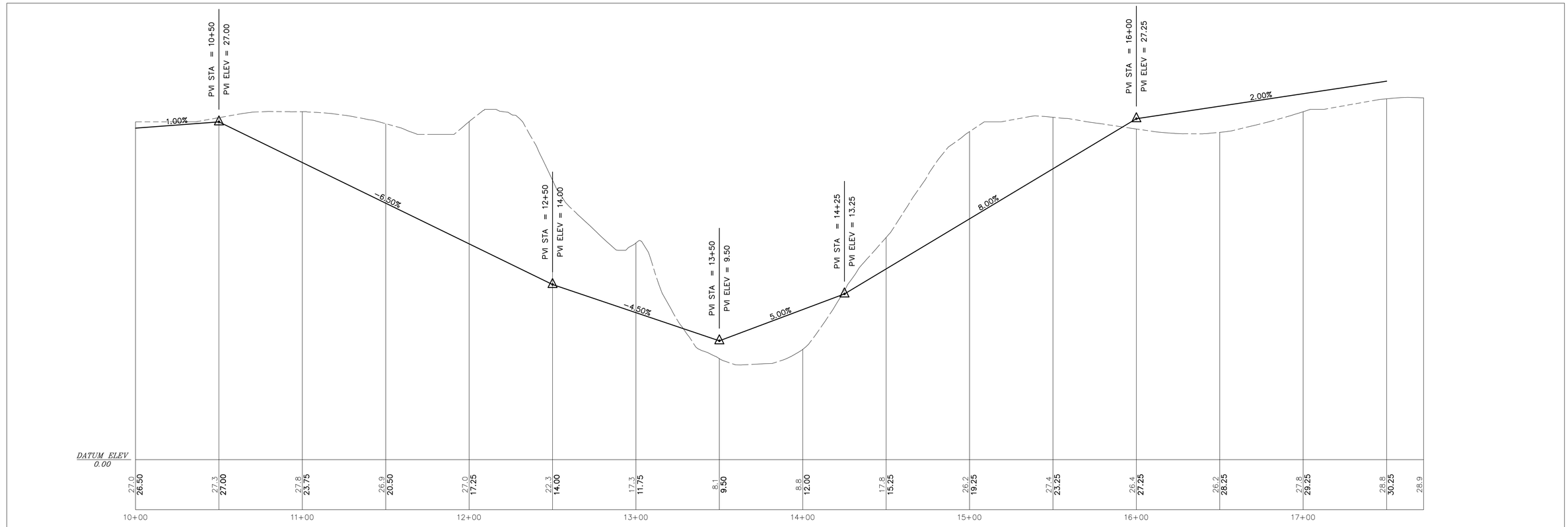
DRAWN BY:	FJB
DESIGN BY:	FJB
CHECK BY:	FJB
PROJ. NO :	12-012
SCALE :	1"=30'
DATE :	06/26/12

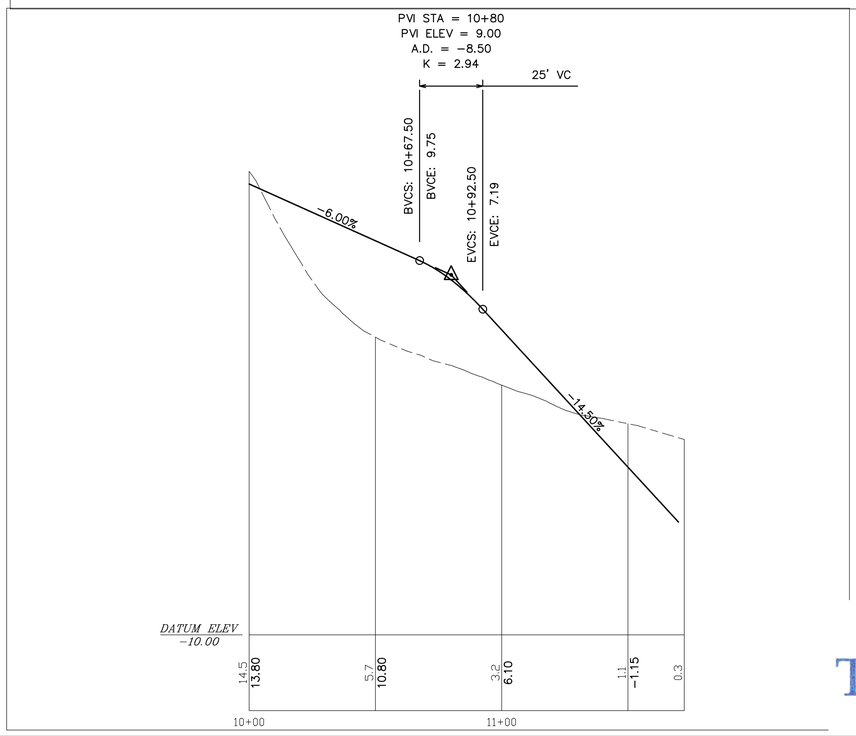
GRADING PLAN

INGALLS AVENUE BOAT LAUNCH - CITY OF TROY

CITY OF TROY — RENSSELAER COUNTY, NY

H:H ASSOCIATES, LLC
179 RIVER STREET, TROY, NY 12180 518.270.1620





THE CITY OF TROY

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DRAWN BY:	FJB
DESIGN BY:	FJB
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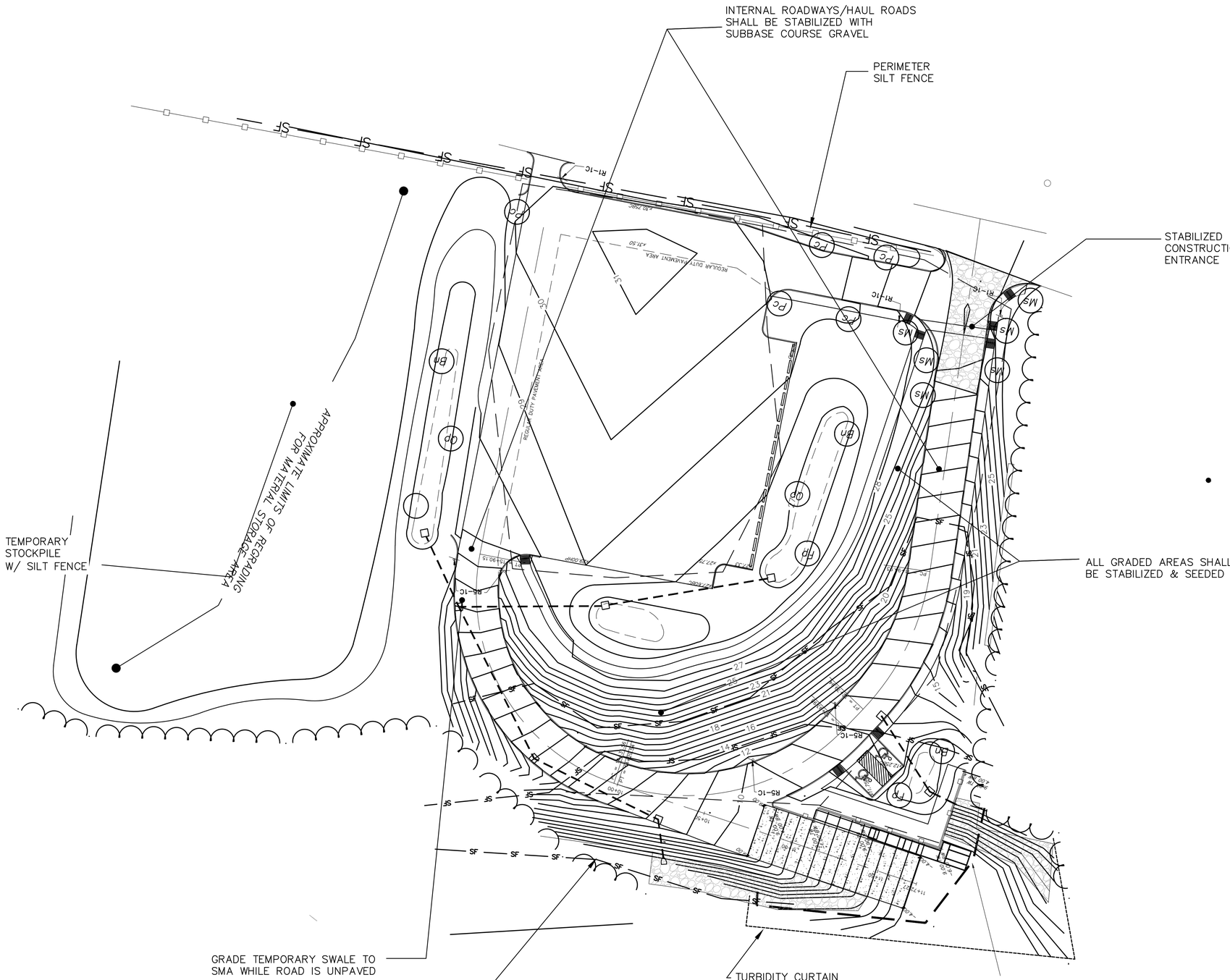
PROJ. NO :	12-012
SCALE :	1"=30'
DATE :	06/26/12

PROFILES

INGALLS AVENUE BOAT LAUNCH - CITY OF TROY

CITY OF TROY — RENSSELAER COUNTY, NY

H2H ASSOCIATES, LLC
179 RIVER STREET, TROY, NY 12180 518.270.1620



EROSION AND SEDIMENT CONTROL PLAN
SCALE 1" = 30'

EROSION CONTROL GENERAL NOTES:

1. THIS PROJECT IS AUTHORIZED UNDER NYSDEC PERMIT GP-0-10-001.
2. ANY CONTRACTOR INVOLVED IN EARTHWORK ACTIVITIES, INCLUDING BUT NOT LIMITED TO: CLEARING, GRADING AND TRENCHING, SHALL REVIEW ALL PERMIT CONDITIONS AND CERTIFY UNDERSTANDING OF THESE CONDITIONS, IN WRITING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT ALL EROSION CONTROLS DESCRIBED IN GP-0-10-001, AND IT IS NOT THE INTENT OF THESE DRAWINGS TO REPLACE OR DISSEMINATE THE PERMIT REQUIREMENTS. THE CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH THE PERMIT AT ALL TIMES.
3. AT NO TIME, SHALL MORE THAN FIVE (5) ACRES REMAIN UNSTABILIZED. THE CONTRACTOR SHALL COORDINATE EARTHWORK ACTIVITIES AND IMPLEMENTATION OF SOIL STABILIZATION MEASURES TO ENSURE COMPLIANCE TO THIS PERMIT REQUIREMENT.
4. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION AND EQUIPMENT ENTRANCE WHENEVER PRACTICABLE.
5. DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF COMPLETION OR SUSPENSION OF GRADING OPERATIONS.

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE LATEST EDITION OF NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL." (aka: THE BLUE BOOK) EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. IT IS THE INTENT OF THESE PLANS AND NOTES TO BE USED AS A GUIDE BY THE CONTRACTOR TO ENSURE THAT NO ERODED MATERIAL MIGRATES FROM THE SITE OR ENTERS ANY WATER COURSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THIS GOAL IS MET, BY IMPLEMENTING THESE PLANS AND ANY ADDITIONAL MEANS THAT MAY BE NECESSARY. FURTHER MEASURES MAY BE REQUIRED BY THE CITY, VILLAGE, OR TOWN ENGINEER. WHILE MANY OF THE EROSION CONTROL DETAILS CONTAINED WITHIN THESE PLANS ARE TAKEN DIRECTLY FROM THE BLUE BOOK, THE CONTRACTOR SHOULD CONSIDER ANY OF THE DETAILS CONTAINED IN SECTION 7A OF THE BLUE BOOK AS ACCEPTABLE PRACTICE IN THE APPROPRIATE APPLICATION.
3. THE DEVELOPER/CONTRACTOR OR HIS BUILDER SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES WEEKLY AND AFTER EACH RAINFALL EVENT THROUGH THE ENTIRE DEVELOPMENT PROCESS. TO ASSURE PROPER FUNCTION, SILTATION BARRIERS SHALL BE MAINTAINED IN GOOD CONDITION AND REINFORCED, EXTENDED, REPAIRED, RE-SEEDED AND PROTECTED FROM FURTHER EROSION. ALL SEDIMENT ACCUMULATED SHALL BE REMOVED AND CONTAINED IN APPROPRIATE SPOIL AREAS. WATER SHALL BE APPLIED TO NEWLY SEEDED AREAS AS NEEDED UNTIL GRASS COVER IS WELL ESTABLISHED. DURING THESE PERIODIC INSPECTIONS, THE FOLLOWING ITEMS SHOULD BE PAID PARTICULAR ATTENTION: A. SILT FENCING SHALL BE INSPECTED FOR UNDERMINING AND DETERIORATION. B. SEEDED/MULCHED AREAS SHALL BE INSPECTED TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.
4. EROSION CONTROL DEVICES SHALL NOT BE REMOVED UNTIL THE CITY, VILLAGE OR TOWN ENGINEER HAS APPROVED FINAL STABILIZATION.
5. SILT FENCE AND OTHER EROSION CONTROL DEVICES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THESE DETAIL SHEETS AND SECTION 7A OF THE BLUE BOOK.
6. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED.
7. CONSTRUCTION TRAFFIC SHALL NOT CROSS STREAMS OR DITCHES EXCEPT AT SUITABLE CROSSING FACILITIES. EQUIPMENT SHALL NOT OPERATE, UNNECESSARILY, WITHIN WATERWAYS OR DRAINAGE DITCHES.
8. EXISTING PAVEMENT AREAS SHALL BE CLEANED AT THE DIRECTION OF THE CITY, VILLAGE, OR TOWN ENGINEER.
9. WATER TRUCKS SHALL BE USED TO MINIMIZE DUST POLLUTION ON SITE, AND ON ADJACENT ROADWAY AREAS AS DIRECTED BY THE CITY, VILLAGE, OR TOWN ENGINEER.
10. ANY WATER PUMPED AS A RESULT OF DEWATERING ACTIVITIES SHALL BE PUMPED INTO A DEWATERING PIT.
11. CONCRETE WASHOUT AREAS SHALL BE DESIGNATED BY THE DEVELOPER OR CONTRACTOR AND PROTECTED IN ACCORDANCE WITH GP-0-10-001.
12. ALL AREAS DISTURBED IN THE CONSTRUCTION PROCESS SHALL BE STABILIZED WITH SEED AND MULCH NO MORE THAN 14 DAYS AFTER THE COMPLETION OF WORK IN THAT AREA. IT MAY BE NECESSARY TO SEED AND MULCH SOME AREAS SEVERAL TIMES TO MEET THIS REQUIREMENT.
13. IT IS RECOMMENDED THAT ALL EROSION CONTROL DEVICES BE PLACED FOR THE ENTIRE PHASE AS SHOWN ON THE EROSION CONTROL PLAN.
14. STOCK PILES SHALL BE PROTECTED BY SILT FENCE PER GP-0-10-001. THESE DEVICES SHALL BE MAINTAINED IN GOOD CONDITION UNTIL SAID STOCK PILES ARE REMOVED AND STOCK PILING AREAS ARE PERMANENTLY STABILIZED.
15. STOCK PILES SHALL BE SEEDED UPON SUSPENSION OF WORK OR IF MATERIAL IS NOT TO BE USED WITHIN 14 DAYS, IN ACCORDANCE WITH GP-0-10-001.
16. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FEET OF ANY DITCH, STREAM OR OTHER SURFACE WATER BODY.
17. SILT FENCING SHALL BE INSTALLED AT THE PERIMETER OF ALL SLOPES TO BE GRADED, PRIOR TO GRADING OPERATIONS.
18. CLEARING OPERATIONS SHALL BE LIMITED TO ACTIVE WORK AREAS.
19. CARE SHALL BE TAKEN TO PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND HEALTHY TREES OF DESIRABLE SPECIES SHALL BE PROTECTED.
20. WHEN RUNOFF IS COLLECTED AND FLOW IS CONCENTRATED IN A SWALE OR DRAINAGE DITCH, THEN CHECK DAMS SHALL BE INSTALLED TO REDUCE VELOCITY UNTIL THE SWALE AND THE AREA DRAINING TO THE SWALE ARE STABILIZED. SEDIMENT SHALL BE REMOVED FROM THE DAM AS NEEDED TO ALLOW THE CHANNEL TO DRAIN THROUGH THE DAM AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM.

CONSTRUCTION SEQUENCE NOTES:

A) TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THEIR TRIBUTARY AREAS. TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES INCLUDE SILT FENCE, CATCH BASIN SEDIMENT TRAPS, CHECK DAMS IN CONCENTRATED FLOW AREAS, TEMPORARY AND PERMANENT SEEDING OF DISTURBED AREAS, USE OF MULCH COVER AND EROSION CONTROL MATTING ON EXPOSED AREAS, AND INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCES. IN ACCORDANCE WITH THE "NEW YORK GUIDELINES FOR URBAN EROSION AND SEDIMENT CONTROL", THERE SHALL NOT BE MORE THAN FIVE (5) ACRES OF DISTURBED SOIL AT ANY ONE TIME

B) CONTRACTOR SHALL COMMENCE SITE CONSTRUCTION ACTIVITIES AS REQUIRED. CONSTRUCTION WILL BE PHASED TO BUILD STORMWATER DETENTION AREAS PRIOR TO PAVED AREAS, ALLOWING DIRECTION OF RUNOFF FROM UNSTABILIZED AREAS TO DETENTION BASIN.

C) CONTRACTOR TO CONSTRUCT TOWN ROADS AND ASSOCIATED UTILITIES, INCLUDING WATER, SANITARY SEWER AND STORM WATER COLLECTION, CONVEYANCE SYSTEMS. ONCE ROAD SURFACE HAS BEEN STABILIZED, SILT FENCING SHALL BE INSTALLED ALONG ROADWAY TO PREVENT SEDIMENT FROM ENTERING THE CLOSED DRAINAGE NETWORK WITHIN THE ROADWAY. PRIOR TO FINALIZING CONNECTION TO THE STORM SEWER SYSTEM, ALL CATCH BASINS AND DRAINAGE LINES SHALL BE CLEANED OF ALL SILT AND SEDIMENT.

D) IMMEDIATELY FOLLOWING COMPLETION OR SUSPENSION OF CONSTRUCTION ACTIVITIES OR WITHIN 14 DAYS IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SOILS.

E) UPON COMPLETION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND IMMEDIATELY ESTABLISH PERMANENT VEGETATION ON THE AREAS DISTURBED DURING THE REMOVAL.

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Land Planning, Civil Engineering
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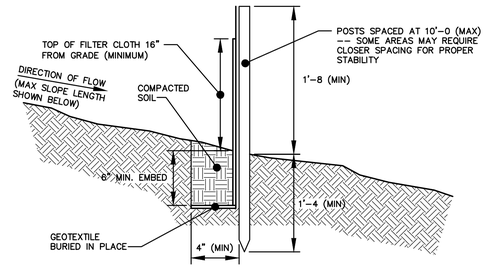
DRAWN BY:	FJB
DESIGN BY:	FJB
CHECK BY:	FJB
PROJ. NO :	12-012
SCALE :	AS SHOWN
DATE :	06/26/12

EROSION AND SEDIMENT CONTROL PLAN

INGALLS AVENUE BOAT LAUNCH - CITY OF TROY

CITY OF TROY — RENSSELAER COUNTY, NY

H2H ASSOCIATES, LLC
179 RIVER STREET, TROY, NY 12180 518.270.1620



MAXIMUM ALLOWABLE SLOPE LENGTH

MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SECTION OF SILT FENCE SHALL BE AS FOLLOWS:

SLOPE STEEPNESS:	MAX. SLOPE LENGTH:
1:2	25 FT
1:3	50 FT
1:4	75 FT
1:5 OR FLATTER	100 FT

NOTE:

MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO SILT FENCE SECTION SHALL NOT EXCEED 1/4 ACRE PER 100 FT OF FENCE. CONCENTRATED DISCHARGE OF SEDIMENT LADEN WATER SHALL NOT BE ALLOWED TO FLOW DIRECTLY TO THE FENCING.

SILT FENCE DETAIL

NOT TO SCALE

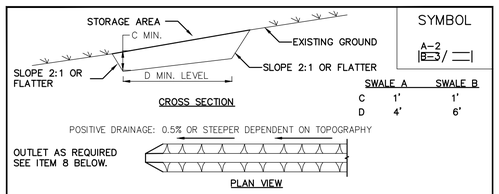
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. INSTALL SILT FENCE IN ACCORDANCE WITH THE "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", SECTION 7A.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID S
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE WRAPPED TOGETHER PER DETAIL 4 ON THIS PAGE.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN ACCUMULATION REACHES 1/2 OF DESIGN CAPACITY OF FENCE (1/2 HEIGHT OF FILTER FABRIC) OR WHEN "BULGES" DEVELOP IN FENCING.

POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APF

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.



CONSTRUCTION SPECIFICATIONS

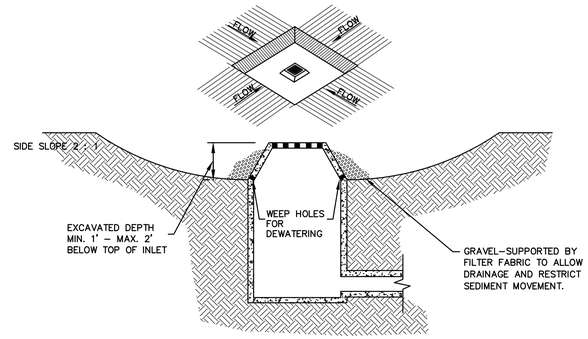
1. ALL TEMPORARY SWALES SHALL HAVE UNINTERUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC. -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR, SOD	LINED WITH 4-8" RIP-RAP OR RECYCLED CONCRETE EQUIVALENT
4	8.1-20.%	LINED WITH 4-8" RIP-RAP	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

TEMPORARY SWALE

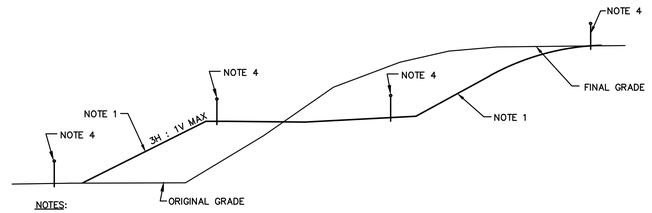


EXCAVATED DROP INLET PROTECTION DETAILS FOR UNPAVED AREAS

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION.
2. GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN.
3. WEEP HOLES SHALL BE PROTECTED BY GRAVEL.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
6. UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL BASIN WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY AND STABILIZE WITH PERMANENT SEEDING.
MAXIMUM DRAINAGE AREA 1 ACRE

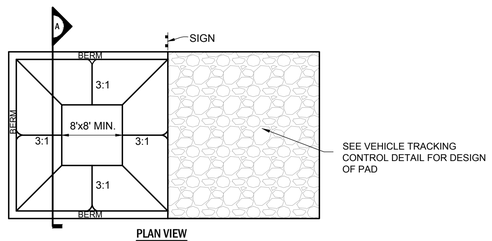


NOTES:

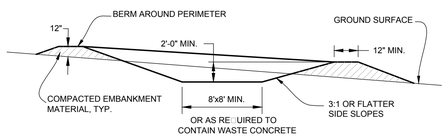
1. WHEN CUT/FILL SLOPE HAS BEEN COMPLETED, THE SLOPE SHOULD BE TRIMMED AND THE PERMANENT EROSION CONTROL MEASURES OF SEEDING AND MULCHING SHOULD BE CARRIED OUT. IF THE CUT/FILL IS TRIMMED OUT OF "SEASON" (FROM NOV. 1 THROUGH APRIL 1), MULCH THE SLOPE AND SEED ON TOP OF THE MULCH IN THE NEXT SEEDING SEASON.
2. IF THE SLOPE CANNOT BE COMPLETED BECAUSE PAVING IS REQUIRED OR FOR OTHER REASONS, THE SEEDING AND MULCHING SHOULD BE COMPLETED TO THE MAXIMUM EXTENT POSSIBLE.
3. WHEN THE CUT/FILL CANNOT BE BROUGHT TO FINAL GRADE IN A REASONABLE LENGTH OF TIME IT SHOULD BE MULCHED PER GP-10-01.
4. PROVIDE A CONTINUOUS LINE OF SILT FENCE AT THE PERIMETER OF SLOPES UNTIL THE FINAL STABILIZATION HAS BEEN APPROVED BY THE DESIGN ENGINEER OR THE INSPECTING PROFESSIONAL.
5. ALL FILL SLOPES AND CONSTRUCTED EMBANKMENTS SHALL BE INSTALLED IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATIONS SECTION 203 (EXCAVATION AND EMBANKMENT).
6. TEMPRORARY AND PERMANENT SEEDING AND MULCHING SELECTION AND APPLICATION RATES SHALL BE IN ACCORDANCE WITH THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, CHAPTER 3.

SEEDING AND MULCHING GUIDES - CUT/FILL SLOPES

NOT TO SCALE



PLAN VIEW



SECTION A

CONCRETE WASHOUT AREA INSTALLATION NOTES

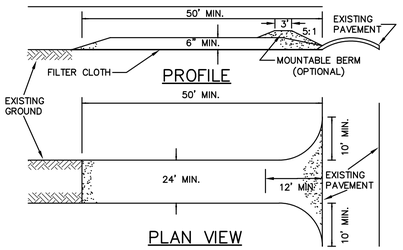
1. SEE PLAN VIEW FOR LOCATIONS OF CONCRETE WASHOUT AREA
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION

CONCRETE WASHOUT AREA MAINTENANCE NOTES

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, DRILL SEED AND CRIMP MULCH OR OTHERWISE STABILIZE IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

CONCRETE WASHOUT AREA DETAIL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FEET MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY - FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5 : 1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS - OF - WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS - OF - WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAILS

NOT TO SCALE

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EROSION CONTROL DETAILS PLAN

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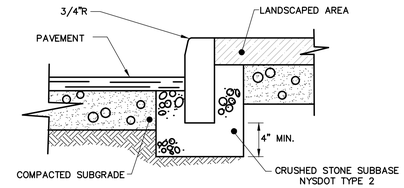
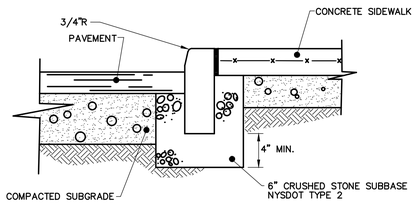
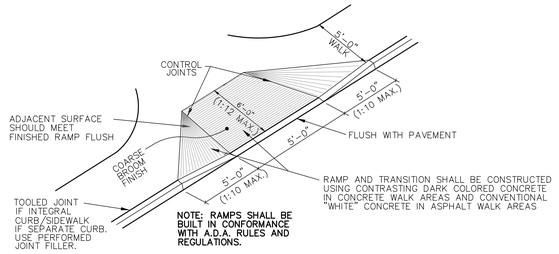




NOTES:
1. CONTRACTION JOINTS 10 FEET ON CENTER TO DEPTH OF 1/4 THE CURB THICKNESS
2. EXPANSION JOINTS WITH PREMOLDED FILLER 50 FEET ON CENTER.
3. EXPOSED CONCRETE SURFACE TO HAVE A LIGHT BROOM FINISH.

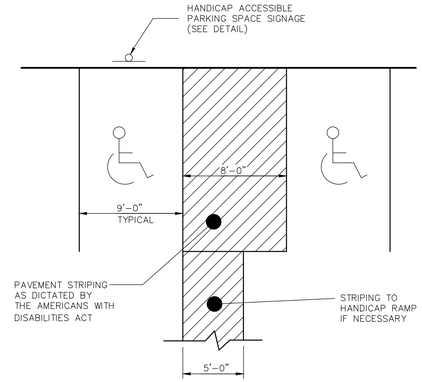
CONCRETE CURB DETAIL

N.T.S.



TYPE "A" HANDICAPPED SIDEWALK RAMP

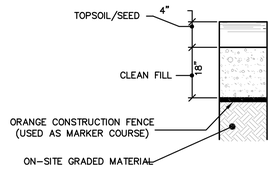
N.T.S.



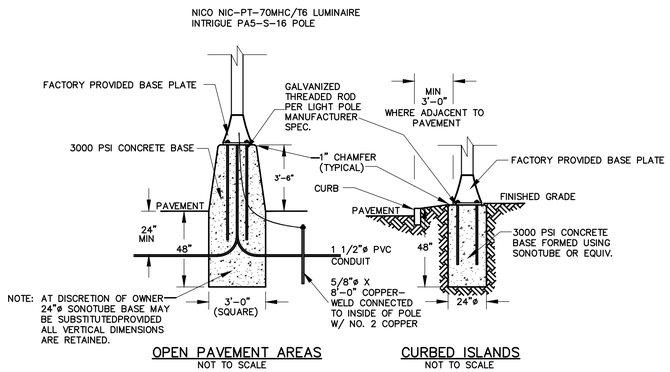
– ALL SIDEWALK RAMP AREAS SHALL PROVIDE A SMOOTH TRANSITION FROM PARKING AREA TO SIDEWALK 1/12 MAXIMUM SLOPE

HANDICAP PARKING SPACE DETAIL

N.T.S.



FILL DETAIL (NON-PAVED AREAS)
NOT TO SCALE

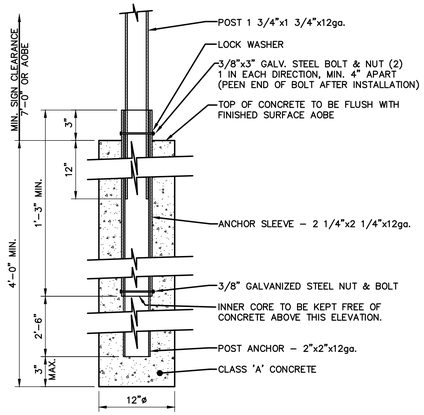


OPEN PAVEMENT AREAS
NOT TO SCALE

CURBED ISLANDS
NOT TO SCALE

LIGHT POLE BASE & FIXTURE

N.T.S.



FOUNDATION DETAIL FOR SIGN POST

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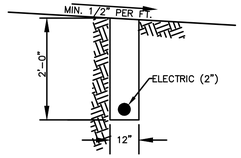

UTILITY TRENCH DETAIL

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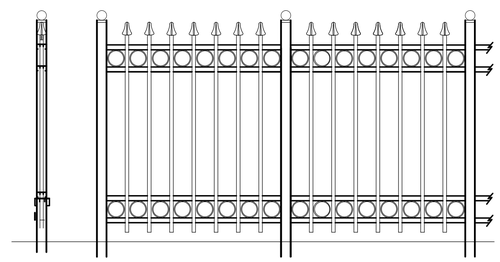

POMA CORPORATION STYLE 227 OR EQUIVALENT

ORNAMENTAL FENCING

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SITE DETAILS

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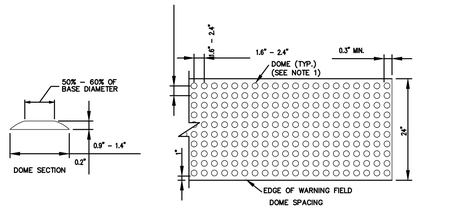

SIDEWALK DETECTABLE WARNING STRIP

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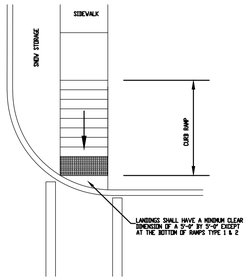
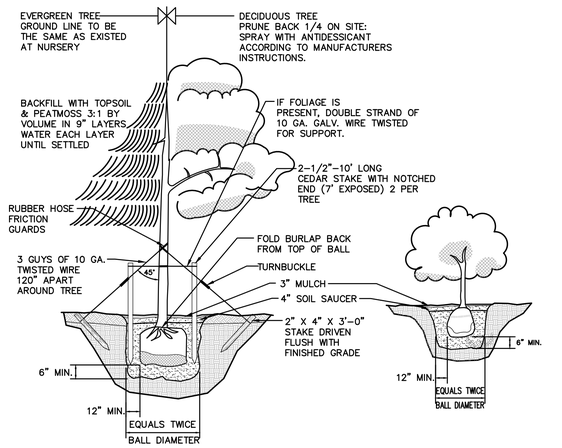


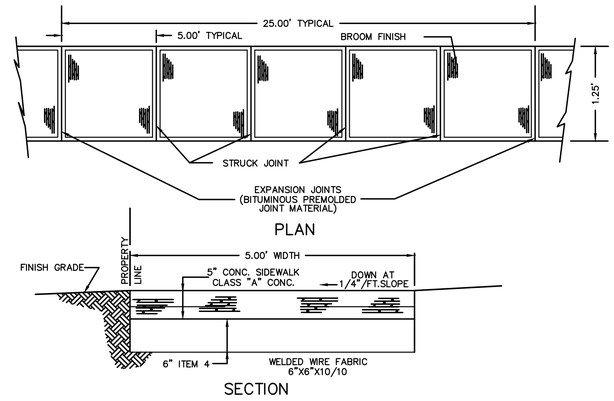
CURB RAMP CONFIGURATION: TYPE 1

N.T.S.



TYPICAL PLANTING DETAIL

N.T.S.

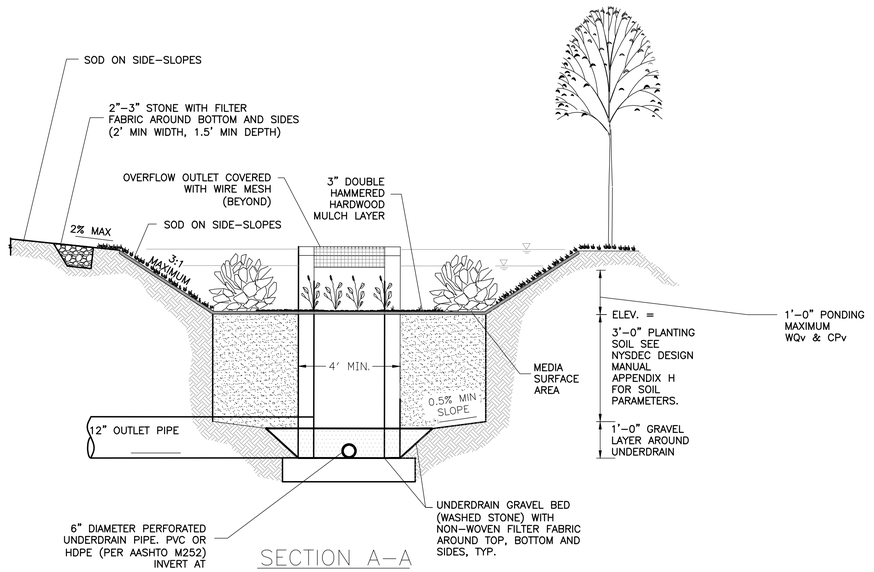


CONCRETE SIDEWALK DETAILS

N.T.S.

NOTES:

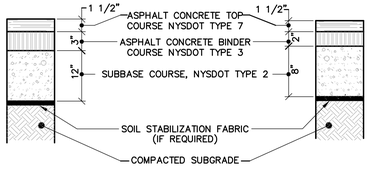
1. ALL DRAINAGE AREAS TO A BIORETENTION FACILITY ARE TO BE STABILIZED PRIOR TO INSTALLATION OF AMENDED SOILS, MULCH OR PLANTINGS.
2. AMENDED SOIL WILL ONLY BE PERMITTED WITH A VALID SOIL ANALYSIS REPORT. NO AMENDED SOIL SHALL BE ALLOWED ON THE SIDE SLOPES.
3. INSTALL WIRE SCREENING AROUND ALL OUTLET OPENINGS TO PREVENT LOSS OF MULCH.
4. PVC UNDERDRAIN PIPE SHOULD HAVE 3/8" PERFORATIONS SPACED AT 6" CENTERS, MIN. 4 HOLES PER ROW. MAX SPACING OF UNDERDRAIN PIPE IS 10 FEET ON CENTER. HDPE SHALL ADHERE TO AASHTO M252 SPECS.
5. UNDERDRAIN CLEANOUTS SHOULD EXTEND A MIN. OF 6" ABOVE TOP SURFACE OF MULCH LAYER. CLEANOUTS MAY BE FLUSH WITH TOP OF SURFACE TO ALLOW DRAWDOWN.
6. ONLY SMALL MATURING TREES ARE ALLOWED TO BE PLANTED IN THE AMENDED SOILS.



SECTION A–A

10/9 BIOFILTER CROSS SECTION

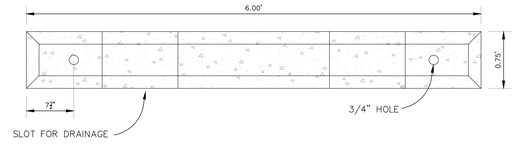
NOT TO SCALE



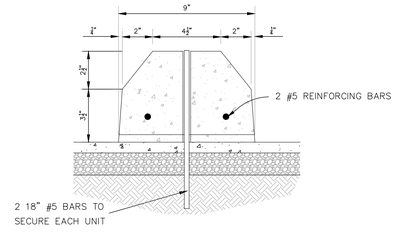
HEAVY DUTY
ACCESS ROADS
NOT TO SCALE

REGULAR DUTY
PARKING AREAS
NOT TO SCALE

ASPHALT CONCRETE
PAVING SECTION



PLAN VIEW



CROSS–SECTION

PRECAST CONCRETE WHEEL STOP DETAILS

N.T.S.

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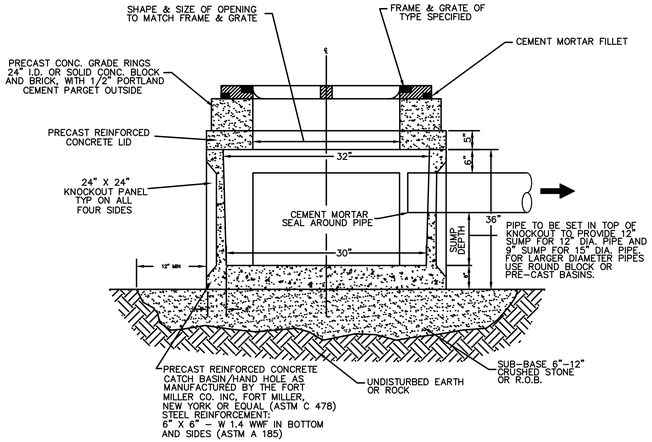

STANDARD SQUARE PRECAST CONCRETE CATCH BASIN

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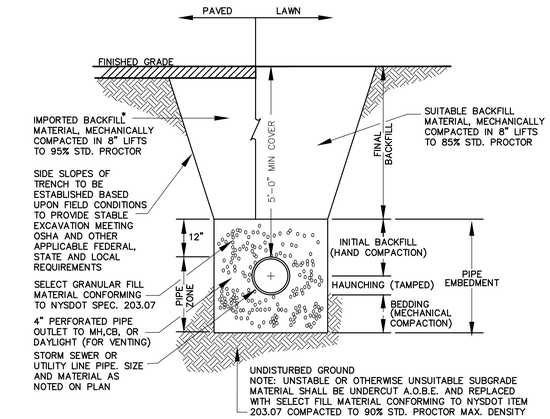


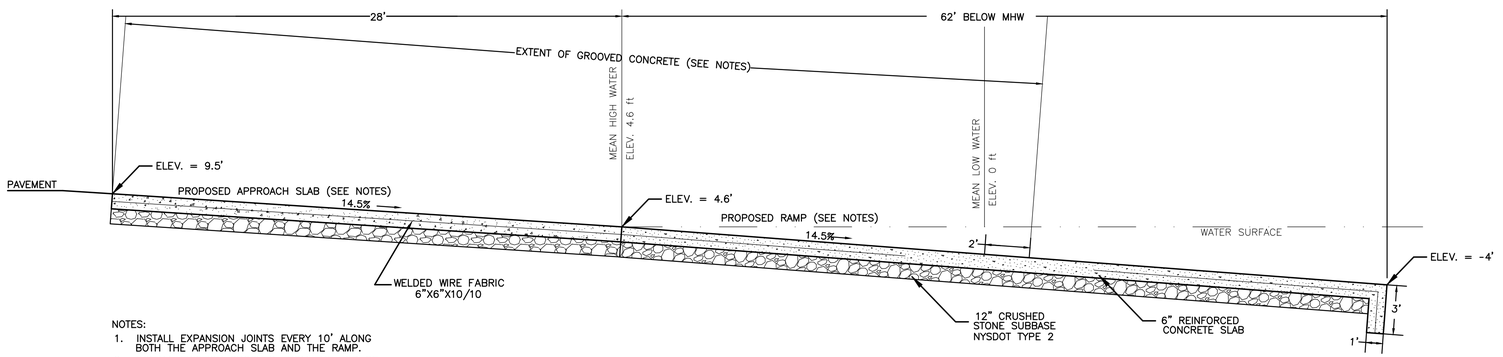
* NOTE

1) SUITABLE BACKFILL MATERIAL FOR FINAL BACKFILL SHALL BE FREE OF DEBRIS, FOREIGN MATERIAL, LARGE STONES, TREES, ORGANIC MATTER AND OTHER DELETERIOUS MATER AND CONFORMS WITH ASTM D 2487 SOIL GROUPS GW, GP, GM, SM, SW, AND SP.

2) ALL EXCAVATED MATERIAL (I.E. ASH & CINDERS) SHALL BE STOCKPILED AND DISPOSED OF ON SITE. TRENCH BACKFILL SHALL NOT INCLUDE ANY ASH MATERIAL.

STORM SEWER & UTILITY LINE TRENCH AND BACKFILL DETAIL

N.T.S.



NOTES:
1. INSTALL EXPANSION JOINTS EVERY 10' ALONG BOTH THE APPROACH SLAB AND THE RAMP.
2. INSTALL FRICTION GROOVES FROM THE TOP OF THE APPROACH SLAB TO TWO FEET (2') ALONG BOAT LAUNCH RAMP BEYOND MEAN LOW WATER LEVEL.

PROPOSED CONCRETE RAMP

5/6

N.T.S.

TYPICAL SECTION, T-WALL PRECAST RETAINING WALL

CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION

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