HALEY ALDRICH

www.haleyaldrich.com

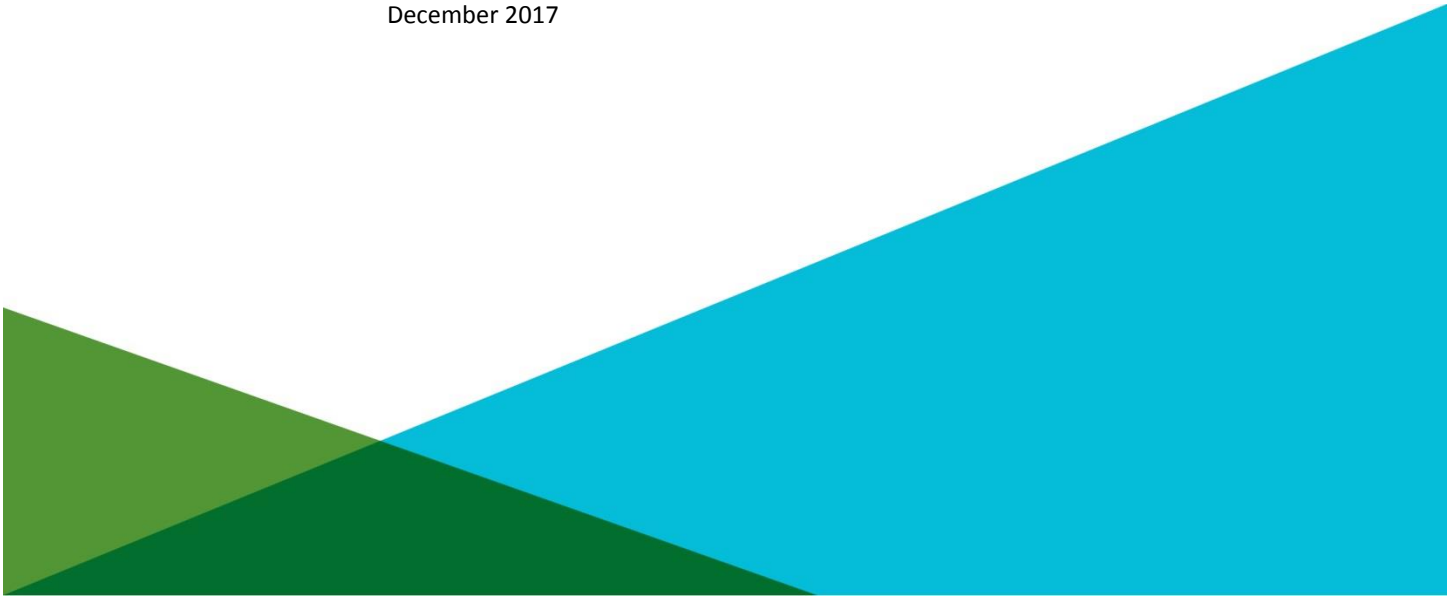
REPORT ON

REMEDIAL DESIGN – 100% DRAFT SUBMITTAL
SENECA FALLS FORMER MGP SITE, NYSDEC SITE # 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Electric and Gas Corporation (NYSEG)
Binghamton, New York

File No. 34507-026
December 2017



HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

1 December 2017
File No. 34507-026

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7014

Attention: Mr. Douglas MacNeal, P.E.

Subject: Draft 100% Remedial Design
Seneca Falls Former MGP Site, Site No. 8-50-010
Seneca Falls, New York

Dear Mr. MacNeal:

On behalf of New York State Electric & Gas (NYSEG), Haley & Aldrich of New York (Haley & Aldrich) is pleased to present this draft 100% Remedial Design for the Seneca Falls Former Manufactured Gas Plant (MGP) Site located in Seneca Falls, New York. The draft 100% Remedial Design was updated based on comments received from you on the 95% Remedial Design on October 26, 2017. A marked-up version showing the changes has not been provided, but can be upon request. A summary of the changes between the 95% and draft 100% version are provided below.

Changes from the 95% Remedial Design to the draft 100% Remedial Design include:

1. Changed title from 95% to 100% Draft (Global)
2. Changed date to December 2017 (Global)
3. Added note to Certification Page: "FINAL 100% DESIGN TO BE CERTIFIED"
4. Updated NYSDEC contact number as (518) 402-9662 (Global)
5. Updated NYSDOH Contact as Steven Karpinski (Global)
6. Section 4.3, 9th bullet, updated moisture conditioning as needed per disposal facility
7. Section 4.8, added 8th bullet: "MGP-Impacted Sediment"
8. Section 4.9, added 4th bullet: "Regrade Canal Area as shown on Design Drawings"
9. Section 9.0, added that hours can't be changed without notifying Owner and NYSDEC
10. Drawings, revised location on MW-1
11. Drawings, revised Monitoring Well Detail
12. Drawings, revised restoration drawing to include tree plantings
13. Drawings, provided tree planting detail
14. Spec (Global), submittal group numbers removed
15. Spec (Global), submittal attachments added where applicable
16. Spec 01 50 00 3.07, temporary dredge working pad description
17. Spec 01 71 23 3.01B, dredge area removed from areas to be staked

18. Spec 01 71 23 3.01F, survey point documentation frequency revised
19. Spec 31 23 23.13 2.01, application areas added to each product listed
20. Spec 31 23 23.13 2.06, Stone Mix material added for temporary working pad construction
21. Spec 31 32 13 1.06B, ground water depth range added
22. Spec 32 92 00 3.02A1, application rate removed. Rate will be determined by nutrient analysis

Upon approval of the draft 100% version by the New York State Department of Conservation (NYSDEC) and New York State Department of Health (NYSDOH), a final 100% Remedial Design package will be provided.

The procurement of a remediation contractor of the Seneca Falls site will begin in Spring 2018. If there are any additional comments, please provided by end of January 2018 so we can finalize the design prior to procurement.

If you have any questions, please contact Scott Underhill of Haley & Aldrich (518.396.7638) or Jeremy Wolf of Rochester Gas & Electric (585.724.8548).

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Douglas C. Allen, P.G.
Senior Project Manager

Scott Underhill, P.E.
Engineer of Record

Enclosures

c: RG&E; Attn: Jeremy Wolf
NYSDOH; Attn: Steven Karpinski

\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\2017-1201-HANY-Seneca Falls 100% RD_CoverLetter-F.docx

Engineering Certification

I hereby certify I am currently a New York State registered professional engineer and that this Remedial Design Report for the Seneca Falls Former Manufactured Gas Plant Site was prepared in accordance with all applicable statues and regulations and in substantial conformance with the New York State Department of Environmental Conservation Division of Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER10).

Respectfully submitted,

FINAL 100% DESIGN TO BE CERTIFIED

Scott A. Underhill Registered Professional Engineer New York State License No. 075332	Date

Table of Contents

Table of Contents

Table

List of Tables

List of Acronyms

AES	Atlantic Environmental Services
ALTA	American Land Title Association
bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CAMP	Community Air Monitoring Plan
cf	cubic feet
cm/sec	centimeters per second
CPP	Citizen Participation Plan
cy	cubic yards
DOT	Department of Transportation
FCM	Field Construction Management
FEMA	Federal Emergency Management Agency
FER	Final Engineering Report
FIRM	Flood Insurance Rate Map
FS	Feasibility Study
ft	feet
GGBFS	Granulated ground blast furnace slag
HASP	Health and Safety Plan
ISS	In-situ Solidification
mg/kg	milligram per kilogram
MGP	Manufactured Gas Plant
NAPL	Non-Aqueous Phase Liquid
NYPA	New York Power Authority
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDMV	New York State Department of Motor Vehicles
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSOPRHP	New York State Office of Parks Recreation & Historic Preservation
NYSEG	New York State Electric & Gas Corporation
OSHA	Occupational Safety and Health Act or Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PDI	Pre-Design Investigation
PPE	Personal Protective Equipment
PSA	Preliminary Site Assessment
psi	pounds per square inch
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAOs	Remedial Action Objectives
RAMP	Remedial Action Monitoring Plan
RD	Remedial Design
REC	Renewable Energy Credit
RI	Remedial Investigation
ROD	Record of Decision
SCOs	Soil Cleanup Objectives

Site	Seneca Falls Former Manufactured Gas Plant (MGP) Site
SMP	Site Management Plan
SPDES	State Pollution Discharge Elimination System
SVI	Soil Vapor Intrusion
SVOCs	Semi-Volatile Organic Compounds
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leachate Procedure
USACE	U.S. Army Corp of Engineers
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds

1. Introduction

This Remedial Design (RD) details the remedial action associated with the Seneca Falls Former Manufactured Gas Plant (MGP) Site (Site) located in Seneca Falls, Seneca County, New York. This project is being proposed in accordance with Section VII of the Order on Consent (Index Number D0-0002-9309) between the New York State Electric & Gas Corporation (NYSEG) and the New York State Department of Environmental Conservation (NYSDEC), and the Record of Decision (ROD) for the Site dated March 2015. NYSDEC has listed this Site as No. 8-50-010.

The Remedial Design Drawings and Technical Specifications are provided as Appendices A and B, respectively.

1.1 SITE LOCATION AND DESCRIPTION

The footprint of the Seneca Falls Former MGP Site is located at 187 Fall Street, Seneca Falls, Seneca County, New York. The Site is located adjacent to the Seneca River and Canal, which flows east towards Cayuga Lake. The Seneca River and Canal is classified as a Class C surface water near the Site. The Site consists of an approximately 1.2-acre parcel currently owned by NYSEG and located in a mixed residential/commercial area. The Site is bordered by Fall Street to the north, residential properties (181-183 and 185 Fall Street) to the east, a Sunoco gasoline filling station (193 Fall Street) to the west, and the Seneca River and Canal to the south. NYSEG currently owns 185 Fall Street, which abuts the Site to the east. A zoning map obtained from the Village of Seneca Falls dated May 1995 indicates the Site and adjacent properties are zoned as C-2, described as a "Highway Commercial" permitted use zone. The zoning map indicates the Seneca River and Canal waterway shoreline is zoned as L-C, described as "Land Conservation".

The Site is physically defined by Upland and Lowland Areas separated by a steep slope running east-west, located in the approximate center of the parcel. The Upland Area of the parcel consists of a building floor slab and a paved vehicle parking lot located immediately west of the floor slab. A commercial building located at the Site was demolished during the summer of 2009. The Upland Area is generally flat with an elevation of approximately 456 feet (ft) above mean sea level, bordered to the south by the steep slope and the Lowland Area of the Site. The steep slope and Lowland Area are heavily vegetated. The Lowland Area of the Site gently slopes south to the Seneca River and Canal, with elevations from approximately 430 ft to 433 ft above sea level. Surface drainage appears to be to the south toward the Seneca River and Canal. There is a catch basin present on the upland portion of the Site that drains northerly to a storm sewer line beneath Fall Street.

A Flood Insurance Rate Map (FIRM) obtained from the Federal Emergency Management Agency (FEMA) for the Site vicinity indicates that the 100-year flood zone (Zone A4) is limited to the present riverbanks of the Seneca River and Canal, likely due to the ability to control water levels within the canal system. The FIRM indicates that the Upland and Lowland Areas of the Site and abutting properties are within Zone C, described as areas of limited flooding.

1.2 SITE HISTORY

The Seneca Falls MGP is believed to have begun operations in 1856, producing manufactured gas using coal carbonization processes until plant closure circa 1903. A narrative history of Seneca County indicates that in 1871 the gas plant included twenty (20) retorts, four (4) purifiers and a large condenser (Atlantic Environmental Services, 1991). The former MGP operational features included: one gas holder, two coal sheds, retorts, purifier house and lime house, engine room, meter room, and gas fitter, as shown on the 1899 and 1904 Sanborn maps reviewed in connection with previous investigations. The gas holder at the Site had a capacity of 25,000 cubic feet (cf). Annual gas production was 8,000,000 cf in 1889 and 7,000,000 cf in 1899 (Atlantic Environmental Services, 1991). A 1904 Sanborn Map indicates that the plant was no longer in operation, suggesting that the Seneca Falls MGP ceased operations between 1899 and 1904. Based on review of the Sanborn fire insurance maps, demolition of the retorts and gas fitter occurred between 1911 and 1916. The remainder of the gas plant was demolished between 1925 and 1944. However, the subsurface remnants of the gas holder appear to still be in place.

The residential dwellings (181-183 and 185 Fall Street) located east of the Site were constructed between 1892 and 1897. The 1897 Sanborn Map shows the residential dwelling configuration was similar to the present configuration. Prior to construction of the residential dwellings, the 1886 Sanborn Map indicates a “planked drive” provided access to a small structure southwest of the MGP. The 1892 Sanborn Map does not show the planked drive and small structure, likely replaced with a coal shed east of the gas holder where the eastern portion of the on-site building stands today. A carpenter’s shop was in the approximate future location of the 185 Fall Street dwelling, although the change in geographic placement and dimensions suggests the carpenter’s shop was demolished between 1892 and 1897 prior to construction of 185 Fall Street.

The Lowland Area between the MGP and Seneca River and Canal was historically used for lumber and coal storage and distribution. Delivery of lumber and coal were likely via the Seneca River and Canal, constructed in 1818 and widened in 1915. The 1886 through 1897 Sanborn Maps indicate the southern portions of the Site and adjacent properties to the east and west were used for storage of “scattered lumber”, lumber sheds, and coal sheds. Lumber and coal storage continued at the F. Maier Coal & Lumber Yard west of the Site through 1925.

A United States Geological Survey (USGS) 7.5-minute quadrangle dated 1905 was reviewed as part of the historic research. The map indicates a “Lehigh Valley Railroad” line terminated at a switchyard operated on the southern side of the Seneca River and Canal. Interpretation of the 1905 topographic contour lines indicate the Seneca River and Canal elevation relative to mean sea level was approximately 420 ft, which is several feet below the current surface water elevations measured during the remedial investigation. This change in elevation is likely the result of lock modifications and canal widening in 1915. Lock modifications and canal widening in 1915 created Van Cleef Lake east of the Site, reportedly displacing 116 industrial buildings and 60 residential dwellings.

The commercial building was constructed in the 1960s or 1970s and was used for various retail establishments. The building was demolished during the summer of 2009.

1.3 PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

The following investigations have occurred at the Site to date:

- In 1991: An initial site screening, which consisted of a Site reconnaissance, collection of three surface soil samples from the Lowland Area of the Site, three sediment samples from the Seneca River and Canal adjacent to the Site, and three surface water samples from the Seneca River and Canal adjacent to the Site (Atlantic Environmental Services (AES), 1991).

- In 2007: A Preliminary Site Assessment (PSA) which included test pit excavations, soil borings, surface soil sampling, and monitoring well installations to evaluate soil and groundwater conditions on Site, and soil borings and surface soil sampling in the backyard portions of two residential properties east of the Site to evaluate off-site residential soil conditions;

- In 2008: A Soil Vapor Intrusion (SVI) investigation inside the on-site building (demolished in 2009) and additional soil borings and monitoring wells to investigate the former gas holder, located partially beneath the building floor slab; and,

- In 2009: Remedial Investigation (RI) activities to investigate the extent of MGP-related impacts in off-site surface and subsurface soils west of the Site, a sediment mapping and sampling program to evaluate the nature and extent of MGP-related impacts to sediment in the Seneca River and Canal, and soil sampling to quantify the ambient concentrations of metals and semi-volatile organic compounds (SVOCs) in urban fill collected in Seneca Falls Village.

In 2016: A pre-design investigation (PDI) was conducted to develop a comprehensive Site plan, collect Upland Area soil and Seneca River and Canal sediment samples for waste characterization, collect Upland Area soil samples for ISS bench scale testing, and complete a wetlands delineation. The PDI report is included as Appendix C.

A feasibility study (FS) was completed in 2013 and revised in January 2015 (Haley & Aldrich, 2015). Based on the recommendations of the FS, the NYSDEC issued the ROD in March 2015. These documents can be found at:

Seneca Falls Library
47 Cayuga Street
Seneca Falls, New York 13148
www.senecafallslibrary.org
(315) 568-8265
Hours: M-F 10-8; Sat 10-5; Sun 2-5 (Closed June thru August)

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Mr. Douglas MacNeal
(518) 402-9662
(By appointment only)

No remedial actions have occurred at the Site to date.

2. Basis of Design

2.1 REMEDIAL GOALS

The remedial action objectives (RAOs) for the Site and the Site cleanup objectives were established in the ROD (2015).

2.1.1 Remedial Action Objectives

The RAOs for the Site by media include:

- Groundwater:
  - Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
  - Prevent contact with, or inhalation of, volatiles from contaminated groundwater.
  - Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
  - Remove the source of ground or surface water contamination.

- Soil:
  - Prevent ingestion/direct contact with contaminated soil.
  - Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil.
  - Prevent migration of contaminants that would result in groundwater or surface water contamination.

- Sediment:
  - Prevent direct contact with contaminated sediments.
  - Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
  - Restore sediments to pre-release/background conditions to the extent feasible.

- Soil Vapor:
  - Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

2.1.2 Site Cleanup Objectives

Based on the RAOs presented in Section 2.1.1, the following media-specific site cleanup objectives have been developed for the Site as listed in the ROD (NYSDEC, 2015):

- Soils: Address soil containing coal tar; polycyclic aromatic hydrocarbons (PAHs); benzene, toluene, ethylbenzene and xylenes (BTEX); and inorganic constituents (cyanide) at concentrations exceeding the 6 NYCRR Part 375-6.8 Commercial Use soil cleanup objectives (SCOs) for the 187 Fall St. parcel and the adjacent commercial parcel to the west (193 Fall St.), and the Residential Use SCOs at the adjacent residential property to the east (185 Fall St.).

- Sediment: Address sediment containing coal tar and total PAHs at concentrations exceeding four (4) milligrams per kilogram (mg/kg) per NYSDEC's Technical Guidance for Screening Contaminated Sediments.

- Groundwater: Address groundwater that contains PAHs, BTEX, and inorganics (cyanide) at concentrations greater than NYSDEC TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

2.2 SUMMARY OF THE SELECTED REMEDY

The remedial components for the Site, based on the ROD (NYSDEC, 2015), include:

- Excavation of on-site subsurface structures such as building foundations, the upper portion of the buried former gas holder, and buried piping, which would otherwise interfere with in-situ solidification (ISS) of impacted soils.
- ISS of the on-site impacted materials covering an area of approximately half an acre to depths from six to 23 ft below grade.
- A demarcation layer, clean soil cover, and gravel parking lot constructed following ISS.
- Excavation and off-site disposal of approximately 650 cubic yards (cy) of off-site soil which exceed - Residential Use SCOs. The excavation will be backfilled with soils meeting the clean fill requirements.
- A soil cover in two portions of the Lowland Area.
- Dredging of sediment with MGP impacts in the Seneca River and Canal adjacent to the Site. Approximately 2,200 cy of sediment will be removed. The sediments will be replaced with backfill which meets NYSDEC's chemical and gradation requirements and will restore the benthic habitat.
- Monitored natural attenuation of groundwater.
- Imposition of institutional controls in the form of environmental easements.
- Development of a Site Management Plan (SMP) to identify, maintain, and monitor the institutional and engineering controls at the Site.

This RD provides ISS, excavation, dredging, and soil cover/restoration design details. Monitored natural attenuation of groundwater, institutional controls, and development of an SMP will be completed separately following completion of remedial action construction. The remedial action will be performed with the approval and oversight of NYSDEC and the New York State Department of Health (NYSDOH).

3. Organizational Structure and Responsibility

NYSEG and New York State regulatory agencies will participate jointly in this remedial action associated with the Seneca Falls Former MGP Site. NYSEG has the ultimate responsibility for implementing the remedial action for the project. Approval of this RD by NYSDEC and NYSDOH will be secured prior to intrusive activities and site excavation. NYSDEC and NYSDOH personnel are anticipated to be on Site periodically for purposes of general program oversight. The Remediation Contractor will be responsible for on-site construction operations during the project, unless otherwise stated in Section 4.0, including: the construction, excavation, ISS, and material handling activities associated with the remedial action; excavation safety and protection of adjacent structures and utilities; construction personnel health and safety; implementation of contingency plans for odor control; management of wastewater and waste-handling operations; maintenance of site controls (i.e., run-off, run-on); and documentation of the extent of the removal action. The Remediation Engineer will be responsible for implementing the community air monitoring plan (CAMP) and on-site project monitoring of the Remediation Contractor's activities.

Communication with regulatory agencies and with members of the surrounding community will be managed by NYSEG. The plan for sharing project information with the community is described in the Citizen Participation Plan (CPP) for the Seneca Falls Former MGP Site included in Appendix D.

Key personnel and their assigned responsibilities for implementation of the remedial action include:

NYSEG:
Mr. Jeremy Wolf, Manager Programs/Projects
1300 Scottsville Road
Rochester, New York 14624
Phone: (585) 724-8548
Cellular Phone: (585) 500-8392
E-mail: Jeremy_Wolf@rge.com

NYSDEC:
Mr. Douglas MacNeal, Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (518) 402-9662
E-mail: douglas.macneal@dec.ny.gov

NYSDOH:
Steven Karpinski, Public Health Specialist
NYSDOH
547 River Street
Troy, New York 12180-2216
Phone: (518) 402-7880
E-mail: BEEI@health.state.ny.us

Design Engineer:
Haley & Aldrich, Inc.
Amy Dykstra, Project Manager
3 Bedford Farms Drive
Bedford, NH 03110
Phone: (603) 625-5353
E-mail: adykstra@haleyaldrich.com

Engineer of Record (Design):
Haley & Aldrich, Inc.
Scott Underhill, Engineer of Record
200 Town Centre Drive | Suite 2
Rochester, NY 14623-4264
Phone: (585) 359-9000
E-mail: sunderhill@haleyaldrich.com

Remediation Engineer:
To be determined.

Remediation Contractor:
To be determined.

3.1 OWNER'S RESPONSIBILITIES

The Owner (NYSEG) will be responsible for the following:

- Coordinate with the Remediation Contractor, Design Engineer (as necessary), and Remediation Engineer to implement the required work activities in conformance with the Design.
- Assist NYSDEC in preparing a Notice and Fact Sheet consistent with NYSDEC Program Policy DER-23, Citizen Participation Handbook for Remedial Programs (NYSDEC, 2010a) prior to beginning remedial construction activities. The Notice and Fact Sheet will be distributed by NYSDEC.
- Contract with the selected Remediation Contractor.
- Contract with the selected Remediation Engineer.
- Act as the "Generator" for material resulting from the remedial activities for off-site treatment and/or disposal of the waste.
- Coordinate with NYSDEC and NYSDOH regarding environmental-related work activities.

3.2 DESIGN ENGINEER RESPONSIBILITIES

The Design Engineer (Haley & Aldrich) will provide the following services prior to the implementation of the remedial activities:

- Conduct pre-remediation in-situ waste characterization sampling, as described in Section 4.
- Prepare waste profiles for the Owner-selected disposal/treatment/recycling facilities.
- Assist NYSEG with obtaining a NYSDEC temporary State Pollution Discharge Eliminate System (SPDES) permit equivalent for wastewater discharge.
- Assist NYSEG with obtaining U.S. Army Corp of Engineers (USACE) Section 404 and Section 10 Permits.

- Review Remediation Contractor submittals and provide comments, if any, to the Remediation Engineer, Remediation Contractor, and Owner.

3.3 REMEDIATION ENGINEER RESPONSIBILITIES

The Remediation Engineer (to be determined) will provide the following services during implementation of the remedial activities:

- Review Remediation Contractor submittals and provide comments, if any, to the Design Engineer, Remediation Contractor, and Owner.
- Provide field construction management (FCM), project management, and oversight to observe and monitor implementation of the remedial activities.
- Contract with a laboratory(ies) for the analysis of soil, water, and other waste samples, as appropriate and for ISS performance samples.
- Maintain records of the work efforts associated with implementation of the remedial activities, including daily field reports and digital photographs of the work in progress, and document observations, problems, and deficiencies.
- Maintain records of labor, materials, and equipment utilized for the remedial activities and unusual circumstances, if encountered.
- Document that the remedial activities are conducted in general conformance with the design and notify the Owner of deviations.
- Provide a sampling technician to conduct community air monitoring in accordance with the CAMP and to collect and process environmental samples as required (e.g., waste characterization, water discharge, imported fill, ISS performance samples).
- Provide analytical results for imported fill materials for review and approval by NYSDEC prior to material being brought on Site.
- Decommission monitoring wells within the treatment area.
- Coordinate with waste disposal facilities and waste haulers contracted by Owner.
- Coordinate with waste disposal facilities to provide bills of lading/manifests for the off-site shipment of waste materials from the Site. Review and sign, as an authorized agent for the Owner, waste manifests/bills of lading for shipments of waste materials generated by the remedial activities.
- Maintain an on-site project log containing waste manifests/bills of lading for wastes generated by the remedial activities.
- Assist Owner in the review of Remediation Contractor invoices/requests for payment, as required.
- Coordinate a pre-construction project meeting, project construction/coordination meetings, and a project close-out meeting for the remedial activities.
- Install post-construction monitoring wells.
- Prepare a Final Engineering Report (FER) to document completion of the remedial activities.
- Prepare an SMP to document Site management activities following the completion of the remedial components associated with the design.
- Assist the Owner in preparation of the Environmental Easement for the Site.

3.4 REMEDIATION CONTRACTOR RESPONSIBILITIES

In general, the Remediation Contractor is responsible for providing supervision, labor, equipment, and materials needed (unless otherwise noted) to implement the activities described in this RD.

Remediation Contractor responsibilities are detailed throughout the Technical Specifications. The Remediation Contractor's responsibilities also include:

- Verify existing Site conditions.
- Thoroughly review the Contract Documents.
- Provide supervision, labor, equipment, and materials necessary to implement the activities described in the design.
- Review and follow Owner's Contractor Safety Requirements.
- Subcontract with a third party to conduct structural monitoring during remedial construction activities.
- Notify the Remediation Engineer and Owner immediately upon discovery of a discrepancy between the Contract Documents and actual Site conditions.

4. Remedial Design

4.1 INTRODUCTION

This Remedial Design includes a chronological description and performance schedule of anticipated project activities for the Site remediation. The following documents are included as part of the design:

- Design Drawings (Appendix A)
- Technical Specifications (Appendix B)
- Pre-Design Investigation Report (Appendix C)
- Citizen Participation Plan (CPP, Appendix D)
- Community Air Monitoring Plan (CAMP, Appendix E)
- Remedial Action Monitoring Plan (RAMP, Appendix F)
- Contingency Plan (Appendix G)
- Quality Assurance Project Plan (QAPP, Appendix H)

The primary tasks covered under this remedial design include:

- Pre-Remediation Activities
- Site Preparation
- Excavation and Dredging
- In-Situ Solidification
- Waste Management
- Soil Capping
- Site Restoration
- Demobilization
- Environmental Monitoring and Controls

A description of each remediation task in presented in the following subsections.

4.2 SUMMARY OF PRE-REMEDIATION ACTIVITIES

The primary pre-remediation activities covered under this remedial design include:

- Assist NYSDEC and the Owner with preparation of a citizen participation notice and fact sheet, per the Citizen Participation Plan (Appendix D);
- Obtain regulatory permits;
- Develop a Site-specific Health and Safety Plan (HASP);
- Perform pre-construction utility location work;
- Relocate specified Site electric utility poles (by NYSEG); and,
- Prepare pre-mobilization submittals.

4.3 SUMMARY OF REMEDIATION ACTIVITIES

Remediation activities shall be conducted in the following general sequence described below:

- Mobilize and perform Site preparation;
- Community air monitoring;
- Remove MGP-impacted Seneca River and Canal sediments within dredging limits, moisture condition as required, and transport to a designated off-site licensed disposal facility;
- Backfill Seneca River and Canal to final elevations and grades to provide a stable bank and bottom substrate for restoration of the benthic community;
- Install bank stabilization measures along dredging limits;
- Install soil caps using clean imported soil over two defined areas within the Lowland Area;
- Install temporary excavation support systems in the Upland Area, as necessary;
- Demolish surface structures in the Upland Area, size reduce material, and transport to a designated off-site licensed disposal facility;
- Remove MGP-impacted soil and structures within the Upland Area excavation/ISS limits, moisture condition as needed per the treatment, storage, and disposal facility's requirements, and transport to a designated off-site licensed disposal facility;
- Perform ISS by mixing grout within the limits and to the depths indicated on the Design Drawings and remove excess ISS spoils, if needed, and transport to a designated off-site licensed disposal facility;
- Grade top surface of solidified soil as subgrade in the Upland Area and backfill with clean imported backfill;
- Install gravel parking lot in the Upland Area;
- Remove MGP-impacted soil within the 185 Fall Street (off-site residential property) excavation limits, moisture condition as required, and transport to a designated off-site licensed disposal facility;
- Backfill the residential property to final elevations and grades shown on the Design Drawings and seed and mulch to stabilize restoration; and,
- Perform Site restoration, final survey, and demobilization.

The Remediation Contractor may propose an alternate construction sequence. Alternate construction sequences must be approved by the Owner and the Design Engineer and/or Remediation Engineer prior to implementation.

4.4 SITE PREPARATION

The Remediation Contractor will prepare the Site for the required excavation work. Site preparation activities include:

- Mobilization;
- Surveying to establish baseline conditions and grades;
- Installation of security fencing;
- Installation of erosion and sedimentation controls;
- Set-up of temporary Site facilities;
- Utility location, protection, and relocation, unless indicated on the Design Drawings; and
- Set-up of traffic management at the project Site.

The Remediation Engineer will conduct the following site preparation activities:

- Set-up and preliminary background study of CAMP stations; and,
- Operation of CAMP stations prior to (to obtain baseline measurements) and during construction activities.

4.4.1 Mobilization

The Remediation Contractor will mobilize to the Site necessary manpower, equipment, and materials to initiate the work. The initial mobilization will include the delivery of materials and equipment for Site preparation. This will be followed by delivery of equipment and materials needed for excavation work.

4.4.2 Erosion and Sedimentation Controls

Erosion and sediment controls will be installed prior to the disruption of Site soil, as detailed in the Design Drawings and Technical Specifications. Prior to clearing vegetation or disturbing Site soils, siltation fence and/or hay bales will be placed around affected catch basins. During construction, areas of disturbance shall have silt fence and/or hay bales to control erosion and sedimentation around their entire perimeter. Proposed erosion and sedimentation controls are shown on the Design Drawings. The Remediation Engineer may direct the Remediation Contractor to install additional erosion and sedimentation controls for surface water runoff (i.e. hay bales and/or earth berms) during construction. The erosion and sediment controls will be inspected and maintained by the Remediation Contractor throughout the duration of the work.

A Storm Water Pollution Prevention Permit will be not required since this remedial action will be conducted under NYSDEC's oversight; however, the intent of the permit must be met.

4.4.3 Clearing and Placement of Site Facilities

The Remediation Contractor will establish the Site facilities necessary to support and execute the work. Fencing, trees, and other surface features that impede access to the remediation areas will be removed. The following Site facilities may be required during remedial construction:

- Construction offices;
- Utilities (electric, water, sewer, and telephone);
- Lighting;
- Security fencing;
- Fuel storage and dispensing;
- Sanitary facilities;
- Haul roads;
- Decontamination pad(s);
- Health and safety equipment;
- Material laydown areas;
- Construction water treatment system;
- Soil stockpile areas;
- Traffic control signage; and,
- Parking areas.

Site perimeter fencing will have professionally-made signs stating that access to the Site is limited to authorized personnel and work within the Site must be done with the appropriate personal protective equipment (PPE). In addition, a 4-foot by 8-foot sign will be posted reading "NYSDEC Order on Consent No. DO-0002-9309" in compliance with NYSDEC specifications. A hotline will be set up which will provide the public with means of contacting NYSEG or its representatives to express concerns about the project, including odor-and dust-related issues. The Site hotline number will be identified on temporary signs mounted on the perimeter fencing surrounding the Site.

Work zones will be established within the Site boundaries in accordance with the Remediation Contractor's Site-specific HASP and the Design Drawings that define the initial exclusion zones, the decontamination zones, and the support zone. These zones will change as the work progresses to maintain safety and allow for practical completion of the work.

4.4.4 Surveying

The Remediation Contractor will retain a New York State-licensed surveyor to provide initial benchmarks and stakeout for horizontal and vertical excavation. The Remediation Contractor will use this initial survey to confirm and maintain horizontal and vertical limits as the work proceeds. The licensed surveyor will return to the Site as needed to document measurements of unit cost bid items, excavation volumes, and to complete an as-built survey of the finished work.

4.4.5 Protection of Utilities and Relocation

The Design Drawings identify known active utilities in the work areas that must be protected. The Remedial Contractor will confirm the location of the known active utilities and will be responsible for the overall identification and protection of subsurface facilities within the project work limits identified in the RD.

Two utility poles located on the north side of the Site (U.P. 101 114A 119A and U.P. NYSEG 401 114B 119B 113) as shown on the Design Drawings. The utility pole relocations will be performed by NYSEG prior to Remediation Contractor mobilization.

4.4.6 Decommissioning of Monitoring Wells

Monitoring wells identified in the Design Drawings within the remediation footprint will be abandoned by the Remediation Engineer during the Site preparation activities per NYSDEC Commissioner Policy CP-43 – Groundwater Monitoring Well Decommissioning Policy (NYSDEC, 2009b). Select wells to be preserved and protected by the Remedial Contractor for future monitoring are shown on Drawing C-101.

4.4.7 Traffic Management

A traffic plan will be submitted by the Remediation Contractor as part of the Technical Execution Plan. The traffic plan will describe the specific off-site transportation routes that will be followed to manage construction traffic during the work and to minimize disturbance to the community. The transportation route shall be approved by NYSEG prior to mobilization. The traffic plan will also detail the on- and off-Site traffic controls to be implemented during the work.

Street sweeping and use of water to control dust will be performed by the Remediation Contractor on public roadways, as required throughout the course of the work.

4.5 EXCAVATION AND DREDGING

4.5.1 Excavation Objectives

Excavation of soils, sediment, and subsurface obstructions will be conducted as part of the Site remediation. The three distinct components to the excavation of materials from the Site include:

- Dredging of the sediment from the Seneca River and Canal;
- Removal of MGP-impacted soil from the off-site residential property 185 Fall Street; and,
- Clearing of shallow obstructions and soils to permit ISS.

4.5.2 Sediment Removal

The horizontal and vertical limits of sediment removal are shown on the Design Drawings. These sediments contain source material, as defined by the presence of MGP tar, petroleum non-aqueous phase liquid (NAPL), or concentrations of total PAHS above four (4) mg/kg, as identified in the ROD. The nine dredging cells shown on Drawing C-401 will remove sediment down to bedrock with dredging depths up to six ft. The estimated volume of sediment to be removed is 2,200 cubic yards (cy).

Excavation will be performed by a long stick excavator with a minimum horizontal reach of 50 ft. Since several of the dredging areas extend beyond the 50-ft reach of an excavator located on the bank, three crane pads will be required to remove sediment at the most distant points from the bank. The proposed locations of these pads are shown on Drawing C-401. The excavator will be equipped with a location sensor to verify the lateral and vertical extent of the dredging activities.

Dredging is scheduled to occur during the winter months when the water level in the Seneca River and Canal is lowest.

Excavated sediment will then be placed in the dewatering staging area. Dewatered sediment will be moisture conditioned and/or stabilized, as necessary, prior to transport to a designated off-site licensed disposal facility. Waste handling is discussed in Section 4.7 and Technical Specification 02 53 00 – Waste Transportation, Treatment, and Disposal.

The sediments will be replaced with backfill which meets the chemical and gradation requirements of NYSDEC and will, at a minimum, restore the benthic habitat.

4.5.3 185 Fall Street Excavation

Excavation at 185 Fall Street will address soil containing PAHs and metals at concentrations exceeding the 6 NYCRR Part 375-6.8 Residential Use SCOs for protection of public health as identified in the ROD. Seven excavation cells are shown on Drawing C-400 and have depths varying from two to seven ft. The intent is to remove fill material at 185 Fall Street above glacial till, so the actual depth of excavation may vary. The estimated excavation volume is 650 cy.

The horizontal and vertical limits of MGP-related impacts were previously identified during the remedial investigation, and are based on those provided in the ROD. Therefore, confirmatory sampling is not anticipated during the remedial implementation. However, to protect the building foundation at 185 Fall Street from settlement, only the top 2 feet of soil will be removed up to 5 feet away from the western and southern sides of the building. Documentation samples will be collected from the exposed soil and analyzed for BTEX, PAHs and cyanide. If the sample results are found to be below the Residential Use SCOs, then no further action will be required prior to the placement of the backfill. If the sample results are found to be above the Residential Use SCOs, then a demarcation barrier will be placed prior to the placement of backfill. Sampling and analytical requirements are provided in the RAMP and QAPP (Appendices F and G), respectively.

If groundwater is encountered during excavation, then groundwater will be pumped and treated by an on-site construction water treatment system and discharged to the Seneca River under a temporary SPDES permit-equivalent. Water treatment and handling is discussed in Section 4.7 and Technical Specifications 02 70 00 – Water Treatment and 02 53 00 – Waste Transportation, Treatment, and Disposal.

The final excavation limits will be surveyed prior to backfilling. The excavation areas will be restored to the grade shown on the Design Drawings. Restoration will consist of common borrow with 6-inches of topsoil. A demarcation barrier may be placed at the bottom of the excavation if glacial till is not encountered and documentation samples indicate that the remaining soils are above 6 NYCRR Part 375-6.8 Residential Use SCOs for protection of public health. Soil used as part of the cover system shall meet the requirements as set forth in 6 NYCRR Part 375-6.7(d) for residential use.

4.5.4 Pre-ISS Excavation

The horizontal limits of the pre-ISS excavation are shown on the Design Drawings. Excavation is planned to allow for expansion of soils during ISS, to remove existing subsurface structures (e.g., foundations) that would interfere with ISS, and to address soil containing PAHs, BTEX, or inorganic constituents at concentrations exceeding the 6 NYCRR Part 375-6.8 Commercial Use SCOs for protection of public health. The horizontal limits have been defined in accordance with those shown in the ROD and the anticipated structural/geotechnical and practical constraints of the work area. The vertical limit of excavation will be approximately four feet below existing ground surface, though deeper excavations may be required to clear obstructions below this depth to allow for ISS mixing. Slopes shall comply with Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1926.650 to 1926.652). The Remediation Contractor will be responsible for supporting utilities and structures as needed to complete the work. Due to the depth of the gas holder foundation, only the gas holder walls will be removed to the top of pre-ISS excavation cut.

The ISS area has a footprint of approximately 19,506 square feet. The pre-ISS excavation area has a footprint of 20,944 square feet based on a 1.5:1 sidewall slope on the east, south, and western sides of the ISS treatment area and a sheeting/shoring system to the north. A total of approximately 3,700 cy of material is anticipated to be removed during the pre-ISS excavation.

Soil removed as part of the pre-ISS excavation will be transported to a designated off-site licensed disposal facility. Subsurface piping and remnant MGP structures will be reduced in size, as needed, and transported to a designated off-site licensed disposal facility. Waste handling is discussed in Section 4.7

and Technical Specification 02 53 00 – Waste Transportation, Treatment, and Disposal. Pipe handling is discussed in Technical Specification 02 61 13 – Piping Removal.

4.5.5 Shoring

Shoring protection will be required along the right-of-way, adjacent to the residential structure, and along the property boundary with 181-183 Fall Street where the excavation depth is five feet (excavation cell E3). Additional shoring may be required if the excavation proceeds deeper than the intended depth.

A trench box will be used to excavate material adjacent to the residential structure and in cell E3. The trench box will be installed at least five feet away from and perpendicular to the residential structure. Shoring along the right-of-way will consist of an ISS support wall. The support wall will extend to two feet below the top of glacial till and will be nine feet wide.

The existing retaining wall between the Site and 185 Fall Street will be demolished as part of this remedial work.

4.6 LOWLAND AREA COVER SYSTEM

The limits of the Lowland Area soil cover system are shown on the Design Drawings. Two distinct areas of the Lowland Area and a lowland portion of neighboring 193 Fall Street will be capped with a soil cover. The cover area will total 21,280 square feet.

The cap areas will be cleared and grubbed during site preparation (see Section 4.4). A demarcation layer will be installed at ground surface prior to installation of the soil cover. A one-foot thick clean soil cover will be installed per the Design Drawings and Technical Specifications. Fill material will meet NYSDEC chemical requirements for commercial site use, as provided in Technical Specification 31 23 23.13 – Backfill. Hydro seed will be installed, and temporary erosion controls will be installed and maintained until grass is established.

Institutional controls to document the soil cover and limit Site use will be implemented following completion of the remedial action. Inspections and maintenance of the soil cap will be discussed in the SMP.

4.7 IN-SITU SOLIDIFICATION

The Remediation Contractor will conduct ISS in accordance with the Design Drawings and Technical Specifications. This section presents the basis for the ISS design, including consideration of the horizontal and vertical limits and mixing.

4.7.1 Treatment Volume

The horizontal limits of ISS are shown in the Design Drawings, in accordance with the ROD. The ISS area has a footprint of approximately 19,506 square feet. The volume of soil to be treated by ISS below the 4-foot pre-ISS excavation cut is approximately 4,230 cy. The ISS treatment area has nine treatment cells based on targeted treatment depth. The depths range from six to 23 ft below grade as defined in the ROD. The gas holder foundation was found to be at a depth of 20 ft based on previous investigations.

Depth to water within the holder has been measured as much as four feet above the groundwater table outside the holder, which indicates that the gas holder foundation and wall have not been compromised. Given the depth of excavation required to remove the gas holder foundation (> 20 feet), the gas holder foundation will remain in place and the upper part of the gas holder wall will be removed to the pre-ISS excavation elevation. Material within the remaining gas holder structure will be solidified in the same manner as the soil throughout the ISS area.

4.7.2 ISS Mixing

Mixing will be conducted in an overlapping sequence so that a monolithic solidified mass is created within the horizontal and vertical limits of ISS, as shown on the Design Drawings. Soil will be solidified using a hydraulic mixing rig or other suitable rotary blending equipment. The ISS equipment shall be equipped with a sensor to verify that the lateral and vertical limits of the ISS area have been met.

Quality Assurance/Quality Control (QA/QC) testing of the solidified material will be conducted to confirm that the ISS monolith meets the performance criteria of an unconfined compressive strength of 50 pounds per square inch (psi) and a hydraulic conductivity of no more than $1x10^{-6}$ centimeters per second (cm/sec). ISS performance sampling procedures and criteria are provided in Technical Specification 31 32 13 – In-Situ Solidification. The Remediation Contractor will recover solidified material QA/QC samples at the direction of the Remediation Engineer. The Remediation Contractor will form the sample cylinders and submit them for analysis. Extra sample cylinders will be formed at each sample location should repeat testing be necessary. The Remediation Contractor will also collect core samples of solidified materials to visually inspect the mixing of the impacted material, especially areas with known NAPL. Information on the coring program are included in Technical Specification 31 32 13.

Bench scale testing conducted during the PDI (Haley & Aldrich, 2016) tested a series of mixes against the project performance requirements. The results of the bench scale testing, which is provided in the Technical Specifications, indicate that a mixture of 9% granulated ground blast furnace slag (GGBFS) and 3% Portland Type I/II cement met the performance criteria. However, each bidding Remediation Contractor shall submit their proposed mix design during the bidding process. The selected Remediation Contractor will be required to demonstrate their mixture meets performance criteria with Site soils prior to being selected. The Remediation Contractor is responsible for meeting the project's performance requirements.

4.7.3 ISS Expansion

ISS expansion is expected to be approximately 15 to 30 percent (%) by volume. Following ISS, the Remediation Contractor will grade the top of the ISS monolith to allow for the required clean cover and gravel cover as shown on the Design Drawings. If generated, ISS spoils will be transported to the designated off-site licensed disposal facility. Waste handling is discussed in Section 4.7 and Technical Specification 02 53 00 – Waste Transportation, Treatment, and Disposal.

4.7.4 ISS Monolith Stability

The solidified material should form a stable monolith across the Site. Experience at other sites indicates the unit weight of the solidified soil is similar or slightly higher than the existing soil. Therefore, loading from the increased weight of the solidified monolith to the underlying soils is expected to be small and would result in a negligible load increase on the underlying soils.

4.7.5 ISS Cover System

A cover system will be placed over the ISS monolith to protect from freeze-thaw and root penetration damage. A demarcation barrier will be placed between the soil cover and monolith. A minimum of 4 feet of cover will be established between the top of the monolith and the final finished surface. The cover system will generally consist of 8-inch graded aggregate subbase over a clean soil layer. Soil used as part of the cover system shall meet the requirements as set forth in 6 NYCRR Part 375-6.7(d) for commercial use.

4.8 WASTE MANAGEMENT

Potential remedial action waste streams have been identified as follows:

- Land Clearing Debris
- Grubbing
- Sanitary Waste (General Refuse)
- Remediation-related Solid Waste
- Construction and Demolition Debris
- MGP-Impacted Construction and Demolition Debris
- MGP-Impacted Soil
- MGP-Impacted Sediment
- Construction Water

Excavated material will be sent to an off-site licensed disposal facility permitted to accept the waste and approved by NYSEG. Waste Management details are further described in Technical Specification 02 53 00 - Waste Transportation, Treatment, and Disposal.

4.8.1 Waste Characterization

Soil and sediment to be excavated has been characterized for disposal by the Design Engineer. This waste characterization data is provided in the Technical Specifications and the PDI Report (Appendix C). The Remediation Engineer will provide relevant data to the Remediation Contractor and the selected disposal facilities.

4.8.2 On-Site Waste Management

To the extent practicable, impacted material generated during excavation will be loaded directly into trucks for transportation off-site. Impacted material may be temporarily stored on Site to consolidate large amounts for bulk transport, and to accommodate construction sequencing and disposal facility scheduling. Where feasible, stockpile areas will be located over areas to be excavated, negating the need for liners. The use of liners will be determined by the Remediation Engineer based on whether the material underlying the stockpile area will eventually be excavated. On-site storage will be managed in accordance with applicable laws and regulations dealing with the type of waste being stored. Liquid wastes will be stored in appropriate tanks or drums. Other (non-soil) solid materials will be stored in roll-off containers or covered stockpiles.

Debris generated during demolition and excavation may require decontamination to meet facility acceptance requirements. Decontamination will be conducted using brushes, steam cleaners, and/or pressure washers. Residues from decontamination operations will be collected and managed with other contaminated soil. Decontamination water will be collected for on-site treatment or off-site disposal.

Waste management activities, including handling and loading, will be done in such a manner that odors and vapors are controlled, in accordance with the CAMP.

4.8.3 Off-Site Transportation and Disposal or Treatment

The Remediation Contractor will stockpile, load, transport, and dispose of the excavated material. Waste materials will be transported in dump or tanker trucks to the receiving disposal facilities. Transportation of impacted materials from the Site will be performed in accordance with hazardous waste, non-hazardous waste, and transportation regulatory requirements.

Haul trucks will have poly bed liners, tarp covers, and gasketed tailgates. Trucks will be sprayed, as necessary, with odor suppressive foam prior to covering to reduce vapor and odor emissions.

Trucks will be loaded in such a way as to avoid contamination of their exteriors, including tires. Trucks will be thoroughly inspected for contamination prior to leaving the Site. If truck exteriors do become contaminated they will be decontaminated prior to leaving the Site.

Waste materials will be documented using waste tracking forms, bills of lading, and receipts. Shipments of waste from the Site will be documented, at a minimum, to describe the type and amount of waste and the receiving facility. The Remediation Engineer will sign the transportation manifests prior to loads leaving the Site as a representative for NYSEG.

Waste materials will be transported to off-site disposal facilities permitted to accept such waste and approved by NYSEG.

4.8.4 Water Management

Water containing MGP constituents will be generated, collected, and treated during remedial activities. Potential sources of water requiring management include, at a minimum: dewatering of excavation, dewatering of sediment, storm water entering containment cell or contaminated areas, and decontamination of debris and equipment. The volume of collected impacted water is expected to be minimal as excavation will take place primarily above the groundwater table; groundwater entering the excavation will likely be from perched conditions. In addition, the use of proper run-on and run-off controls will further limit the amount of impacted water to be collected.

Wastewater will be treated on Site using a construction water treatment system. The treated water will be discharged to the Seneca River and Canal through a temporary SPDES permit equivalent. The construction water treatment system generally consists of influent frac tanks (removal of NAPL), organo-clay filtration (removal of emulsified NAPL), bag filters (removal of sediment), activated carbon filtration (removal of VOCs and PAHs), and ion exchange resin (removal of cyanide). Specific requirements are provided on the Design Drawings and Technical Specification 02 70 00 – Construction Water Management.

4.9 SITE RESTORATION

Site restoration activities will include the following:

- Regrade Upland and Lowland Areas as shown on the Design Drawings (the retaining wall between the Site and 185 Fall Street will not be replaced);
- Install gravel parking area over the ISS treatment area;
- Install four monitoring wells as shown on the Drawings (the Remediation Engineer will be responsible for well installation);
- Regrade Canal Area as shown on the Design Drawings;
- Plant specified seed mixes in the Upland Area 185 Fall Street excavation areas identified for seeding;
- Place topsoil in the bank restoration areas as shown on the Design Drawings;
- Install a floodplain seed mix, subaqueous vegetation, and erosion controls in the bank restoration areas; and
- Maintain plantings for the required maintenance period.

Design Drawings C-500 through C-503 and C-600 describe the materials and procedures for installation, monitoring and maintenance of the restoration measures.

4.10 DEMOBILIZATION

Demobilization activities will include the following:

- Decommission and remove designated on-site temporary facilities and controls;
- Perform post-construction inspection and survey, as necessary, of buildings, utilities, and other structures in or adjacent to areas of planned remedial activities that may be impacted by excavation or other aspects of the work;
- Provide project documentation including submittals, daily reports, results of quality control testing, as-built survey, and other documents required by the Technical Specifications;
- Decommission and remove designated temporary erosion and sedimentation controls;
- Remove facilities and imported material from the off-site soils stockpile and provide seeding and erosion control; and
- Clean Site, dispose of refuse and manage remaining miscellaneous materials as required.

4.11 ENVIRONMENTAL MONITORING AND CONTROLS

4.11.1 Environmental Controls

The Remediation Contractor will provide environmental controls to ensure that the work activities do not spread impacted soil and MGP wastes outside the impacted areas and to maintain the protection of human health and the environment throughout the project. These controls are described in detail in the following Technical Specifications:

- Technical Specification 01 57 26 – Dust Control;
- Technical Specification 35 11 00 – Signaling and Control Equipment for Waterways (includes turbidity controls); and
- Technical Specification 44 32 00 – Vapor and Odor Control.

A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Remediation Contractor and submitted to the Remediation Engineer for review prior to beginning intrusive work on Site.

4.11.2 Environmental and Construction Monitoring

FCM and project monitoring will generally be conducted by the Remediation Engineer in accordance with the CAMP (Appendix E), RAMP (Appendix F), and QAPP (Appendix H). Erosion and sedimentation control inspections and monitoring will be conducted by the Remediation Contractor in concert with the Remediation Engineer under the SWPPP.

Site perimeter and work zone air monitoring will be conducted in accordance with Section 5, the Site HASP, QAPP (Appendix H), and CAMP (Appendix E). Emergency response measures associated with air monitoring are presented in the CAMP.

Surface water monitoring will be conducted by the Remediation Contractor, and reviewed by the Remediation Engineer, to monitor potential impacts and unauthorized construction discharges the Seneca River and Canal. Vibration and structural monitoring will be conducted by the Remediation Contractor, and reviewed by the Remediation Engineer, to monitor the structural integrity of the residential structure at 185 Fall Street. Monitoring requirements are provided in the RAMP (Appendix F).

4.12 CONTINGENCY PLAN

The Site-specific Contingency Plan is included in Appendix G. In the event of a Site emergency such as a spill, power loss, severe weather, fire, structural collapse, or other life-threatening incident not specifically addressed in the Site HASP, the employees on scene should immediately check the scene, evacuate if life threatening, call 911, and give care as appropriate within the scope of their training.

5. Permitting and Regulatory Requirements

5.1 PERMITTING

In addition to performance requirements established to ensure that the remedial action design meets the remedial action objectives set in the ROD (NYSDEC, 2015), the design will also be prepared to meet permitting and other regulatory requirements of the local, state, and federal laws and regulations. As specified in Appendix 7B of the DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, May 2010), NYSDEC may grant exemption from most state permits required for completion of this remedial action, provided the substantive requirements of the permit programs are followed.

Based on the remedial activities to be conducted at the Site and information currently available, the authorizations and/or notifications that have been identified, at a minimum, as potentially applicable with respect to approval of remedial activities are provided in Table I.

In addition to those listed, the Remediation Contractor shall be responsible for obtaining other pertinent and applicable local, state, or federal permits associated with the implementation of this remedial design.

5.2 REGULATORY REQUIREMENTS

Environmental regulations regarding non-hazardous waste management apply to this work and will be implemented accordingly. These include provisions for the containment and cleanup of spills and other standard provisions that may be included in this work.

Regulations promulgated by OSHA specify safety and health requirements for work procedures at work places and specifically at construction sites and hazardous waste sites.

Industry standards for work at hazardous waste sites presented in 29 CFR 1910.120 describe specific requirements, including the following:

- Preparation of a project HASP;
- Training and medical monitoring of personnel who may be exposed to hazardous substances; and
- Air monitoring, respiratory protection, and PPE.

The Remediation Engineer will prepare a HASP to govern the work performed by their employees during implementation of this RD. The Remediation Contractor shall prepare a Site-specific HASP as a bid submittal to govern the work performed by their employees and subcontractors. The Remediation Contractor's HASP will be subject to the Remediation Engineer's review and NYSEG's approval. The Remediation Contractor shall follow the requirements of their own HASP throughout the work.

Prior to the work, the selected Remediation Contractor will provide to the Remediation Engineer written evidence of the following items for each person who will be entering the work zone:

- Date of respirator fit test;
- Date of OSHA 40-hour training (or 8-hour refresher training); and

- Date of annual physical.

Persons without these items up-to-date and on file with the Remediation Engineer will not be allowed to enter the work zone.

5.3 TRANSPORTATION REQUIREMENTS

Site-specific requirements for truck drivers and specific requirements for hazardous material shipments are provided in Technical Specification 02 53 00 – Waste Transportation, Treatment, and Disposal. Truck driver safety requirements will be provided in the HASP.

6. Quality Assurance

Quality assurance procedures will be implemented during the work to ensure that it is in conformance with the Remedial Design, and to provide the basis for implementation of contingency actions, if necessary, to bring the work into conformance with the Remedial Design. Construction quality requirements are prescribed in Technical Specification 01 40 00 – Quality Requirements. Sampling quality assurance measures are detailed in the Quality Assurance Project Plan (QAPP) (Appendix H).

7. POST-REMEDIATION ACTIVITIES

This section presents the remedial activities to be conducted following the completion of the remedial activities at the Site.

7.1 FINAL ENGINEERING REPORT

Within 90 days of completion of the remedial activities, the Remediation Engineer will prepare a FER for the Site, approved by a professional engineer licensed in the State of New York. The FER will be completed in accordance with the requirements presented in NYSDEC DER-10 and, at a minimum, will include the following information:

- A description of the all completed remedial activities. The descriptions shall include any problems encountered and variations (if any) from the NYSDEC-approved RD.
- Record drawings, tables, and figures detailing the remedial activities completed.
- Certification statement.
- Information and documentation regarding the final quantities of materials disposed/treated off-site during implementation of the supplemental remedial activities, including executed manifests and bills of lading.

7.2 SITE MANAGEMENT PLAN AND ENVIRONMENTAL EASEMENT

As presented in the ROD, an SMP will be developed by the Remediation Engineer to document required and potential future activities to be conducted at the Site following the completion of remedial construction activities. The SMP will include the following:

- An Excavation Plan that includes the soil handling and management protocols for future excavation in areas of remaining contamination.
- A Monitoring Plan that provides the requirements for periodic groundwater monitoring and inspection/monitoring of the Lowland Area soil cap and Upland Area gravel cover.
- Identification of institutional controls with the preparation and filing of the appropriate Deed Restriction.
- Requirements for Site access controls such as fencing, signage, and security.
- Provisions for a soil vapor intrusion study, depending on the Site future use and/or redevelopment.

Additionally, the Remediation Engineer shall assist NYSEG in establishing an Environmental Easement for the Site.

The Environmental Easement and associated American Land Title Association (ALTA) survey shall be prepared in accordance with 6 NYCRR Part 375-1.8(h)(2)(i). The Environmental Easement will restrict the use of the Site for commercial and industrial development and restrict groundwater use at the Site.

8. Green Remediation

The work completed under this RD will comply with NYSDEC guidance documents, including DER-31: Green Remediation (NYSDEC 2011). To ensure compliance with DER-31, the work will be completed using the best practices and techniques described below. In addition to the items discussed in Section 8.0, specific reporting methods relative to DER-31 are further described below.

8.1 BEST PRACTICES AND TECHNIQUES

Attachment 1 of the DER-31 policy provides some examples of best practices and techniques that could be applied during remediation. In addition, NYSDEC expects that the techniques identified below will be implemented at sites unless a site-specific evaluation demonstrates impracticability or favors an alternative green approach:

Practice/Technique	Potential Benefits[1]	Applicable to this Work Plan
Use renewable energy where possible or purchase Renewable Energy Credits (RECs)	Reduce/supplement purchased energy use	
Use of remediation technologies with an intermittent energy supply (i.e., energy use during peak energy generation only)	Reduce energy use	
Incorporate green building design	Reduce future use impacts	
Reuse existing buildings and infrastructure to reduce waste	Reduce waste and material use	
Reuse and Recycle construction and demolition (C&D) debris and other materials (i.e., grind waste wood and other organics for on Site use)	Reduce waste and material use	X
Design cover systems to be usable (i.e., habitat or recreation)	Reduce construction impacts of future development	X
Reduce vehicle idling	Reduce air emissions and fuel use	X
Use of alternate fuels (i.e., biodiesel or E85)	Reduce air emissions	X
Sequence work to minimize double-handling of materials	Reduce construction impacts	X
Use energy efficient systems and office equipment in the job trailer	Reduce energy use	X

Note: [1] Potential benefits listed are not all inclusive and will vary dependent upon the site and implementation of the practice or technique.

To comply with the requirements of DER-31, the following actions will be taken:

- On-site vehicles and fuel consuming equipment will be shut off if not in use for more than 5 minutes.
- Electricity use associated with the Site (e.g., site trailer, wastewater treatment plant) will be minimal and, therefore, renewable energy credits will not be purchased to offset that electricity use following construction completion or at the end of each calendar year, whichever comes first.
- Work will be sequenced, to the extent practicable, to allow the direct loading of waste containers for off-site disposal.
- To the extent practicable, energy efficient systems and office equipment will be utilized within the Site trailers.
- Where practicable, non-impacted excavated soil and construction debris that has been segregated from impacted materials will be reused on Site during backfill and Site restoration activities.
- Vehicles and equipment that consume diesel fuel will be required to use ultra-low sulfur diesel.

8.2 REPORTING

Green and sustainable practices and techniques employed each day will be discussed in daily field reports. Specifically, the report will acknowledge that the five actions described above were taken that day (if applicable). In addition, the following information will be provided within the daily report:

- The estimated quantity of fuel consumed by on-site vehicles and equipment;
- The estimated distance traveled by trucks and equipment delivering goods or removing waste; and
- The estimated water use during on-site activities.

The information collected will be presented within the FER with a discussion of the estimated environmental impact associated with the information.

9. Schedule and Hours of Operation

The remedial activities are planned to begin in 2018 and be substantially completed by the end of fall 2020. Weather-dependent restoration activities, such as establishment of vegetative cover, are anticipated to continue periodically through late spring 2019. The overall remedial project is anticipated to take approximately 8 months.

Hours allowed for equipment operation during the remedial activities will be daylight hours between 7 AM and 5 PM, Monday through Friday, unless otherwise allowed in writing by the Owner and notification of NYSDEC. The Remediation Contractor may be on Site earlier or later than actual hours of equipment operation, holding safety meetings and other daily planning associated with the Site work.

References

1. Haley & Aldrich, Inc. 2008. "Data Summary Report, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated July 2008.

2. Haley & Aldrich, Inc. 2009. "Data Summary Report Addendum, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated December 2009.

3. Haley & Aldrich, Inc. 2013. "Remedial Investigation Report, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated April 2013.

4. Haley & Aldrich, Inc. 2015. "Feasibility Study, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated January 2015.

5. Haley & Aldrich, Inc. 2016. "Pre-Design Investigation, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated March 2016.

6. New York State Department of Environmental Conservation, 1994. Administrative Order on Consent Index No. D0-0002-9309.

7. New York State Department of Environmental Conservation, 2006. "6 NYCRR Part 375 Environmental Remediation Programs," dated December 2006.

8. New York State Department of Environmental Conservation, 2010. "DER-10 Technical Guidance for Site Investigation and Remediation," dated May 2010.

9. New York State Department of Environmental Conservation, 2011. "DER-31 Green Remediation," dated August 2010 and revised January 2011.

10. New York State Department of Environmental Conservation, 2015. "Record of Decision, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated March 2015.

TABLE

TABLE I
PERMIT AND AUTHORIZATION EVALUATION
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Permit/Authorization	Statute, Regulation, or Authority	Agency	General Information	Applicability	Responsible Party
Federal					
Jurisdictional Determination (JD)	Clean Water Act	United States Army Corp of Engineers (USACE)	To determine if the Seneca River and Canal is a Water of the United States. A preliminary JD will be requested for the Work.	Dredging	Design Engineer
Section 404	Clean Water Act	USACE	For discharge of dredged or fill material into waters of the United States, including wetlands. Implementation of Nationwide Permit (NWP) 38 - Cleanup of Hazardous and Toxic Waste will fulfill the requirements of Section 404. NWP 38 applies for specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Court ordered remedial action plans or related settlements are also authorized by this NWP.	Dredging	Design Engineer
Section 10	Rivers and Harbors Act	USACE	For excavation/fill work in any navigable water of the United States; the Seneca River and Canal is a navigable waterway.	Dredging	Design Engineer
Section 7	Endangered Species Act	United States Fish & Wildlife Service (USFWS)	To determine if the project will result in the take of any species listed as endangered or threatened by USFWS.	Site-wide	Design Engineer
Section 106	National Historic Preservation Act (NHPA)	New York State Office of Parks, Recreation and Historic Preservation (OPRHP)	To identify historic properties at the Site. Administered by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) under the State Historic Preservation Act (further described below).	Site-wide	Design Engineer

TABLE I
PERMIT AND AUTHORIZATION EVALUATION
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Permit/Authorization	Statute, Regulation, or Authority	Agency	General Information	Applicability	Responsible Party
State					
Canal Work/Occupancy Permit	Canal Regulations Section 156.4	New York State (NYS) Canal Corporation	"Any party who plans to use and/or occupy canal lands or facilities must apply for and obtain a revocable permit for use of Canal Corporation property. . . Any party who plans to perform any work on the canal system must apply for and obtain a revocable canal work permit." Occupancy and work permits must be obtained through a single application.	Dredging	Design Engineer
State Pollutant Discharge Elimination System (SPDES) Permit - General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002)	6NYCRR, Parts 750-757 and several Parts of 40CFR	NYS Department of Environmental Conservation (NYSDEC) - Division of Water	Regulates stormwater discharges from construction activities to Waters of the State to protect human health, recreation, and fish and wildlife. Projects that disturb less than one (1) acre are exempt. Remediation projects under a consent order are exempt, though the substantial requirements of the permit must be met.	Site-wide	Exempt - Remediation Contractor to submit SWPPP to meet substantive requirements
Temporary SPDES Permit - Wastewater Discharge	6NYCRR, Parts 750-757 and several Parts of 40CFR	NYSDEC - Division of Water	Regulates wastewater discharges from treatment facilities to Waters of the State to protect human health, recreation, and fish and wildlife.	Wastewater treatment discharge	Design Engineer
Construction, Reconstruction or Repair of Dams and Other Impoundment Structures	6NYCRR, Part 608	NYSDEC - Division of Water	Under Evaluation	Under Evaluation	Likely Exempt - Remediation Contractor, if needed
Construction, Reconstruction or Expansion of Docking and Mooring Facilities	6NYCRR, Part 608	NYSDEC - Division of Water	Under Evaluation	Under Evaluation	Likely Exempt - Remediation Contractor, if needed
401 Water Quality Certification	Clean Water Act	NYSDEC - Division of Water	"Applicants for a Federal license or permit for activities (including but not limited to the construction or operation of facilities that may result in any discharge into waters of the United States) are required to apply for and obtain a Water Quality Certification from DEC indicating that the proposed activity will not violate water quality standards."	Dredging	Likely Exempt - Design Engineer, if needed
Floating Objects	NAV 35-a	NYSDEC - Division of Environmental Permits	Required for floating objects in the Canal, "other than aids to navigation". Hazard warning markers, such as information markers and controlled area markers, etc. require a permit.	Likely needed during Dredging	Likely Exempt - Design Engineer, if needed
Request to Import/Reuse Fill or Soil	DER-10	NYSDEC Environmental Remediation	For the import of backfill or soil cover material to a remediation site. This should be submitted to the DEC project manager with at least 5 business days for review.	Site-wide	Remediation Engineer
Highway Work Permit	NYS Highway Law, Section 52	NY Department of Transportation (NYSDOT)	For work within the state highway right-of-way.	Upland	Remediation Contractor

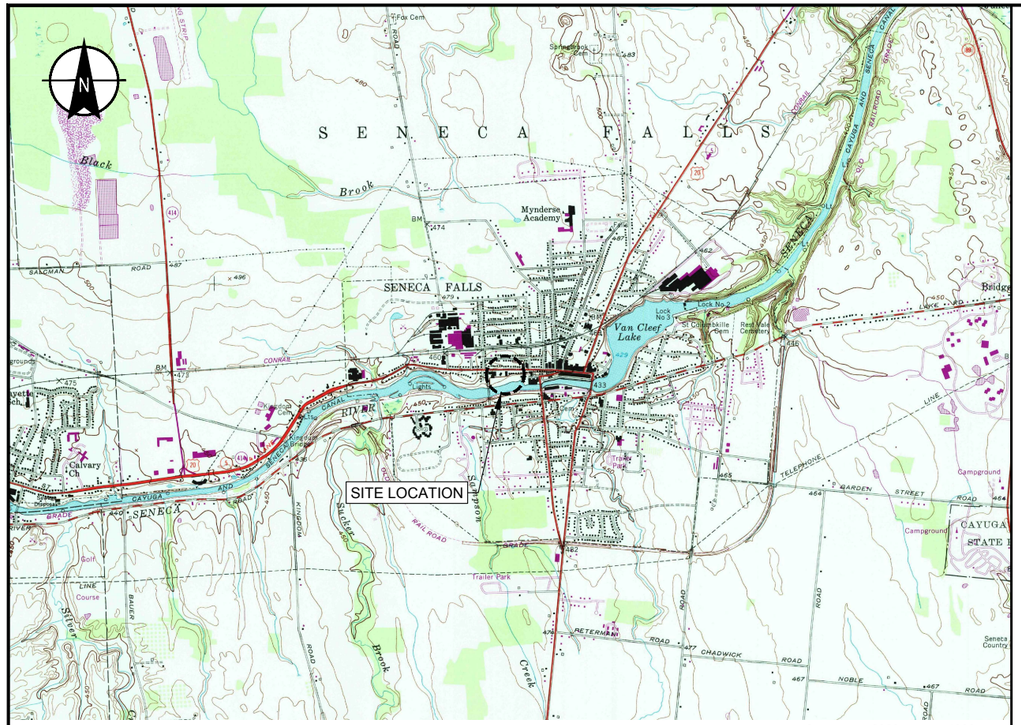
TABLE I
PERMIT AND AUTHORIZATION EVALUATION
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Permit/Authorization	Statute, Regulation, or Authority	Agency	General Information	Applicability	Responsible Party
State Endangered Species Review	6NYCRR, Part 182	NYS Natural Heritage Program	To determine if the project will result in the take of any species listed as endangered or threatened by the State.	Site-wide	Design Engineer
Historic Environmental Review	State Historic Preservation Act (SHPA)	Office of Parks, Recreation and Historic Preservation (OPRHP)	To determine if the Site is listed on the State or National Register of Historic Places or list of potential candidate sites AND to determine the impact of the project on properties listed on or eligible for listing on the State or National Register of Historic Places. This authorization satisfies NHPA requirements.	Site-wide	Design Engineer
County					
Building Permit	Seneca County Code	Seneca County Code Enforcement	For construction within Seneca County. Requires Town of Seneca Falls Zoning Permit.	Upland and Lowland Area	Remediation Contractor
Town					
Zoning Permit	Seneca Falls Code	Town of Seneca Falls Zoning & Code Enforcement	For construction within Seneca Falls.	Upland and Lowland Area	Design Engineer

Note:
1. All NYSDEC Protection of Waters Permits and USACE Section 404 permits are submitted via a single Joint Application.
The application form used to apply for a permit in New York is the NYSDEC/USACE "Joint Application for Permit." Must be submitted to BOTH agencies.

APPENDIX A

Design Drawings



SITE LOCUS
TOPO SOURCE: USGS TOPOGRAPHIC MAP, SENECA FALLS, NEW YORK (1953, REV. 1978).

0 2000 4000
SCALE IN FEET

SITE AERIAL
MAP SOURCE: IMAGE DATED 07/15/2015 TAKEN ELECTRONICALLY FROM GOOGLE EARTH PRO.

0 200 400
SCALE IN FEET

REMEDIAL DESIGN
NYSEG - SENECA FALLS FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010

187 FALL STREET
SENECA FALLS, NEW YORK

DRAWING INDEX		
Sheet Number	Sheet Title	Sheet Description
1	G-100	TITLE SHEET
2	G-200	GENERAL NOTES, ABBREVIATIONS, AND LEGEND
3	G-201	EROSION AND SEDIMENT CONTROL NOTES
4	C-100	EXISTING CONDITIONS PLAN
5	C-101	EXPLORATION LOCATION PLAN
6	C-200	REMEDIAL OVERVIEW PLAN
7	C-300	SITE PREPARATION PLAN (UPLAND AREA)
8	C-301	SITE PREPARATION PLAN (LOWLAND AREA)
9	C-302	EROSION AND SEDIMENT CONTROL PLAN
10	C-303	STRUCTURE DEMOLITION AND UTILITY REMOVAL PLAN
11	C-400	EXCAVATION, SUPPORT OF EXCAVATION, AND SOLIDIFICATION PLAN
12	C-401	SEDIMENT DREDGING PLAN
13	C-402	REMEDIAL SECTIONS 1 OF 2
14	C-403	REMEDIAL SECTIONS 2 OF 2
15	C-404	SUPPORT OF EXCAVATION SECTIONS
16	C-405	EXCAVATION/ISS SECTIONS
17	C-500	UPLAND AND LOWLAND RESTORATION PLAN
18	C-501	SENECA CANAL RESTORATION PLAN
19	C-700	CIVIL DETAILS 1 OF 5
20	C-701	CIVIL DETAILS 2 OF 5
21	C-702	CIVIL DETAILS 3 OF 5
22	C-703	CIVIL DETAILS 4 OF 5
23	C-704	CIVIL DETAILS 5 OF 5
24	P-100	CONSTRUCTION WATER TREATMENT SYSTEM NOTES AND LEGEND
25	P-101	CONSTRUCTION WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED
GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

TITLE SHEET

G-100

Sheet: 1 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:26 AM Layout: G-100
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_G-100.DWG

GENERAL NOTES

1. SEE SHEET C-101 FOR EXPLORATION LOCATION PLAN.
2. APPROXIMATE WATER LEVEL EL 428.5' , TAKEN ON DECEMBER 12, 2015.
3. NAVIGATION CHANNEL WAS ADDED FROM FILES PROVIDED BY NEW YORK STATE THRUWAY AUTHORITY ON AUGUST 4, 1999.
4. AREAS OF REMEDIATION DEVELOPED FROM "PROPOSED REMEDY, FIGURE 4" BY HALEY & ALDRICH DATED FEBRUARY 2015.

LEGEND - EXISTING

- 425 — MAJOR EXISTING CONTOUR ELEVATION
- MINOR EXISTING CONTOUR ELEVATION
- EO — OVERHEAD ELECTRIC LINE
- EU — UNDERGROUND ELECTRIC LINE
- SAN — SANITARY LINE
- ST — STORM LINE
- GAS — GAS LINE
- UNKNOWN UTILITY LINE
- PROPERTY BOUNDARY
- R/W — RIGHT-OF-WAY LINE BOUNDARY
- HISTORICAL MGP STRUCTURE OR REMNANT STRUCTURE
- EVERGREEN TREE
- DECIDUOUS TREE
- TREE STUMP
- LP — LIGHT POLE
- UTILITY POLE
- UTILITY POLE WITH LIGHT
- UTILITY PAINT MARKER
- GUY ANCHOR
- S — SANITARY SEWER MANHOLE
- D — DRAINAGE MANHOLE
- U — UNKNOWN MANHOLE
- WV — WATER VALVE
- HYDRANT
- SIGN
- CATCH BASIN
- W — WATER SERVICE VALVE
- G — GAS SERVICE VALVE
- CAPPED PIPE FOUND
- PIPE FOUND
- NAIL FOUND

LEGEND - EXPLORATION

- SB-07-18 — SOIL BORING (2007 & 2008)
- MW-08-02 / SB-08-02 — GROUNDWATER MONITORING WELL (2007 & 2008)
- SV-07-04-SS / SV-07-04-INA — SOIL VAPOR MONITORING POINT (2008)
- TP-07-06 — TEST PIT (2007)
- SS-07-04 — SURFACE SOIL SAMPLE LOCATION (2007)
- SS20202 — HISTORIC SURFACE SOIL SAMPLING LOCATION (2003)
- SS-3 (15X10) — HISTORIC SOIL SAMPLING AREA (1990)
- SE-09-31 — SEDIMENT EXPLORATION LOCATION (AUG. 2009)
- SW-3 / SE-3 — HISTORIC SURFACE WATER/SEDIMENT SAMPLING LOCATION (1990)

LEGEND - PROPOSED

- MONITORING WELLS TO BE DECOMMISSIONED
- SUPPORT OF EXCAVATION
- UTILITY/PIPE DEMOLITION/REMOVAL
- STRUCTURE DEMOLITION
- L — LIMITS OF WORK
- SF — SILT FENCE
- ASF — AUGMENTED SILT FENCE
- TC — TURBIDITY CURTAIN
- TEMPORARY DIVERSION SWALE WITH STONE CHECK DAM
- TEMPORARY CHAIN LINK FENCE
- TEMPORARY CONSTRUCTION FENCE
- SANDBAGS
- PERMANENT CHAIN LINK FENCE
- EXCAVATION / ISS AREA
- EXCAVATION AREA
- SOIL CAP AREA
- CANAL DREDGING AREA
- PAVEMENT RESTORATION
- VEGETATED RESTORATION
- DRIVE RESTORATION

ABBREVIATIONS

AKA	ALSO KNOWN AS
BGS	BELOW GROUND SURFACE
CB	CATCH BASIN
CI	CAST IRON
CL	CENTERLINE
CM	CENTIMETER
CMP	CORRUGATED METAL PIPE
COMB	COMBINED
CONC	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
DIA	DIAMETER
E	EAST, EASTING
ELEC	ELECTRIC
ELEV	ELEVATION
ENC	ENCLOSED
ENVIR	ENVIROMENTAL
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
FND	FOUND
FT	FEET
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
ISS	IN-SITU SOLIDIFICATION
L	LIBER (BOOK)
LP	LIGHT POLE
MAX	MAXIMUM
MEAS	MEASURED
MGP	MANUFACTURED GAS PLANT
MIN	MINIMUM
MTL	METAL
MW	MONITORING WELL
N	NORTH, NORTHING
N/F	NOW OR FORMERLY OF
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NE	NORTHEAST
NW	NORTHWEST
NYSEG	NEW YORK STATE ELECTRIC AND GAS CORPORATION
NYS	NEW YORK STATE
NYT	NEW YORK TELEPHONE
O/C	ON CENTER
OD	OUTSIDE DIAMETER
OZ	OUNCE
P	PAGE
PVC	POLYVINYL CHLORIDE
R/W	RIGHT-OF-WAY
S	SOUTH
SAN	SANITARY
SB	SOIL BORING
SE	SEDIMENT EVAPORATION
SOE	SUPPORT OF EXCAVATION
SS	SURFACE SOIL
ST	STORM
SW	SOUTHWEST
TOB	TOP OF BANK
TP	TEST PIT
TYP	TYPICAL
UP	UTILITY POLE
UPL	UTILITY POLE WITH LIGHT
US	UNITED STATES
W/F	WOOD/FRAME
W	WEST
WV	WATER VALVE

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

GENERAL NOTES, ABBREVIATIONS, AND LEGEND

G-200

EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE APPROVED STORMWATER POLLUTION PREVENTION PLAN.
2. ALL SITE ACTIVITIES SHALL TAKE PLACE WITHIN THE LIMITS OF WORK.
3. INSPECT, MAINTAIN AND REPAIR/REPLACE EROSION AND SEDIMENT CONTROLS DAILY AND CONTINUOUSLY THROUGHOUT THE DURATION OF THE WORK.
4. THE EROSION AND SEDIMENT CONTROLS AS INDICATED ON THE DRAWINGS SHALL BE CONSTRUED AS THE MINIMUM REQUIRED STANDARDS. ADDITIONAL CONTROLS SHALL BE PROVIDED AS NECESSARY TO PREVENT SEDIMENT LADEN DISCHARGES FROM LEAVING THE SITE.
5. CONTINUOUSLY MONITOR THE INSTALLED CONTROLS FOR FUNCTIONALITY AND PROVIDE ADDITIONAL MEASURES AS DIRECTED BY THE OWNER OR REMEDIATION ENGINEER. MAINTAIN AND REPAIR/REPLACE ALL EROSION AND SEDIMENT CONTROLS UPON DAMAGE OR FAILURE TO FUNCTION AS INTENDED, UNTIL SITE CONSTRUCTION IS COMPLETE.
6. ALL CLEAN STOCKPILED SOIL ON SITE SHALL RECEIVE SILT FENCE ALONG THE DOWNGRADE AREAS OR PROVIDE ADDITIONAL LENGTH OF SILT FENCE FOR A PROXIMATE FENCE.
7. ALL CLEAN STOCKPILED SOILS SHALL BE COVERED WITH TEMPORARY SEED AND MULCH WITHIN 14 DAYS (NY) FROM THE LAST ACTIVE DATE OF DISTURBANCE OR SOONER. ALL OTHER STOCKPILES SHALL BE MANAGED IN ACCORDANCE WITH OTHER PROJECT REQUIREMENTS.
8. ALL EXISTING INLETS ADJACENT TO OR ON SITE SHALL BE PROTECTED FROM SEDIMENT AS APPLICABLE PER THE INLET PROTECTION DETAIL.
9. ENSURE THAT STABILIZED CONSTRUCTION ENTRANCE IS BEING UTILIZED. PREVENT MIGRATION OF SEDIMENT AND TRACKED MUD/DIRT ONTO THE PUBLIC RIGHT OF WAY, ROAD OR ACROSS PRIVATE DRIVEWAYS.
10. INSPECT DAILY, SWEEP, AND CLEAN STREETS / DRIVES AS NECESSARY TO MAINTAIN CLEAN AND CLEAR SURFACES. LARGE STONES, ACCUMULATED GRAVEL AND/OR MUD THAT MAY IMPACT PASSING VEHICLES SHALL BE CLEANED IMMEDIATELY.
11. REMOVE ALL ACCUMULATED SEDIMENT FROM SILT FENCES AND EROSION CONTROLS WHEN 50% OF AVAILABLE STORAGE AREA HAS BEEN ACHIEVED; WHEN THE THE DEVICE NO LONGER FUNCTIONS AS INTENDED; OR SEDIMENT LADEN WATER IS PASSING THROUGH OR AROUND THE CONTROL. SILT FENCE THAT IS TORN, HAS BROKEN STAKES, OR IS BOWING OUT DUE TO ACCUMULATED SOILS SHALL BE REPAIRED, REPLACED, OR CLEANED AND RESET.
12. INSPECT ALL EROSION CONTROLS AND CLEAN OF SEDIMENT AS NECESSARY TO ENSURE NO DISCHARGE OF SEDIMENT OFF THE PROPERTY OR OUTSIDE OF LIMITS OF WORK IS TAKING PLACE.
13. EMPLOY DUST CONTROL AS NECESSARY TO MINIMIZE AIRBORNE DUST AND WIND EROSION.
14. DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, CLEARING DEBRIS, AND GRUBBINGS OFFSITE AT A LICENSED LANDFILL, AS REQUIRED IN A TIMELY MANNER.
15. ALL EARTHWORK 10H:1V (10% SLOPES) OR STEEPER SHALL REQUIRE EROSION CONTROL BLANKET (STRAW FILLED, DOUBLE NETTING, DEGRADABLE) OR SLOPES AS DIRECTED BY THE REMEDIATION ENGINEER.
16. LOCATE SOIL STOCKPILES ON SITE WITHIN THE LIMITS OF WORK OR NOTED ELSEWHERE ON THE DRAWINGS.
17. UNDER NO CIRCUMSTANCES SHALL THE DISCHARGE OF SILT LADEN WATER BE ALLOWED TO BE PUMPED FROM TRENCHES / EXCAVATIONS DIRECTLY TO ANY WETLAND OR WATER BODY.
18. CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE AND NOT BURIED OR LEFT BEHIND, UNLESS OTHERWISE SPECIFIED.

CONSTRUCTION SEQUENCE FOR REMEDIATION EROSION CONTROL

1. VERIFY THAT ALL APPLICABLE PERMITS HAVE BEEN OBTAINED.
2. OWNER TO HOLD A PRE-CONSTRUCTION MEETING PRIOR TO START OF CONSTRUCTION.
3. CONSTRUCT SITE ACCESS AND INSTALL ASSOCIATED EROSION AND SEDIMENT CONTROLS.
4. INSTALL TEMPORARY CONSTRUCTION FENCING AROUND THE STAGING AREA(S) OR AS INDICATED ON THE CONSTRUCTION DRAWINGS.
5. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS PER DRAWING LOCATION. UTILIZE ENTRANCE FOR ALL CONSTRUCTION VEHICLES ENTERING/EXITING SITE FOR THE DURATION OF THE CONSTRUCTION.
6. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS.
7. INSPECT ALL EROSION CONTROLS ON A DAILY BASIS FROM INSTALLATION THROUGH THE DURATION OF THE PROJECT. THE EROSION CONTROLS ARE TO BE FUNCTIONING AS INTENDED OR REPAIRED/REPLACED AS NECESSARY. ADDITIONAL REQUESTS FOR REPAIR/REPLACEMENT MAY COME FROM THE REMEDIATION ENGINEER OR THE OWNER.
8. PROTECT ALL TREES AND VEGETATION TO REMAIN.
9. CLEAR AND GRUB AND STRIP TOPSOIL FROM AREAS WITHIN THE INDICATED EXCAVATION OR COVER LIMITS. TEMPORARY STOCKPILING WITHIN THE LIMITS OF WORK IS PERMISSIBLE. PROVIDE SEDIMENT BARRIER (SILT FENCE) SOIL STOCKPILE PROTECTION AT THE DOWNGRADE AREAS OR ADDITIONAL FENCE AS DIRECTED BY THE REMEDIATION ENGINEER.
10. CONCURRENT WITH EARTHWORK AND EXCAVATION, CONSTRUCT REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, AS NEEDED. PROVIDE TEMPORARY SEDIMENT CONTROLS AT APPLICABLE WETLAND(S) AND WATERCOURSE(S) AS PER THE DRAWINGS; AS ADDITIONALLY REQUIRED GIVEN THE SITE CONDITIONS; OR AS DIRECTED BY THE REMEDIATION ENGINEER OR OWNER.
11. CONTINUE TO MAINTAIN AND MONITOR ALL SITE EROSION AND SEDIMENT CONTROLS DAILY.
12. BEGIN EARTHWORK, EXCAVATION AND ROUGH SITE GRADING. EARTHWORK TO REMAIN WITHIN THE APPROVED BOUNDARIES OF THE PROJECT (LIMITS OF WORK). TEMPORARY, ROUGH OR FINAL GRADED INACTIVE AREAS SHALL BE STABILIZED AS PER TEMPORARY/PERMANENT SEEDING SPECIFICATIONS AS SOON AS POSSIBLE, BUT NO LONGER THAN 14 DAYS (NY) FROM LAST CONSTRUCTION ACTIVE DISTURBANCE DATE. MOVING OF EARTHWORK IS ACTIVE DISTURBANCE, TRACKING OVER DISTURBED AREAS IS NOT CONSIDERED ACTIVE DISTURBANCE.
13. COMPLETE FINAL GRADING, TOPSOILING, PERMANENT SEEDING, AND MULCHING OF ALL DISTURBED AREAS. FINAL GRADED SLOPES STEEPER THAN 10H:1V SHALL BE PROTECTED WITH EROSION CONTROL BLANKET.
14. UPON COMPLETE STABILIZATION OF DISTURBED SITE (VEGETATIVE COVER = 80% (NY)), ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND DISTURBANCE RESTORED.

SPECIFICATION NOTES FOR TOPSOILING

SITE PREPARATION

1. COMPLETE VEGETATIVE RESTORATION FINAL GRADING TO SUBSOIL AND ALLOW FOR FULL DEPTH OF TOPSOIL TO BE ADDED TO ACHIEVE FINAL GRADE.
2. SCARIFY ALL COMPACTED SUBSOIL AREAS.

APPLICATION AND GRADING

1. TOPSOIL SHALL BE DISTRIBUTED EVENLY TO THE UNIFORM DEPTH TO 6" MINIMUM, OVER THE RESTORATION AREA. THE TOPSOIL SHALL NOT BE PLACED WHEN IT IS PARTLY FROZEN, MUDDY, OR ON FROZEN SLOPES OR OVER ICE, SNOW, OR STANDING WATER PUDDLES.

SPECIFICATION NOTES FOR PERMANENT SEEDING

TIME OF PLANTING

1. REFER TO TURF AND GRASSES SPECIFICATION FOR PERMANENT SEEDING MIXTURE AND SEEDING DATES.

SITE RESTORATION

1. PROVIDE EROSION CONTROL MEASURES, BRING THE TOPSOILED AREA TO DESIRED GRADE AND PREPARE FOR SEEDING. RESTORE THE STOCKPILED SOIL AREAS TO EXISTING GRADE (UNLESS DESIGNATED TO REMAIN) AND PROVIDE TOPSOIL, SEED, MULCH AND ADD SOIL AMENDMENTS AS NECESSARY.
2. TOPSOIL TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
3. PREPARE SEEDBED, LOOSENING SOIL TO A DEPTH OF 3-4 INCHES.
4. REMOVE ALL STONES OVER THREE INCH (3") IN DIAMETER, STICKS AND FOREIGN MATTER FROM THE SURFACE.
5. FERTILIZE AS PER SOIL TEST OR APPLIED AT A RATE OF 5 LBS PER 1,000 SF WITH 10-0-20 FERTILIZER.
6. LIME TO BE APPLIED AT 2 TONS PER ACRE FOR 6.0 pH SILTY SOILS. OTHER RATES ARE pH AND SOIL TYPE DEPENDENT.
7. INCORPORATE LIME AND FERTILIZER IN TOP 2-4 INCHES OF TOPSOIL.
8. SEED DISTURBED AREAS WITH SEED MIX AT APPLICATION RATE SPECIFIED.
9. SMOOTH AND FIRM SEEDBED.

CONSTRUCTION SEQUENCE

1. MOBILIZE CONSTRUCTION EQUIPMENT AND PERSONNEL TO THE SITE.
2. PERFORM PRE-CONSTRUCTION INSPECTION AND SURVEY, AS NECESSARY, OF BUILDINGS, UTILITIES, AND OTHER STRUCTURES IN OR ADJACENT TO AREAS OF PLANNED REMEDIAL ACTIVITIES THAT MAY BE IMPACTED BY EXCAVATION OR ANY OTHER ASPECT OF WORK.
3. IMPLEMENT DUST, VAPOR, AND ODOR EMISSIONS CONTROLS THROUGHOUT THE DURATION OF THE WORK.
4. INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS DESCRIBED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). MAINTAIN MEASURES, SUPPLEMENT, AND ADJUST AS REQUIRED THROUGHOUT PROJECT DURATION AS CONSTRUCTION PROGRESSES AND THE ACTIVE WORK AREA CHANGES.
5. CLEAR AND GRUB SITE WITHIN THE IDENTIFIED LIMIT OF WORK AS SHOWN ON THE DRAWINGS. SEQUENCE GRUBBING TO COORDINATE WITH THE ACTIVE WORK AREA TO MINIMIZE THE OPEN AREA OF DISTURBANCE.
6. INSTALL AND MAINTAIN TEMPORARY FACILITIES AND CONTROLS INCLUDING FIELD OFFICES WITH UTILITIES, TEMPORARY CONSTRUCTION ACCESS ROADS, FENCING AND BARRICADES, DECONTAMINATION PAD, CONTAMINATED MATERIAL CONTAINMENT STOCKPILE AREA(S), SEDIMENT DEWATERING AREA, CONSTRUCTION WATER STORAGE FACILITIES, CONSTRUCTION WATER TREATMENT SYSTEM, AND IN-SITU SOLIDIFICATION BATCH PLANT.
7. MANAGE ON-SITE CONSTRUCTION WATER GENERATED FROM DEWATERING ACTIVITIES DUE TO GROUNDWATER, STORMWATER, AND SEDIMENT PROCESSING, COLLECT, CONVEY, AND STORE CONSTRUCTION WATER ON-SITE, TREAT, AND DISCHARGE TO THE SENECA RIVER (SENECA-CAYUGA CANAL) OR TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY. REMEDIATION ENGINEER WILL COLLECT REQUIRED SAMPLES FOR CHARACTERIZATION AND PROVIDE ANALYTICAL RESULTS TO CONTRACTOR UPON RECEIPT.
8. REMOVE MGP-IMPACTED SENECA RIVER (SENECA-CAYUGA CANAL) SEDIMENT WITHIN THE DREDGE AREA LIMIT, PROCESS/MOISTURE CONDITION SEDIMENT AS NECESARY, AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY.
9. BACKFILL SENECA RIVER (SENECA-CAYUGA CANAL) TO FINAL ELEVATIONS AND GRADES SHOWN ON THE DRAWINGS TO PROVIDE A STABLE BANK AND BOTTOM SUBSTRATE FOR RESTORATION OF THE BENTHIC COMMUNITY.
10. INSTALL BANK STABILIZATION MEASURES ALONG THE DREDGE AREA LIMIT.
11. INSTALL LOWLAND COVER SYSTEMS USING CLEAN IMPORTED SOIL OVER TWO (2) DEFINED AREAS WITHIN THE LOWLAND AREA. SEED AND MULCH OR SEED AND INSTALL EROSION CONTROL BLANKET TO RESTORE VEGETATION.
12. INSTALL AND MAINTAIN TEMPORARY SUPPORT OF EXCAVATION SYSTEMS WITHIN THE RESIDENTIAL PROPERTY, AS NECESSARY.
13. REMOVE MGP-IMPACTED SOIL WITHIN THE RESIDENTIAL PROPERTY EXCAVATION LIMITS, MOISTURE CONDITION AS NECESSARY, AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY
14. BACKFILL RESIDENTIAL PROPERTY TO FINAL ELEVATIONS AND GRADES SHOWN ON THE DRAWINGS. SEED AND MULCH TO STABILIZE RESTORATION.
15. DEMOLISH SURFACE STRUCTURES IN THE UPLAND AREA, SIZE REDUCE MATERIAL, AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY.
16. INSTALL AND MAINTAIN THE ISS SUPPORT WALL IN THE UPLAND AREA, AS NECESSARY.
17. REMOVE MGP-IMPACTED SOIL WITHIN THE UPLAND AREA EXCAVATION/ISS LIMITS, MOISTURE CONDITION AS REQUIRED, AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY. DEMOLISH AND REMOVE SUBSURFACE PIPING AND REMNANT MGP STRUCTURES IN PREPARATION FOR ISS. SIZE REDUCE MGP-IMPACTED CONSTRUCTION AND DEMOLITION DEBRIS AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY.
18. SOLIDIFY MGP-IMPACTED SOIL IN THE UPLAND AREA WITHIN THE EXCAVATION/ISS LIMITS TO THE DEPTHS INDICATED ON THE DRAWINGS. PERFORM IN-SITU SOLIDIFICATION BY MIXING CEMENT WITH IMPACTED SOIL TO MEET THE PERFORMANCE REQUIREMENTS OF THE SPECIFICATIONS. REMOVE EXCESS ISS SPOILS AND TRANSPORT TO A DESIGNATED OFF-SITE LICENSED DISPOSAL FACILITY.
19. GRADE TOP SURFACE OF SOLIDIFIED SOIL SPOILS AS SUBGRADE WITHIN THE UPLAND AREA AND BACKFILL WITH CLEAN IMPORTED BACKFILL.
20. CONSTRUCT GRAVEL PARKING AREA IN UPLAND AREA TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. SEED AND MULCH ALL OTHER AREAS TO RESTORE VEGETATION.
21. SEED AND MULCH ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK. REPAIR ACCESS ROAD TO LOWLAND AREA AS NECESSARY TO SUPPORT FUTURE SITE OPERATION AND MAINTENANCE ACTIVITIES.
22. REMEDIAL ENGINEER WILL INSTALL FOUR (4) GROUNDWATER MONITORING WELLS.
23. INSTALL CHAIN LINK FENCE AND GATE.
24. DECONTAMINATE EQUIPMENT AND PERSONNEL.
25. CLEAN SITE, REMOVE TEMPORARY FACILITIES AND CONTROLS.
26. DEMOBILIZE.

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EROSION AND SEDIMENT CONTROL NOTES

G-201

Sheet: 3 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:27 AM Layout: G-201
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_G-201.DWG

SURVEYOR'S SITE NOTES

1. FEATURES SHOWN HEREON ARE BASED ON A SURVEY PERFORMED NOVEMBER 19 & 20 AND DECEMBER 12 & 19, 2015 BY HOFFMAN LAND SURVEYING AND GEOMATICS.
2. COMMUNICATION, ELECTRIC, WATER, UNIDENTIFIED, DRAINAGE AND SANITARY ARE SHOWN BASED ON PAINT MARKINGS AND/ OR PINS BY OTHERS OBSERVED DURING THE FIELD SURVEY AND FEATURES OBSERVED DURING THE FIELD SURVEY. THESE LOCATIONS ARE CONSIDERED APPROXIMATE AND REQUIRE VERIFICATION.
3. COORDINATES SHOWN REFERENCE NY STATE PLANE COORDINATES, NAD83, NEW YORK CENTRAL ZONE, IN US SURVEY FEET THROUGH TIES TO EXITING CONTROL PROVIDED BY H&A.
4. ELEVATIONS SHOWN REFERENCE EXISTING CONTROL PROVIDED BY H&A, ESTABLISHED BY OTHERS. IT APPEARS TO BE BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
5. RIVER BOTTOM CONTOURS WERE OBTAINED THOUGH SONAR METHODS UTILIZING RTK GPS AND SHOULD BE CONSIDERED APPROXIMATE AND FOR GENERAL BOTTOM GRADE. RIVER BOTTOM WAS IRREGULAR AND BOTTOM WAS SILT AND VEGETATED.
6. BEARINGS SHOWN HEREON BASED ON GRID COORDINATES PER NOTE 4 ABOVE.
7. SANITARY AND WATER SERVICE LINES SHOWN RUNNING TOWARD FOUNDATION REMAINS WITHIN THE PUBLIC RIGHT OF WAY ARE BASED ON MARKINGS BY OTHERS AND CONSIDERED APPROXIMATE. LINES TO FOUNDATION REMAINS WAS NOT APPARENT OR OBSERVABLE DURING THE FIELD SURVEY.
8. SURVEY COMPLETED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE AND IS THERFORE SUBJECT TO ANY EASEMENT, RESTRICTIONS, COVENENTS AND RIGHT OF WAY OF RECORD.

REFERENCES

1. MAP ENTITLED "SURVEY MAP OF THE PREMISES OF WALTER J. & CATHERINE M. SMITHOOVER" BY DONALD D. SHEPHERD, DATED FEBUARY 1, 1990, BEING PROJECT NO. SF9001-02 AND FILED IN THE SCCO FEBRUARY 23, 1990 AS MC 70-130.
2. MAP ENTITLED "SURVEY MAP OF THE PREMISES OF ROGER E. LEWIS REALTY, INC." BY DONALD D. SHEPHERD, DATED JULY 11, 1996, BEING PROJECT NO. SF9611-07 AND FILED IN THE SCCO SEPTEMBER 6, 1996 AS MC 96-261.
3. MAP ENTITLED "LANDS OF FEDERAL HOME LOAN MORTGAGE CORPORATION" BY CHARLES E. CARROLL DATED AUGUST 17, 2011, BEING PROJECT NO. SF6.262 AND FILED IN THE SCCO AUGUST 29, 2011 AS MC 11-206.
4. MAP ENTITLED "BOUNDARY SURVEY" BY ERDMAN ANTHONY DATED AUGUST 9, 2012, BEING PROJECT NO. 19397.01.
5. OTHER DEEDS LISTED HEREON.

TITLE

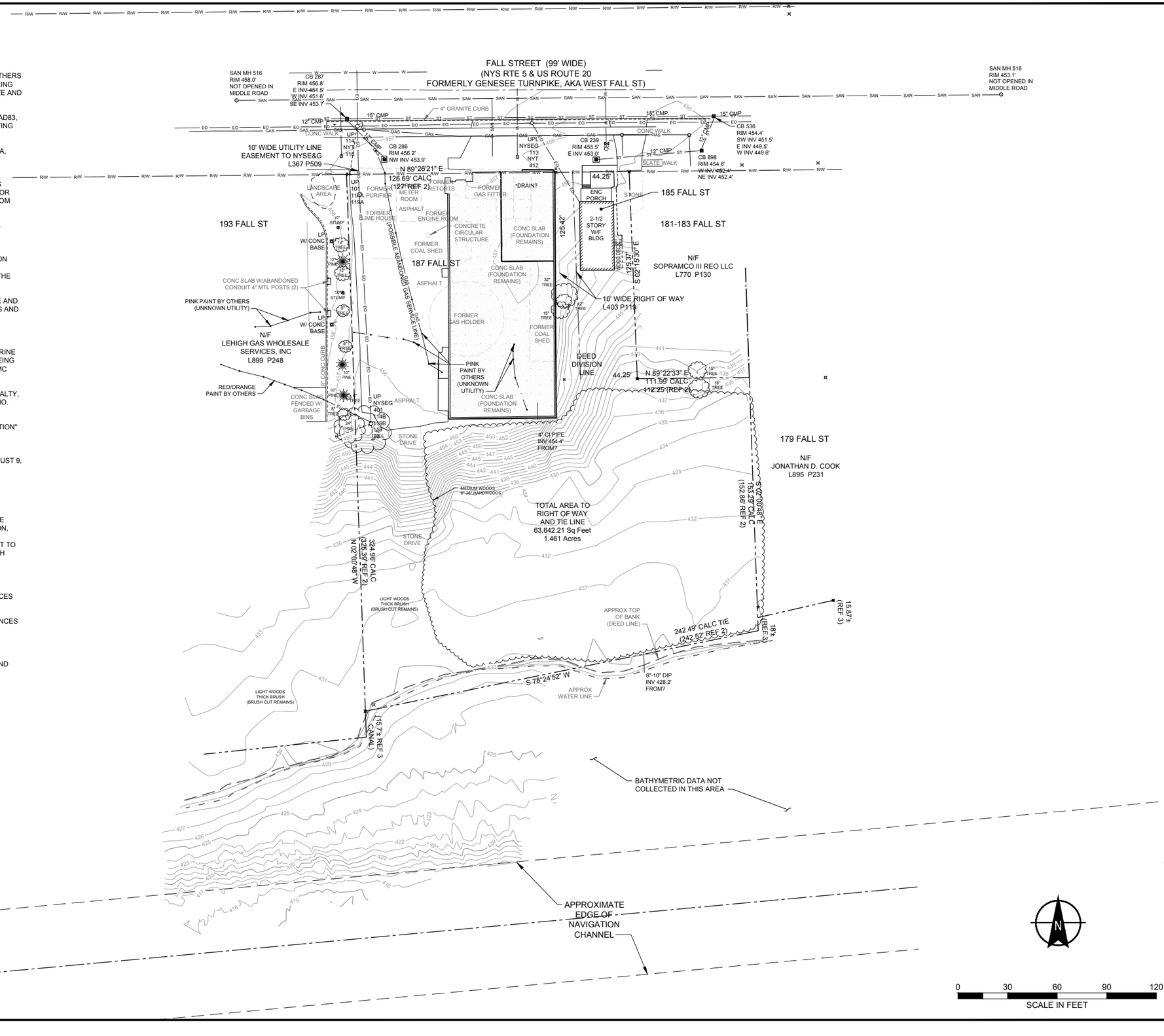
1. THIS SURVEY WAS COMPLETED WITH THE AID OF AN ABSTRACT BY TITLE SEARCH FOR EASEMENTS BY MONROE ABSTRACT & TITLE CORPORATION, ABSTRACT NO. 22492, ACCT. NO. 54906 DATED OCTOBER 24, 1989. AN UPDATED ABSTRACT OF TITLE WAS NOT PROVIDED. PARCEL IS SUBJECT TO ANY EASEMENTS, RESTRICTIONS AND ENCUMBRANCES THAT RESEARCH BEYOND THAT COMPLETED MAY SHOW.

RIGHT OF WAY

1. THE RIGHT OF WAY OF NY ROUTE 5 & US ROUTE 20 IS 99' PER REFERENCES NOTED.
2. RIGHT OF WAY SHOWN BASED ON EVIDENCE RECOVERED AND REFERENCES NOTED.

EASEMENTS

1. PARCEL IS SUBJECT TO ANY EASEMENT, RESTRICTIONS, COVENENTS AND RIGHT OF WAY OF RECORD.



HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

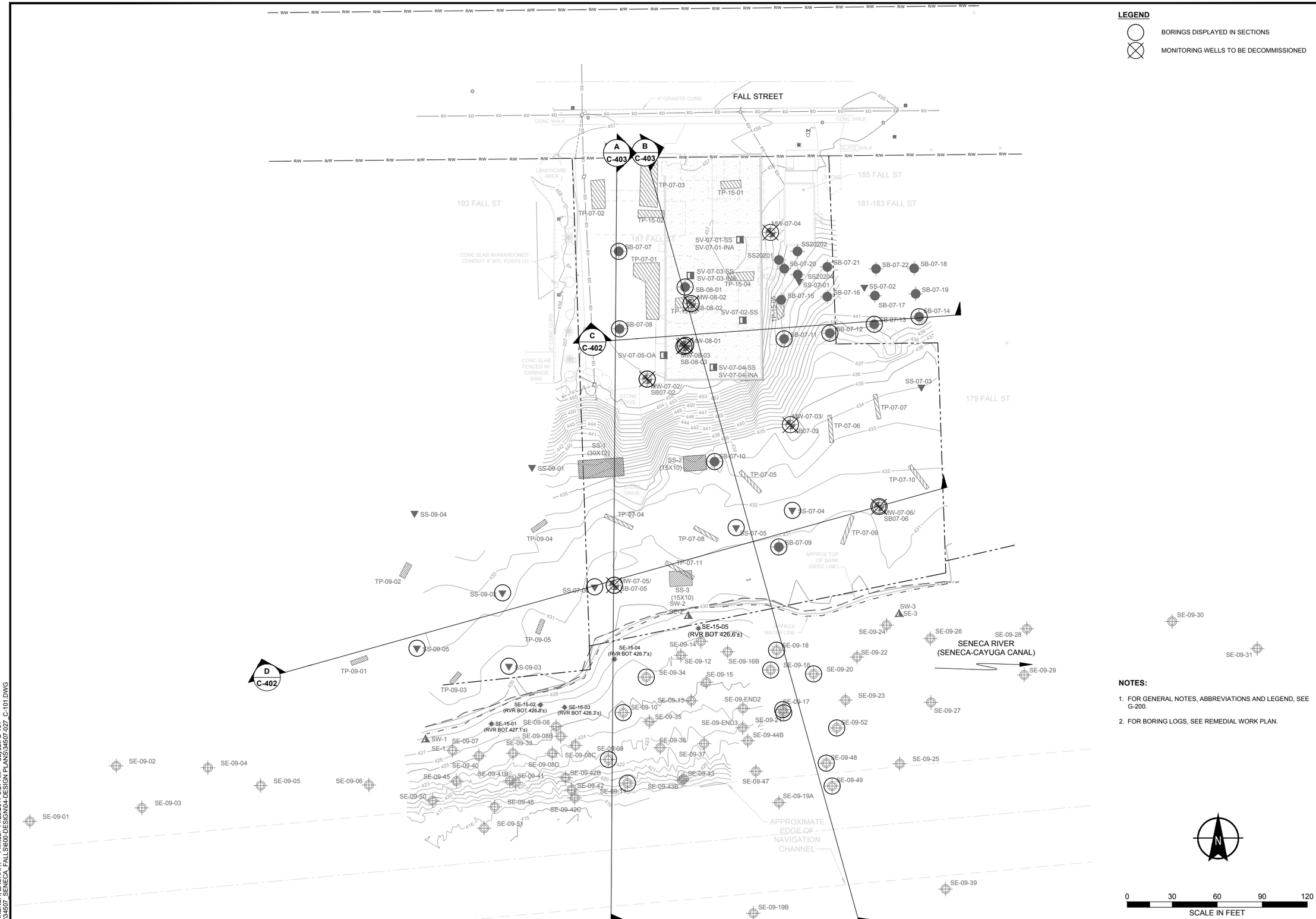
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EXISTING CONDITIONS PLAN

C-100

Sheet: 4 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:27 AM Layout: C-100
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-100.DWG



LEGEND

BORINGS DISPLAYED IN SECTIONS

MONITORING WELLS TO BE DECOMMISSIONED

NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. FOR BORING LOGS, SEE REMEDIAL WORK PLAN.

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

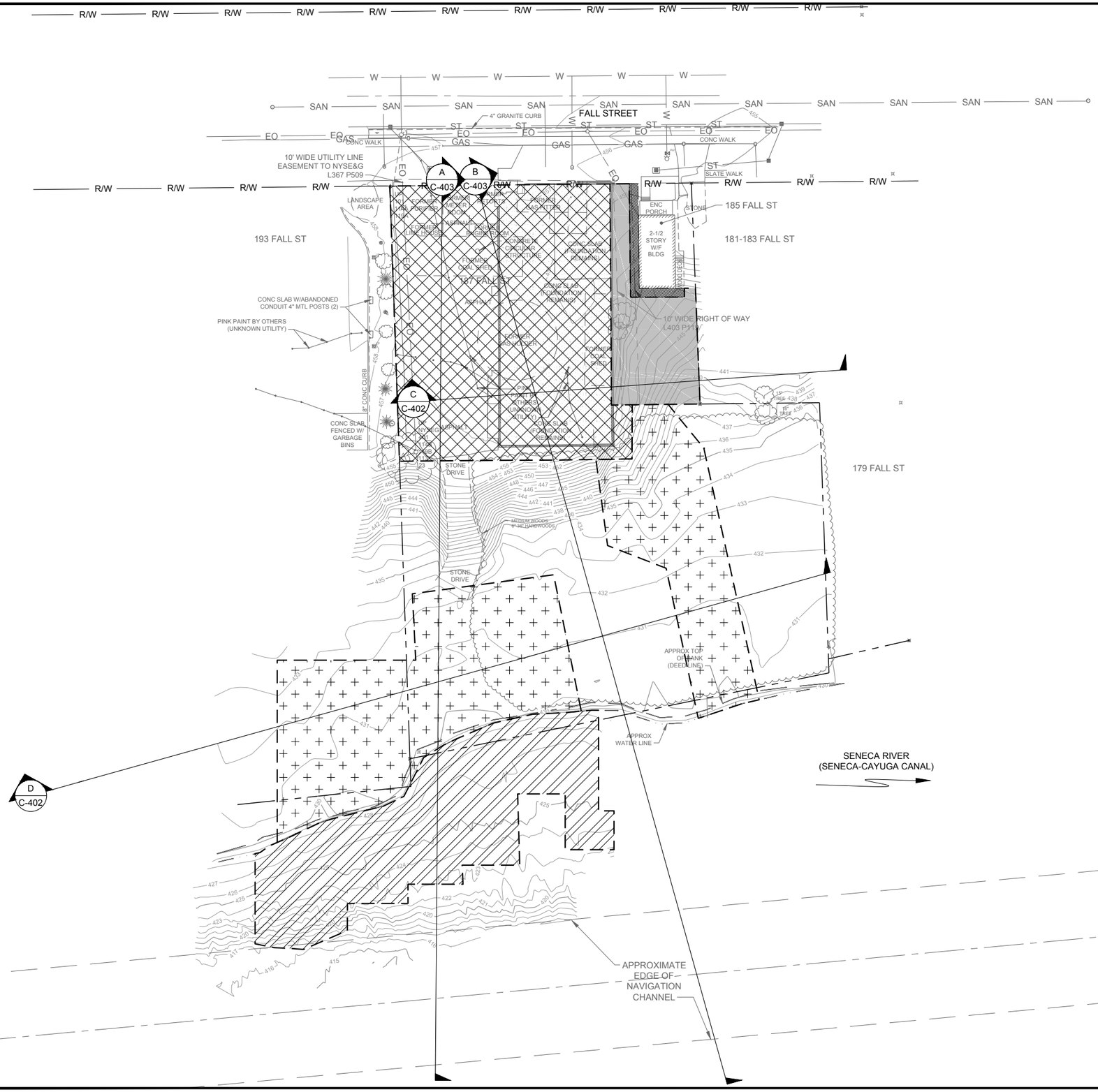
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EXPLORATION LOCATION PLAN

C-101

Sheet: 5 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:27 AM Layout: C-101
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-101.DWG



LEGEND

- UPLAND EXCAVATION / ISS AREA
- RESIDENTIAL EXCAVATION AREA
- LOWLAND SOIL COVER
- CANAL DREDGE AREA
- 2 FOOT BGS RESIDENTIAL EXCAVATION AREA

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. FOR EROSION AND SEDIMENT CONTROL NOTES, SEE G-201.

0 30 60 90 120
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

NEW YORK STATE EDUCATION LAW SECTION 7209 STATES THAT IT IS A VIOLATION OF THIS LAW FOR ANY PERSON TO ALTER A DOCUMENT IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

IF A DOCUMENT BEARING THE SEAL OF AN ENGINEER IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

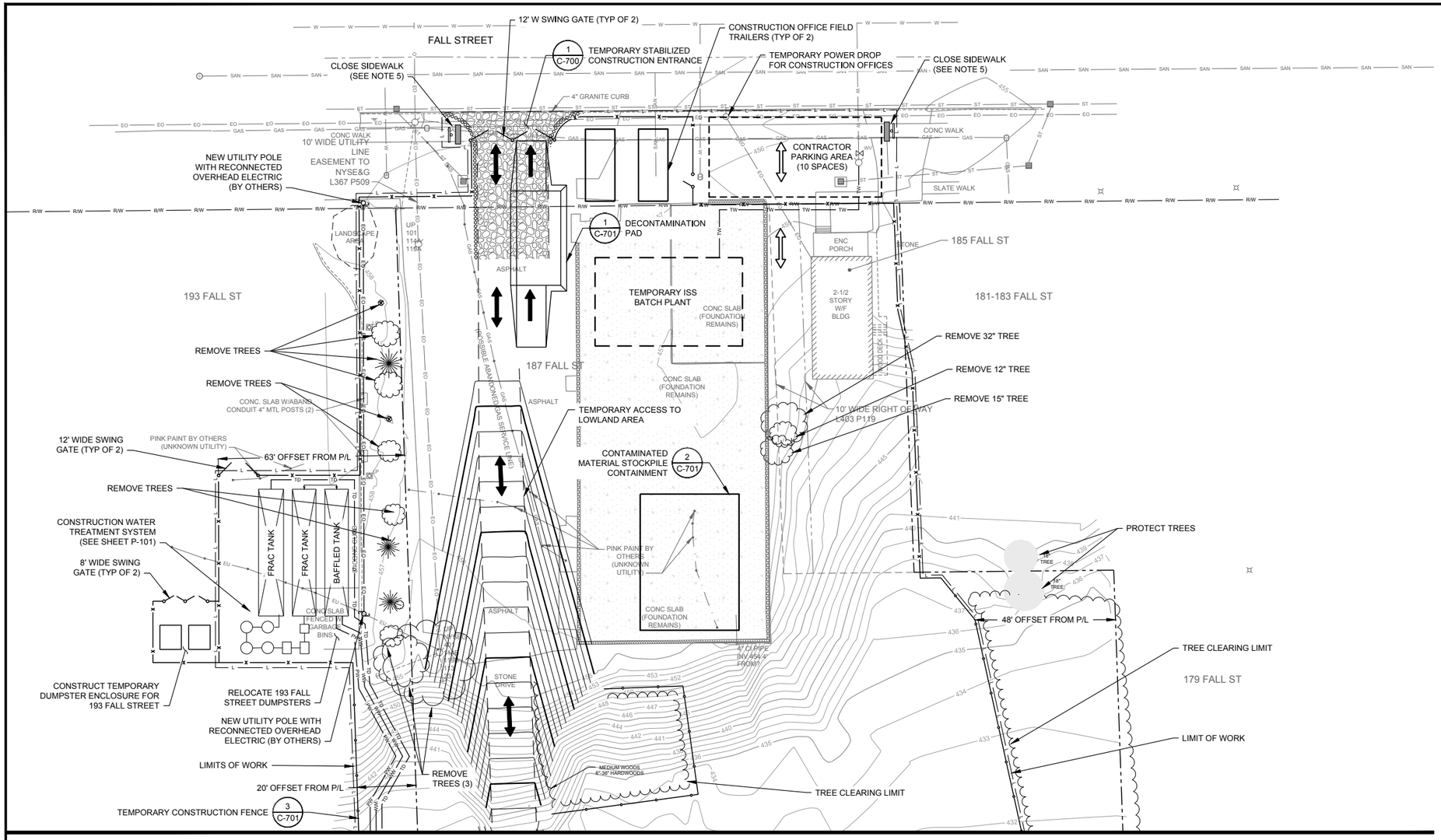
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

REMEDIAL OVERVIEW PLAN

C-200

Sheet: 6 of 25



MATCH LINE SEE SHEET C-301

LEGEND

- TEMPORARY CONSTRUCTION ACCESS
- PRIMARY SINGLE LANE TWO-WAY TRAFFIC
- SECONDARY SINGLE LANE TWO-WAY TRAFFIC
- TEMPORARY CHAIN LINK FENCE
- TEMPORARY CONSTRUCTION FENCE
- LIMITS OF WORK
- TEMPORARY WATER SERVICE
- TEMPORARY CONSTRUCTION PROCESS WATER
- TEMPORARY WASTEWATER SLUDGE
- TEMPORARY TREATED CONSTRUCTION WATER DISCHARGE

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. SIZE OF CONSTRUCTION LAYDOWN/ WORK AREAS TO BE DETERMINED BY CONTRACTOR. LOCATIONS MUST BE APPROVED BY REMEDIATION ENGINEER.
3. LIMITS OF WORK TO BE INSIDE OF TEMPORARY CHAIN LINK OR TEMPORARY CONSTRUCTION FENCE.
4. PROTECT TEMPORARY WATER SERVICE AT ALL VEHICLE CROSSINGS.
5. SIDEWALK TO BE CLOSED USING JERSEY BARRIERS AND THE APPROPRIATE SIGNAGE IN ACCORDANCE WITH MUTCD AND NYSDOT.

0 20 40 60 80
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR: NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

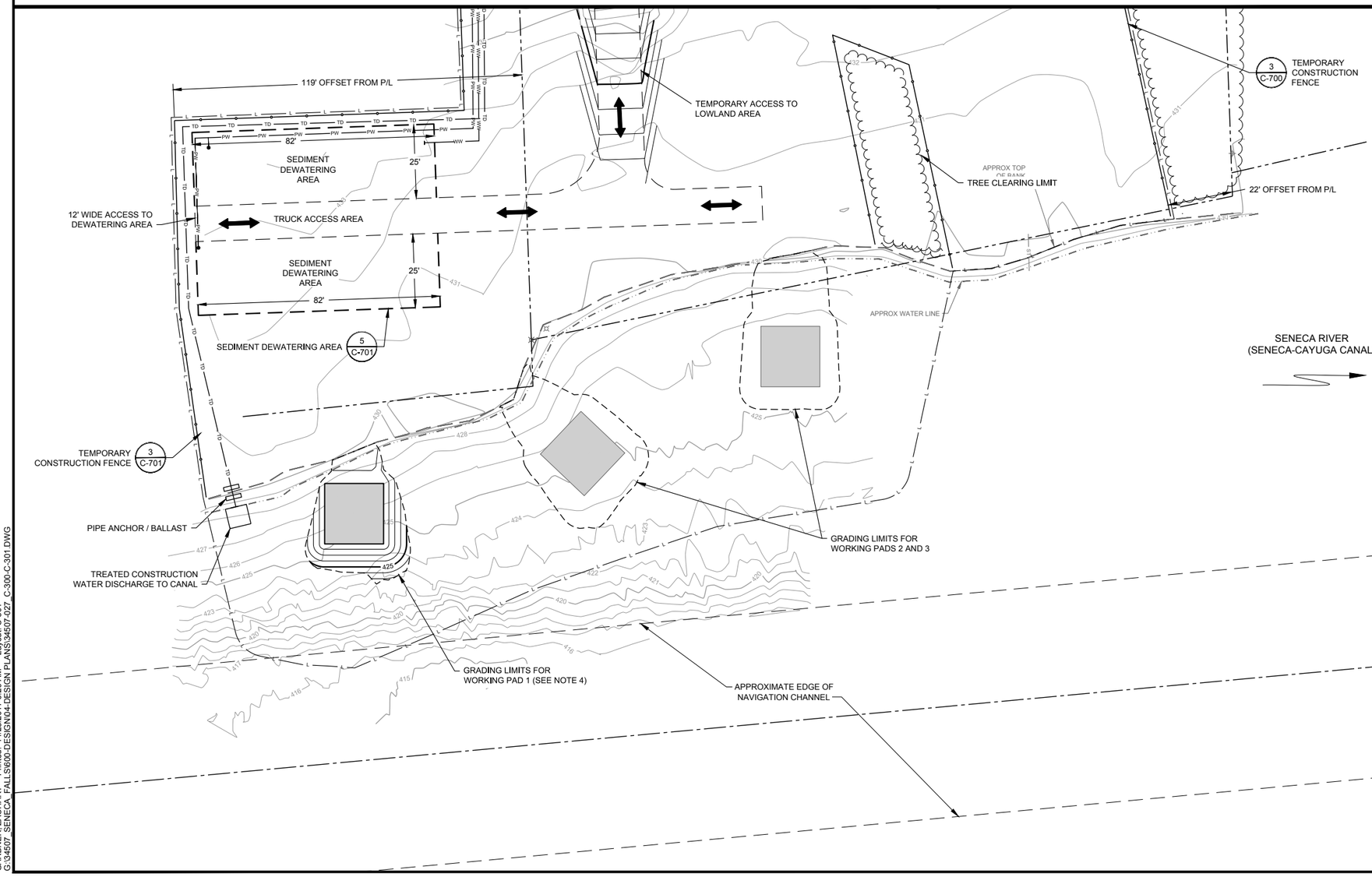
SITE PREPARATION PLAN (UPLAND AREA)

C-300

Sheet: 7 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:29 AM Layout: C-300
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-300-C-301.DWG

MATCH LINE SEE SHEET C-300



LEGEND

- TEMPORARY CONSTRUCTION ACCESS
- SINGLE LANE TWO-WAY TRAFFIC
- TEMPORARY CHAIN LINK FENCE
- TEMPORARY CONSTRUCTION FENCE
- LIMITS OF WORK
- TEMPORARY CONSTRUCTION PROCESS WATER
- TEMPORARY WASTEWATER SLUDGE
- TEMPORARY TREATED CONSTRUCTION WATER DISCHARGE

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. SIZE OF CONSTRUCTION LAYDOWN/ WORK AREAS TO BE DETERMINED BY CONTRACTOR. LOCATIONS MUST BE APPROVED BY ENGINEER.
3. LIMITS OF WORK TO BE INSIDE OF TEMPORARY CHAIN LINK OR TEMPORARY CONSTRUCTION FENCE.
4. WORKING PADS SHALL BE CONSTRUCTED OF NYSDOT #3 AND #4 STONE MIX. ONLY ONE WORKING PAD SHALL BE INSTALLED WITHIN THE CANAL AT A TIME. INSTALL AND REMOVE PADS TO COORDINATE WITH THE SEQUENCE OF DREDGING.

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

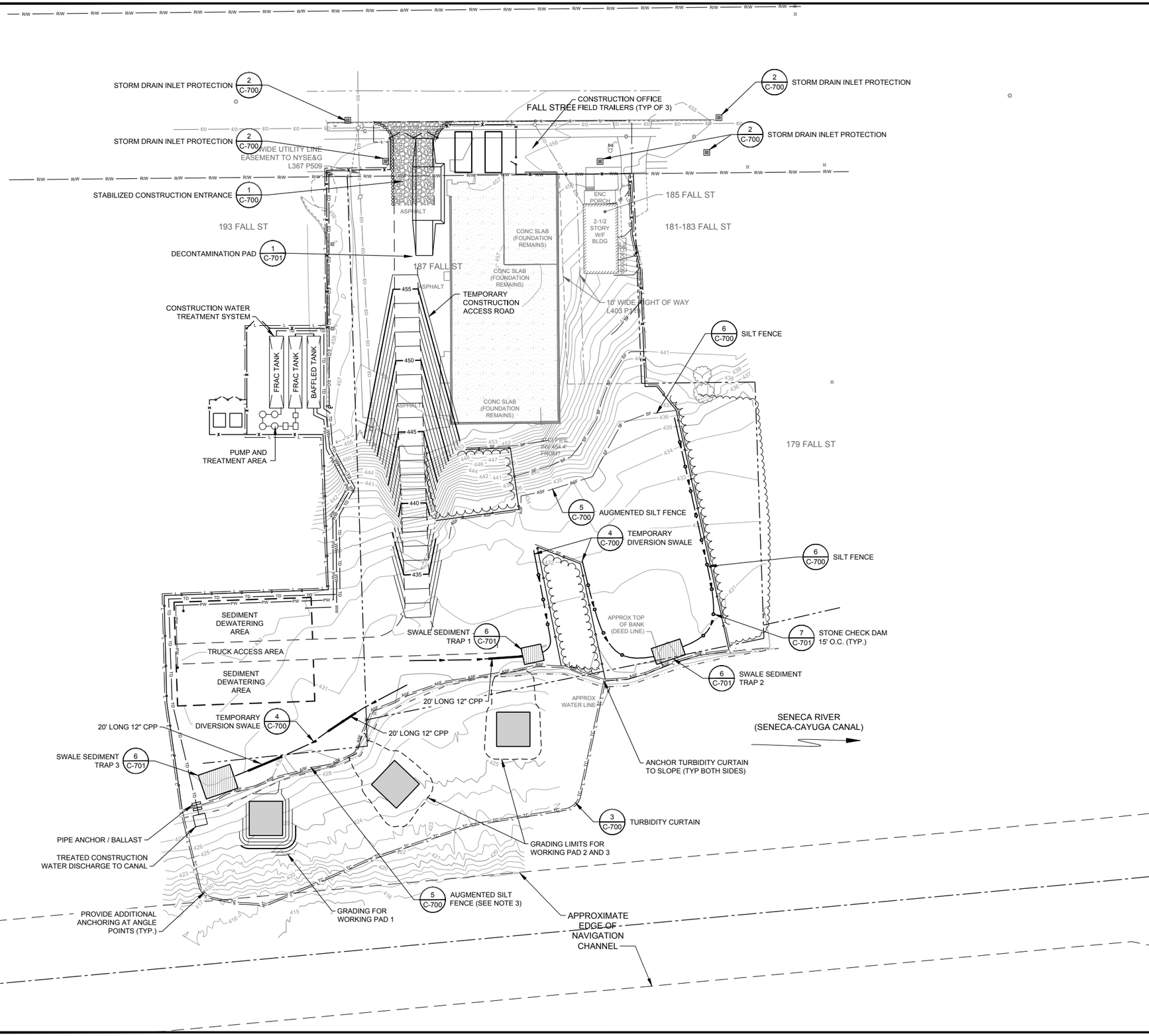
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

SITE PREPARATION PLAN (LOWLAND AREA)

C-301

Sheet: 8 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:29 AM Layout: C-301
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-300-C-301.DWG



LEGEND

- SF — SILT FENCE
- ASF — AUGMENTED SILT FENCE
- TC — TURBIDITY CURTAIN
- TEMPORARY DIVERSION SWALE WITH STONE CHECK DAM
- PW — TEMPORARY CONSTRUCTION PROCESS WATER
- WW — TEMPORARY WASTEWATER SLUDGE
- TD — TEMPORARY TREATED CONSTRUCTION WATER DISCHARGE

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. THE EROSION AND SEDIMENT CONTROLS AS INDICATED ON THE DRAWINGS SHALL BE CONSTRUED AS THE MINIMUM REQUIRED STANDARDS. PROVIDE ADDITIONAL CONTROLS AS NECESSARY TO PREVENT SEDIMENT LADEN DISCHARGES FROM LEAVING THE SITE.
3. REMOVE AND REPLACE SECTION OF AUGMENTED SILT FENCE AS NECESSARY FOR ACCESS TO WORKING PADS DURING DREDGE ACTIVITIES.

0 30 60 90 120
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR: NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

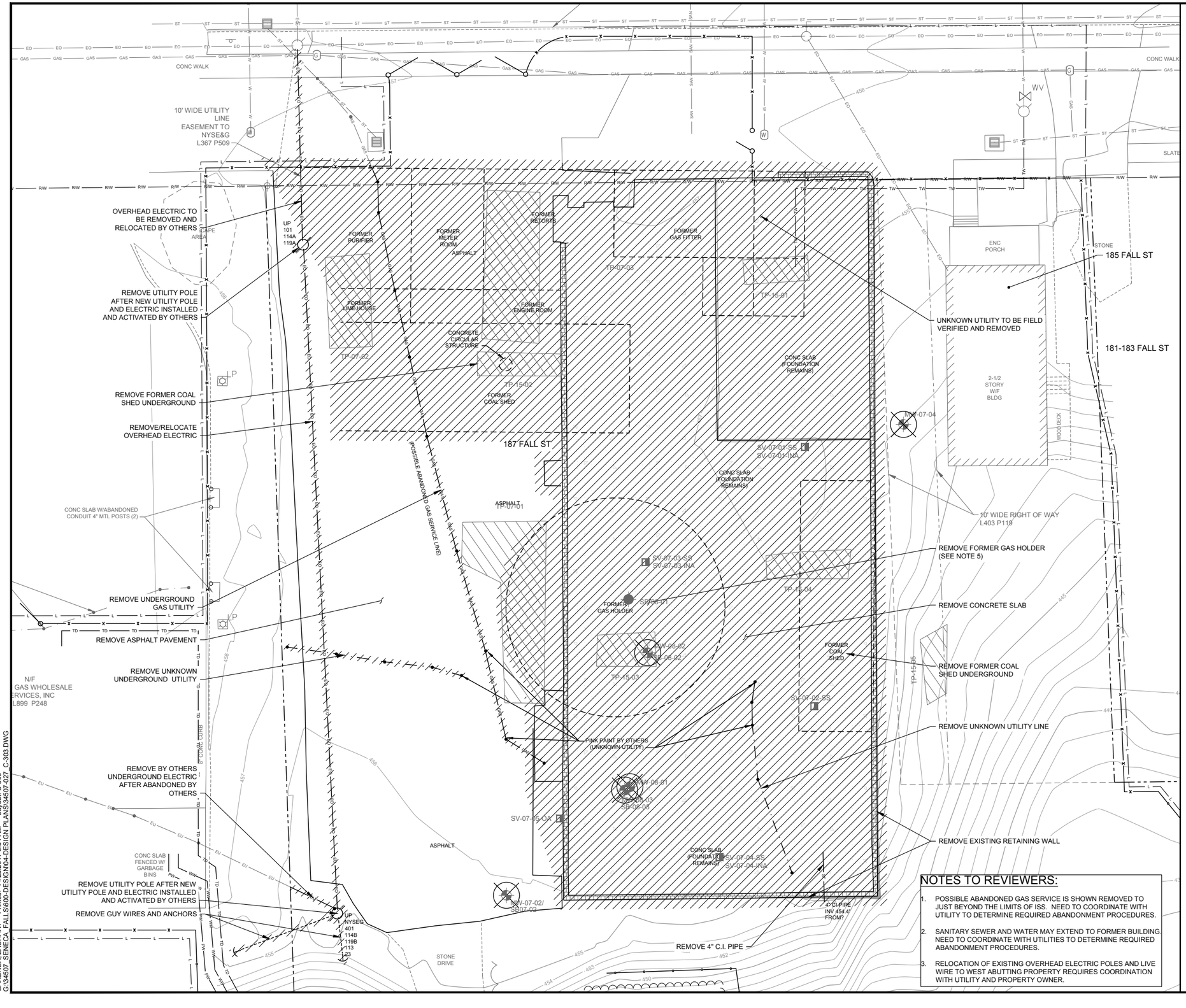
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EROSION AND SEDIMENT CONTROL PLAN

C-302

Sheet: 9 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:30 AM Layout: C-302
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-302.DWG



LEGEND

- STRUCTURES AND UTILITIES TO BE DEMOLISHED AND REMOVED
- MW-07-04 — MONITORING WELL TO BE DECOMMISSIONED
- TP-15-01 — FORMER TEST PIT LOCATION

NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. REMOVE PAVEMENT WITHIN THE LIMIT OF WORK AS REQUIRED TO COMPLETE SUBGRADE WORK.
3. ABANDON UTILITIES IN COORDINATION WITH UTILITY OWNER REQUIREMENTS.
4. UNKNOWN UTILITY "DRAIN" TO BE FIELD VERIFIED.
5. DEMOLISH AND REMOVE GAS HOLDER FOUNDATION WALLS TO 4 FEET BELOW GROUND SURFACE.
6. DEMOLISH AND REMOVE ALL ASPHALT PAVEMENT WITHIN THE LIMITS OF WORK. ASPHALT PAVEMENT EXTENDS BEYOND THE AREAS NOTED FOR STRUCTURE/UTILITY DEMOLITION AND REMOVAL.
7. CONCRETE CIRCULAR STRUCTURE FOUND IN TP-15-02; APPROXIMATELY 4 FEET IN DIAMETER AND FILLED WITH WATER. STRUCTURE AND CONTENTS TO BE REMOVED PRIOR TO IN-SITU SOLIDIFICATION.

NOTES TO REVIEWERS:

1. POSSIBLE ABANDONED GAS SERVICE IS SHOWN REMOVED TO JUST BEYOND THE LIMITS OF ISS. NEED TO COORDINATE WITH UTILITY TO DETERMINE REQUIRED ABANDONMENT PROCEDURES.
2. SANITARY SEWER AND WATER MAY EXTEND TO FORMER BUILDING. NEED TO COORDINATE WITH UTILITIES TO DETERMINE REQUIRED ABANDONMENT PROCEDURES.
3. RELOCATION OF EXISTING OVERHEAD ELECTRIC POLES AND LIVE WIRE TO WEST ABUTTING PROPERTY REQUIRES COORDINATION WITH UTILITY AND PROPERTY OWNER.

0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR: NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp: DRAFT — NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

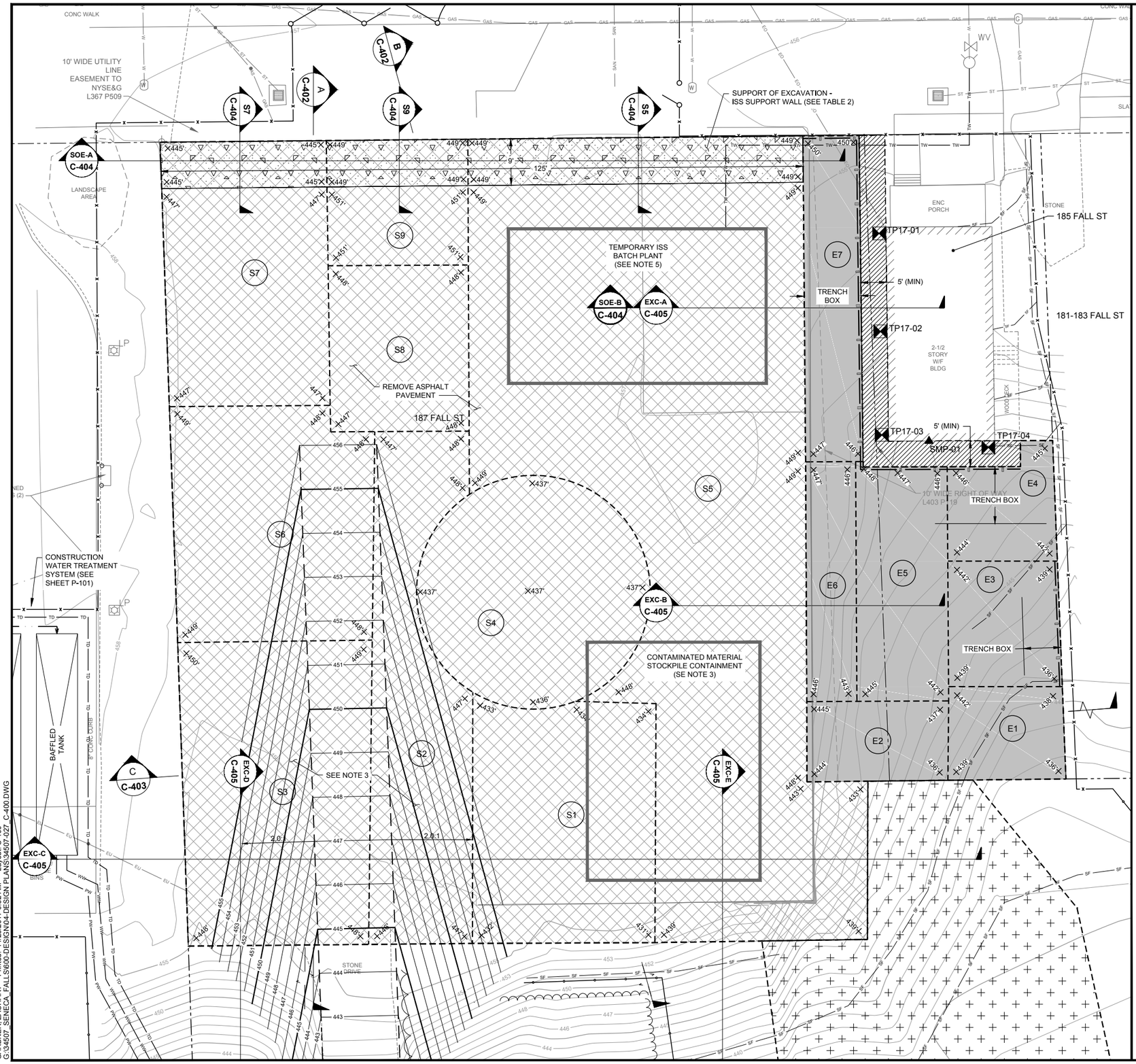
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

STRUCTURE DEMOLITION AND UTILITY REMOVAL PLAN

C-303

Sheet: 10 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:31 AM Layout: C-303
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-303.DWG



GARDNER, ZACHARY Printed: 11/28/2017 9:32 AM Layout: C-400
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-400.DWG

LEGEND

- UPLAND EXCAVATION / ISS AREA
- RESIDENTIAL EXCAVATION AREA (FULL DEPTH PER TABLE 3)
- LOWLAND SOIL COVER
- CANAL DREDGE AREA
- ISS SUPPORT WALL
- 2-FT. BELOW GROUND SURFACE RESIDENTIAL EXCAVATION AREA
- TRENCH BOX EXCAVATION
- X4XX' ISS BOTTOM ELEVATION OR RESIDENTIAL EXCAVATION BOTTOM ELEVATION
- S1 ISS AREA 1
- E1 EXCAVATION AREA 1
- TP17-01 NEW TEST PIT TO BE PERFORMED
- SMP-01 STRUCTURAL MONITORING POINT

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. SEE DRAWING C-404 FOR ISS SUPPORT WALL AND TRENCH BOX EXCAVATION, SECTIONS AND NOTES.
3. BACKFILL MGP-IMPACTED SOIL EXCAVATED TO CONSTRUCT TEMPORARY CONSTRUCTION ACCESS ROAD AND STAGED IN THE CONTAMINATED MATERIAL STOCKPILE CONTAINMENT AREA TO 4' BELOW GROUND SURFACE PRIOR TO PERFORMING ISS.
4. EXCAVATION AND ISS DEPTHS FROM RECORD OF DECISION (NYSDEC, 2015).
5. ADJUST THE LOCATION OF TEMPORARY ISS BATCH PLANT AS NECESSARY TO ACCOMMODATE THE SEQUENCE OF ISS.
6. REMEDIATION ENGINEER TO COLLECT DOCUMENTATION SAMPLES FROM THE 2-FT EXCAVATION ADJACENT TO BUILDING FOUNDATION.
7. TEST PITS TO DETERMINE DEPTH OF BUILDING FOUNDATION.

TABLE 1: ISS DEPTH AND ELEVATION *

ID	ESTIMATED BOTTOM DEPTH (FT. BGS) *	ESTIMATED BOTTOM EL. RANGE (NAVD 88)
S1	23	431' - 434'
S2	9	446' - 448'
S3	7	448' - 450'
S4	20	436' - 437'
S5	8	431' - 449'
S6	8	448' - 449'
S7	10	447'
S8	9	447' - 448'
S9	6	451'

* EXCAVATE 4' BELOW GROUND SURFACE PRIOR TO ISS

TABLE 2: ISS SUPPORT WALL DEPTH AND ELEVATION

ID	ESTIMATED BOTTOM DEPTH (FT. BGS)	ESTIMATED BOTTOM EL. RANGE (NAVD 88)
S7	12	445 (2 FT BELOW TOP OF GLACIAL TILL)
S9	8	449 (2 FT BELOW TOP OF GLACIAL TILL)
S5	8	449 (2 FT BELOW TOP OF GLACIAL TILL)

TABLE 3: EXCAVATION DEPTH AND ELEVATION FOR RESIDENTIAL PROPERTY

ID	ESTIMATED BOTTOM DEPTH (FT. BGS)	ESTIMATED BOTTOM EL. RANGE (NAVD 88)
E1	2	436' - 442'
E2	7	436' - 445'
E3	5	436' - 442'
E4	3	442' - 446'
E5	3	442' - 448'
E6	6	443' - 447'
E7	6	445' - 450'

0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:
NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU
Stamp:	

DRAFT

NOT FOR CONSTRUCTION

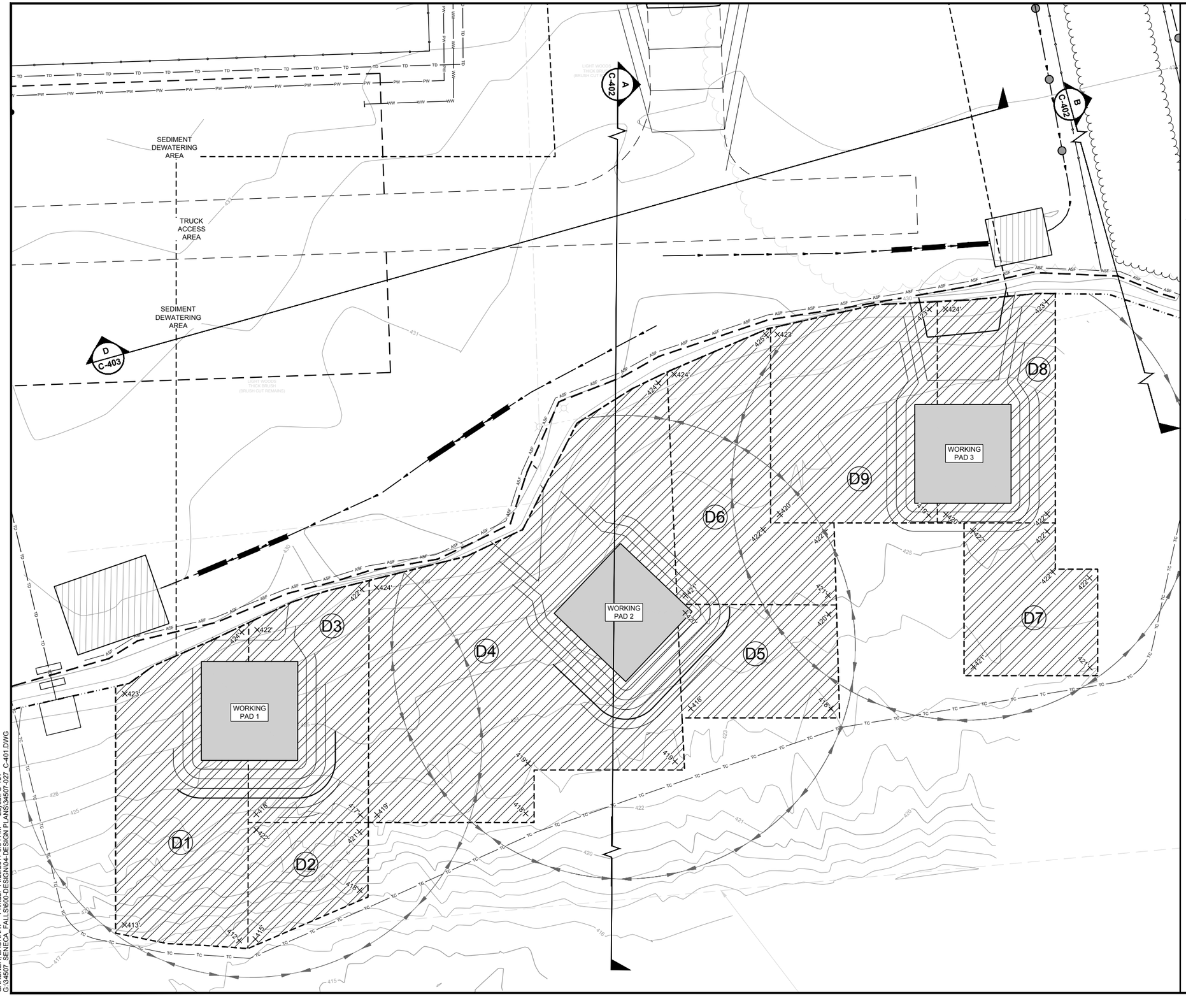
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EXCAVATION, SUPPORT OF EXCAVATION, AND SOLIDIFICATION PLAN

C-400

Sheet: 11 of 25



LEGEND

- CANAL DREDGE AREA
- X4XX' EXCAVATION DEPTH ELEVATION
- D1 DREDGE AREA 1
- MAXIMUM DREDGE REACH OF LONG STICK EXCAVATOR

NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.

DREDGE SUMMARY SCHEDULE

ID	CRANE PAD NUMBER	BOTTOM DEPTH (FT. BGS)	BOTTOM ELEV. RANGE (NAVD 88)
D1	1	5	412' - 424'
D2	1	1	415' - 422'
D3	1	6	417' - 422'
D4	1 AND 2	4	418' - 424'
D5	2	5	418' - 420'
D6	2	4	421' - 425'
D7	3	3	421' - 422'
D8	3	5	420' - 424'
D9	3	6	419' - 423'

0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

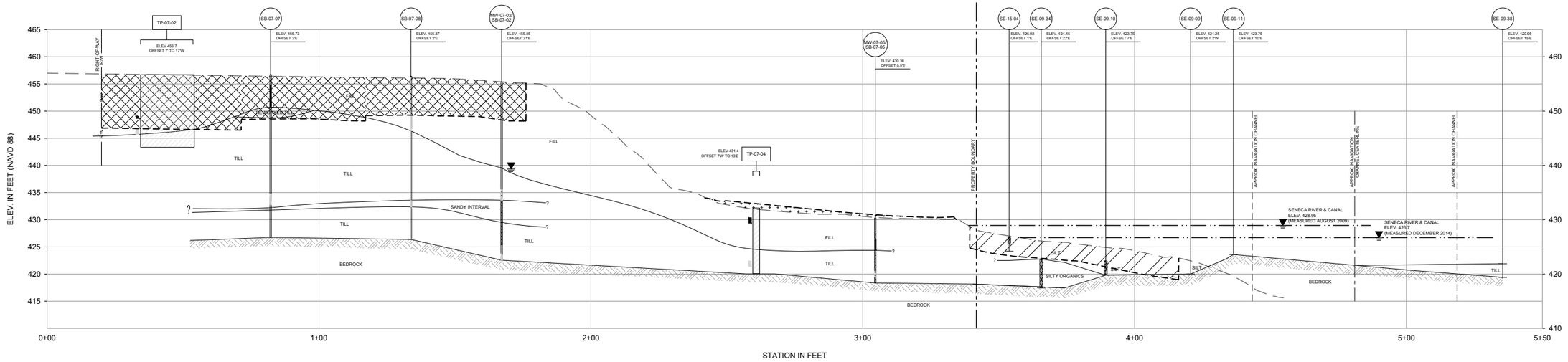
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

SEDIMENT DREDGING PLAN

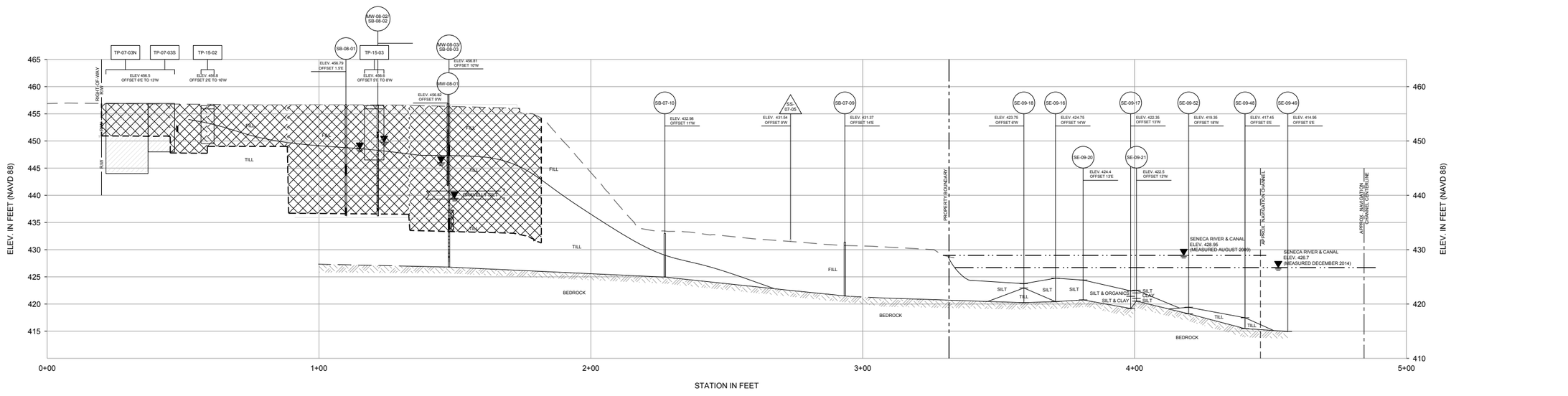
C-401

Sheet: 12 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:34 AM Layout: C-401
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-401.DWG



A **REMEDIAL SECTION**
SCALE: AS SHOWN



B **REMEDIAL SECTION**
SCALE: AS SHOWN

LEGEND

- EXISTING GROUND
- BEDROCK
- LIMIT OF EXCAVATION, ISS, OR DREDGE
- EXCAVATION/ISS AREA
- EXCAVATION AREA
- CANAL DREDGING AREA
- LOWLAND COVER AREA

HORIZ. 0 20 40 60 80
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

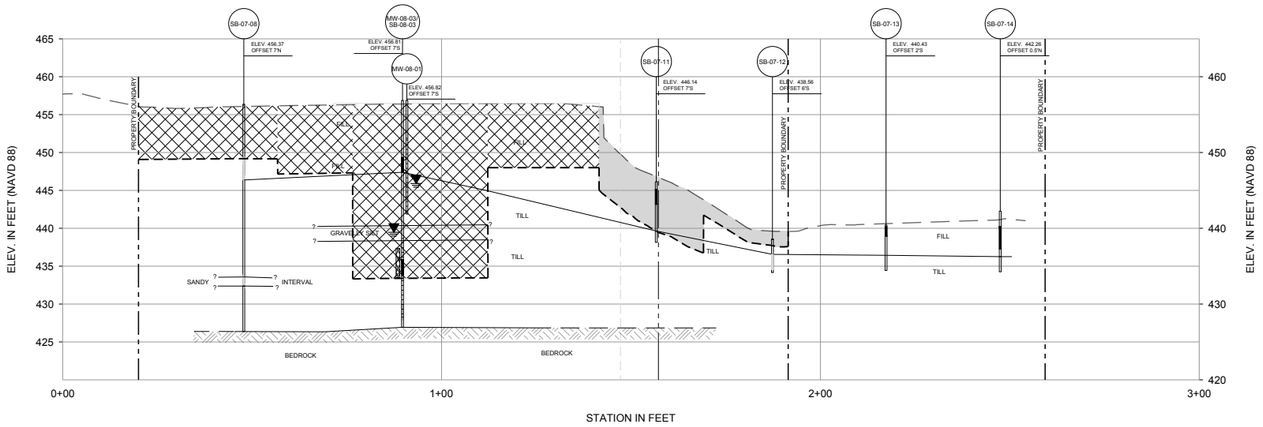
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

REMEDIAL SECTIONS 1 OF 2

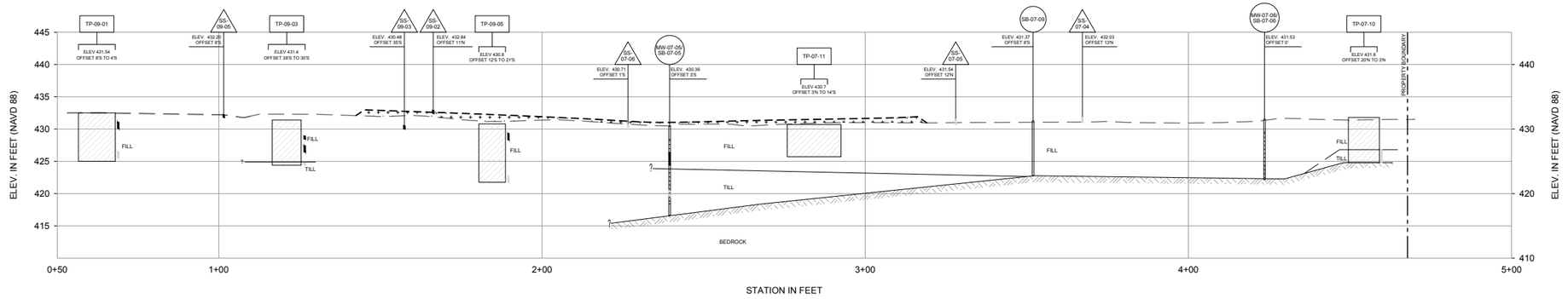
C-402

Sheet: 13 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:36 AM Layout: C-407
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-402-C-403.DWG



C **REMEDIAL SECTION**
SCALE: AS SHOWN



D **REMEDIAL SECTION**
SCALE: AS SHOWN

LEGEND

- EXISTING GROUND
- BEDROCK
- LIMIT OF EXCAVATION, ISS, OR DREDGE
- EXCAVATION/ISS AREA
- EXCAVATION AREA
- CANAL DREDGING AREA
- LOWLAND COVER AREA

HORIZ. 0 20 40 60 80
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

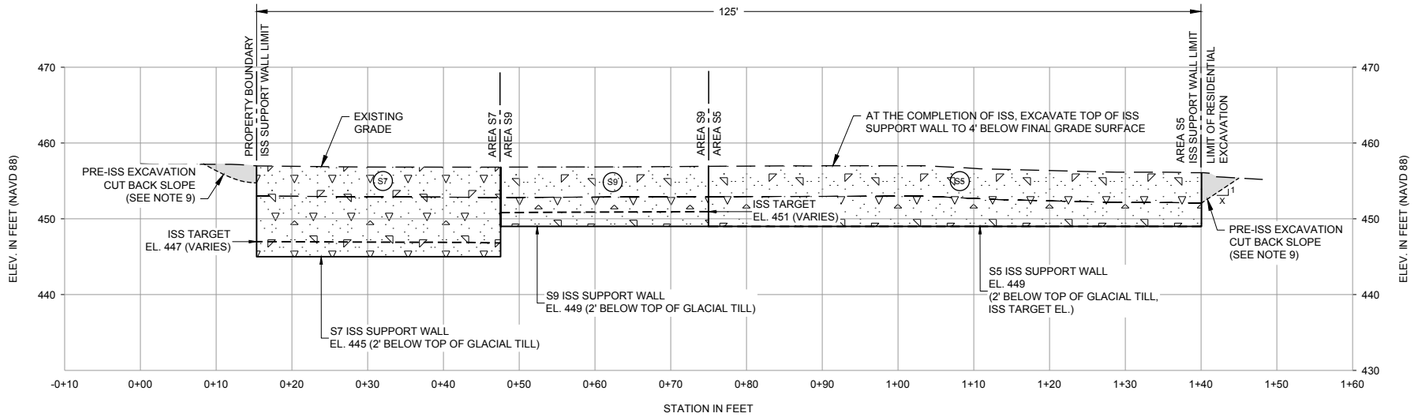
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

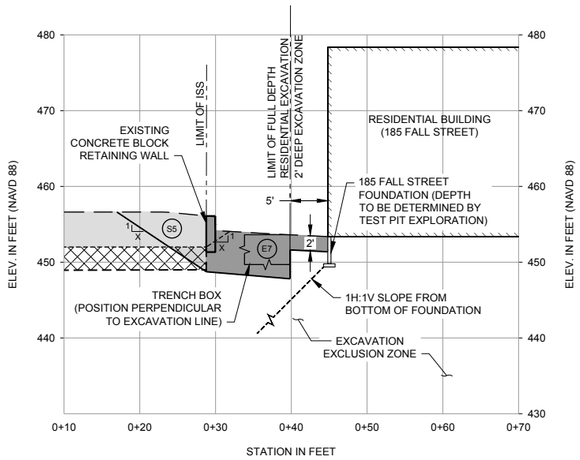
REMEDIAL SECTIONS 2 OF 2

C-403

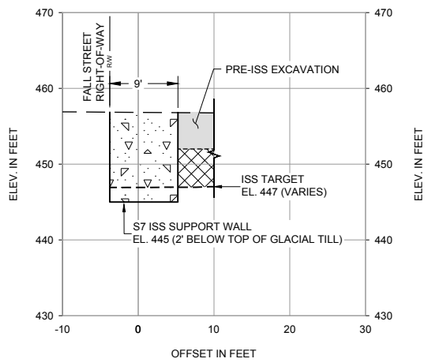
Sheet: 14 of 25



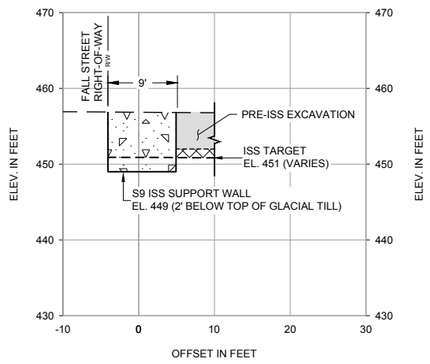
SOE-A **ISS SUPPORT WALL SECTION**
SCALE: AS SHOWN



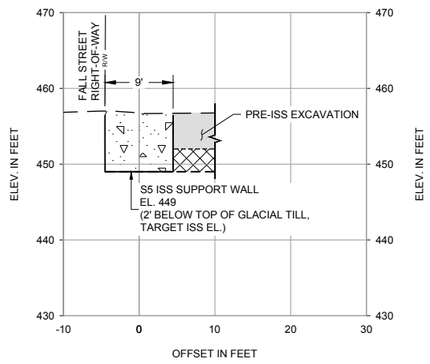
SOE-B **TRENCH BOX EXCAVATION**
SCALE: AS SHOWN



S7 **ISS SUPPORT WALL SECTION**
SCALE: AS SHOWN



S9 **ISS SUPPORT WALL SECTION**
SCALE: AS SHOWN



S5 **ISS SUPPORT WALL SECTION**
SCALE: AS SHOWN

LEGEND

- ISS AREA
- PRE-ISS EXCAVATION AREA
- RESIDENTIAL EXCAVATION AREA
- ISS SUPPORT WALL
- EXISTING GROUND SURFACE
- ISS SUPPORT WALL LIMITS
- ISS LIMITS (SEE TABLE 1, DRAWING C-400)

NOTES

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. IN ISS AREA, EXCAVATE TO APPROXIMATELY 4' BELOW GROUND SURFACE PRIOR TO PERFORMING ISS SOIL MIXING. CONSTRUCT ISS WALL PRIOR TO ANY FURTHER EXCAVATION.
3. ISS SUPPORT WALL IS APPROXIMATELY 125-FT. LONG AND 9-FT. WIDE. DEPTH VARIES (SEE TABLE 2, DRAWING C-400).
4. DEPTH OF ISS SUPPORT WALL IS REQUIRED TO BE 2-FT BELOW TOP OF GLACIAL TILL LAYER AND MEET THE REQUIRED ISS DEPTH AND ELEVATION ACCORDING TO TABLE 1, DRAWING C-400.
5. CONSTRUCT THE ISS WALL IN SECTIONS NOT EXCEEDING 15 FT IN LENGTH. A 48 HOUR WAIT TIME SHALL BE IMPLEMENTED AFTER AN ISS WALL SECTION IS COMPLETE AND PRIOR TO CONSTRUCTION OF AN ADJACENT ISS WALL SECTION. NO MORE THAN 4 FT OF EXCAVATION SHALL BE PERFORMED PRIOR TO INTRODUCING SLURRY DURING CONSTRUCTION OF THE ISS WALL.
6. PRIOR TO THE START OF RESIDENTIAL EXCAVATION AREA WORK, EXCAVATE A SERIES OF TEST PITS AS SHOWN ON DRAWING C-400 TO DETERMINE THE BOTTOM DEPTH OF THE FOUNDATION FOOTING AT 185 FALL STREET. IF THE BOTTOM OF FOOTING IS FOUND AT A DEPTH LESS THAN 1-FOOT BELOW GROUND SURFACE, THEN THE REMEDIATION CONTRACTOR SHALL REPORT TO THE REMEDIATION ENGINEER FOR DIRECTION ASSOCIATED WITH EXCAVATING AREAS E7, E5, AND E4.
7. AT THE TRENCH BOX EXCAVATION AREAS (SEE DRAWING C-400), POSITION THE TRENCH BOX PERPENDICULAR TO THE EXCAVATION LINE AT ALL TIMES. THE TRENCH BOX SHALL HAVE MAXIMUM WIDTH OF 4 FT. THE TRENCH BOX EXCAVATION SHALL BE A MINIMUM DISTANCE OF 5 FT FROM THE RESIDENTIAL BUILDING FOOTPRINT (OUTSIDE FACE OF FOUNDATION) AT 185 FALL STREET. NO MORE THAN ONE EXCAVATION SECTION WITH THE TRENCH BOX SHALL BE PERFORMED AT ANY GIVEN TIME. BACKFILL AND COMPACTION REQUIREMENTS ARE DESCRIBED IN THE SPECIFICATIONS. SEE SECTION SOE-B TRENCH BOX EXCAVATION.
8. EXCEPT AS OTHERWISE NOTED, CUT BACK SLOPES SHALL BE EXCAVATED AS NECESSARY TO COORDINATE WITH SOIL TYPE, GROUNDWATER CONDITION, AND THE REQUIREMENTS OF OSHA SAFETY STANDARDS.

HORIZ. 0 10 20 30 40
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

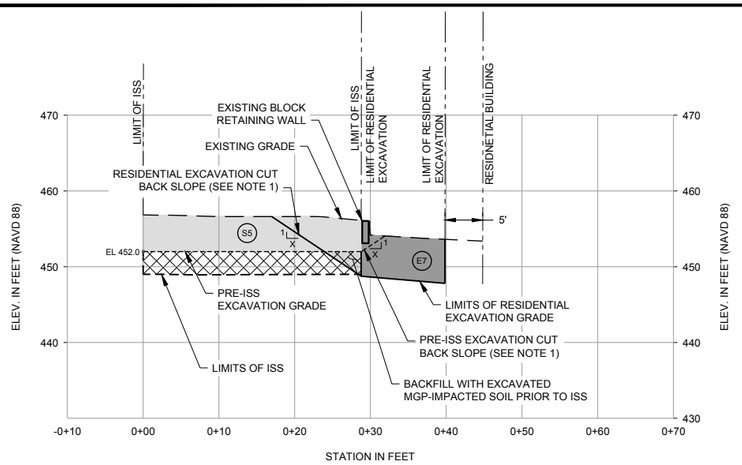
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

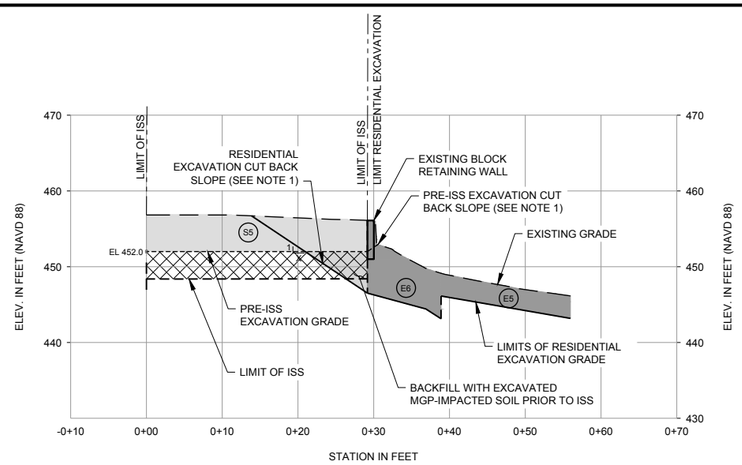
SUPPORT OF EXCAVATION SECTIONS

C-404

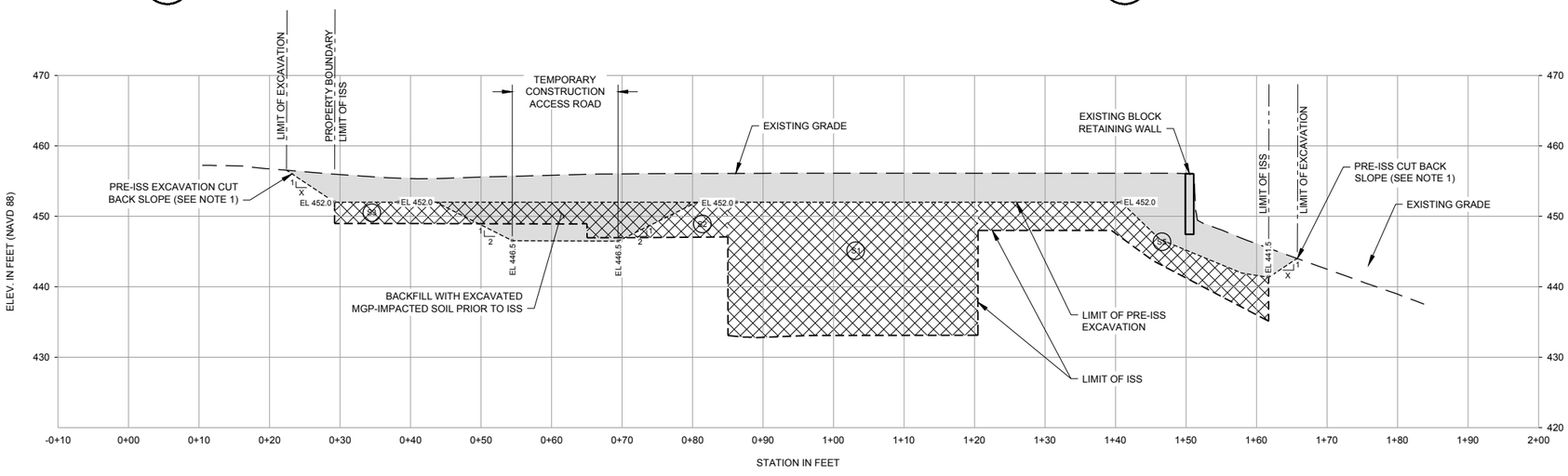
Sheet: 15 of 25



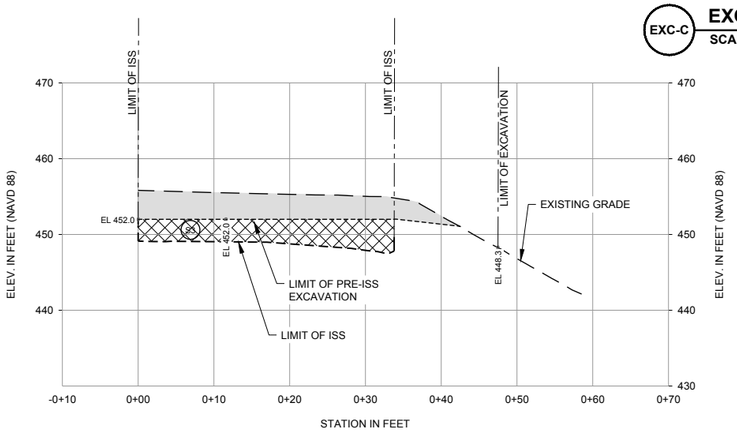
EXC-A **EXCAVATION / ISS SECTION**
SCALE: AS SHOWN



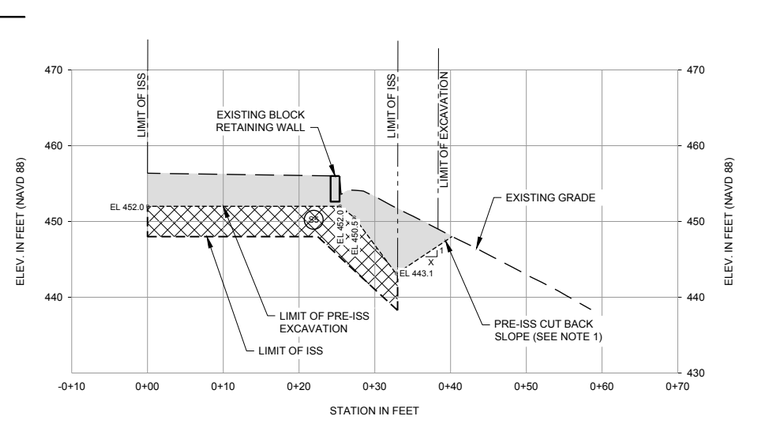
EXC-B **EXCAVATION / ISS SECTION**
SCALE: AS SHOWN



EXC-C **EXCAVATION / ISS SECTION**
SCALE: AS SHOWN



EXC-D **EXCAVATION / ISS SECTION**
SCALE: AS SHOWN



EXC-E **EXCAVATION / ISS SECTION**
SCALE: AS SHOWN

LEGEND

- ISS AREA
- PRE-ISS EXCAVATION AREA
- RESIDENTIAL EXCAVATION AREA
- EXISTING GROUND SURFACE
- LIMIT OF ISS
- LIMITS OF PRE-ISS EXCAVATION
- LIMIT OF RESIDENTIAL EXCAVATION

NOTES

1. CUT BACK SLOPE (1:X) SHALL BE EXCAVATED AS NECESSARY TO COORDINATE WITH SOIL TYPE, GROUNDWATER CONTROLS, AND THE REQUIREMENTS OF OSHA SAFETY STANDARDS.

HORIZ. 0 10 20 30 40
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:
NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

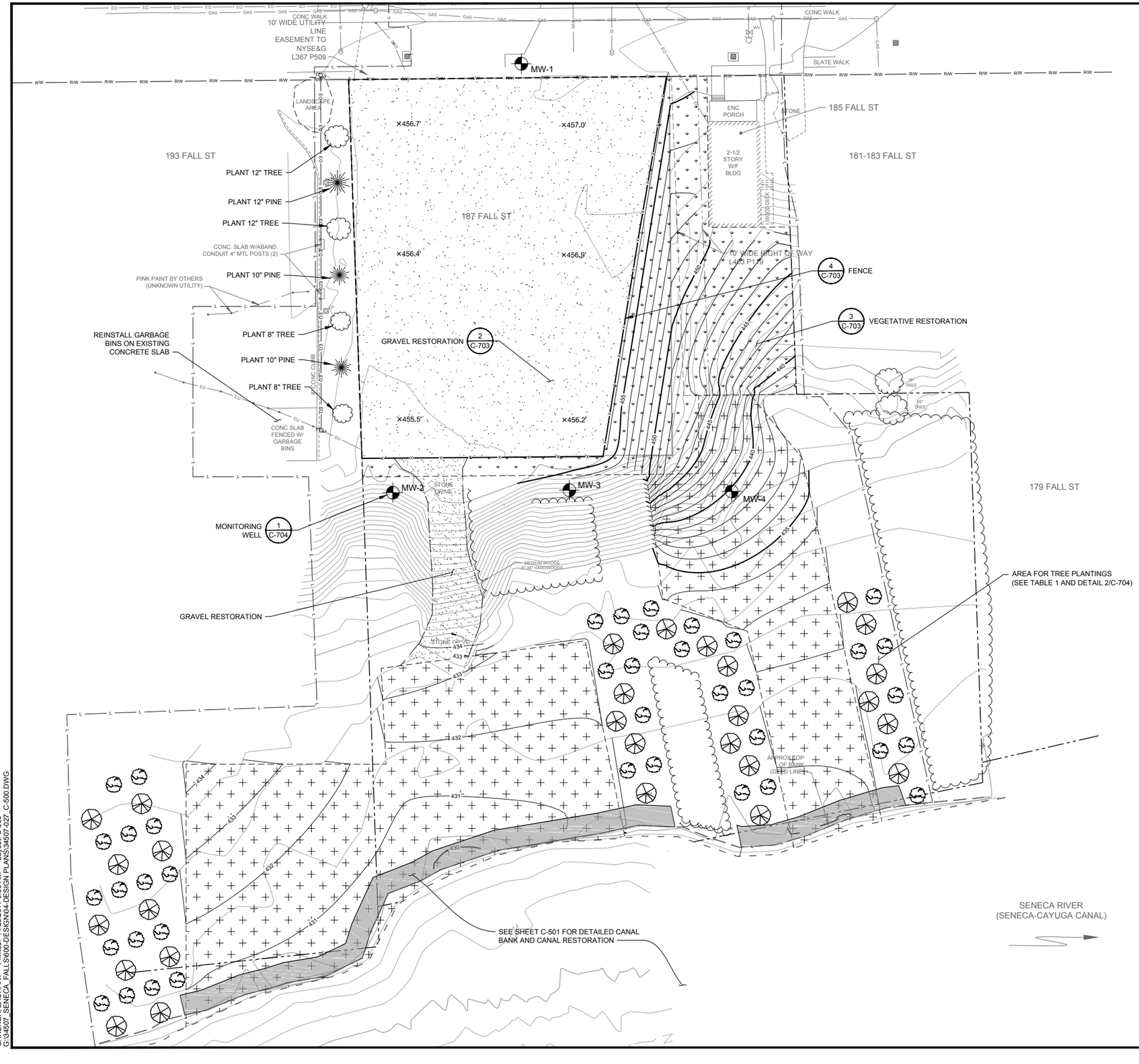
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

EXCAVATION/ISS SECTIONS

C-405

Sheet: 16 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:38 AM Layout: C-405
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-400.DWG



LEGEND

- GRAVEL RESTORATION
- VEGETATED RESTORATION
- LOWLAND SOIL COVER
- CHAIN LINK FENCE
- ×455.5' FINAL GRADE SPOT ELEVATION
- MW-2 NEW MONITORING WELL

NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. ALL TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS INCLUDING EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED ONCE RESTORATION IS COMPLETE.
3. INSTALL EROSION CONTROL BLANKET PER DETAIL 4, SHEET C-703 ON ALL FINAL GRADE SLOPES 10 PERCENT OR STEEP OR AS OTHERWISE NOTED.
4. REPAIR ANY DAMAGE TO PAVEMENT CAUSED BY CONSTRUCTION ACTIVITIES WITHIN LIMIT OF WORK ON 193 FALL STREET.
5. SEED AND MULCH ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK NOT OTHERWISE DESIGNATED FOR RESTORATION.

TABLE 1: TREE PLANTINGS

TYPE	#	BOTANICAL / COMMON NAME		SIZE
TREE	17	RED MAPLE	*ACER RUBRUM*	1" B&B OR CONTAINERIZED
TREE	17	BLACK GUM	*NYSSA SYLVATICA*	1" B&B OR CONTAINERIZED
TREE	17	SWEET GUM	*LIQUIDAMBAR STYRACIFLUA*	1" B&B OR CONTAINERIZED
TREE	17	RIVER BIRCH	*BETULA PAPYRIFERA*	1" B&B OR CONTAINERIZED

TREE PLANTING NOTES:

1. TREE PLANTINGS TO BE 8-FT - 10-FT ON CENTER AT A RANDOM SPACING.

0 20 40 60 80
SCALE IN FEET

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	08-NOV-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	11/08/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

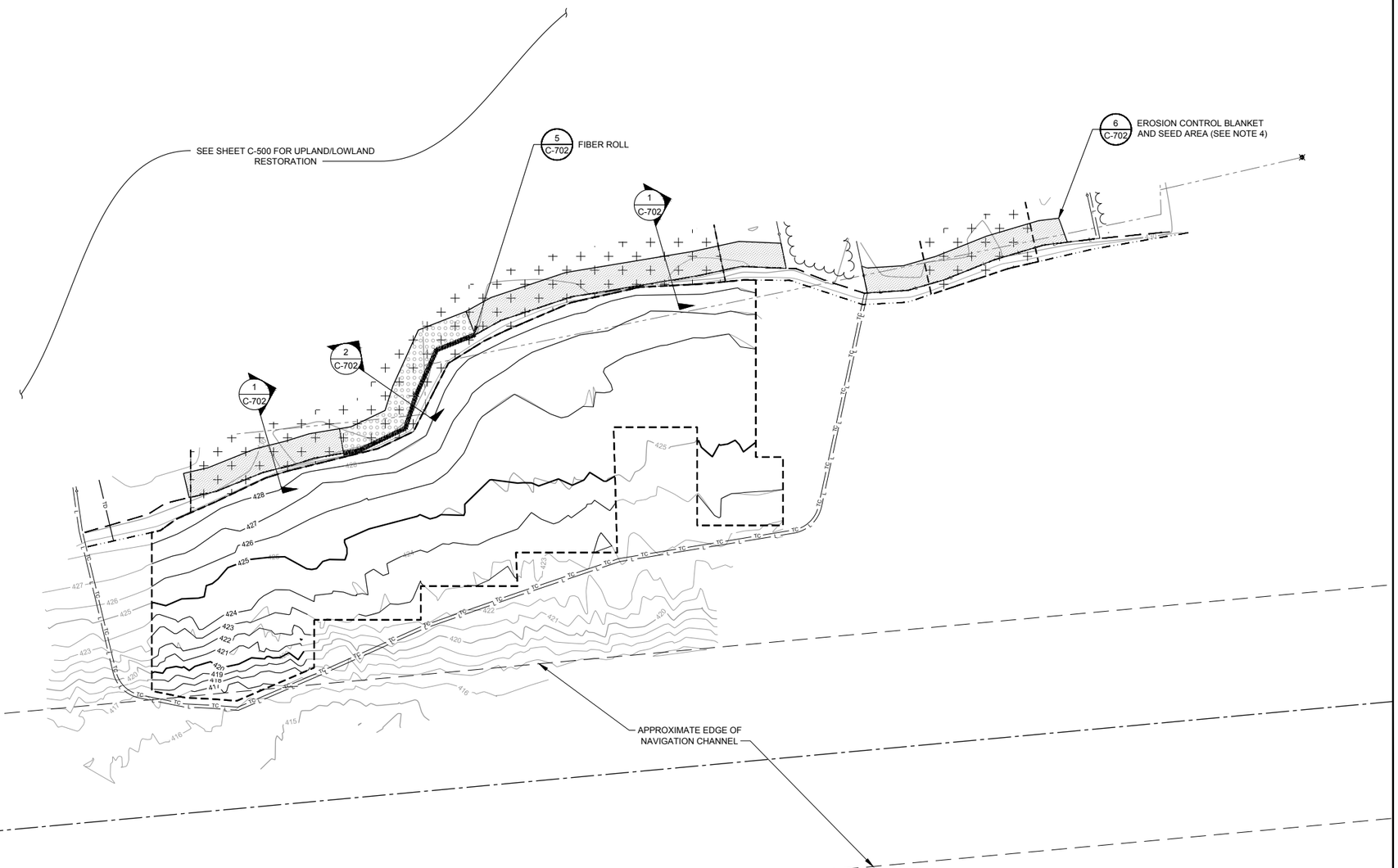
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 8500010
187 FALL STREET
SENECA FALLS, NEW YORK

UPLAND AND LOWLAND RESTORATION PLAN

C-500

Sheet: 17 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:39 AM Layout: C-500
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-500.DWG



LEGEND

- FIBER ROLL
- CANAL BANK RESTORATION AREA TYPE A
- CANAL BANK RESTORATION AREA TYPE B

NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND LEGEND, SEE G-200.
2. DREDGING RESTORATION IS SUBJECT TO APPROVAL BY CANAL CORPORATION AND NYSDEC FISH AND WILDLIFE.
3. ALL TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS INCLUDING EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED ONCE RESTORATION IS COMPLETE.
4. RESTORE CANAL BANKS IN ACCORDANCE WITH DETAILS 1 AND 2 SHEET C-702. SEED WITH PERMANENT RIPARIAN SEED MIX CANAL RESTORATION AREA.
5. SEED WITH PERMANENT SEED MIX LOWLAND COVER AREAS AND DISTURBED AREAS OUTSIDE THE CANAL BANK RESTORATION AREA.
6. MAINTAIN TURBIDITY CURTAIN IN PLACE UNTIL CANAL WATER TURBIDITY IS ACCEPTABLE AS DETERMINED BY REMEDIATION ENGINEER VISUAL OBSERVATION.

0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU
Stamp:	

DRAFT

NOT FOR CONSTRUCTION

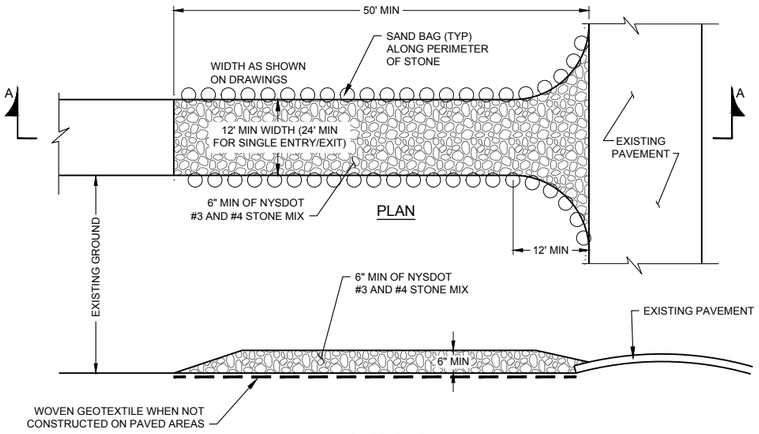
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

SENECA CANAL RESTORATION PLAN

C-501

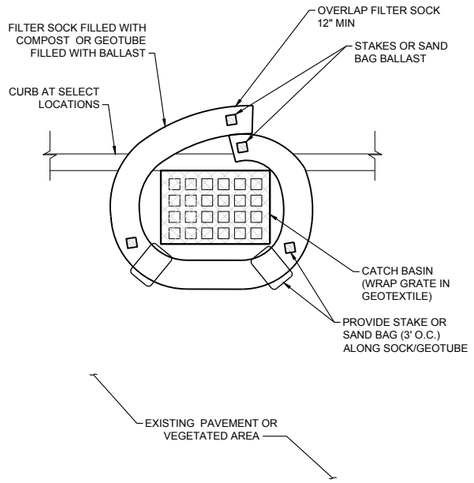
Sheet: 18 of 25



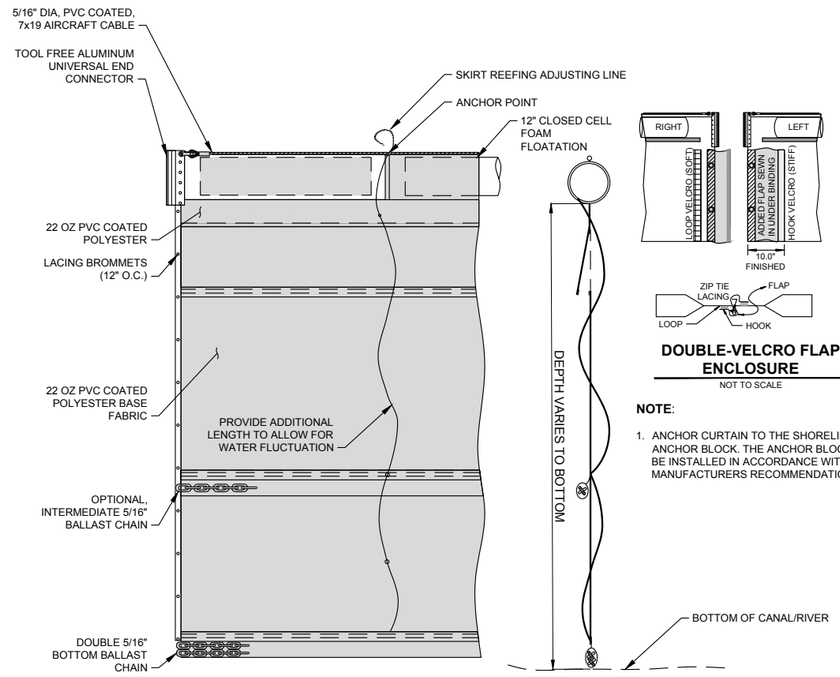
NOTES:

1. STONE SIZE - USE NYSDOT #3 AND #4 STONE MIX, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT 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. WOVEN GEOTEXTILE - TO BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING 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.

1 STABILIZED CONSTRUCTION ACCESS
SCALE: NTS



2 STORM DRAIN INLET PROTECTION
SCALE: NTS



DOUBLE-VELCRO FLAP ENCLOSURE
NOT TO SCALE

FRONT ELEVATION

SIDE ELEVATION

NOTE:

1. ANCHOR CURTAIN TO THE SHORELINE WITH AN ANCHOR BLOCK. THE ANCHOR BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

3 TURBIDITY CURTAIN
SCALE: NTS

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

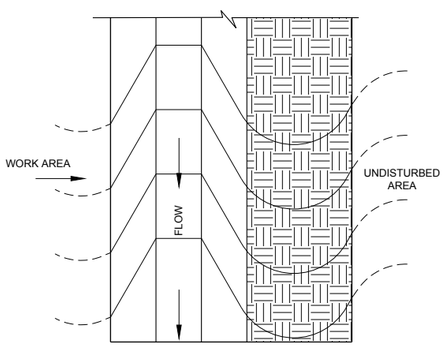
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CIVIL DETAILS
1 OF 5

C-700

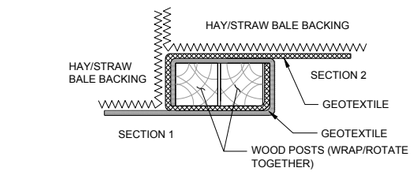
Sheet: 19 of 25



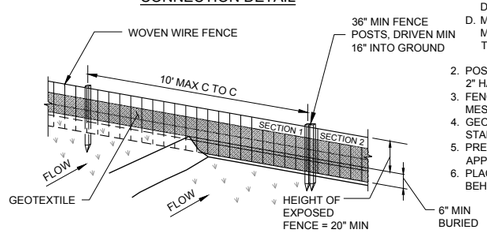
NOTES:

1. OUTLET TO UNDISTURBED AREAS OR INSTALL CULVERT ACROSS THE R.O.W. TO MAINTAIN CLEAN WATER.
2. DIVERSION DITCHES ARE INTENDED TO COLLECT AND CONVEY CLEAN SURFACE WATER, SPRINGS, ETC. AWAY FROM THE WORK AREA.
3. SWALE DIMENSIONS AND DEPTH TO BE ADJUSTED ACCORDINGLY BASED ON CONTRIBUTING DRAINAGE AREA.
4. STABILIZE DIVERESION SWALE WITH TEMPORARY SEED MIX AND MULCH.

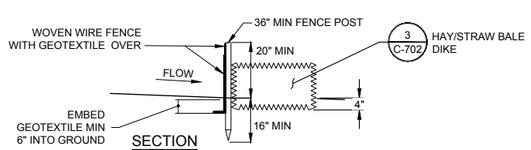
4 TEMPORARY DIVERSION SWALE
SCALE: NTS



CONNECTION DETAIL



PERSPECTIVE

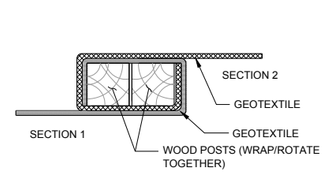


SECTION

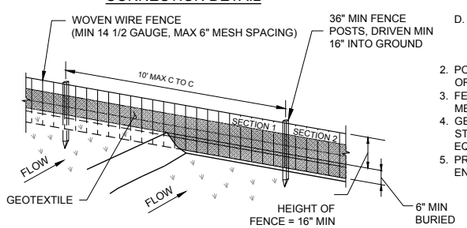
NOTES:

1. CONSTRUCTION NOTES FOR FABRICATED SILT FENCE.
   A. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
   B. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
   C. WHEN TWO SECTIONS OF GEOTEXTILE ADJOIN EACH OTHER, OVERLAP BY SIX INCHES AND FOLD (SEE CONNECTION DETAIL).
   D. MAINTAIN AS NEEDED AND REMOVE MATERIAL WHEN "BULGES" DEVELOP IN THE SILT FENCE.
2. POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD
3. FENCE: WOVEN WIRE, 14 1/2 GA. 6" MAX MESH OPENING.
4. GEOTEXTILE: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL.
5. PREFABRICATED UNIT: ENVIROFENCE, OR APPROVED EQUAL.
6. PLACE HAY/STRAW BALES AS BACKING BEHIND SILTFENCE.

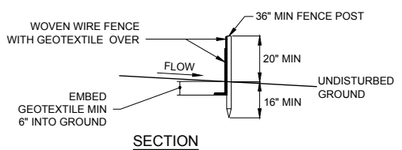
5 AUGMENTED SILT FENCE
SCALE: NTS



CONNECTION DETAIL



PERSPECTIVE

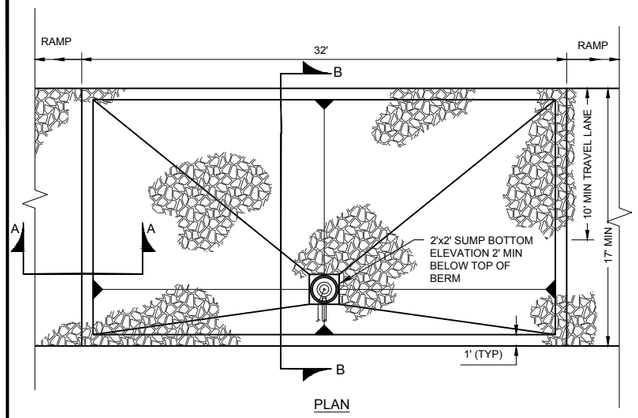


SECTION

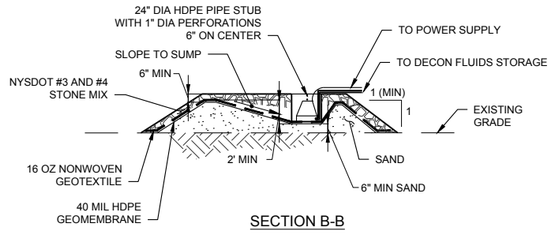
NOTES:

1. CONSTRUCTION NOTES FOR FABRICATED SILT FENCE.
   A. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
   B. GEOTEXTILE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
   C. WHEN TWO SECTIONS OF GEOTEXTILE ADJOIN EACH OTHER, OVERLAP BY SIX INCHES AND FOLD (SEE CONNECTION DETAIL).
   D. MAINTAIN AS NEEDED AND REMOVE MATERIAL WHEN "BULGES" DEVELOP IN THE SILT FENCE.
2. POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD
3. FENCE: WOVEN WIRE, 14 1/2 GA. 6" MAX MESH OPENING.
4. GEOTEXTILE: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL.
5. PREFABRICATED UNIT: GEOFAB. ENVIROFENCE, OR APPROVED EQUAL

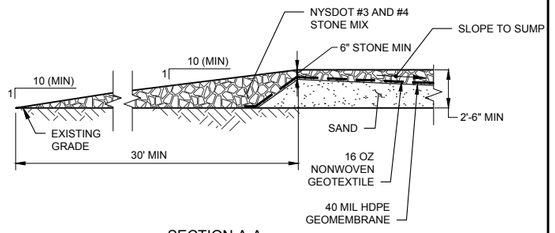
6 SILT FENCE
SCALE: NTS



PLAN



SECTION B-B

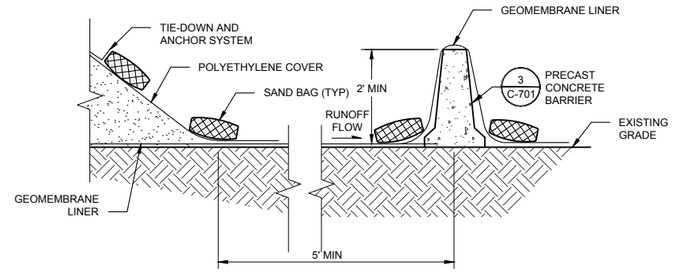


SECTION A-A

NOTES:

1. THIS DETAIL IS FOR ILLUSTRATIVE PURPOSES ONLY AND DEPICTS THE TYPICAL COMPONENTS INSTALLED TO ACCOMMODATE THE REQUIRED DECONTAMINATION PROCEDURES.

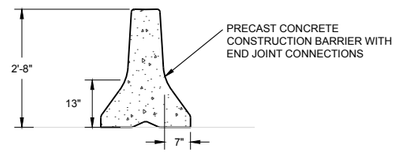
1 DECONTAMINATION PAD
SCALE: NTS



2 CONTAMINATED MATERIAL STOCKPILE CONTAINMENT
SCALE: NTS

NOTES:

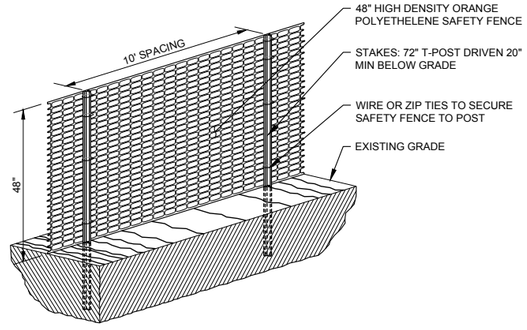
1. POLYETHYLENE COVER IS NOT REQUIRED FOR STOCKPILES OF CERTIFIED CLEAN MATERIAL; IT MAY BE USED AS A DUST CONTROL MEASURE.
2. CONTAMINATED MATERIAL STOCKPILE SHALL BE COVERED TO THE EXTENT PRACTICABLE.
3. CONTAMINATED MATERIAL STOCKPILES SHALL BE LOCATED WITHIN DEFINED AREAS NOTED ON C-300 OR AT ALTERNATE LOCATIONS APPROVED BY THE REMEDIAL ENGINEER.
4. ENTRANCE TO CONTAINMENT AREA SHALL BE CONSTRUCTED WITH A MOUNTABLE BERM OR SIMILAR TO ALLOW ACCESS WHILE CAPTURING STORMWATER RUNOFF OR DEWATERING DRAINAGE WITHIN THE CONTAINMENT AREA.
5. PROVIDE GEOMEMBRANE LINER PROTECTION AS REQUIRED TO PREVENT DAMAGE DURING VEHICLE ACCESS AND SOIL/MATERIAL PLACEMENT.
6. STORMWATER RUNOFF CAPTURED WITHIN THE CONTAINMENT AREA SHALL BE MANAGED AS CONSTRUCTION WATER.
7. IN PLACE OF PRECAST CONCRETE BARRIERS, PERIMETER BERM MAY BE CONSTRUCTED OF HAY BALES OR SAND BAGS PROVIDED THE MINIMUM HEIGHT IS MAINTAINED.



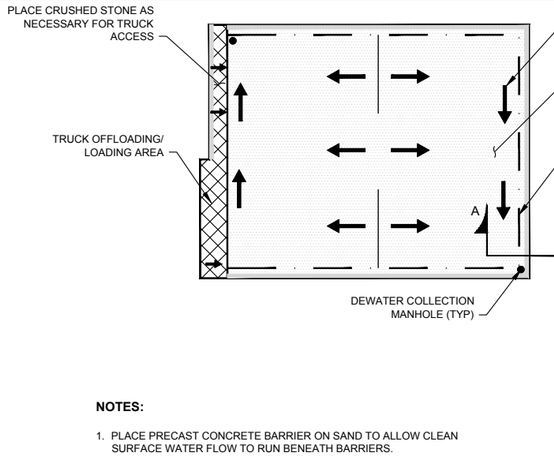
3 PRECAST CONCRETE BARRIER
SCALE: NTS

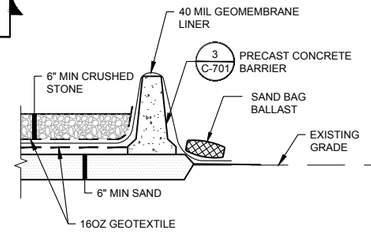
NOTE:

1. BASED ON A DETAIL PROVIDED BY WWW.EROSIONRUNNER.COM.



4 TEMPORARY CONSTRUCTION FENCE
SCALE: NTS



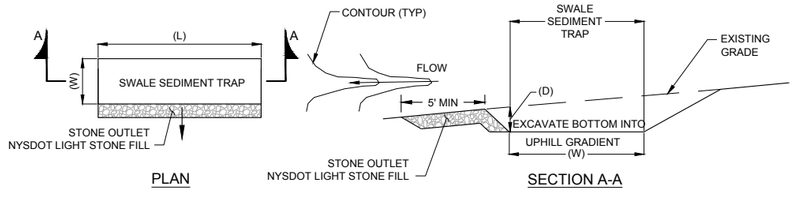


SECTION A-A

NOTES:

1. PLACE PRECAST CONCRETE BARRIER ON SAND TO ALLOW CLEAN SURFACE WATER FLOW TO RUN BENEATH BARRIERS.
2. DEWATERING PAD LAYOUT AND DIMENSIONS SHALL BE AS SHOWN ON C-301.

5 SEDIMENT DEWATERING AREA
SCALE: NTS



PLAN SECTION A-A

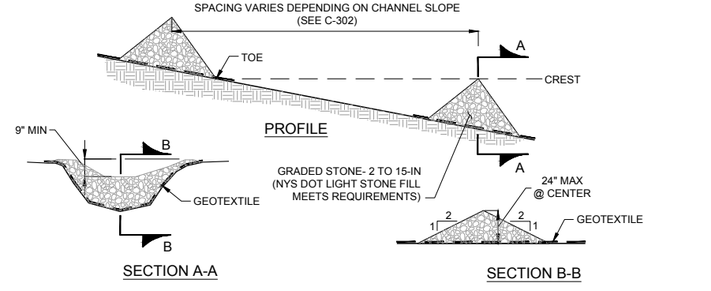
CONSTRUCTION SPECIFICATIONS FOR ST-II:

1. CONSTRUCT THE SWALE SEDIMENT TRAP IN ACCORDANCE WITH THE DIMENSIONS PROVIDED.
2. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. THE SEDIMENT TRAP SHALL BE INSPECTED AFTER EACH RAIN EVENT AND REPAIRS MADE AS NEEDED.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION SHALL BE MINIMIZED.
5. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE CONTRIBUTORY DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SWALE SEDIMENT TRAP DIMENSIONS

TRAP NUMBER:	1	2	3
DISTURBED AREA (ACRES):	0.06	0.2	0.3
STORAGE REQUIRED AT 1800 CF/AC DISTURBED (CF):	108	360	540
STORAGE PROVIDED (CF):	200	360	600
STORAGE DEPTH "D" (FT):	2'	2'	2'
STORAGE WIDTH "W" (FT):	10'	12'	15'
STORAGE LENGTH "L" (FT):	10'	15'	20'

6 SWALE SEDIMENT TRAP
SCALE: NTS



SECTION A-A SECTION B-B

CONSTRUCTION SPECIFICATIONS:

1. STONE SHALL BE PLACED ON A GEOTEXTILE FOUNDATION AS SHOWN ON THE EROSION CONTROL PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAN IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5-FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

7 STONE CHECK DAM
SCALE: NTS

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

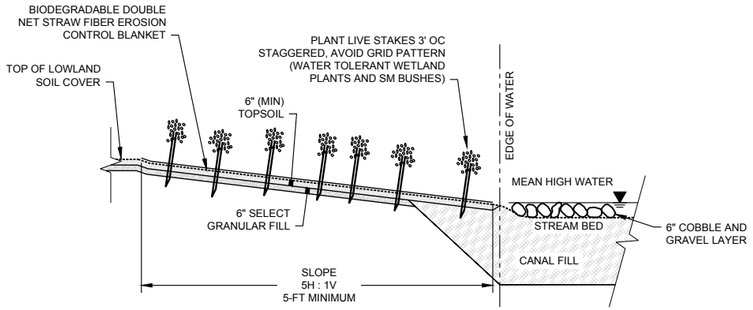
REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CIVIL DETAILS
2 OF 5

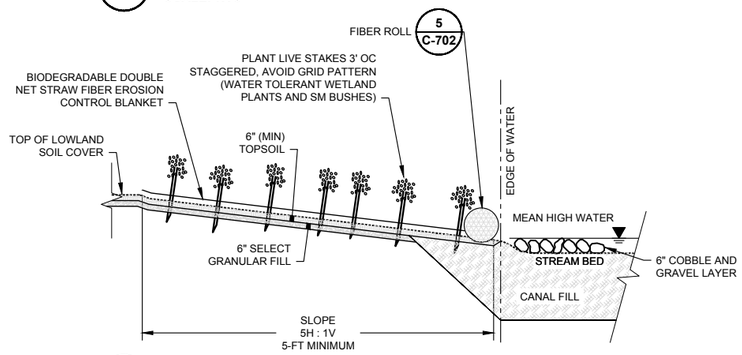
C-701

Sheet: 20 of 25

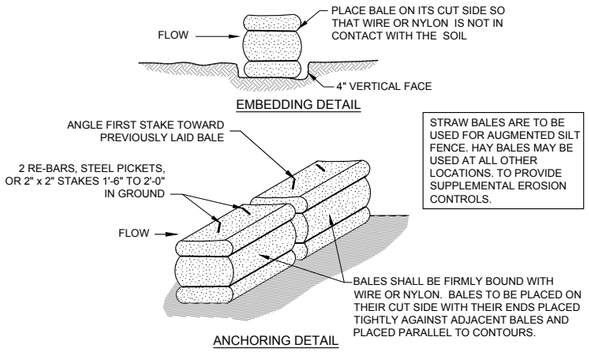
GARDNER, ZACHARY Printed: 11/28/2017 9:41 AM Layout: C-701
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_C-701.DWG



1 CANAL BANK RESTORATION TYPE A
SCALE: NTS



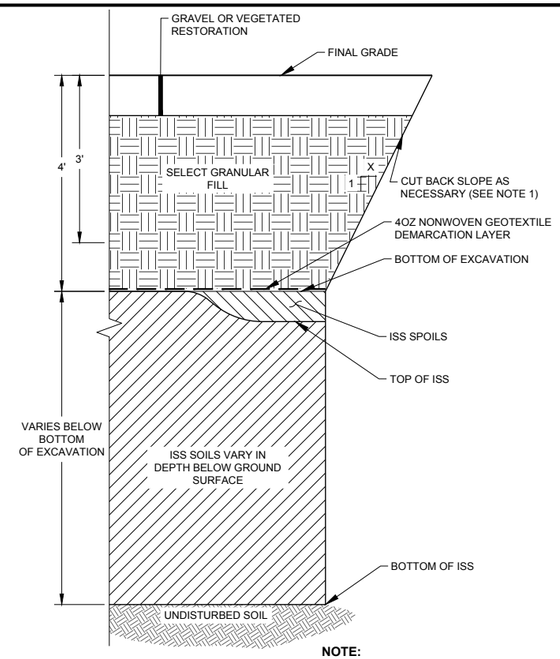
2 CANAL BANK RESTORATION TYPE B
SCALE: NTS



CONSTRUCTION SPECIFICATIONS:

1. BALES SHALL BE PLACED BEHIND SILT FENCE AS A COMPONENT OF AUGMENTED SILT FENCE.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR REBAR DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARDS THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

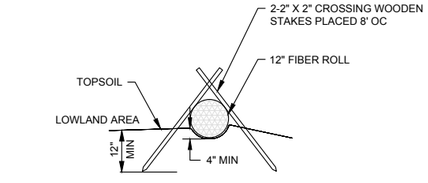
3 HAY/STRAW BALE DIKE
SCALE: NTS



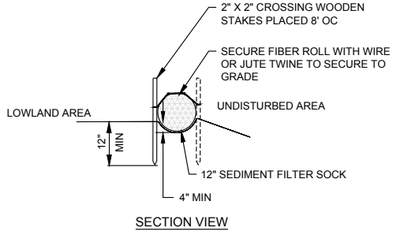
NOTE:

1. CUT BACK SLOPE (1:X) SHALL BE EXCAVATED AT LOCATIONS NOTED ON C-___ TO COORDINATE WITH SOIL TYPE, GROUNDWATER CONDITION, AND THE REQUIREMENTS OF OSHA SAFETY STANDARDS.

4 EXCAVATION / ISS
SCALE: NTS



SECTION VIEW
CROSSING STAKE OPTION



SECTION VIEW
ALTERNATING STAKE OPTION

5 FIBER ROLL
SCALE: NTS

HALEY ALDRICH
Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

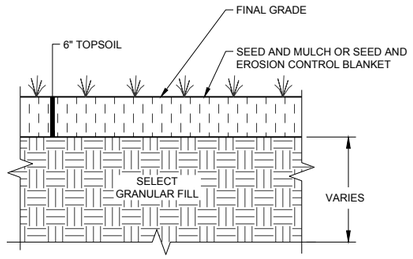
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

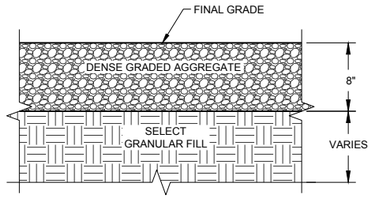
CIVIL DETAILS
3 OF 5

C-702

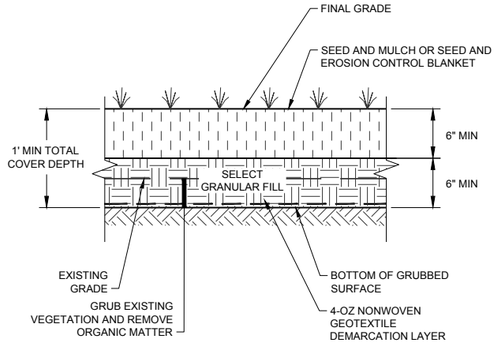
Sheet: 21 of 25



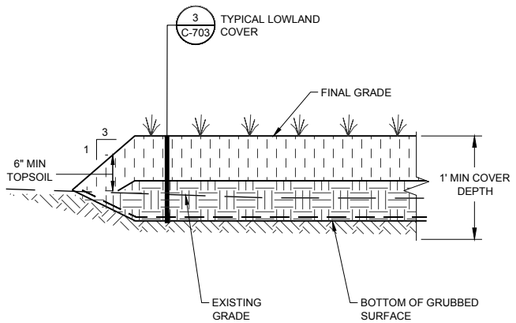
1 VEGETATED RESTORATION
SCALE: NTS



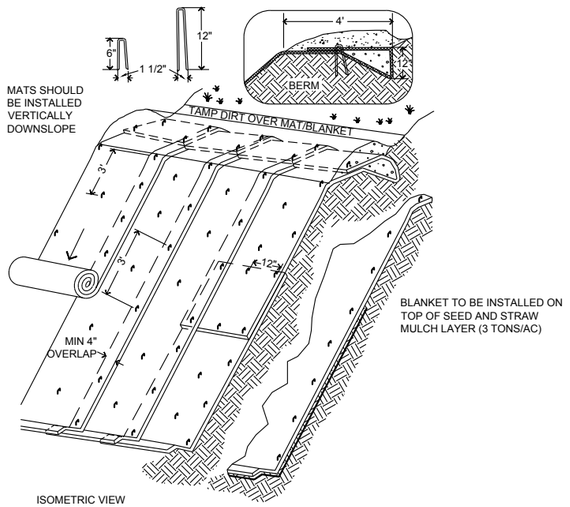
2 GRAVEL RESTORATION
SCALE: NTS



3 TYPICAL LOWLAND COVER
SCALE: NTS



4 LOWLAND COVER TERMINATION
SCALE: NTS



TYPICAL SLOPE SOIL STABLIZATION

5 EROSION CONTROL BLANKET
NTS

INSTALLATION NOTES:

SITE PREPARATION

1. PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE COMPLETE CONTACT OF THE PROTECTION MATTING WITH THE SOIL.
2. GRADE AND SHAPE AREA OF INSTALLATION.
3. REMOVE ALL ROCKS, SOIL CLODS, VEGETATIVE OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED MATTING WILL HAVE DIRECT CONTACT WITH THE SOIL.
4. PREPARE SEEDBED BY LOOSENING 2" TO 4" OF TOPSOIL ABOVE FINAL GRADE.
5. INCORPORATE AMENDMENTS, SUCH AS LIME AND FERTILIZER, INTO SOIL ACCORDING TO SOIL TEST AND THE SEEDING PLAN.

SEEDING

1. SEED AREA BEFORE MATTING INSTALLATION, FOLLOWING APPROPRIATE APPLICATION RATE (SEE SEEDING SPECIFICATION).

MULCHING

1. PLACE STRAW MULCH AT AN APPLICATION RATE OF 3 TONS PER ACRE, PRIOR TO THE INSTALLATION OF THE MATTING.

ANCHORING

1. U-SHAPED WIRE STAPLES, METAL GEOTEXTILE STAKE PINS OR TRIANGULAR WOODEN STAKES CAN BE USED TO ANCHOR MATS TO THE GROUND SURFACE. WIRE STAPLES SHOULD BE MINIMUM OF 8 GAUGE. METAL STAKES PINS SHOULD BE ⅜" DIAMETER STEEL WITH 1 ½" STEEL WASHER AT THE HEAD OF THE PIN. WIRE STAPLES AND METAL STAKE SHOULD BE DRIVEN FLUSH TO THE SOIL SURFACE. WOODEN STAKES SHOULD BE 3" X 1 ½" TRAINGUALR WOODEN SURVEY STAKES. TWO INCHES OF STAKING SHOULD REMAIN ABOVE SOIL SURFACE. ALL ANCHORS SHOULD BE 8"-18" LONG AND HAVE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT. LONGER ANCHORS MAY BE REQUIRED FOR LOOSE SOILS.

INSPECTION AND MAINTENANCE

1. ALL MATTING SHOULD BE INSPECTED IN ACCORDANCE WITH SWPPP FOLLOWING INSTALLATION UNTIL 80% STABILIZED OR SWPPP N.O.T. HAS BEEN SUBMITTED.
2. INSPECT INSTALLATION AFTER SIGNIFICANT RAINFALL EVENTS TO CHECK FOR EROSION AND UNDERMINING. ANY FAILURE SHOULD BE REPAIRED IMMEDIATELY.
3. IF WASHOUT OR BREAKAGE OCCURS, RE-INSTALL THE MATERIAL AFTER REPAIRING THE DAMAGE TO THE SLOPE OR DRAINAGEWAY.

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

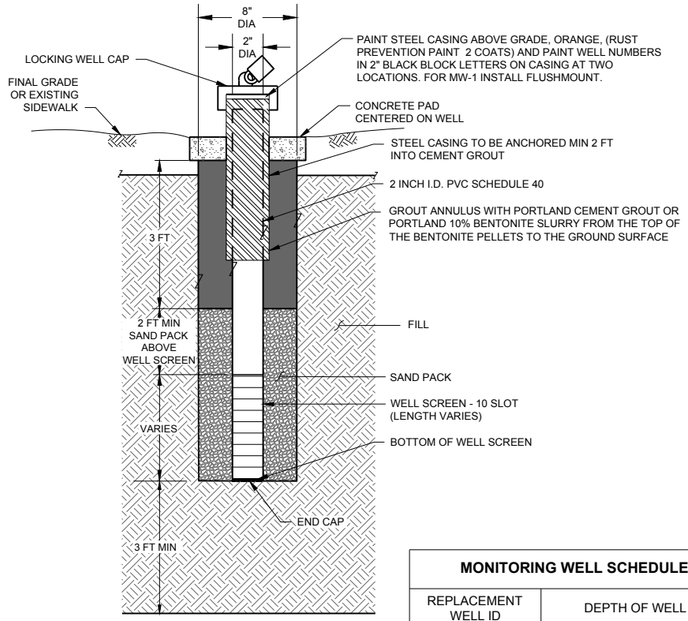
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CIVIL DETAILS
4 OF 5

C-703

Sheet: 22 of 25

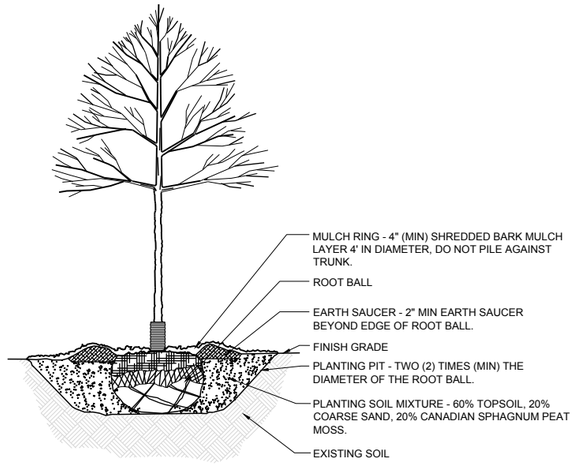


MONITORING WELL SCHEDULE (TO BE INSTALLED BY REMEDIAL ENGINEER)

REPLACEMENT WELL ID	DEPTH OF WELL	SCREEN LENGTH	ANTICIPATED DEPTH TO TOP OF SCREEN
MW-1	30 FT BGS, OR TOP OF BEDROCK / CONFINING UNIT	10 FT	20 FT BGS
MW-2	30 FT BGS, OR TOP OF BEDROCK / CONFINING UNIT	10 FT	20 FT BGS
MW-3	30 FT BGS, OR TOP OF BEDROCK / CONFINING UNIT	10 FT	20 FT BGS
MW-4	30 FT BGS, OR TOP OF BEDROCK / CONFINING UNIT	10 FT	20 FT BGS

INSTALL A FLUSHMOUNT ROAD BOX FOR MW-1.

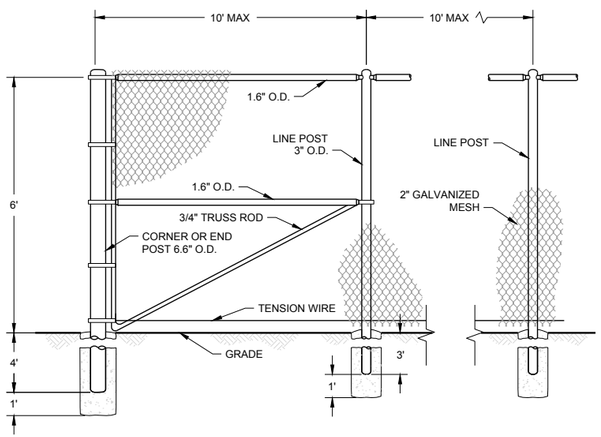
1 MONITORING WELL
SCALE: NTS



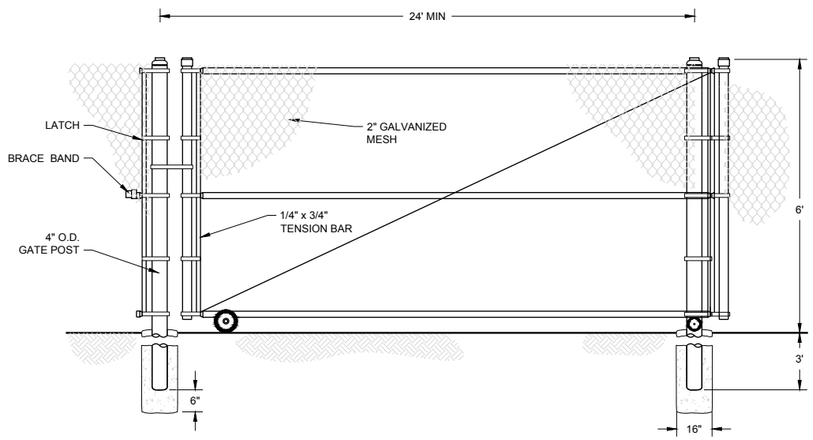
GENERAL PLANTING NOTES:

1. DO NOT PRUNE TREE AT PLANTING EXCEPT TO: REMOVE CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES.
2. MARK THE NORTH SIDE OF TREE IN NURSERY. ROTATE MARK ON TREE TO FACE NORTH AT SITE.
3. CUT WIRE BASKET, BURLAP AND ROPE IN FOUR PLACES AND FOLD DOWN 8" INTO PLANTING PIT.
4. THE ROOT BALL SHALL REST ON UNEXCAVATED AND OR NATURAL SUBGRADE.
5. ALL TREE PITS SHALL RECEIVE 3 FERTILIZER TABLETS EQUALLY SPACED WITHIN THE TOP 12" OF PLANTING SOIL MIXTURE.
6. TAMP BACKFILL MIXTURE AROUND ROOT BALL BASE FIRMLY WITH FOOT PRESSURE TO PREVENT SHIFTING OF THE TREE.
7. TRUNK FLARE SHALL BE VISIBLE AT COMPLETION OF PLANTING OR TREE WILL BE REJECTED.DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.
8. WRAP TREE TRUNKS ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT.

2 TREE PLANTING DETAIL
SCALE: NTS



3 CHAIN LINK FENCE
SCALE: NTS



4 CHAIN LINK FENCE GATE
SCALE: NTS

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	TWJ
Designed By:	ZGG
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CIVIL DETAILS
5 OF 5

C-704

Sheet: 23 of 25

WATER TREATMENT NOTES

1. THE CONSTRUCTION WATER TREATMENT SYSTEM SHOWN IN THESE DRAWINGS IS A RECOMMENDED DESIGN ALTERNATIVE AND MAY NOT NECESSARILY REPRESENT THE FINAL WATER TREATMENT SYSTEM THAT WILL BE IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR MAY PROPOSE AN ALTERNATE WATER TREATMENT SYSTEM DESIGN, THAT AT A MINIMUM SHALL MEET THE PERFORMANCE STANDARDS AND DESIGN, CONSTRUCTION AND OPERATIONAL INTENT INDICATED IN THE DRAWINGS.
2. THE CONSTRUCTION WATER TREATMENT SYSTEM SHALL BE CAPABLE OF PROCESSING A FLOW RATE OF AT LEAST 50 GPM DURING ONGOING REMEDIATION ACTIVITIES.
3. HIGH-HIGH LEVEL ALARMS SHALL BE PROVIDED ON ALL TANKS AND SHALL MINIMALLY ACTIVATE VISUAL AND AUDIO ALERTS TO SYSTEM OPERATORS. HIGH-HIGH LEVEL ALARMS SHALL BE INSTALLED TO PROVIDED SUFFICIENT TIME FOR OPERATORS TO SHUT DOWN THE SYSTEM (I.E. INFLUENT AND TREATMENT PUMPS) TO PREVENT OVERFLOW OF TANKS INTO SECONDARY CONTAINMENT. FLOATS SHALL BE USABLUEBOOK #47700 NON-MERCURY FLOATS OR APPROVED EQUAL.
4. ALL PIPING SHOWN SHALL BE FABRIC REINFORCED, 150 PSI EPDM OR NITRILE RUBBER HOSES WITH STAINLESS STEEL KAMLOK® CAM & GROOVE COUPLERS OR APPROVED EQUAL UNLESS OTHERWISE SPECIFIED. HOSES AND KAMLOCK® FITTINGS SHALL HAVE A MINIMUM PRESSURE RATING OF 150 PSI.
5. VALVES SHALL BE BRASS OR STAINLESS STEEL BALL VALVES UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL PROVIDE SECONDARY CONTAINMENT FOR ALL COMPONENTS AND PIPING OF THE CONSTRUCTION WATER TREATMENT SYSTEM UNLESS OTHERWISE SPECIFIED:
   A. PROVIDE 12" HIGH HDPE SPILL GUARD OR APPROVED EQUAL SECONDARY CONTAINMENT FOR INFUENT AND EFFLUENT TANKS.
   B. PROVIDE SECONDARY CONTAINMENT FOR ALL OTHER SYSTEM COMPONENTS CAPABLE OF CONTAIN A VOLUME EQUAL TO 110% OF THE LARGEST CONTAINER WITHIN THE CONTAINMENT AREA PLUS THE VOLUME OF A 25-YEAR 24-HOUR RAIN EVENT (5 INCHES).
7. BACKWASHING PIPING FOR GRANULAR ACTIVATED CARBON VESSELS IS NOT SHOWN BUT SHALL BE PROVIDED. BACKWASH WATER SUPPLY SHALL BE FROM TK-112 OR A CLEAN WATER SOURCE. FLOW RATE SHALL BE WITHIN THE MANUFACTURERS RECOMMENDED FLOW RATE OF 40-50 GPM. BACKWASH WASTEWATER SHALL BE FILTERED AND RE-INTRODUCED TO THE SYSTEM FOR TREATMENT.
8. THE DESIGN ENGINEER SHALL OBTAIN THE SPDES PERMIT.
9. THE DESIGN SHOWN INCLUDE MINIMUM REQUIREMENTS FOR TREATMENT. IF NECESSARY, ADDITIONAL TREATMENT COMPONENTS SHALL BE PROVIDED BY THE CONTRACTOR TO ACHIEVE THE SPDES EFFLUENT LIMITS AND REQUIREMENTS.
10. REFER TO CONSTRUCTION WATER TREATMENT SYSTEM SPECIFICATION 02 70 00 FOR ADDITIONAL REQUIREMENTS AND SUBMITTALS.

IDENTIFICATION LETTERS

F	BAG FILTER
LAH	LEVEL ALARM HIGH
P	PUMP
PI	PRESSURE INDICATOR
TK	TANK
V	VESSEL

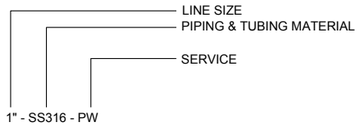
PIPING AND TUBING MATERIALS

H	HOSE

SERVICE & INSULATION ABBREVIATIONS

PW	PROCESS WATER
WW	WASTE WATER

PIPING IDENTIFICATION



LEGEND

PROCESS LINE

INSTRUMENT LINE

FLANGE

GENERAL INSTRUMENT SYMBOLS

FIELD OR LOCALLY MOUNTED DISCRETE INSTRUMENT

ALARM LIGHT

VALVE SYMBOLS

BALL VALVE

CHECK VALVE

$\frac{1}{2}$" BALL VALVE (SAMPLE PORT)

EQUIPMENT SYMBOLS

BAG FILTER

CARBON OR ANION RESIN VESSEL

PUMP

TANK

BAFFLED TANK

FLOW FROM OR TO THE REFERENCE LOCATION

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	MS
Designed By:	BL
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

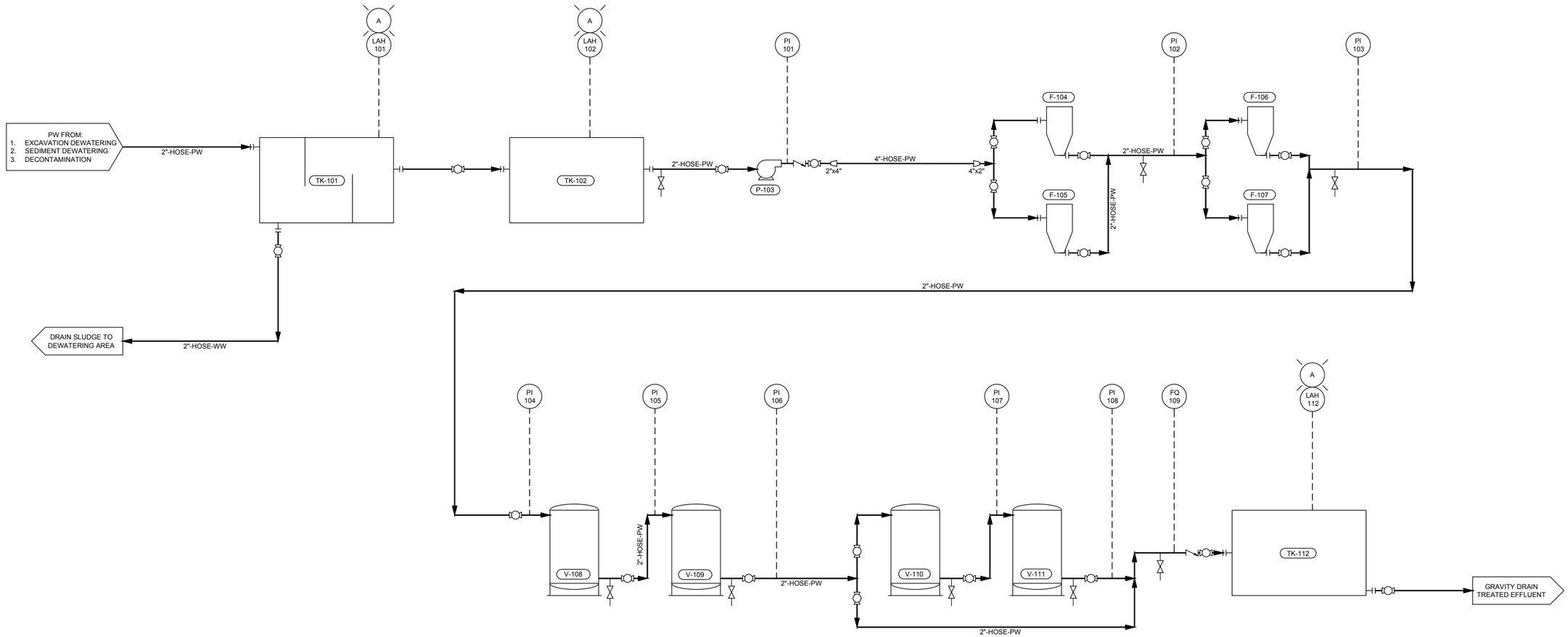
Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CONSTRUCTION WATER TREATMENT SYSTEM NOTES AND LEGEND

P-100

Sheet: 24 of 25



TK-101
BAFFELED TANK
516" L X 96" W
18,100 GAL
WORKSAFE TWO WEIR TANK

TK-102
FRAC TANK
516" L X 96" W
21,000 GAL
WORKSAFE STEEL BI-LEVEL TANK

P-103
DIESEL OPERATED PUMP
POWER PRIME PUMPS DV-80
50 GPM @110 FT

F-104
BAG FILTER
200 GPM CAPACITY
50 MICRON OIL SORBENT BAG
RAIN FOR RENT BF200

F-106
BAG FILTERN
200 GPM CAPACITY
5 MICRON FELT BAG
RAIN FOR RENT BF200

V-108
2,000 LB GAC
100 GPM CAPACITY
48" DIA X 104" H
EVOQUA
PV2000

V-110
ANION RESIN
75 GPM CAPACITY
36" DIA X 78" H
EVOQUA
SUPER 30 VESSEL

TK-112
FRAC TANK
516" L X 96" W
21,000 GAL
WORKSAFE STEEL BI-LEVEL TANK

F-105
BAG FILTER
200 GPM CAPACITY
50 MICRON OIL SORBENT BAG
RAIN FOR RENT BF200

F-107
BAG FILTER
200 GPM CAPACITY
5 MICRON FELT BAG
RAIN FOR RENT BF200

V-109
2,000 LB GAC
100 GPM CAPACITY
48" DIA X 104" H
EVOQUA
PV2000

V-111
ANION RESIN
75 GPM CAPACITY
36" DIA X 78" H
EVOQUA
SUPER 30 VESSEL

HALEY ALDRICH

Haley & Aldrich of New York
200 Town Centre Drive, Suite 2
Rochester, NY 14623-4264
Tel: 585.359.9000
Fax: 585.359.4650
www.haleyaldrich.com

PREPARED FOR:

NYSEG

Project No.:	34507-027
Scale:	AS SHOWN
Date:	01-DEC-2017
Drawn By:	MS
Designed By:	BL
Checked By:	JPM
Approved By:	JES/SAU

Stamp:

DRAFT

NOT FOR CONSTRUCTION

Rev.	Description	By	Date
E	100% DRAFT	H&A	12/01/17
D	NYSDEC FOR REVIEW	H&A	05/30/17
C	95% DESIGN	H&A	03/24/17
B	NYSDEC FOR REVIEW	H&A	07/29/16
A	50% DESIGN	H&A	05/06/16

REMEDIAL DESIGN
NYSEG - SENECA FALLS
FORMER MANUFACTURED GAS PLANT (MGP) SITE
SITE NUMBER 850010
187 FALL STREET
SENECA FALLS, NEW YORK

CONSTRUCTION WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM

P-101

Sheet: 25 of 25

GARDNER, ZACHARY Printed: 11/28/2017 9:43 AM Layout: P-101
G:\34507_SENECA_FALLS\600-DESIGN\04-DESIGN PLANS\34507-027_P-101.DWG

APPENDIX B

Technical Specifications

HALEY ALDRICH

SECTION 01 11 00

SUMMARY OF WORK

[NOTE: SECTION 00 SPECIFICATIONS NOT SUBMITTED TO NYSDEC FOR REVIEW; THESE ARE ONLY INCLUDED IN THE BID PACKAGE TO REMEDIATION CONTRACTORS]

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Description.
B. Intent of Documents.
C. Work Sequence.
D. Glossary.
E. Specific Conventions.
F. Workmanship.
G. Site Safety & Work Rules.
H. Permits & Fees.
I. Taxes.

1.02 PROJECT DESCRIPTION

A. A brief description of project activities: The Remediation is intended to remove the accessible coal tar impacted materials associated with the former MGP operations at the Former Seneca Falls MGP and intercept potential product migration off site. The Work includes sequenced activities, generally noted as follows:

1. Develop and implement a site-specific Health & Safety Plan (Section 01 35 29) to manage project-related risks to workers, visitors and public, which is consistent with the action levels described in the Site-specific Health and Safety Plan.

2. Complete all required Submittals to facilitate the timely progress of Work.

3. Perform pre-construction utility location work and administrative requirements. Identify overhead or underground utilities that may need to be relocated prior to the start of Work.

4. Obtain all permits required for work not previously obtained by Owner or Design Engineer.

5. Mobilize construction equipment and personnel to the Site.

6. Perform pre-construction inspection and survey, as necessary, of buildings, utilities, and other structures in or adjacent to areas of planned remedial activities that may be impacted by excavation or any other aspect of work.

7. Implement dust, vapor, and odor emissions controls throughout the duration of the work.

8. Install erosion and sediment control measures as shown in the Drawings and described in the Stormwater Pollution Prevention Plan (SWPPP). Maintain measures, supplement, and adjust as required throughout project duration as construction progresses and the active work area changes.

9. Clear and grub Site within the identified limit of work as shown on the Drawings. Grubbing shall be sequenced to coordinate with the active work area to minimize the open area of disturbance.

10. Install and maintain temporary facilities and controls including field offices with utilities, temporary construction access roads, fencing and barricades, decontamination pad, contaminated material containment stockpile area(s), sediment dewatering area, construction water storage facilities, construction water treatment system, and in-situ solidification batch plant.

11. Manage on-site construction water generated from dewatering activities due to excavation dewatering, sediment dewatering and any excess decontamination water requiring treatment. Collect, convey, and store construction water on-site, treat, and discharge to the Seneca River (Seneca-Cayuga Canal) per approved permit. Remediation Engineer will collect required process treatment water samples and provide analytical results to Remediation Contractor upon receipt.

12. Remove MGP-impacted Seneca River (Seneca-Cayuga Canal) sediment within the dredge area limit, process/moisture condition sediment as necessary, and transport to a designated off-site licensed disposal facility.

13. Backfill Seneca River (Seneca-Cayuga Canal) to final elevations and grades shown on the Drawings to provide a stable bank and bottom substrate for restoration of the benthic community.

14. Install bank stabilization measures along the dredge area limit.

15. Install Lowland Cover systems using clean imported soil over two defined areas within the Lowland Area. Seed and install erosion control blanket to restore vegetation.

16. Install and maintain temporary support of excavation systems within the residential property, as necessary.

17. Remove MGP-impacted soil within the residential property excavation limits, moisture condition as necessary, and transport to a designated off-site licensed disposal facility.

18. Backfill residential property to final elevations and grades shown on the Drawings. Seed and mulch to stabilize restoration.

19. Demolish surface structures in the Upland Area, size reduce material, and transport to a designated off-site licensed disposal facility.

20. Install and maintain temporary support of excavation support systems in the Upland Area, as necessary.

21. Remove MGP-impacted soil within the Upland Area excavation/ISS limits, moisture condition as required, and transport to a designated off-site licensed disposal facility. Demolish and remove subsurface piping and remnant MGP structures in preparation for ISS. Size reduce MGP-impacted construction and demolition debris and transport to a designated off-site licensed disposal facility.

22. Solidify MGP-impacted soil in the Upland Area within the excavation/ISS limits to the depths indicated on the Drawings. Perform in-situ solidification by mixing cement with impacted soil to meet the performance requirements of the Specifications. Remove excess ISS spoils and transport to a designated off-site licensed disposal facility.

23. Grade top surface of solidified soil spoils as subgrade in the Upland Area and backfill with clean imported backfill.

24. Construct gravel parking area in Upland Area to the lines and grades shown on the Drawings. Seed and mulch all other areas to restore vegetation.

25. Seed and mulch all disturbed areas within the limit of work. Repair access road to Lowland area as necessary to support future site operation and maintenance activities.

26. Install groundwater monitoring wells as shown on the Drawings (Well installation to be completed by Remediation Engineer).

27. Install chain link fence and gate.

28. Decontaminate equipment and personnel.

29. Provide project documentation including submittals, daily reports, results of quality control testing, as-built survey, etc.

30. Clean site, remove temporary facilities and controls.

31. Perform post-construction inspection and survey, as necessary, of buildings, utilities, and other structures in or adjacent to areas of planned remedial activities that may be impacted by excavation or any other aspect of work.

32. Demobilize.

1.03 INTENT OF DOCUMENTS

A. Remediation Contractor shall furnish the following:

1. All labor, tools, materials, equipment, transportation, taxes and related items essential for completion of the Work.

2. All systems complete and left in good operating condition.

3. Apparatus, appliance, material or Work not shown on Drawings but mentioned in Specifications, or vice versa.

4. Accessories, reasonably inferable from Drawings and Specifications, necessary to make work complete and ready for operation.

5. New equipment and material unless otherwise called for.

B. Notes or instructions shown on any one Drawing apply, where applicable, to all other Drawings.

C. References to codes, specifications and standards called for in the Specification Sections and on the Drawings, mean the latest edition, amendment and revision of such referenced standard in effect on the date of these Contract Documents.

D. Code Compliance: Provide Work in compliance with the following:

1. Fire Code of New York State.

2. New York State Labor Laws.

3. Occupational Safety and Health Administration (OSHA) Regulations.

4. National Electric Code.

5. Ordinances and building code of Seneca Falls, New York.

6. All other Codes applicable to Work.

7. Drawings and Specifications in excess of code/regulations requirements and not contrary to the same.

1.04 WORK SEQUENCE

Construct Work in stages as stated in the Specifications and generally indicated in Sub-Part 1.02(A). During construction period, coordinate construction schedule and operations with Owner and Remediation Engineer.

1.05 GLOSSARY

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
API	American Petroleum Institute
USACE	U.S. Army Corps of Engineers
ASSE	American Society of Safety Engineers
ASTM	American Society for Testing Materials
AWSC	American Welding Society
IEE	Institute of Electrical and Electronics Engineers
IRI	Industrial Risk Institute
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NYSDEC	New York State Department of Environmental Conservation
UFPO	Underground Facilities Protective Organization
UL	Underwriters' Laboratories, Inc.
OSHA	Occupational Safety and Health Administration
USACE	U.S. Army Corp of Engineers
USCG	U.S. Coast Guard
As Called For	Material, equipment including the execution specified/shown in the Contract Documents.
Code Requirements	Minimum requirements.
Design Engineer	Haley & Aldrich of New York
Remediation Engineer	TBD
Equal or Equivalent	Equally acceptable as determined by the Engineer.

Final Acceptance	Owner acceptance of the project from Remediation Contractor upon certification by the Remediation Engineer.
Furnish	Supply and deliver to installed location.
Inspection	Visual observations by Remediation Engineer or Owner's Site Representative.
Install	Mount and connect equipment and associated materials ready for use.
Or Approved Equal	Approved equal or equivalent as determined by Remediation Engineer.
Owner	New York State Electric & Gas.
Provide	Furnish, install and connect ready for use.
Relocate	Disassemble, disconnect and transport equipment to new location, then clean, test and install ready for use.
Replace	Remove and provide new item.
Satisfactory	As specified in Contract Documents.
Remediation Contractor	Bidder receiving the Award of Contract.
Substantial Completion	Remediation Contractor's completion of specified work ready for final inspection by Owner and Remediation Engineer.
Subcontractor	Any Firm Contracted Directly by Remediation Contractor to complete Contract work at Site.

1.06 SPECIFICATION CONVENTIONS

A. For convenience, these specifications are divided into various sections. Such division is not intended to limit or define subcontractors. The complete performance of the Work will be the responsibility of the Remediation Contractor.

B. These specifications are written in the imperative mood and streamlined form. This imperative language is directed to the Remediation Contractor, unless specifically noted otherwise.

1.07 WORKMANSHIP

A. All workers employed on this project shall be persons skilled in that work which they are to perform. Work will not be approved if it does not meet the quality of workmanship called for in these specifications. If this quality of workmanship is not exactly defined herein, it shall be assumed to be the best standards of workmanship for that trade. The Remediation Engineer shall determine whether or not the quality of workmanship is acceptable.

B. If workmanship for a portion of this Work is not acceptable, same shall be removed and replaced at the Remediation Contractor's expense.

1.08 SITE SAFETY & WORK RULES

A. Remediation Contractor and Subcontractors shall be responsible for strict adherence to the Site-specific Health and Safety Plan. Adherence shall be applied continuously and not be limited to normal working hours.

B. Remediation Contractor and Subcontractors shall take all necessary precautions to provide safety provisions to adequately protect the public, the personnel and property of the Owner, Remediation Engineer, and all other persons, property and equipment, involving his work at the job site. Remediation Contractor and its subcontractors shall take provisions, based on applicable laws, building and construction codes, whether required by the following mentioned laws and codes or not, and completely responsible for conditions.

C. Remediation Contractor and Subcontractors shall protect the Work from theft, vandalism and unauthorized entry. The Remediation Contractor shall maintain responsibility for security of the Work throughout the construction period until the Owner acceptance precludes the need for Remediation Contractor security. The Remediation Contractor shall maintain a list of authorized personnel and visitors, and submit a copy to the Remediation Engineer on request.

D. Remediation Contractor's equipment shall be managed in such a way as not to inhibit activity at adjacent properties or other onsite activities.

E. Remediation Contractor's personnel shall sign in and out daily on the daily sign-in log.

1.09 PERMITS AND FEES

A. The Subcontractor shall give all required notices relative to the Work when inspections are required, obtain and pay for all permits and necessary approvals, and make all deposits necessary for the completion of the remediation as herein specified.

B. The Owner and/or Design Engineer will obtain the permits/approvals required for the work as identified in Section 01 70 00 – Execution Requirements.

C. Remediation Contractor shall obtain any other necessary permits to perform the work including but not limited to the following:

1. Local permits for temporary facilities and utilities as needed.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 011100 Summary of Work-RevD.docx

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

[NOTE: HIGHLIGHTED TERMS TO BE RECONCILED WITH NYSEG CONTRACT TERMS TERMINOLOGY TO MATCH DIVISION 00 SPECS IN SUBSEQUENT SUBMITTALS]

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections of Division I - GENERAL REQUIREMENTS, which are hereby made a part of the Specifications.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the Work of this Section.

C. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under the Contract.

D. Provide all facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the Work specified in this Section, and as shown on the Drawings.

E. The Remediation Contractor shall at all times be solely responsible for exercising reasonable precaution to protect the health, safety, public welfare, and all on-site personnel, and the environment during performance of the Work described in these Contract Documents. The Remediation Contractor shall comply with all applicable provisions of federal, state, and local health and safety and occupational health and safety statutes and codes.

F. The provisions specified in this Section may be subject to alterations by the Remediation Engineer or Owner's Representative based on actual field conditions encountered during the Work.

1.02 SECTION INCLUDES

A. Schedule of Values
B. Applications for payment.
C. Change procedures.
D. Defect assessment.
E. Unit prices.
F. Basis of Payment.

G. Additional Payment.

1.03 SCHEDULE OF VALUES

A. Prepare and submit to the Remediation Engineer and Owner for review and approval a Schedule of Values for the Work. The Schedule of Values shall indicate the proposed payment schedule based on Remediation Contractor's anticipated work completion rate. The Schedule of Values shall be broken down by lump sum and unit price pay items. Sufficient detail shall be provided in the Schedule of Values for lump sum pay items so that completion percentages can be agreed upon as the Work progresses. Remediation Contractor shall provide sufficient documentation with each invoice such that percentage complete on lump sum pay items and quantities for unit price items can be compared with the approved Schedule of Values.

B. Schedule of Values shall be submitted to the Remediation Engineer and/or Owner for review at least two weeks prior to the first pay application.

1.04 WEEKLY VARIANCE REPORT

A. Prepare and submit to the Remediation Engineer and Owner a copy of the bid form with number of updated number of units completed to date at the end of each week.

1.05 APPLICATIONS FOR PAYMENT

A. Submit 1 electronic copy of each Application for Payment.

B. Submit updated construction schedule with each Application for Payment, if required by Remediation Engineer and/or Owner.

C. Payment Period: Monthly

D. Substantiating Data: When Remediation Engineer and/or Owner requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:

1. Record documents as specified in Section 01 70 00 – Execution and Closeout Requirements, for review by Remediation Engineer and/or Owner, which will be returned to Remediation Contractor.

2. Construction progress schedules, revised and current as specified in Section 01 33 00 – Submittal Procedures.

3. Other documents required by the Contract Compliance Requirements.

1.06 CHANGE PROCEDURES

A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Remediation Contractor's employ or subcontractors of changes to the Work.

B. The Remediation Engineer will advise of minor changes in the Work not involving adjustments to Contract Price or Contract Time by issuing supplemental instructions in a Field Order.

C. The Remediation Engineer may issue a Notice of Change including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Remediation Contractor will prepare and submit estimate within 10 days.

D. Work Change Directive: Remediation Engineer and/or Owner may issue a directive, instructing Remediation Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Price or Contract Time. Promptly execute change.

E. Remediation Contractor may propose changes by submitting a change order request to Remediation Engineer and/or Owner, describing proposed change and its full effect on the Work. Include a statement describing reason for the change, and effect on Contract Price and Contract Time with full documentation and a statement describing effect on Work by separate or sub Remediation Contractors.

F. Stipulated Price Change Order: Based on Notice of Change and Remediation Contractor's fixed price quotation or Remediation Contractor's Change Order Request as approved by Remediation Engineer and/or Owner.

G. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on fixed unit price basis. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.

H. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Remediation Engineer and/or Owner will determine change allowable in Contract Price and Contract Time as provided in Contract Documents.

I. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

J. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.

K. Execution of Change Orders: Remediation Engineer and/or Owner will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

L. Correlation of Remediation Contractor Submittals:

1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Price.

2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

3. Promptly enter changes in Project Record Documents.

M. Remediation Contractor shall notify Remediation Engineer and/or Owner promptly within 10 days of discovery of conditions or changes in the Work that Remediation Contractor believes warrant a change in price or schedule. Failure of Remediation Contractor to promptly notify Remediation Engineer and/or Owner of such conditions shall result in Remediation Engineer and/or Owner's rejection of any subsequent claims related to said conditions or scope changes.

1.07 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Remediation Engineer, it is not practical to remove and replace the Work, the Remediation Engineer will direct appropriate remedy or adjust payment.

C. If Engineer determines the defective Work will remain, the unit price will be reduced 50 percent at discretion of the Remediation Engineer and/or Owner.

D. If defective Work will be partially repaired to instructions of Engineer, unit price will be reduced by a percentage at discretion of Remediation Engineer and/or Owner.

E. Individual specification sections may modify these options or may identify specific formula or percentage price reduction.

F. Authority of Remediation Engineer and/or Owner to assess defects and identify payment adjustments is final.

G. Non-Payment for Rejected Products: Payment will not be made for rejected products for any of the following:

1. Products wasted or disposed of in a manner that is unacceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from transporting vehicle.

4. Products placed beyond lines and levels of required Work.

5. Products remaining on hand after completion of the Work and associated costs for removal.

6. Loading, hauling, and disposing of rejected products.

1.08 UNIT PRICES

A. Take measurements and compute quantities of Work installed and successfully completed in accordance with these specifications and drawings. Remediation Engineer will verify measurements and quantities.

B. Unit Quantities: Quantities and measurements indicated in Bid Form are for contract purposes only. Actual quantities provided shall determine payment.

1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit prices contracted.

C. Payment Includes: Full compensation for all required labor, management, protection, storage, handling, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.

D. Final payment for Work governed by unit prices will be made on the basis of actual measurements and quantities accepted by Remediation Engineer multiplied by unit price for Work incorporated in or made necessary by the Work.

E. Measurement of Quantities:

1. Weigh Scales: Inspected, tested and certified by the applicable program administered by New York State Bureau of Weights and Measures within past year.

2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.

3. Metering Devices: Inspected, tested and certified the applicable program administered by New York State Bureau of Weights and Measures within past year.

4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.

5. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness in accordance with Section 01 33 00 – Submittal Procedures.

6. Measurement by Area: Measured by square dimension using mean length and width or radius in accordance with Section 01 33 00 – Submittal Procedures.

7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord in accordance with Section 01 33 00 – Submittal Procedures.

8. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

9. Payment will not be made for materials delivered to the Site but not yet incorporated into the Work, unless specifically approved by the Remediation Engineer and/or Owner.

10. No compensation shall be made for excess materials delivered to the Site that are not used to complete remedial construction.

1.09 BASIS OF PAYMENT [PAY ITEMS TO BE FURTHER DEVELOPED AS PART OF THE BID DOCUMENTS]

A. The following items describe the measurement and payment of the Work to be done under the respective items listed on the Bid Form. Compensation under each item shall include all required labor, management, equipment, testing, submittals, storage of material, transportation, permit and disposal fees (where applicable), and cleanup of facilities upon completion of construction:

1. **Mobilization & Temporary Facilities Setup (Lump Sum):** Mobilization of all personnel, tools, equipment, incidentals, subcontractors on site and ready to work as well as setup of temporary facilities and utilities. Preparation of

required plan submittals including Work Plan, Construction Quality Control Plan, Schedule, Health and Safety Plan, and Spill Control and Response Plan.

2. **Site Preparation (Lump Sum):** Preparation of work pad areas, setup of solidification batch plant, construction of all necessary site haul roads and any necessary fence/gate modifications, utility location, and any other necessary site preparation work to accommodate the remedial construction.

3. **Exploratory Test Pits (Each):** Excavation of test pits to determine if historic MGP structure foundations remain that require demolition. Test pits shall be excavated to a maximum depth of and backfilled to a maximum depth of 12 feet to allow for adequate assessment of foundation and other subgrade structures. Item shall include all labor, materials, equipment, and incidentals, including trench boxes as needed, to safely excavate to the required depth.

4. **Grubbing & Erosion Controls Installation, Maintenance & Monitoring (Lump Sum):** Grub Lowland Area, excavation area of 185 Fall Street and lowland portion of 193 Fall Street. Maintain/repair/replace all necessary erosion controls, perform required inspections and documentation as required per SWPPP.

5. **Final Cover Erosion Controls (Lump Sum):** Furnish and install all required final cover erosion controls concurrent with soil cover construction.

6. **Demolish Building Slab and Pavement (Cubic Yards):** Demolish and remove remaining building slab and pavement and size rubble for disposal. Demolition quantity shall be based on dimensions measured in field.

7. **Demolish Subsurface Structures (Cubic Yards):** Demolish and remove remaining subsurface MGP structures (other than tar holder structure to be left in place) to full structure depth (or to the bottom of ISS elevation if applicable) and size concrete rubble for landfill disposal. Demolition quantity shall be based on dimensions measured in field.

8. **Backfill with Clean Imported Fill (Cubic Yard):** The accepted quantity of imported fill will be paid for at the contract price per ton based on weight tickets from the source.

9. **Loadout & Transport Contaminated Soil & Debris to Seneca Meadows Landfill (Tons):** The accepted quantity of impacted soil and debris transported to the Seneca Meadows Landfill will be paid for at the contract price per ton based on certified scale weight tickets from the landfill correlated to the transport Bill of Ladings.

10. **Frac Tank Mobilization, Setup, Demobilization (Lump Sum):** Mobilize, setup, and demobilize two (2) 21,000 gallon frac tanks for construction water storage, including all necessary final cleaning of frac tanks.

11. **Frac Tank Rental (Months):** The accepted quantity of frac tank rental will be the monthly rental rate to provide, maintain, and operate two (2) frac tanks for construction water storage.

12. **Dewatering Water (Gallons):** The accepted quantity of dewatering effluent will be paid for at the contract price per gallon of construction water based on off-site disposal volumes as documented on transport Bill of Ladings or centralized waste treatment facility meter readings. Item does not include payment for sludge or sediment volume that is unacceptable to the disposal facility.

13. **Soil Solidification (Cubic Yard):** The accepted quantity of soil solidification will be paid for at the contract price per cubic yard for completed soil solidification using the specified mix design (or as adjusted by the Remediation Contractor) and based on field verified solidification depth (pre-solidification surface elevation to bottom of ISS elevation) and volume measurements (not including mix cell overlap) for each mix cell. ISS work outside the design limits will not be measured for payment unless authorized by Remediation Contractor. This payment includes costs for batch plant operation, soil-reagent mixing, supplemental water application (as needed), quality control and quality assurance specimen preparation, quality control field and laboratory testing, daily record keeping, and grading of solidified soil surface as necessary.

14. **Type I Portland Cement (Tons):** The accepted quantity of Portland cement will be paid for at the contract unit price per ton for material delivered and used for in-situ soil solidification utilizing the specified solidification mix design. Measurement will be based on supplier delivery tickets.

15. **Granulated Ground Blast Furnace Slag (GGBFS) (tons):** The accepted quantity of GGBFS will be paid for at the contract unit price per ton for material delivered and used for in-situ soil solidification utilizing the specified solidification mix design. Measurement will be based on supplier delivery tickets.

16. **Vapor/ Odor Control Foam (Rusmar AC-645) (Per Drum):** The accepted quantity of short-duration vapor/odor suppression foam will be paid for at the contract price per drum of concentrate mixed and applied per the manufacturer's recommendations, including all necessary equipment and personnel to apply the foam. This foam will be used for daily activities during excavation and solidification of contaminated soils. Unused containers shall be removed from the Site at the end of the project and will not be compensated by Remediation Contractor or Owner.

17. **Subgrade Grading (Lump Sum):** Excavation and grading to soil cover subgrade as shown on Drawing C-304.

18. **Lowland Area Soil Cap (Lump Sum):** Furnish and install 1-foot thick soil cap (measured after compaction) consisting of 6 inches of clean sand borrow, 6 inches of topsoil, and permanent seeding including lime and fertilizer application, seeding, mulching, and tackifier application and associated site work shown on Drawing C-400.

19. **Demobilization & Record Documents (Lump Sum):** Provide all required record documents to the Remediation Contractor, perform final site cleaning, and demobilize all equipment, personnel and temporary facilities from the Site.

B. The following items describe the measurement and payment for alternate, contingency, or add items that may be utilized at the discretion of the Remediation Engineer. Compensation under each item shall include all required labor, management, equipment, testing, submittals, storage of material, transportation, permit and disposal fees (where applicable), and cleanup of facilities upon completion of construction:

1. **Soil Tackifier/Hydromulch (Per Acre):** The accepted quantity of soil tackifier/hydromulch will be paid for at the contract price per acre on which the product is applied. This item will used at the direction of the Remediation Contractor for dormant bare soil areas that have not achieved final soil cover should wind-generated dust result in perimeter dust action level exceedances. This item does not apply to final cover seeding and mulching.

2. **Cut & Cap Abandoned Utilities (Each):** The accepted quantity of cutting and capping of abandoned utilities encountered during excavation will be paid for at the contract price per pipe encountered that requires saw cutting, draining and capping at the direction of the Remediation Contractor.

1.10 TAXES

Remediation Contractor shall include such local, state and federal taxes as may be applicable to the work of this Contract.

1.11 ADDITIONAL PAYMENT

A. The Remediation Contractor shall not be entitled to additional payment to fulfill its obligations under the following sections which are considered incidental to the Work:

1. Coordination of Work.

2. Attendance at meetings.

3. Required plans, submittals, and daily field reports.

4. Health and safety monitoring.

5. Emission controls that are not a specific pay item.

6. Health and safety personnel protective equipment.

7. Decontamination.

8. Closeout procedures.

9. Construction surveying.

10. Abandon monitoring wells during construction.

11. Measures, in addition to those shown on Drawings, necessary to maintain water quality in the river at pre-construction levels, shall be installed, maintained, removed and cleaned-up as required by the Remediation Engineer at the expense of the Remediation Contractor.

B. Remediation Contractor shall provide unit prices for equipment and operators which shall be used as the basis for requested time and materials work during the project. Unit prices shall be submitted with Remediation Contractor's bid proposal.

END OF SECTION

Printed on: 30 November 2017
M:\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 012000 Price & Payment Procedures-RevD.docx

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. This Section contains general information that applies to all Work performed under the Contract and is inherently made a part of each Specification Section.

B. Attention is directed to the CONTRACT AND GENERAL REQUIREMENTS and all other sections of Division 1 – GENERAL REQUIREMENTS, which are hereby made a part of the Specifications.

C. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

D. Coordinate Work with that of all other trades affecting or effected by the Work of this Section. Cooperate with such trades to assure the steady progress of Work under the Contract.

E. Provide all facilities, labor, materials, tools, equipment, appliances, transportation, supervision, and related work necessary to complete the Work specified in this Section, and as shown on the Drawings.

F. The Remediation Contractor shall at all times be solely responsible for exercising reasonable precaution to protect the health, safety, public welfare, and all on-site personnel, and the environment during performance of the Work described in these Contract Documents. The Remediation Contractor shall comply with all applicable provisions of federal, state, and local health and safety and occupational health and safety statutes and codes.

1.02 DESCRIPTION OF WORK

A. This section includes procedures for the preparation and submittal of the Remediation Contractor's Construction Work Plan and Progress Schedule, weekly updates to the Remediation Contractor's Progress Schedule and Weekly Progress Reports. A preliminary Construction Work Plan and Progress Schedule shall be included as a part of the Remediation Contractor's proposal. The Remediation Contractor's Progress Schedule shall be prepared using a computer system that produces legible, easily updated schedules such as Microsoft Project or approved equivalent.

B. This section contains general information that applies to all Work performed under the Contract and is inherently made a part of each specification section.

C. All submittals will be accompanied by the coversheet provided in attachment A of Section 01 33 00 – Submittal Procedures.

1.03 RELATED SECTIONS

A. SECTION 00 70 00 – General Conditions of the Contract

B. SECTION 01 11 00 – Summary of Work

C. SECTION 01 33 00 – Submittal Procedures

D. Drawings

E. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.04 DEFINITIONS AND REFERENCE STANDARDS

A. See Specification Section 01 42 00 – References for acronyms and definitions applicable to this Section.

1.05 EXISTING CONDITIONS

A. See Specification Section 02 00 00 – Existing Conditions for information regarding site conditions.

1.06 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

1.07 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. A Technical Execution Plan (TEP) (i.e., preliminary Construction Work Plan) and Progress Schedule shall be included in Remediation Contractor's Proposal/Bid Submission

C. A revised Construction Work Plan and Progress Schedule shall be submitted to the Owner and Remediation Engineer for review. The Remediation Contractor's Progress Schedule will be discussed at the Pre-Construction Meeting as such may need to be updated based on the actual date of the Notice to Proceed. Update and submit Progress Schedule at a minimum with each Weekly Progress Report. For purposes of this work the baseline schedule shall start with the actual date from the Notice to Proceed.

D. Format Submittal as Follows

1. The Progress Schedule shall be presented in the form of a Gantt (bar) chart that identifies critical path items and task relationships.

2. The project name (NYSEG – SENECA FALLS FORMER MGP REMEDIAL CONSTRUCTION) shall be identified at the top of the Construction Work Plan and Progress Schedule.

3. Organize the Construction Work Plan and Progress Schedule according to components of the Work identified in the construction sequence included on Drawing G-201.

4. Represent each major work task or segment of work by one horizontal bar.

5. Indicate milestone dates for the completion of each phase of the Work.

6. Sequence of Listings: The chronological order of the start of each major operation or segment of work shall determine the vertical location of its bar on the chart.

7. Horizontal Time Scale: Bold Vertical Lines for weeks with the date given for the beginning of each week.

8. Scale and Spacing: The scale and spacing shall allow space for notations and future revisions. The minimum sheet size shall be 11 inches by 17 inches.

E. Content of Submittal as Follows

1. The complete sequence of work by activity shall be shown, with dates for the beginning and completion of each major work segment.

2. The bar representing each major operation or segment of the work shall be identified by Specification number(s) and/or Contract Drawing number(s) coinciding with the described item.

3. A sub schedule bar chart shall be prepared to define critical portions of the major tasks, especially items that require coordination among subcontractors or coordination with the Remediation Engineer, Owner Representative, or Owner.

4. Estimated percentage of completion of each work item and estimated total percentage of work complete as of the last day of each week shall be noted at appropriate points on the chart.

F. Revisions to Schedule

1. The progress of each activity to the date of revision submittal, shall be indicated and an estimate given for completion date.

2. Changes that occur since the previous schedule submittal shall be shown and identified as: Changes in scope or quantity, activities modified, revised estimates of progress and completion, or other changes.

3. A narrative report shall be prepared at the Remediation Engineer or Owner's Representative's request to define:

   a. New problem areas, expected delays, and their impact on the schedule;

   b. Corrective action taken or proposed, and their effects;

   c. The effects of changes made or proposed on the functioning of the subcontractors; and

   d. Schedule revisions and date revisions shall be consecutively numbered and dated.

G. Daily Progress Reports

1. Daily Reports: Prepare daily reports recording all important information concerning events at the site. Submit daily reports to the Owner's Representative and the Remediation Engineer on the following day. Daily Reports shall include at a minimum.

   a. Date

   b. List of Name of all workers on site.

   c. Total Hours Worked for each on site employee.

   d. Description of Work completed.

   e. List type and quantity of material received including equipment deliveries.

   f. List type and quantity of material sent off-site including equipment.

   g. List of Equipment or Systems operating/in use on site.

H. Weekly Progress Reports

1. Prepare and distribute on Monday of each week, or prior to any scheduled weekly construction progress meeting, a Weekly Progress Report for submittal to the Remediation Engineer, Owner's Representative, New York State Department of Environmental Conservation and New York State Department of Health which shall include:

   a. A description of all portions of the work completed and other appropriate supporting documentation including photographs, videos, etc.

   b. A description of all work in progress, including all necessary supporting documentation.

   c. Descriptions of all actions, data, and plans that are scheduled for the next week, including information relating to the progress of construction.

   d. General construction photographs of work at various stages of construction. Provide a brief description of each photograph including date, time, description of subject, relevant information, and direction photo faces.

   e. Information regarding the percentage of completion, anticipated delays, and unresolved issues.

I. Special Reports

1. Special Reports: Prepare detailed, written reports recording all information concerning unusual and significant events at the site. Submit to Owner's Representative within 24 hours after the event. The written report shall include, without limitation:

   a. A summary of the event.

   b. A chronological list of the chain of events.

   c. Names of all persons involved in the event.

   d. The Remediation Contractor's actions and response to the event.

   e. The actions and response to the event by affected subcontractors

   f. The Remediation Contractor's evaluation of the results or effects of the event.

   g. Other important and relevant information

J. Project Photographs

1. Project Photographs: Provide digital photographs. Photographs should be clear and legible.

a. Preconstruction Photographs: (Submittal Group 2) Before beginning work, take sufficient photographs of the existing conditions and the site from different viewpoints to show all significant existing conditions.

b. Restoration Photographs: (Submittal Group 4) In addition to the General Construction Photographs, provide photographs representative of the restoration areas taken at the same location at the following stages of construction:

1) Existing pre-excavation conditions;
2) Completion of installation of Remediation Contractor-designed and contract-required erosion controls;
3) Completion of final grades; and
4) Completion of planting.

c. Digital Files: All digital photos shall become the property of the Owner. At the completion of the Contract and before final payment, deliver the digital files to the Owner's Representative in a properly labeled CD or other approved media. Organize and label digital photo files by date photo taken and image summary.

K. Schedule, Distribution and Review:

1. Updated schedules and weekly reports shall be distributed in an electronic format to the Owner's Representative and Remediation Engineer on Monday of each week, or prior to any scheduled weekly construction progress meeting.

2. The latest schedule will also be posted at the job site.

3. Resubmit the schedule and/or report within three working days of receipt of the review copy, if required.

1.08 PROJECT MEETINGS

A. Project meetings will be held to accomplish the following:

1. Coordinate the work of the project

2. Establish a sound working relationship between the Remediation Contractor, the Owner, and the Remediation Engineer.

3. Establish sound working procedures

4. Review job progress, quality of work, and approval and delivery of materials.

5. Expedite the work to completion within the scheduled time limit.

6. Establish a working relationship with other active users on Site.

7. Establish Health and Safety protocols.

B. Project meetings shall include the following:

1. Preconstruction Conference

2. Weekly Project Meetings

3. QA/QC Deficiency Meeting

1.09 PRECONSTRUCTION CONFERENCE

A. The Remediation Engineer shall schedule a Preconstruction Conference. The Remediation Contractor shall be notified as to the time and place of the meeting. The Remediation Contractor's major subcontractors shall attend the meeting. Attendance at the meeting shall include:

1. Owner

2. Design Engineer

3. Remediation Engineer

4. Remediation Contractor's Superintendent

5. Remediation Contractor's Quality Control Site Manager

6. Remediation Contractor's Health and Safety Officer

7. New York State Department of Environmental Conservation

8. New York State Department of Health

B. Items to be addressed at the Preconstruction Meeting shall include, but not necessarily be limited to:

1. Distribution of Drawings and Specifications

2. Lines of communication

3. Correspondence

4. Submittals

5. Deliverables

6. Scheduling

7. Suppliers/vendors/subcontractors

8. Health and safety requirements

9. Organization and responsibilities

10. Quality assurance/quality control

11. Payments

    a. Remediation Contractor shall submit monthly draft invoices to Owner and Remediation Engineer for review prior to submittal of final invoices.

12. Record documents and as-builts

1.10 WEEKLY PROJECT MEETINGS

A. Weekly Project Meetings shall be conducted at the site of the Work at a time and day mutually agreed upon by the Owner, Remediation Engineer, and Remediation Contractor. At a minimum, attendance by the Remediation Contractor's Superintendent and Healthy and Safety Officer, Subcontractors (as appropriate), New York State Department of Environmental Conservation and New York State Department of Health shall be required. Items to be addressed shall include, but not be limited to, the following:

1. Project scheduling

2. Weekly progress updates

3. Identification of problems

4. Maintenance of quality and work standards

5. Coordination

6. Status of submittals and materials

7. Conflicts and disputes

8. Quality assurance/quality control

9. Health and Safety updates

10. *Maintain and provide a weekly report to the Owner and Remediation Engineer, for the duration of the project, to track unit quantities and percent complete (actuals to date) on each payment item using the Payment Bid Form as the template. Provide this report by-email 24-hours prior to the weekly construction meeting.*

11. Other agenda items as required

B. The specific purpose of the Weekly Project Meetings is to coordinate the efforts of all concerned so that the project progresses without delay to "on-time" completion in a high-quality manner with the least inconvenience. The Remediation Contractor shall record, prepare, and distribute the meeting minutes for the Weekly Progress Meetings for the Owner or Remediation Engineer review and input/clarification as needed.

1.11 QA/QC DEFICIENCY MEETINGS

A. Quality Assurance/Quality Control (QA/QC) Deficiency Meetings shall be held at the project site as required and as precipitated by project conditions. The Remediation Engineer shall request the Deficiency Meeting and the meeting shall be conducted within 24 hours of the Remediation Engineer's request. At a minimum, the meeting shall be attended by the Remediation Contractor's Superintendent and/or Remediation Contractor's Quality Control Site Manager, and subcontractors as appropriate. The purpose of the meetings shall be to identify, address, and rectify any deficiencies in the Work which may be detected, observed, or perceived. Attendance by the Remediation Contractor's personnel is mandatory and the failure of the appropriate personnel to attend may result in rejection of the Work.

B. All meeting minutes shall be recorded by the Owner/ Remediation Engineer and copies submitted to the Remediation Contractor. All approved and rejected changes to project conditions shall be documented in writing by the Remediation Engineer.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures.

B. List of Required Submittals.

C. Construction Work Plan.

D. Remediation Contractor Data and Documentation.

E. Proposed Product List.

F. Substitutions.

G. Shop Drawings.

H. Certificates.

I. Regulatory Submittals.

J. Project Record Documents.

K. Record Drawings.

1.02 SUBMITTAL PROCEDURES

A. Unless otherwise noted, transmit electronic submittals by email to recipients identified by the Remediation Engineer for review. Include the approved Transmittal Form with each submittal along with all related attachments.

B. Use the transmittal number sequence described herein. All correspondence with the Owner and Remediation Engineer shall be submitted with a sequentially numbered transmittal. Revise submittals, if necessary, with original number and a sequential, alphabetic suffix.

C. Identify Project, Remediation Contractor, Subcontractor, and supplier; pertinent drawing and detail number, and specification section number as appropriate to submittal.

D. Apply Remediation Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction

work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

E. Schedule submittals to expedite Work, and deliver to the Owner and Remediation Engineer as established in the submittal schedule. Coordinate submission of related items.

F. For each submittal for review, allow a minimum of 10 days excluding delivery time to and from Remediation Contractor, for Owner and Remediation Engineer review. Provide additional review time where specified. All submittal shall be routed to the Remediation Engineer, Design Engineer, and then Owner for review.

G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

H. The Remediation Engineer will provide a submittal response to each reviewed submittal. Each submittal response will be returned to the Remediation Contractor with comments as required and marked with one of the following responses:

1. "Reviewed": The Remediation Contractor is advised that this means that fabrication, manufacture and/or construction may proceed providing the Work is in compliance with the Contract Documents.

2. "Reviewed As Noted": The Remediation Contractor is advised that this means that fabrication, manufacture and/or construction may proceed providing the Work is in compliance with the marked notations and the Contract Documents.

3. "Reviewed As Noted Resubmission Requested": The Remediation Contractor is advised that this means that fabrication, manufacture and/or construction may proceed providing the Work is in compliance with the marked notations and the Contract Documents. The submittal should be corrected and resubmitted for final distribution.

4. "Revise and Resubmit": The Remediation Contractor is advised that this means no Work shall be fabricated, manufactured and/or constructed and that the Remediation Engineer shall make a new submittal for the project. Product submissions marked with this action or notation will not be permitted on the Site.

5. In the case of Shop Drawings, returned in the form of manufacturer's descriptive literature, catalog cuts and brochures stamped "reviewed" or "reviewed as noted", the Remediation Contractor shall be responsible for distributing them in the field and to the subcontractors. If the returned Shop Drawings are stamped "reviewed as noted resubmission requested" or "revise and resubmit", the Remediation Contractor shall submit new copies of the Shop Drawings revised to show compliance with the Contract Documents.

I. When revised for resubmission, identify changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

1.03 LIST OF REQUIRED SUBMITTALS

Refer to Attachment 01 33 00 – 1, Submittal Schedule for a list of the minimum required submittals. Additional submittals may be required.

The Construction Work Plan shall contain the following information:

A. A description of the proposed key staff and responsibilities. An organizational chart shall also be included.

B. Identify construction project manager and site superintendent who must be actively involved in day to day site supervision, implementation of work of site, and must attend weekly site meetings. Substitution or replacement of the project manager or site supervisor is not allowed without approval of Owner and Remediation Engineer.

C. A complete project directory by organization with name, title, address, telephone number(s), cell phone numbers, fax number and internet address.

D. The Remediation Contractor's alternate proposed approach to the Work, if it differs from the means and methods outlined in the Design Documents, including but not limited to dredging approach, support of excavation, stabilization material placement, surveying, and dewatering and construction sequencing. Note: Bidders must provide a base bid in accordance with the payment items, bid sheet and Contract Documents provided with the AVANGRID RFP. Value added alternatives can be presented as an alternative bid in addition to the base bid.

E. A construction project schedule.

F. The Remediation Contractor's proposed schedule to provide submittals to the Owner and Remediation Engineer.

G. A discussion of the Remediation Contractor's procedures for dust, odor, vapor emissions control to prevent nuisance conditions.

H. Material handling procedures.

I. Impacted material loading and haul vehicle decontamination procedures to prevent off-site tracking.

J. Construction Quality Control.

K. Spill Response and Control Plan (Section 01 50 00 – Temporary Facilities and Controls).

1.04 REMEDIATION CONTRACTOR DATA AND DOCUMENTATION

Remediation Contractor data and documentation shall include the following:

A. Manifests/Bills of Lading with corrected weights and certificates of disposal (or certified weight slips from landfill).

B. Results of work zone air monitoring performed by the Remediation Contractor.

C. Weights or other slips for all materials hauled off-site or on-site.

D. All other analytical data collected during the performance of the work.

E. All survey data.

1.05 PROPOSED PRODUCT LIST

A. Within 10 days of Notice of Award, submit list of major products proposed for use, with name, manufacturer, trade name and model number of each product.

B. For products specified by reference standards or by description only, give manufacturer, trade name, model or catalog designation and reference standard.

C. For products specified by naming one or more manufacturers, products of manufacturers named and meeting specifications, no options or substitutions are allowed.

D. For products specified by naming one or more manufacturers with a provision for substitutions, submit a request for substitution for any manufacturer not named in accordance with the following article.

1.06 SUBSTITUTIONS

A. Remediation Engineer will consider requests for Substitutions only within 10 days after date of Notice of Award.

B. Substitutions may be considered when a Product becomes unavailable through no fault of the Remediation Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Remediation Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

2. Will provide the same warranty for the Substitution as for the specified Product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner or Remediation Engineer.

4. Waives claims for additional costs or time extension which may subsequently become apparent.

5. Will reimburse Remediation Engineer for review or redesign services associated with the re-approval by authorities or incorporation of substitute product.

E. Substitutions will not be considered when they are indicated or implied in shop drawings or other submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit one electronic copy of request for Substitution for consideration. Limit each request to one proposed Substitution.

2. Submit shop drawings indicating proposed installation of equipment, maintenance/removal space required, and other pertinent revisions to the design arrangement, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.

3. The Remediation Engineer will notify Remediation Contractor in writing of decision to accept or reject request.

1.07 SHOP DRAWINGS

A. Submit shop drawings on all items of equipment and materials to be furnished and installed with adequate time for at least 10 days for Owner and Remediation Engineer review and well in advance of product ordering, delivery, or use.

B. Submit number of reproductions Remediation Contractor requires, plus two copies each for Owner and Remediation Engineer retention.

C. Shop drawings will be given a general review only. Corrections or comments made on the Shop drawings during the review do not relieve Remediation Contractor from compliance with requirements of the Drawings and Specifications. Shop drawing check is intended solely for review of general conformance with the design concept of the

project and general compliance with the information given in the Contract Documents. The Remediation Contractor is responsible for:

1. Confirming and correcting all quantities,

2. Checking dimensions;

3. Selecting fabrication processes and techniques of construction;

4. Coordinating his Work with that of all other trades; and

5. Performing his Work in a safe and satisfactory manner.

D. After review, produce duplicates and distribute in accordance with Submittal Procedures and for Record Documents.

1.08 CERTIFICATES

A. When specified in individual specification sections, submit certification by manufacturer to Owner and Remediation Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Owner and Remediation Engineer.

1.09 REGULATORY SUBMITTALS

All documentation required to be submitted to a regulatory agency or office, shall first be submitted in draft form to the Owner and Remediation Engineer for review at least 10 days before required regulatory agency due date. After approval by the Owner and Remediation Engineer, submit copies of all permit compliance reports to Owner and Remediation Engineer simultaneously with submittal to permitting agency.

1.10 PROJECT RECORD DOCUMENTS

A. Maintain one set of the following record documents; record daily actual deviations, modifications or revisions to the Work:

1. Limits (vertical and horizontal) of excavation, dredging, and ISS areas shown on a Drawing.

2. Change Orders and other modifications to the Contract.

3. Reviewed Shop Drawings, Product Data and Samples.

4. Manufacturer’s instruction for assembly, installation and adjusting.

5. Permits obtained.

6. Borrow source soil analytical data (samples to be collected by Remediation Engineer).

7. Results of Health & Safety monitoring conducted during the work.

8. Weight tickets, bills of lading and other transportation documentation.

9. Running list and total of quantities of materials removed from the site.

10. Permit compliance reports.

11. Other progress and monitoring reports prepared during the course of the Work.

12. Updated schedules.

13. Invoices from Subcontractors.

14. Correct and approvable invoices.

B. Ensure entries are complete and accurate, enabling future reference by Owner and/or Remediation Engineer.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with work progress, not less than weekly. Changes to drawings shall be annotated in red.

E. Specifications: Legibly mark and record at each product section a description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates used.

3. Changes made by Addenda and modifications.

F. Record documents and Shop Drawings: Legibly mark each item to record the actual construction of the Work, including:

1. Measured horizontal and vertical locations of existing encountered underground utilities and other constructed features, referenced to permanent surface improvements.

2. Field changes of dimension and detail.

3. Details not on original Contract Drawings.

4. Field summary documents.

G. Submit two electronic copies on CD or other applicable device of project record documents to each the Owner and Remediation Engineer.

1.11 RECORD DRAWINGS

A. Refer to Section 01 71 23 – Field Engineering for survey plan requirements.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 013300 Submittal Procedures-RevD.docx

SECTION 01 35 29

HEALTH AND SAFETY REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Preparation of a Health and Safety Plan (HASP) for all workers engaged in work at the Site. The HASP shall be prepared by a Certified Industrial Hygienist, Certified Safety Professional or equal environmental health professional that is qualified by training and experience to perform this work.

B. The Remediation Contractor may review the Remediation Engineer's Site-Specific HASP in advance of preparing their HASP.

C. The Remediation Contractor's HASP shall include any additional health and safety requirements described in the NYSEG Request for Proposal (RFP).

D. All employees who will be working in or near potentially contaminated soil, sediment, water or air shall have successfully completed an OSHA 40-hour Health and Safety training course and be current in OSHA training certifications through annual 8-hour refresher training in compliance with the OSHA hazardous waste operations and emergency response codified at 29 CFR 1910.120, and specific training for site activities.

E. Provide health and safety equipment including protective clothing, respiratory equipment and monitoring instruments.

F. Decontamination of construction equipment, tools and other non-disposable items that may have been in contact with site pollutants prior to removal of such equipment from the site.

1.02 SPECIAL SITE CONDITIONS

A. Levels of personal protection are established in reference standards. It is anticipated that most of the work at the Site may be conducted using typical construction health and safety practices as described in OSHA safety and health regulations for construction codified at 29 CFR 1926. The work to be conducted at the Site is not anticipated to require personal protection above that provided by Level D except for workers directly in the vicinity of excavated coal-tar impacted soils that may require upgrade to Level C. Remediation Contractor shall be prepared to upgrade to Level C, which requires the use of a respirator, if required.

B. Personal floatation devices (PFDs) will be required for work over water.

C. The work will involve handling of non-aqueous phase liquid (NAPL) impacted soil and sediment and potentially other MGP-related contaminants. Handling of the impacted material is anticipated to result in the emission of gases, vapors, dust and odors. The Remediation Contractor is required to mitigate such emissions within the work area and to prevent the emission of hazardous gases, vapors, dust and odors that may cause risk to the public or cause nuisance conditions. The HASP prepared for the site must include a description of the Remediation Contractor's proposed methods and materials, such as chemical vapor/odor suppression agents, for mitigation of such emissions.

D. The Remediation Contractor shall implement and adhere to the Dust, Odor, and Vapor Emissions Control Plan prepared for the project. Minimum requirements are outlined in Section 44 32 00 – Vapor and Odor Control.

E. A Community Air Monitoring Plan (CAMP) has been prepared and will be implemented by the Remediation Engineer. Remediation Contractor shall implement emissions controls sufficient to maintain conditions below perimeter air monitoring action levels.

F. The Remediation Engineer and/or Owner will conduct periodic health and safety audits. If audits discover discrepancies or issues, the Remediation Contractor shall promptly address all issues to the Owner's satisfaction at no additional cost to the Owner or Remediation Engineer for labor, equipment, materials or lost time rectifying issues identified.

1.03 RELATED SECTIONS

A. SECTION 01 50 00 – Temporary Facilities and Controls

B. SECTION 01 57 26 – Dust Control

C. SECTION 02 00 00 – Existing Conditions

D. SECTION 44 32 00 – Vapor and Odor Control

E. Drawings

F. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.04 REFERENCE STANDARDS

A. NIOSH/OSHA/USCG/EPA: "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985.

B. OSHA: 29 CFR Parts 1910 and 1926

1.05 EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

1.06 HEALTH & SAFETY OVERSIGHT

A. Remediation Contractor shall have sole responsibility for implementation of the HASP. Remediation Contractor shall also be responsible for implementation of the HASP by all subcontractors. The Remediation Contractor shall provide a Site Safety Officer (SSO) who shall be assigned to the site at all times during the project. The SSO shall be responsible for ensuring that the HASP is properly implemented. The SSO will be charged with: overseeing site health and safety; monitoring and protection of public health and safety as it is related to the Work; instrument monitoring; personnel and equipment decontamination; control of equipment check-out; site traffic control; and emergency response. Other responsibilities include monitoring workers for weather-related exposures or stresses.

B. The SSO shall have a working knowledge of State and Federal occupational safety and health regulations and formal training in occupational safety and health. Prior to commencement of any site activities, the SSO shall review the HASP and provide training on PPE use to all on-site employees who will be working in or near contaminated materials. New employees or visitors to these areas shall be informed of the site conditions by the SSO. If visitors enter those areas, PPE and training required at that time within that area by the Remediation Contractor's personnel shall be required. The SSO shall provide a pre-work safety training to all site workers and all site workers shall sign the HASP log acknowledging they have read and understand the HASP.

C. Pre-work training on the site Health and Safety program shall be provided and documented to all site workers at the start of the project, and before each major phase of remedial activity commences to review job hazard analyses, and site risks. All personnel working at the site must attend the training prior to being allowed to work on the site. Workers found to be blatantly disobeying health and safety requirements will be permanently removed from the Site at the discretion of the Remediation Engineer or Owner.

1.07 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Safety Personnel Qualifications: Prior to submittal of the HASP, submit the names, qualifications, and experience of the Certified Industrial Hygienist, Certified Safety Professional or environmental health professional responsible for the preparation of the HASP and the Site Safety Officer.

C. HASP: HASP which includes levels of protection and a schedule for training of Remediation Contractor's and subcontractor's workers in the use of respiratory equipment and

use of protective clothing. Training will not be provided by the Owner or Remediation Engineer.

D. Training Certification: A list of all personnel who will enter the Site, copies of certification of training and certification of compliance with medical monitoring requirements. This documentation must be submitted and reviewed by the Owner/ Remediation Contractor prior to personnel performing on-site work. Documentation must be maintained on-site for the duration of the project.

PART 2 - PRODUCTS

2.01 NEW MATERIALS AND PRODUCTS

A. Follow safety data sheets and the manufacturer's recommendations for worker protection, use, storage and disposal of products used on-site.

2.02 EQUIPMENT

A. Provide personnel with personal protective equipment and clothing as described in the Remediation Contractor's Health and Safety Plan.

PART 3 - EXECUTION

3.01 HEALTH AND SAFETY PLANNING AND IMPLEMENTATION

A. Prepare a HASP which will ensure the health and safety of all workers at the Site at all times. The HASP shall be prepared by a Certified Industrial Hygienist or a Certified Safety Professional. HASP shall comply with the action levels contained in Remediation Engineer's Site-specific HASP. Implement the plan throughout the execution of the work. The plan shall include, but not be limited to, the following information:

1. Compounds of Concern and signs/symptoms of exposure.

2. Potential for worker exposure to the compounds of concern for each work task.

3. Safety issues related to operation of heavy equipment, excavation safety, and work near water bodies.

4. Provisions for work zone security and protection of the public.

5. Requirements for OSHA training for each work task and a record, or schedule for training, of workers in the use of personal protective equipment. Please note that training will not be provided by the Owner or Remediation Engineer.

6. Work task specific levels of protection and a description of health and safety equipment including protective clothing, respiratory equipment and monitoring instruments.

7. Procedures for monitoring of hazardous gases or vapors for each work task and action levels for donning personal protective equipment; description of monitoring instruments.

8. Procedures for decontamination of heavy equipment and tools.

9. Emergency Response Plan, including the names and phone numbers of individuals or agencies who shall be contacted in the event of on-site injury or release of oil or hazardous material.

10. Spill response/cleanup procedures.

11. Identification and qualifications of Remediation Contractor's SSO.

12. Management of subcontractors.

13. Identify compliance with NYSEG/Avangrid policies and procedures including but not limited to; No Smoking on NYSEG/Avangrid Property, River Communication Protocol, Procedure for Handling Asbestos Coal Tar Wrapped Natural Gas Pipe, Lock Out / Tag Out procedures for active utilities, and Use of Bee Spray. Additional AVANGRID H&S requirements (if any) are identified in the RFP, which shall be considered part of the Contract/Contract Documents.

B. The Remediation Contractor shall be responsible for monitoring ambient air in the breathing zone of the respective work area(s) in accordance with the Remediation Contractor's Health and Safety Plan for the protection of the Remediation Contractor's workers. The Remediation Contractor shall provide the Remediation Engineer with monitoring results relevant to the selection of levels of personnel protective equipment.

C. Require all workers who will engage in work at the site which might result in exposure to contaminated materials attend a pre-work health and safety briefing and daily tailgate safety briefings.

D. Provide adequate health and safety training for all personnel who will be engaged in work at the site that might result in exposure to contaminated air, soil, sediment or water.

E. Conduct health and safety meetings at the beginning of each work day, in concert with the Remediation Engineer, to review specific hazards associated with the work planned for that day, PPE and operational controls to mitigate those hazards, and contingency plans and emergency procedures to respond to potential problems.

F. Personnel who have not received training or who are not equipped with the required protective clothing and equipment shall not be permitted access to the site during execution of work which may result in exposure to contaminated soil or water or other materials.

G. Air monitoring will be performed in the breathing zone of the work area at the following minimum frequencies: at the start of work each day, at the beginning of any new work task, at the completion of work each day and at least every two hours during the work day.

H. Air monitoring data will be recorded for each monitoring event. Provide the Remediation Engineer with all air monitoring data at the completion of each work day.

I. A Job Hazard Analysis (JHA) must be prepared for each major work task. JHA's must be reviewed prior to the start of each task and updated whenever a change in site conditions or work procedures occurs, or upon discovery of additional hazards.

3.02 DECONTAMINATION

A. Decontaminate all equipment and tools which have contacted contaminated soil, groundwater and other materials to prevent the spread of contamination within the site and outside the site limits.

B. Gross contamination shall be removed in the Exclusion Zone. Equipment decontamination shall occur on the designated decontamination pad where decontamination solids and water can be contained for appropriate disposal.

C. Dispose of all decontamination by-products in accordance with Local, State and Federal regulations.

D. At a minimum, decontamination of construction equipment shall include high pressure water spraying all equipment which contacts contaminated soil or sediment prior to leaving the job site. Soap and water decontamination of non-disposable worker protective equipment shall be performed. Decontamination water shall be contained for appropriate off-site disposal if needed and/or treated through the on-site temporary wastewater treatment system.

E. Provide on-site facilities for personnel to decontaminate their protective clothing or other equipment.

3.03 ACCIDENT REPORTING REQUIREMENTS

A. The Remediation Contractor shall comply with the following accident and/or incident reporting requirements.

1. Should any unforeseen safety-related factor, hazard, or condition become evident during the performance of the work, the Remediation Contractor shall immediately take prudent action to establish, maintain, and secure the site and working conditions. This shall be followed by immediate notice to the Remediation Engineer's Field Construction Manager (FCM) and the Owner.

2. If a serious injury (requiring medical attention) to a person or damage to property, environment, or natural resources result from an incident, the Remediation Contractor shall immediately report the incident to the Remediation Engineer's FCM, the Owner, and New York State Department of Environmental Controls. The report shall be followed by a written document describing the incident, what hazards were created by it, and a detailed statement of what actions were taken to correct the problem. The Remediation Contractor will also include a description of why the actions taken were prudent.

3. Should any sudden, continuous, or intermittent release of oil or hazardous material occur during work, the Remediation Contractor shall notify the Remediation Engineer's FCM and the Owner immediately and shall immediately begin actions to contain or abate the release. The Remediation Contractor shall immediately arrange for clean-up activities. The Remediation Contractor Owner shall make necessary notifications to the New York State Department of Environmental Conservation (NYSDEC) when required. Remediation Contractor shall maintain a sufficiently stocked spill kit on-site to immediately respond to an oil or hazardous material release.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 013529 Health & Safety-RevD.docx

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This Section includes information on the following items:

1. Quality control and control of installation.
2. Tolerances.
3. References.
4. Labeling.
5. Testing and inspection services.
6. Examination.
7. Preparation.

1.02 RELATED SECTIONS

A. SECTION 01 30 00 – Administrative Requirements

B. SECTION 01 33 00 – Submittal Procedures

C. SECTION 01 60 00 – Product Requirements

D. Drawings

E. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 EXISTING CONDITIONS

A. See Specification Section 02 00 00 – Existing Conditions for information regarding site conditions.

1.04 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Remediation Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.05 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Remediation Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

D. Conform to tolerances specified in individual specification sections for earthwork, site restoration, and other specification Sections as appropriate.

1.06 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue. Reference standards shall be most current version with respect to date on Contract Documents.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Remediation Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Remediation Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.07 TESTING AND INSPECTION SERVICES

A. General requirements for laboratories performing tests as required by the Owner's Representative and/or Remediation Engineer are as follows:

1. Laboratory: Authorized to operate in State of New York.

2. Laboratory Staff: Maintain full time registered Engineer specialist on staff to review services. Staff working on site shall be trained in accordance with applicable OSHA/MSHA and related requirements, adhere to the requirements of Section 01 35 29 - Health and Safety, and follow the Health and Safety Plan.

3. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.

B. Testing and inspections may occur on or off project site. Perform off-site testing as required by Design Engineer, Remediation Engineer or Owner.

C. Reports will be submitted by independent firm to Remediation Engineer and Remediation Contractor in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

1. Submit final report indicating correction of Work previously reported as non-compliant.

D. Testing and employment of testing agency or laboratory shall not relieve Remediation Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

E. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Remediation Engineer. Payment for re-testing or re-inspection will be at the Remediation Contractor's expense and no additional cost will be incurred by the Owner.

F. Laboratory Reports: After each test, promptly submit two copies of report to Remediation Engineer and Remediation Contractor. Provide interpretation of test results and include the following information:

1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Location in Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.
10. Conformance with Contract Documents.

G. Limits on Testing Authority:

1. Testing laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Laboratory may not approve or accept any portion of the Work.
3. Laboratory may not assume duties of Remediation Contractor.
4. Laboratory has no authority to stop the Work.

1.08 MONITORING

A. Baseline Survey

1. Prior to the start of construction, a baseline survey consisting of 6 benchmarks shall be established on the residential property structure at 185 West Fall Street by the Remediation Contractor.
2. The Remediation Contractor shall obtain baseline horizontal and vertical locations of each benchmark before proceeding with any site work.

3. The Remediation Contractor shall obtain benchmark readings on a weekly basis during construction and submit to the Engineer for review.

4. When there is construction activity within 100 ft of the residential property structure, the Remediation Contractor shall obtain benchmark readings on a daily basis and submit to the Remediation Engineer for review.

5. If benchmark readings indicate movements of greater than ¼ inch either in the horizontal or vertical, the Remediation Contractor shall stop work in the vicinity of the residential property structure and review the readings with the Remediation Engineer for future action.

B. Vibration Monitoring

1. Vibration monitoring shall take place continuously during any construction activities within 100 ft of the residential property structure at 185 Fall Street.

2. Vibration monitoring shall take place on a weekly basis during any construction activities beyond 100 ft from the residential property structure at 185 Fall Street.

3. Vibration monitoring shall be performed by the Remediation Contractor [using a three-dimensional seismograph. The seismograph shall be positioned on the western side of the residential property structure at 185 Fall Street.

4. The vibrations at the residential property structure at 185 Fall Street shall not exceed those outlined in the Town of Seneca Falls, New York Code, Chapter 300: Zoning, Article V: Supplementary Regulations, 300-26 Performance Standards, Part E.

1.09 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Remediation Engineer 30 days in advance of required observations. Observer subject to Remediation Engineer’s acceptance.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

1.10 SUBMITTALS

Not Used.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing subgrade is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

3.02 REMEDIATION CONTRACTOR'S RESPONSIBILITIES

A. Remediation Contractor shall supply materials and equipment that meet the requirements and standards set forth in the Specifications.

B. Where specific certificates concerning materials and/or equipment are required, Remediation Contractor shall secure payment for and prompt delivery of such certificates to the Owner. Such certificates shall be executed by qualified firms acceptable to the Owner, shall include all information required by the Specifications, and shall refer specifically to materials to be used in the project.

C. The Remediation Contractor shall provide the Owner with samples of materials, design mix, and assistance as requested in the performance of QA observations and testing.

D. The Remediation Contractor shall notify Owner as indicated in specific Specification sections prior to expected time for Work requiring testing or observation.

E. The Remediation Contractor shall not be relieved from his obligation to supply materials and perform the Work in accordance with the Contract Documents, by the observations of the Owner in his administration of the Contract, nor by observations, tests, or approvals.

F. Observation or testing performed exclusively for the Remediation Contractor's convenience shall be the sole responsibility of the Remediation Contractor. Remediation Contractor shall make arrangements and pay for additional observations and tests required for Remediation Contractor's use.

G. Retesting required because of non-conformance to Specification requirements may be performed by the Owner. Payment for retesting will be charged to the Remediation Contractor by deducting inspection or testing charges from the Base Contract Sum/Price.

3.03 ACCESS

A. The Owner and Remediation Engineer shall at all times have access to the Work wherever it is in preparation or progress, and the Remediation Contractor shall provide proper facilities for such access and inspection.

B. The Remediation Contractor shall assist the Remediation Engineer in material sampling and testing with available on-site equipment, as appropriate.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 014000 Quality Requirements-RevD.docx

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Procure, install, and maintain all necessary temporary facilities and controls, including those listed below.

1. Temporary Utilities including: lighting for construction purposes (as needed), water service to work areas, and sanitary facilities.

2. Construction Facilities including: field offices, access roads, parking, progress cleaning and waste removal, and project identification.

3. Temporary Controls including: barriers, fencing, erosion and sedimentation control, stormwater control.

B. Remove temporary utilities, facilities, and controls at the completion of work.

PART 2 – RELATED SECTIONS

A. SECTION 01 40 00 – Quality Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 01 60 00 – Product Requirements

D. SECTION 02 00 00 – Existing Conditions

E. SECTION 02 51 29 – Decontamination Procedures

F. SECTION 02 70 00 – Construction Water Treatment System

G. SECTION 31 25 00 – Erosion and Sedimentation Control

H. SECTION 44 32 00 – Vapor and Odor Control

I. Drawings

J. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

PART 3 – EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

3.02 SUBMITTALS

A. Project specific Spill Prevention, Control, and Counter Measure (SPCC) Plan: Prior to beginning work in the Exclusion Zone at the site, develop, implement, maintain, supervise, and be responsible for a SPCC Plan. General guidelines for SPCC measures provided on the Contract Drawings shall be supplemented with those described herein. The plan shall be included as a section in the Construction Work Plan. The SPCC Plan shall be submitted to the Remediation Engineer for review. The SPCC Plan shall provide contingency measures for potential spills of oil and hazardous materials and construction-related materials including, but not limited to fuels, hydraulic fluids, lubricants, and construction water.

1. The plan shall, at a minimum, contain the following:

2. Procedures for Containing Dry and Liquid Spills.

3. Absorbent Material available on-site.

4. Procedures for storage of Spilled Materials.

5. Decontamination Procedures. Decontamination procedures may be required after cleanup to eliminate traces of the substance spilled or reduce it to an acceptable level. The Remediation Contractor shall provide methods, means equipment facilities and personnel to perform decontamination measures that may be required to remove contaminants or spillage from haul trucks, previously uncontaminated structures, equipment, or material. Acceptable level shall be in accordance with all applicable local, state, and federal laws and regulations. Complete cleanup may require removal of contaminated soils. All contaminated materials that cannot be decontaminated must be properly containerized, labeled, and properly disposed of within 30 days. Any and all testing and disposal costs related to the cleanup of a spill caused by the Contractor's activities shall be borne by the Contractor.

6. Spill Incident Report Format. A written report detailing the spill or discharge shall include, at a minimum, the cause and resolution of the incident, outside agencies involved, and date the incident occurred. The report shall be submitted to the Remediation Engineer and the Owner within 24 hours of the incident, or earlier if necessary to comply with local, state, or federal regulations. The Remediation Contractor shall document the location of all

spills on the site Drawings and submit the Drawings to the Remediation Engineer at project completion.

3.03 TEMPORARY UTILITIES

A. Provide electricity to the temporary office facilities established on-site (described below).

B. Provide and maintain temporary lighting for construction operations, if needed, and construction is permitted beyond normal daylight hours.

C. Provide a temporary water source for the in-situ solidification batch plant, dust control, and equipment and personnel decontamination.

D. Provide and maintain DSL or cable internet service and wireless network in the field office for use by the Remediation Engineer, New York State Department of Environmental Conservation (NYSDEC), and Remediation Contractor for the duration of the Work.

3.04 TEMPORARY SANITARY FACILITIES

A. Remediation Contractor to provide up to one sanitary facilities (Porta-Johns) for on-site personnel use for the duration of Work.

3.05 TEMPORARY OFFICE FACILITIES

A. The Remediation Contractor will provide temporary field offices and meeting space for the Remediation Engineer, NYSDEC, and Contractor.

B. Provide a wireless printer/scanner for exclusive use by the Remediation Engineer to be in the Remediation Engineer's office. Separate printer/scanners to be used by the Remediation Contractor shall be provided as required for Remediation Contractor use in the Contractor's office

C. Provide office furniture for each office space including at a minimum 1 desk, 1 desk chair, and 1 file cabinet for each office.

D. Provide meeting space furniture including a folding table and chairs to accommodate 8 people.

3.06 ACCESS ROADS

A. Provide means of removing mud from vehicle wheels before entering streets. Install stabilized construction entrance as indicated on Drawings.

B. Conduct or arrange for street cleaning of Fall Street and any other streets affected by Site activities. Street cleaning shall be conducted at any time sediment or mud is tracked onto a public street because of active hauling operations and materials delivery

when trucks or equipment are leaving the Site. At no time is sediment or mud allowed to remain on public streets.

C. Delivery and/or transport vehicles will not be permitted to park or queue on any public roads. Remediation Contractor shall be responsible for traffic flow in and out of the project site as required.

D. Provide sufficient personnel to direct traffic as necessary to facilitate the smooth flow of traffic and not impede public ways, including pedestrian traffic.

3.07 DREDGE WORKING PADS

A. Install temporary working pads as indicated on Drawings to facilitate dredging operations in the Canal.

3.08 PARKING

A. Remediation Contractor and subcontractor personnel may park personal vehicles and non-construction related company vehicles in parking areas approved by the Remediation Engineer and the Owner. Options include the driveway of 185 Fall Street, a portion of the Fall Street right-of-way outside the travel lane and shoulder of the road as shown on the Drawing, and at approved locations on the adjacent 193 Fall Street property.

B. Heavy equipment, trucks and other construction related vehicles shall be parked in the active Work Zone.

3.09 PROGRESS CLEANING AND WASTE REMOVAL

A. Provide one sufficient size dumpster (e.g., 8 cubic yard) for typical construction and office waste for all on-site operations. No contaminated materials shall be placed in this roll-off. Waste should be picked up weekly and disposed off-site at a sanitary landfill.

B. Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.

C. Conduct vehicle, personnel, and equipment decontamination as required by the Contract Documents.

3.10 PROJECT IDENTIFICATION

A. No signs, other than those required by law, may be posted without Owner/Remediation Engineer's permission.

B. Remediation Contractor shall provide the project sign that meets the requirements of NYSDEC signage and attach to the site fence along Fall Street.

3.11 BARRIERS

A. Provide and install barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide and install barriers and demarcation of work zones in accordance with the Drawings and the Health & Safety Plan.

3.12 FENCING

A. Install temporary chain link fencing and construction fencing at the perimeter of the Site, as shown on the Drawings.

B. All impacted materials handled at the Site shall be secured inside the work area fence at all times. Areas outside the site limits are not available to the Contractor.

C. Site security and control of access to the construction area shall be maintained by the Remediation Contractor to protect Work and existing facilities from unauthorized entry, injury, vandalism and theft. All authorized personnel visiting, working and/or observing Work at the site should report to the Contractor's trailer immediately. Visitor procedures defined in the Project HASP shall be adhered to.

D. Access gates to the Work area shall be closed and locked at the end of each Work day for security purposes. All site gates shall be closed during the workday except during active vehicle traffic in and out of the site.

E. Provide large sign at construction entrance to direct all visitors to Remediation Engineer/Remediation Contractor office. The sign should have the NYSEG's contact number and Remediation Engineer's contact number.

3.13 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities and materials prior to Final Application for Payment.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

3.14 NAVIGATION CONTROLS

A. Navigations buoys – Remediation Contractor shall supply all navigational aids and buoys to facilitate watercraft navigation around Silt Curtains and Booms. Navigational aids shall comply with all New York State Canal Corporation and Federal Government standards.

3.15 SPILL AND DISCHARGE CONTROL

A. Spill and Discharge Control

1. The Remediation Contractor shall provide methods, means, equipment, facilities, and personnel required to prevent contamination of soil, water, air, equipment, or materials by the discharge of bulk wastes from spills due to Contractor's operations.

2. The Remediation Contractor shall provide methods, means, equipment, facilities and personnel to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. All collected spill material shall be properly disposed of at the Contractor's expense.

3. Remediation Contractor shall maintain adequate spill containment and cleanup equipment on-site.

B. General

1. Remediation Contractor shall be responsible for all liabilities related to spills, discharges, leaks, or emissions from equipment, tankage vessels, drums, or any other devices owned, operated, or controlled by the Contractor, subcontractors, vendors, personnel, agents, or assigns.

2. In the case of a spill or discharge, the Remediation Contractor shall follow procedures outlined in the SPCC Plan.

C. Notification

1. The Remediation Contractor shall notify the Owner and Remediation Engineer as soon as possible in the event of a spill or discharge.

2. The Remediation Contractor shall report a spill or discharge to regulatory agencies, as necessary to comply with local, state and federal regulations.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 015000 Temporary Facilities & Controls-RevD.docx

SECTION 01 57 26

DUST CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Implement engineering controls and modify work procedures/equipment as necessary to reduce fugitive emissions to concentrations below site action levels described in this Section. Implement work zone air monitoring to ensure health and safety protection of site workers during performance of the Work, and to prevent nuisance conditions. Ambient air monitoring at the perimeter of the Site will be conducted by the Remediation Engineer to ensure protection of the public and the environment.

B. Emissions from the site remedial construction activities may include dust. Implement adequate controls to minimize these emissions in accordance with the following plans:

1. Community Air Monitoring Plan

2. Site specific Health and Safety Plan prepared by the Remediation Contractor

3. Erosion and Sediment Control Drawings including G-102, C-301, and C-700.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health & Safety Requirements

B. SECTION 01 40 00 – Quality Requirements

C. SECTION 01 50 00 – Temporary Facilities and Controls

D. SECTION 01 60 00 – Product Requirements

E. SECTION 02 00 00 – Existing Conditions

F. SECTION 02 41 16 – Structure Demolition and Management

G. SECTION 02 53 00 – Waste Transport, Treatment, and Disposal

H. SECTION 02 51 29 – Decontamination Procedures

I. SECTION 02 61 13 – Piping Removal and Management

J. SECTION 02 61 23 – Excavation and Management

K. SECTION 44 32 00 – Vapor and Odor Control

L. Drawings

M. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REGULATIONS

A. Seneca Falls Code Section 300-26 Performance Standards:

1. Part C: Dirt, dust, heat, toxic emissions and radiation interference. No use within any district shall create or emit dust, heat, dirt or other particulate matter, radiation, toxic emissions or electronic or radio interference which shall adversely affect uses on adjacent or neighboring properties.

2. Part H: Emission of particulate matter. No solid or liquid particles shall be emitted in such quantity as to be readily detectable at any point along lot lines or so as to produce a public nuisance or hazard beyond lot lines.

1.04 PERFORMANCE REQUIREMENTS

A. The Remediation Engineer will monitor the perimeter site air quality. The Remediation Engineer will notify the Remediation Contractor when there are excursions above the action levels identified in the Community Air Monitoring Plan (CAMP).

B. Work will be suspended, and appropriate dust control measures employed in accordance with the CAMP if the particulate levels (including levels caused by moisture conditioning) at the perimeter of the work area are exceeded. These work stoppages are the responsibility of the Remediation Contractor and will not be a basis for an extension of time or additional monies for down time.

C. At the discretion of the Remediation Engineer, work will be suspended if visual dust is observed. These work stoppages are the responsibility of the Remediation Contractor and will not be a basis for an extension of time or additional monies for down time.

1.05 SUBMITTALS

A. Submit a plan that details the proposed dust control means and methods as part of the Construction Work Plan.

PART 2 – PRODUCTS

2.01 DUST CONTROLS

Maintain an adequate supply of the products listed below on-site for daily use. Product submittals to Remediation Engineer are required prior to use and shall include manufacturers' recommended use/installation practices.

A. Water source

B. Plastic sheeting or anchored tarps

C. Soil tackifiers

2.02 WATER

A. Water for Dust Control shall be provided by the Remediation Contractor. No on-site water source is available for Remediation Contractor use.

1. Obtain water from a legal off-site location. Options may include a nearby hydrant.

2. All required permits shall be secured by Remediation Contractor for sourcing off-site water prior to extraction.

B. Water used for dust control shall be obtained from only potable water supplies and shall be free from oil, acid, and injurious alkali or vegetable matter, and other deleterious material or contaminants.

2.03 EQUIPMENT

A. Equipment for dust control shall include appropriate measures (e.g., heat tape, tank heaters) to prevent freezing or impair operations due to temperatures below freezing.

B. Spray nozzles for water shall be capable of delivering a light spray to coat ground surfaces evenly without generating excessive runoff.

C. Water truck or other suitable means to control dust on-site and to keep public access roads clean.

PART 3 – EXECUTION

3.01 GENERAL

A. The Remediation Contractor shall implement emission control measures to reduce nuisance levels of dust and emissions at all times and perform additional measures as requested by the Remediation Engineer.

B. Implement strict dust control measures during active construction periods on-site and off-site along haul roads and public roads.

C. If any of the parameters above action levels in the CAMP or the HASP are exceeded, the Remediation Contractor shall immediately suspend work and implement air emission control measures. Prior to resuming work, the Remediation Contractor shall modify work procedures that will result in reduced air emissions.

D. Maintain the site in a condition that will not generate dust and airborne particulates during periods of non-work (i.e., evenings, weekends, and holidays).

E. Utilize plastic sheeting, water application, odor control foam, or other similar means to control fugitive dust during the performance of the Work.

F. At a minimum, water shall be applied once per day during dry weather or more often as required by the Remediation Engineer. Other dust control methods shall be applied by Remediation Contractor as necessary to maintain dust levels below acceptable thresholds.

G. The Remediation Engineer will maintain a perimeter air sampling system at the limit of work. The Remediation Contractor will be notified if excursions of air-born particulates (dust) or total volatile compounds occur. The Remediation Contractor will be notified as soon as possible and activities will stop until dust control has been applied.

H. The Remediation Contractor will be notified of objectionable dust and all activities shall be stopped until dust control has been applied to the Remediation Engineer's satisfaction.

3.02 WATER APPLICATION

A. For water application to soil surfaces:

1. Utilize spraying equipment to provide complete coverage of surfaces with water.

2. Apply water without interfering with earthmoving equipment or on-site operations.

3. Keep surfaces damp without creating nuisance conditions such as ponding, runoff, erosion, or excessively wet and muddy conditions.

4. Apply water spray in a manner to prevent movement of spray beyond site boundaries.

3.03 PAVEMENT SWEEPING

A. Maintain clean pavement surfaces within the designated work area and site egress route, including the public right of ways adjacent to the Site (e.g., Fall Street), to be free of visible gross accumulation of dust and soil. Do not permit construction equipment to track soil outside of the active exclusion zone or the limit of work onto public roads.

B. Sweep pavement surfaces as required during construction to prevent migration of soil outside the limit of work and the generation of dust.

C. Sweep all paved surfaces within the limit or work and truck ingress/egress routes at the end of construction as a final cleanup task to remove any residual construction debris and soil.

3.04 STOCKPILE MANAGEMENT

A. Maintain on-site stockpiles in a manner that prevents wind-blown dust generation.

B. During active periods, provide periodic water misting/sprinkling.

C. During inactive periods, cover stockpiles with weighted and anchored tarps/covers.

3.05 TESTING

A. The Owner or Remediation Engineer, at their discretion, may request that the Remediation Contractor test the water being used for dust control and provide the analytical results for review.

3.06 DISPOSAL

A. Sweepings collected during pavement sweeping activities shall be managed on-site as waste material to be characterized for off-site disposal during active work.

B. When the waste removal and handling activities on site are complete, the sweepings shall be properly disposed off-site at a licensed disposal facility.

C. Transportation and disposal of project related waste streams, with the exception of soil destined for thermal treatment, will be paid by the Remediation Contractor. The Remediation Contractor shall coordinate transportation and disposal with the Owner approved transporter and disposal facility.

END OF SECTION

SECTION 01 58 13

TEMPORARY PROJECT SIGNAGE

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The sign shall be 4-feet high by 8-feet wide, and constructed of 3/4- to 1-inch medium density overlay plywood, with a resin coating on both sides. The edges shall be framed with a snap trim edge cap consisting of an aluminum channel with a polyvinyl coating. An aluminum sign of equal size may also be used. The sign's background shall be painted with white exterior oil base sign enamel. The second, third, fourth, and eighth lines shall have green letters. The first, fifth, sixth, and seventh lines shall have blue letters. The NYSDEC (Department) logo shall be painted as noted. All adhesives shall be solvent resistant.

1.02 RELATED SECTIONS

A. SECTION 01 50 00 – Temporary Facilities and Controls

B. Drawings

C. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCES

A. Lumber Standard: American Softwood Lumber Standard; U.S. Department of Commerce Product Standard PS20.

B. Softwood Plywood Standard: Construction and Industrial; U.S. Department of Commercial Product Standard PS1.

1.04 QUALITY ASSURANCE

A. Painter's Qualifications: All paint shall be applied by a professional sign painter.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Aluminum blanks shall be covered with vinyl sheeting to achieve background color, logo shall be silk screened on vinyl surface.

B. Framing: Snap trim edge cap of polyvinyl coated aluminum channel.

C. Paint

1. Background Enamel: Exterior, alkyd, glass enamel with primer as recommended by finish coat manufacturer.

2. Lettering and Striping Enamel: Exterior, long oil, alkyd; high gloss enamel manufactured for lettering signs.

D. Colors

1. Department logo: Pantone® Matching System (PMS) Color Chart 301 Blue PMS 355 Green

2. Text: PMS 301 Blue
PMS 355 Green

E. Type: Caslon 540. Center each line with small caps and initial caps. See Attached Figure 01 58 13-1, Project Sign.

2.02 FABRICATION

A. Paint both sides and all edges of sign with two coats of primer and one coat of background enamel.

B. Paint lettering and striping with two coats of lettering enamel.

C. Do not apply succeeding coat until previous coat has completely dried.

D. Apply even coats of uniform thickness without brush marks, runs, or lap marks.

E. Lettering and striping shall be uniform with sharp, neat profiles.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install sign within two weeks of Notice to Proceed.

B. Install sign where directed by the Remediation Engineer.

C. Fasten sign securely in a level position to two posts of sufficient size to adequately support the sign. Posts shall be set plumb. The center of the sign shall be located approximately 6-7 feet from ground level.

3.02 MAINTENANCE AND REMOVAL

A. Maintain the signs plumb and level for the duration of the Work

B. When directed, at the completion of the project, remove the signs.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 015813 Temporary Project Signage-RevD.docx

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This Section specifies administrative and procedural requirements governing the selection of products for use in the Project, including:

1. Product list schedules.

2. Substitution requests.

3. Product selection.

4. Product delivery, storage, and handling.

1.02 RELATED SECTIONS

A. SECTION 01 11 00 – Summary of Work

B. SECTION 01 30 00 – Administrative Requirements

C. SECTION 01 33 00 – Submittal Procedures

D. SECTION 01 40 00 – Quality Requirements

E. Drawings

F. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 DEFINITIONS AND REFERENCE STANDARDS

A. See Specification Section 01 42 00 – References for acronyms and definitions applicable to this Section.

B. Definitions used in this Section are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

C. Products: Items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature that is current as of the date of the Contract Documents.

2. "Foreign Products", as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.

D. Materials: Products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

E. Equipment: A product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

F. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Remediation Contractor are considered requests for "substitutions." The following are not considered substitutions:

1. Revisions to Contract Documents requested by the Owner or Remediation Engineer.

2. Specified options of products and construction methods included in Contract Documents.

3. The Remediation Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 EXISTING CONDITIONS

A. See Specification Section 02 00 00 – Existing Conditions for information regarding site conditions.

1.05 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

B. Source Limitations: Provide products of the same kind, from a single source.

1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Remediation Engineer for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a

determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

C. Compatibility of Options: When the Remediation Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service connected or power operated equipment. Locate on an easily accessible surface, which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

B. All deliveries of material, equipment, etc., shall be made to the Remediation Contractor and accepted only by the Remediation Contractor during working hours. Owner's Representative or Remediation Engineer personnel will not receive or accept any material or equipment, etc., at any time.

1.07 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Product List Schedule: Prepare a schedule ("Bill of Materials") showing products specified in a tabular form acceptable to the Remediation Engineer and Owner. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Remediation Contractor 's Construction Schedule and the Schedule of Submittals.

2. Form: Prepare the product-listing schedule with information on each item tabulated under the following column headings:

   a. Related Specification Section number.
   b. Generic name used in Contract Documents.
   c. Proprietary name, model number and similar designations.
   d. Manufacturer's name.
   e. Installer's name and address.
   f. Identification of product as one of the following:

      1) Product as specified
      2) Proposed Substitution
      3) Proposed Equal

3. Submit completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

C. Substitution Request Submittal:

1. Submit requests for substitution in accordance Section 01 33 00 – Submittal Procedures.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and/or Drawing Numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

   a. Product Data, including Drawings and descriptions of products, fabrication, and installation procedures.
   b. Samples, where applicable or requested.
   c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance, and visual effect.
   d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by others that will become necessary to accommodate the proposed substitution.
   e. A statement indicating the substitution effect on the Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
   f. Certification by the Remediation Contractor that the substitution proposed is equal to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Remediation Contractor 's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Remediation Engineer's Action: As defined in the Submittal Specification (Section 01 33 00), the Remediation Contractor shall notify Remediation Engineer of proposed substitution in the submittal. The Remediation Engineer will evaluate the data and send his recommendation of acceptance or rejection of the proposed substitution to the Owner and the Owner will notify the Remediation Contractor. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the original product specified by name.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, and finish, safety guards and other devices and details needed for a complete installation for the intended use and effect.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.

2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

a. Where products or manufacturers are specified by name, accompanied by the term "or equal" or “or equivalent,” comply with the provisions concerning "Substitutions" to obtain approval for use of an unnamed product.

3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Remediation Contractor to use of these products only, the Remediation Contractor may propose any available product that complies with Contract requirements. Comply with provisions concerning "substitutions" to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

6. Compliance with Standards, Codes, and Regulations: Where the Specifications only requires compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.

7. Visual Matching: Where Specifications require matching an established Sample, the Owner Representative's or Remediation Engineer's decision will be final on whether a proposed product matches satisfactorily.

   a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

8. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Owner or Owner's Representative's or Remediation Engineer will select the color, pattern, and texture from the product line selected.

2.02 SUBSTITUTIONS

A. Conditions: The Remediation Contractor 's substitution request will be received and considered by the Remediation Engineer when one or more of the following conditions are satisfied, as determined by the Remediation Engineer; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of Contract Documents.

3. The request is timely, fully documented, and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation, or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Remediation Engineer for redesign and evaluation services, increased cost of other construction by the Owner or subcontractors, and similar considerations.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Remediation Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials, and where the Remediation Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Remediation Contractor certifies that the proposed substitution provide the required warranty.

11. The Remediation Contractor's submittal and Remediation Engineer's acceptance of Shop Drawings, Product Data, or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located, and aligned with other Work.

B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until time of Substantial Completion.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Noise Requirements

B. Dust, Vapor and Odor Requirements

C. Canal Requirements

D. Permitting Requirements

E. Work Hours

1.02 NOISE REQUIREMENTS

Due to the proximity of the Work area to the surrounding neighborhood and businesses, noise levels should be minimized.

Mitigate noise and obtain all permits necessary to facilitate work hours necessary to complete the project within the schedule provided. Coordinate all work hours with the Remediation Engineer.

1.03 DUST, VAPOR AND ODOR REQUIREMENTS

Due to the proximity of the Work area to the surrounding neighborhood and businesses, dust and odors should be minimized. Refer to Section 01 57 26 – Dust Control and Section 44 32 00 – Vapor and Odor Control for requirements.

1.04 CANAL REQUIREMENTS

A. Portions of the work are in the Seneca River and Canal, which is a navigable Water of the United States operated by the New York State Canal Corporation.

B. An Occupancy and Work Permit is required for work within the Canal and along the bank.

C. Additional Canal Requirements pending Canal Corp response.

1.05 PERMITTING REQUIREMENTS

A. The Design Engineer will obtain the following permits for the completion of Work:

1. New York state Department of Environmental Conservation/ United States Army Corps of Engineers (NYSDEC/USACE) "Joint Permit Application" (JPA), which includes:

a. USACE Section 404 Permit;

b. USACE Section 10 Permit;

c. USACE Nationwide Permit 38 – Cleanup of Hazardous and Toxic Waste; and

d. NYSDEC Protection of Waters Permits.

2. NYSDEC State Pollutant Discharge Elimination System (SPDES) General Construction Stormwater Permit.

3. NYSDEC Floating Object Permit for warning signs

4. New York State Canal Corporation Canal Occupancy and Work Permit.

5. Seneca Falls Zoning Permit.

6. Copies of permits will be provided to Remediation Contractor as they are obtained.

B. The Remediation Contractor shall obtain the following permits for the completion of the Work

1. Permits necessary for all building trades, if necessary (electrical, plumbing, etc.).

2. New York State Department of Transportation (NYSDOT) Highway Work Permit.

3. Seneca County Building Permit**.**

4. Permits for temporary and replacement utilities, if necessary.

5. Any other permits as required to execute the scope of work.

1.06 WORK HOURS

All work shall be performed between the hours of 7:00 AM and 5:00 PM Monday through Friday, excluding all Federal, State and Local holidays. Saturday work may be permitted with a minimum of seven days advanced permission from the Owner and Remediation Engineer. Work hours for Saturday work shall be from 8:00 AM to 3:30 PM as approved by Remediation Engineer. Remediation Contractor shall submit to Remediation Engineer proposed project work hours. Remediation Contractor may modify the submitted project work hours with seven days advanced permission from the Owner and Remediation Engineer.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 017000 Execution and Closeout Requirements-RevD.docx

SECTION 01 71 23

FIELD ENGINEERING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

The Work to be performed under this Section includes, but is not limited to, the following items including all labor, materials, equipment and services incidental to Site work.

A. General requirements

B. Submittals

C. Quality assurance

D. Surveying

1.02 RELATED SECTIONS

A. SECTION 01 30 00 – Administrative Requirements

B. SECTION 01 33 00 – Submittal Procedures

C. SECTION 01 70 00 – Execution and Closeout Requirements

D. Drawings

E. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. New York State Department of Transportation Land Surveying Standards and Procedures Manual, 2009.

B. OSHA Standard 29 CFR, 1926 and 1918.

C. USACE EM 1110-1-1000 Photogrammetric Mapping

D. USACE EM-1110-1-1002 Survey Markers and Monumentation

E. USACE EM-1110-1-1003 NAVSTAR Global Positioning System Surveying

F. USACE EM-1110-1-1004 Deformation Monitoring and Control Surveying

G. USACE EM-1110-1-1005 Topographic Surveying

H. USACE EM-1110-2-1003 Hydrographic Surveying

I. USACE EM-1110-1-2909 Geospatial Data and System, Tri-Services A/E/C Cadd Standards, Tri-Services Spatial Data Standards, Related Spatial Data Products

1.04 REQUIREMENTS

A. Perform all survey work on the corresponding project coordinate system (NAD 83). Elevations shall be based on NAVD 88 datum.

B. The accuracy of all survey layout data shall be ±0.02 foot horizontal and vertical.

C. Furnish all stakes, templates, platforms, equipment, tools, and materials and labor as may be required in laying out any part of the Work.

D. Execute the Work to the lines and grades established or indicated and maintain and preserve all stakes and other control points until authorized to remove them by the Remediation Engineer. If such marks are destroyed by or through negligence of the Remediation Contractor prior to their authorized removal, at the discretion of the Remediation Engineer, they shall be replaced by the Remediation Contractor at their expense.

E. Survey data shall be provided to the Remediation Engineer/Owner in an AutoCAD drawing format:

1. Establish separate layers according to category of data. For example, utilities in a unique layer, fencing on a separate unique layer, topographic contours on another separate unique layer, etc.

2. All survey points and topographic contours should be inserted into the AutoCAD drawing at the correct coordinates and the elevations. For example, the topographic contour polyline for elevation 5 feet should be inserted in the drawing at elevation 5.

3. Referenced AutoCAD drawings (XREFs) shall not be bound nor inserted into the drawing, but shall be left as attached XREFs.

4. Colors for all drawing elements shall be set by layer.

F. Submit an associated “points text file” in ASCI or xls format containing all survey data with all submittals.

G. Prepare all topography at a 1.0-foot contour interval.

H. Site control points/benchmarks have been set by the Remediation Engineer/Owner for Remediation Contractor’s use during construction.

1.05 SUBMITTALS

A. Submit name, address, telephone number, and a brief summary of the hydrographic survey experience of Surveyor to Owner and Remediation Engineer before starting survey work.

B. Submit evidence of Surveyor's Professional Liability insurance coverage to the Owner and Remediation Engineer before starting survey work.

C. Submit a detailed plan describing the survey methods to be used during the Work. The plan shall include the equipment to be used, expected horizontal and vertical accuracies, and pertinent information to describe the methods, and results to be obtained. Field surveys shall not begin until these plans are approved.

D. A complete layout plan of the dredging area showing the horizontal layout of all physical and electronic ranges to be used for horizontal control. Field surveys shall not begin until these plans are approved.

E. Excavation/Dredge Survey: Topography/Hydrography

1. An unsigned and unsealed draft electronic file shall be submitted for review and approval within two (2) days of "completing" an excavation or dredge area.

2. Submit excavation surveys for individual excavation/dredge area identified on the Drawings.

3. An unsigned and unsealed draft electronic file of all excavation and dredge areas on a consolidated plan shall be submitted for review and approval within two (2) days of "completing" all excavation/dredge areas.

4. A final signed and sealed electronic file (pdf) of all completed excavations on a consolidated plan to be provided upon the approval of the draft submission.

5. Electronic AutoCAD file (AutoCAD Version 2014 or newer).

6. Bottom of excavation survey must be completed immediately upon the completion of each excavation area, to verify that target excavation elevations have been achieved. The Remediation Contractor shall bear the additional cost of water management, dust control, odor controls and any and all costs related to having the excavation open longer than is necessary.

7. Prior to the Remediation Engineer's review and acceptance of the Topographic/Hydrographic Survey of the excavation/dredge areas, the Remediation Contractor will not begin any backfilling activities within the excavation limits. The Remediation Contractor shall not be entitled to recompense (time or money) due to a delay during this period. The survey shall be transmitted to the Remediation Engineer electronically and one full business day will be required to review the survey prior to authorization to backfill.

F. As-Built Survey: Topography and Location

1. An unsigned and unsealed draft electronic file (pdf) shall be submitted for review and approval.

2. A final signed and sealed electronic file (pdf) to be provided upon the approval of the draft submission.

3. Electronic AutoCAD file (AutoCAD Version 2014 or newer)

4. Perform survey once site restoration is complete.

5. Include locations of the following:

a. Horizontal and vertical extents of soil excavation, dredge, and in-situ solidification (ISS, including top and bottom elevation).
b. Horizontal extent of installed soil caps with subgrade and final grade elevations to verify cap thickness.
c. Elevation of groundwater encountered during the work.
d. Location of subsurface features including capped pipes abandoned in place.
e. Restoration surface features including, paved parking area, fencing and gates, landscaping specimens, erosion and sediment controls designated to remain and stormwater controls (filter sock, riprap, etc.).
f. Topographic survey of final restored site (upland and lowland) and hydrographic survey of final restored canal.

G. An electronic copy of the Remediation Contractor's field notes, computations, and other survey records for the purposes of documentation and measurement for payment shall be submitted to the Remediation Engineer. This information shall be used in support of quantity measurement for progress and final payments.

1.06 QUALITY ASSURANCE

A. References shall be set and measurements taken using standard accepted surveying methods and equipment. Use only New York licensed and registered surveyors for the work.

B. Remediation Contractor shall employ a Land Surveyor registered in the State of New York with at least three years of professional experience with specific experience in performing hydrographic surveys and acceptable to the Owner and Remediation Engineer. Surveyors are required to comply with all applicable health and safety requirements. Surveyor's onsite personnel shall be OSHA 40 hour trained.

C. Maintain one copy of each document on site, available to Owner and Remediation Engineer for review throughout the Work.

1.07 EXAMINATION

A. Pre-Construction Inspection.

1. Visually identify existing conditions differing from what is shown on Drawing C-100.

2. Compare utility mark outs to utilities shown on Drawing C-100.

3. Report any discrepancies or differences in writing to the Remediation Engineer.

1.08 SURVEY REFERENCE POINTS

A. Locate and protect survey control and reference points.

B. Control datum for survey is noted on Drawing G-201.

C. Protect survey control points prior to starting site work and preserve permanent reference points during construction, as necessary to complete the Work.

D. Promptly report to Remediation Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Remediation Engineer.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.01 SURVEYING

A. Prior to starting work on the Site, the Remediation Contractor shall confirm the initial site topography and bathymetry and the locations of primary and ancillary structures, landscaping features, property lines, and any easements in the area to be impacted by the work.

B. The Remediation Contractor shall offset stake the corners of the area to be excavated or capped.

C. All hydrographic surveys for this project shall follow the mandatory criteria given in EM 1110-2-1003 for the “Navigation and Dredging Support Surveys” class of survey as a minimum.

D. Survey lines (ranges) shall be run at appropriate intervals to meet project survey requirements, with all subsequent surveys done on the same spacing, tracks and reference lines. Subcontractor survey will be at least 50 feet beyond the dredging limits.

E. Survey the bottom of the excavations (not including the dredge areas) to document that the required soil removal depths/elevations were achieved to a tolerance of 0.1 feet. At a minimum, document survey point data at a frequency of one in every 100 square feet (10 feet by 10 feet) of excavation.

F. Survey the vertical limit of dredge to document that the required sediment removal depths/elevations were achieved to a tolerance of 0.2 feet. At a minimum, document survey point data at a frequency of one in every 100 square feet (10 feet by 10 feet) of excavation.

G. Additionally, any underground utilities encountered during the excavation work and not removed shall be surveyed and documented for future location. Key utilities include telephone, electrical power, storm and sanitary sewers, water, and gas piping.

H. As necessary, prepare cross-sections, details, calculations and provide additional survey information as requested by the Remediation Engineer. Such additional information may include the calculation of excavation volumes for the purposes of confirming payment quantities.

3.02 STAFF GAUGE

A. Install one staff gauge within the canal for use during construction.

B. Staff gauge shall be commercially produced and contain highly visible markings.

C. Staff gauges shall contain 0.1 foot gradations.

D. Install the staff gauge so that a foot mark on the staff gauge is at a whole number elevation.

E. Staff gauge shall be suitable to withstand water, wind and ice forces.

3.03 RECORD DRAWINGS

A. The Remediation Contractor shall provide a complete set of record drawings for all constructed systems. The record drawings shall provide measured coordinates (X, Y and Z) of the systems and work constructed as part of this work. The record drawings shall be prepared and stamped by a Land Surveyor or Professional Engineer licensed in the State of New York. At a minimum, the record drawings shall contain the following:

1. Pre and Post Excavation Limits Drawing:

a. Contour elevations for the existing and post excavation bottom of excavation not greater than 1.0 feet apart.
b. Elevations at the limits of the disturbance (both top of slope and toe of slope).
c. Horizontal excavation limits.

d. The as-built topographic survey shall confirm that each disturbed area has been restored to pre-construction conditions and the specified requirements.
e. At a minimum, the finished surfaces shall be surveyed on a 20-foot by 20-foot grid, at similar locations as the pre-construction topographic survey.

2. Pre and Post Dredging Limits Drawing:

a. Contour elevations for the existing and post dredge channel bottom of the dredge areas not greater than 1.0 feet apart.
b. Elevations at the limits of the dredging (both top of slope and toe of slope).
c. Horizontal dredging limits.
d. At a minimum, the finished surfaces shall be surveyed on a 20-foot by 20-foot grid, at similar locations as the pre-construction bathymetric survey.

3. ISS Limits Drawing:

a. Contour elevations for the top and bottom of the completed ISS not greater than 1.0 feet apart.
b. Vertical ISS Limits.
c. Horizontal ISS limits.
d. At a minimum, the completed ISS shall be surveyed on a 20-foot by 20-foot grid.

4. As Built Drawing:

a. Drawing illustrating dimensions, locations, angles and elevations of construction and site features including Lowland Cover system limits, new monitoring wells, new fence and gates, new utility poles, and any other newly installed site feature.
b. Limits of work, spot elevations and surface contours of restored areas.

END OF SECTION

SECTION 02 00 00

EXISTING CONDITIONS

PART 1 - GENERAL

1.01 SITE DESCRIPTION

A. The Site was used as a manufactured gas plant (MGP) from 1856-1903. After that, the Site sat vacant as various parts of the plant were demolished from 1905 to 1944. The subsurface remnants of the gas holder remain in place and other building remnants can be expected.

B. A commercial building was constructed in the 1960s or 1970s and was demolished in 2009. The building foundation remains.

C. Work will occur on three parcels in Seneca Falls, New York (the Site):

1. The Former MGP located at 187 Fall Street owned by New York State Electric & Gas Corporation (NYSEG);

2. A vacant residential property to the east of the MGP at 185 Fall Street owned by NYSEG; and,

3. A commercial property located to the west of the MGP at 193 Fall Street owned by a third party. NYSEG will obtain the appropriate access agreements for construction on this property.

D. The Site is bounded by the Seneca River and Canal to the South, Fall Street to the north, a gas station to the west (193 Fall Street), and a single-family residence to the east (185 Fall Street).

E. The Site has two distinct topographic levels. The Upland Area is the northern two-thirds of the site, adjacent to Fall Street. The Lowland Area to the south borders the Seneca Canal and is roughly 20 feet lower in elevation.

F. The main site features of the Upland Area are a building slab and parking lot. The residential property at 185 Fall Street is also located on the Upland Area.

G. The Lowland Area is vacant and wooded.

H. Site access to the Lowland Area shall be via an access road between the Upland and Lowland areas. The access road requires improvements to support construction equipment and truck traffic.

1.02 DESCRIPTION OF WORK

A. Prior to submitting a bid, the Remediation Contractor shall review and understand the information contained in the following documents:

1. Issued for Construction Submission, including Contract Documents and Drawings and Specifications completed by Haley & Aldrich of New York and other Contract Documents.

2. Haley & Aldrich of New York, Report on Remedial Design, December 2017.

3. Haley & Aldrich of New York, Report on Pre-Design Investigation, March 2016. (included as an appendix to the Remedial Design).

4. New York State Department of Environmental Conservation (NYSDEC), Record of Decision NYSEG – Seneca Falls MGP, March 2015.

5. Boring Logs.

6. Tabulated groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area.

7. Other supplemental information supplied to the bidders by AVANGRID as part of the RFP.

B. The subsurface and environmental conditions information presented in these documents, as applicable, are for information only and shall not be interpreted as a warranty of subsurface or environmental conditions whether interpreted from written text, test boring logs, test pits logs, chemical test results, or other data.

C. Complete all Work in a manner to comply with applicable regulations.

1.03 RELATED SECTIONS

A. SECTION 01 11 00 – Summary of Work

B. SECTION 01 35 29 – Health and Safety Requirements

C. Drawings

D. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.04 EXISTING CONDITIONS

A. Expect to encounter existing and remnant utilities, buried foundations, oversized debris and rubble, including concrete, brick, and wood.

1. A subsurface circular concrete structure was identified in the northern portion of the Upland Area parking lot, adjacent to the building floor slab. The structure was filled with debris to at least 15 feet below ground surface (bgs).

B. Expect to encounter non-aqueous phase liquid (NAPL), oil-like material (OLM) and tar-like material (TLM) in soil and sediment.

C. Any damage to existing site features and neighboring properties shall by repaired at Remediation Contractor's sole expense.

D. Refer to Related Sections for conditions applicable to the scope of work outlined in those Sections.

1.05 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

1.06 QUALIFICATIONS

A. The subsurface data are provided to the Remediation Contractor for information. The Remediation Contractor shall interpret said data according to the Remediation Contractor's own judgment and shall understand that subsurface conditions may differ from those recorded in the reports or as shown on the test boring logs, test pit logs, or other subsurface explorations. The subsurface data represents the conditions at the sampling location at the time of exploration only. The Owner or the Design Engineer shall not be liable for any error or discrepancy in the information provided.

1.07 SUBMITTALS

Not Used

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 02 41 16

STRUCTURE DEMOLITION AND MANAGEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This Section provides procedures and requirements for demolition to be conducted during remediation.

B. The Remediation Contractor shall undertake the following work:

1. Demolition of existing concrete building slab and associated former building foundation.

2. Demolition of asphalt pavement.

3. Demolition of concrete masonry unit retaining wall.

4. Demolition of remnant Manufactured Gas Plant (MGP) gas holder of unknow size and depth to at least 4 feet below the existing ground surface. Remove liquids contained in accordance with Section 02 70 00 – Construction Water Management.

5. Demolition of other subsurface remnant Manufactured Gas Plant (MGP) structures.

6. Removal of utility poles taken out of service (NYSEG will move conductors to new poles outside the project Work Limits).

7. Demolition of unknown subsurface structures, as approved by the Remediation Engineer and Owner.

8. Size reduction of construction and demolition debris for off-site disposal.

9. Processing and segregating construction and demolition debris as required for off-site disposal and/or recycling.

10. Saw cutting as required.

11. Managing, handling, storing, and loading construction and demolition debris.

12. Protection of existing structures to remain.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 02 00 00 – Existing Conditions

D. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

E. Drawings

F. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

C. Former MGP Structures are shown on Drawing C-303.

1.04 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

B. The Remediation Engineer will observe the Remediation Contractor's activities associated with the Work of this Section.

1.05 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Qualifications: If subcontracting to a demolition firm, submit qualifications. A minimum of 5 years documented experience is required.

C. Demolition Plan (Submittal Group 2): Prior to mobilization to Site, submit Demolition Plan as a component of the Construction Work Plan for review to ascertain compliance with the requirements specified. The plan shall include written procedures and schedules as applicable:

1. The methods and procedures which will be used to perform:

    a. Protection of utilities
    b. Removal of piping
    c. Demolition/removal of known structures
    d. Demolition/removal of unknown subsurface structures
    e. Dust, vapor and odor control

2. The sequencing and scheduling of abovementioned activities.

D. Record Documents: Accurately record actual locations of capped utilities, if required.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable local, State, and Federal codes and Owner requirements for demolition of structures, safety of adjacent structures and utilities, dust control, waste management, and runoff control.

B. The Design Engineer will obtain select applicable permits and furnish them to the Remediation Contractor prior to the start of work. The Remediation Contractor will obtain other permits necessary for the completion of the Work. Refer to Section 01 70 00 – Execution and Closeout Requirements.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, hydrants without permits.

E. Conform to procedures applicable when hazardous or contaminated materials are discovered.

1.07 SEQUENCING AND SCHEDULING

A. Sequence activities to complete demolition in the following order:

1. Submit pre-mobilization documents to the Owner and Remediation Engineer.

2. Install erosion control protection devices.

3. Demolish structures as described on the Drawings.

4. Demolish unknown structures encountered during earthwork, with concurrence and approval by the Owner or Remediation Engineer.

5. Proceed with earthwork.

B. Comply with Village requirements regarding haul traffic schedules and routes.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Provide personnel with personal protective equipment and clothing as described in the Remediation Contractor's Health and Safety Plan.

B. Provide water source for dust control.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and the Site conditions are ready to receive work.

3.02 PREPARATION

A. Erosion Controls shall be installed prior to initiating demolition work.

B. Provide, erect and maintain temporary barriers as required.

C. Make all necessary provisions including, but not limited to, retaining subcontractors and contacting local municipalities and utility companies.

D. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.

E. Spray work areas with water to minimize dust. Provide water source, hoses and water connections for this purpose.

F. Control odors and vapors.

3.03 DEMOLITION AND REMOVAL

A. Complete demolition activities as described in the Drawings and Specifications or, in the case of unknown structures, as approved by the Owner or Remediation Engineer.

B. Segregate, live load or stage demolition material as needed to expedite demolition.

C. Break demolition debris into sizes suitable for transportation and disposal in accordance with disposal facility requirements.

D. Load demolition debris directly into transport vehicles/containers as frequently as possible to expedite project schedule. Do not bury materials on Site.

E. At the end of each day's work, leave work in a safe and secure condition so that unauthorized admittance is prohibited.

F. Remove materials as work progresses.

G. Remove temporary work.

3.04 WASTE HANDLING

A. Handle wastes in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

B. Handle wastes generated according to applicable rules and regulations.

C. Load all waste material in Remediation Contractor provided trucks and/or containers. Remediation Engineer is responsible for transportation, disposal or recycling of all waste material generated except the following for which transportation and disposal will be direct contracted by the Owner:

1. Waste material suitable for and requiring off-site thermal treatment and destruction.

2. Asbestos wrapped pipe

3. Scrap Metal for recycling (at the Owner's discretion depending on the type and quantity of scrap metal generated)

END OF SECTION

SECTION 02 51 29

DECONTAMINATION PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, equipment, materials, and supervision to decontaminate equipment and vehicles leaving the Site or active work area as required.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 50 00 – Temporary Facilities and Controls

C. SECTION 01 57 26 – Dust Control

D. SECTION 02 00 00 – Existing Conditions

E. SECTION 02 41 16 – Structure Demolition and Management

F. SECTION 02 61 13 – Piping Removal and Management

G. SECTION 02 61 23 – Excavation and Management

H. SECTION 02 70 00 – Construction Water Treatment System

I. SECTION 44 32 00 – Vapor and Odor Control

J. Drawings

K. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

1.04 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

B. The Remediation Engineer or Owner will observe the Remediation Contractor's activities associated with the Work of this Section.

1.05 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Proposed method(s) of decontamination procedures for small equipment and hand tools; personal protective equipment; and large equipment and vehicles included as a component of the Construction Work Plan.

C. Shop drawings of the decontamination pad shall be submitted to the Remediation Engineer for approval.

D. Product date on the materials used to construct the decontamination pad shall be submitted to the Remediation Engineer for approval.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.01 GENERAL

A. All equipment and materials shall be used in a manner to minimize the potential for, and extent of, any unnecessary contamination.

B. Any earthwork equipment that performs intrusive activities in any part of the construction area or is used to handle MGP-impacted soils shall be decontaminated prior to leaving the Site or prior to leaving the impacted Work Zone/Exclusion zone or prior to moving across a "clean" portion of the Site.

C. All site traffic will be performed in accordance with the Traffic Control Plan included in the Construction Work Plan, so as to avoid cross-contamination, with clean trucks remaining outside of the impacted areas, and kept separate from the potentially contaminated truck traffic.

D. Careful attention to cross-contamination is warranted. Delivery vehicles should not enter contaminated areas, to avoid tracking MGP-impacted soil.

E. Dry "gross" removal of soils on earthmoving or delivery vehicles within or over the area to be excavated is preferred over a washing approach.

F. F. Daily work zones including the Exclusion Zone, Contamination Reduction Zone and Support Zone shall be designated each work day by the Remediation Engineer at the

morning tailboard safety meeting. Locations and demarcations of the work zone will be documented and communicated to Site personnel at the meeting.

3.02 DECONTAMINATION PAD

A. Construct a temporary decontamination pad in accordance with the Drawings. The decontamination pad shall provide a watertight surface for draining and collecting rinse waters, and shall support all equipment requiring decontamination.

B. The decontamination pad shall meet the following criteria:

1. The pad shall be constructed with an impervious, compatible material, and shall be free of cracks or other potential leakage routes (minimum 40 mil HDPE liner).

2. The pad shall be designed, through size or other means, to collect all solids, liquid and semi-liquid material generated or collected during decontamination or other related activities.

3. Pad shall be sized to meet Remediation Contractor's production requirements. The details (size and location) provided in the Drawings are for guidance only.

3.03 EQUIPMENT DECONTAMINATION

A. Thorough brushing down of equipment shall be conducted within the work area prior to final rinsing above the decontamination pad so as to minimize the amount of soils and sediments collected in the wash waters.

B. All vehicles and equipment leaving the Site shall be cleaned and rendered free of any visible solids. This will be accomplished by washing with water until visible solids are no longer present on the piece of equipment. Steam cleaners, water jets, scrub brushes and non-phosphate detergent may be used in an approved manner to aid in the removal of solids and the decontamination of equipment. All washing activities shall take place on the decontamination pad unless otherwise approved by Remediation Engineer.

C. No detergents or cleaning fluids containing surfactants shall be used for decontamination. Surfactants in the collected decontamination fluid may foul the on-site construction water treatment system.

D. The undercarriage and wheels of all trucks and construction vehicles/equipment shall be decontaminated prior to departing the work area.

E. Decontamination of equipment is required if it is moved from an area with impacted material to an area identified as clean.

F. Equipment washing shall be conducted in a manner to minimize the generation of decontamination waters. The decontamination water will be collected, transported, and discharged in accordance with Section 02 70 00 – Construction Water Management.

G. G. Clean loading techniques (e.g., use of poly sheeting draped over the side of containers, installation of gravel or matting in loading areas) shall be employed by the Remediation Contractor to minimize the transfer of contaminated material and or fugitive soil/dust to over the road trucks and containers.

3.04 DISPOSAL OF DECONTAMINATION RESIDUALS

A. The decontamination pad shall be completely dismantled and disposed off-site, along with any collected residuals from the decontamination process, in a manner consistent with all applicable local, state, and federal regulations, and as approved by the Remediation Engineer.

B. Prior to the removal of decontamination materials from the site for off-site disposal, the Remediation Engineer shall be responsible for sampling and characterizing the material for off-Site disposal to meet the requirements of the Owner and the selected disposal facility.

C. Store, handle, and transport contaminated materials in accordance with all applicable local, state, and federal regulations, site requirements, and Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

D. Contaminated or potentially contaminated materials shall not be removed from the Site by the Remediation Contractor without prior notification to, and the approval of, the Remediation Engineer and Owner.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 025129 Decontamination Procedures-RevD.docx

SECTION 02 53 00

WASTE TRANSPORTATION, TREATMENT, AND DISPOSAL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Properly transport and dispose of all items, which can be generally classified as non-hazardous wastes removed from the Site, to appropriate disposal facilities. This includes existing wastes as well as the waste generated by the Remediation Contractor during construction.

B. The Remediation Engineer, in consultation with the Owner, shall be responsible for sampling and laboratory analysis of project related waste streams for waste characterization purposes. Sample results will be analyzed on an expedited 48-hour turnaround time and will be provided by the Remediation Engineer for the Owner and Remediation Contractor use in a tabular format, with comparison to appropriate comparison criteria, 72-hours after sample collection. Preparation of waste profiles for the designated Treatment, Storage and/or Disposal Facility (TSDF), as needed, will be the responsibility of the Remediation Engineer in consultation with the Owner.

C. The Remediation Contractor shall be held accountable for assuring that all manifesting, loading, containerization transportation and disposal requirements of the TSDF, Solid Waste Management Facility (SWMF), Publicly Owned Treatment Works (POTW), or reclamation/recycling/salvage facility, Federal, State, and local governments are complied with and properly documented.

D. The Remediation Contractor shall manage contaminated materials in a manner that ensures the protection of health, safety, public welfare, and the environment.

E. This Section includes a description of requirements and responsibilities for proper transportation, treatment, and disposal of waste materials removed and identified for off-site disposal including the following materials:

1. Land Clearing Debris from above existing ground surface.

2. Grubbings, stumps and below grade roots and vegetative debris

3. Sanitary Waste

4. General Refuse (Solid Waste)

5. Remediation-related Solid Waste

6. Construction and Demolition Debris

7. MGP-Impacted Construction and Demolition Debris
8. MGP-Impacted Soil
9. Asbestos Wrapped Pipe
10. Pipe Liquid Contents (if collected and segregated separately from construction water)
11. Construction Water
12. Scrap Metal
13. ISS Spoils

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety

B. SECTION 01 50 00 – Temporary Facilities and Controls

C. SECTION 01 57 26 – Dust Control

D. SECTION 02 00 00 – Existing Conditions

E. SECTION 02 41 16 – Structure Demolition and Management

F. SECTION 02 51 29 – Decontamination Procedures

G. SECTION 02 61 13 – Piping Removal and Management

H. SECTION 02 61 23 – Excavation and Management

I. SECTION 02 70 00 – Construction Water Treatment System

J. SECTION 31 10 00 – Clearing and Grubbing

K. SECTION 31 23 19 – Dewatering

L. SECTION 44 32 00 – Vapor and Odor Control

M. Drawings

N. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. HAZWOPER: OSHA Regulation 29 CFR 1910.120

1.04 EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

C. In-situ waste characterization analytical results are included in the Pre-Design Investigation report (attachment to the Remedial Design Report, H&A, May 2017) and other project documents included with the bid package.

D. Designated Disposal Facility Acceptance to be provided to the Remediation Contractor with Notice to Proceed. Waste Profiles will be provided to Remediation Contractor by the Remediation Engineer as part of project kick off and mobilization tasks and as the project progresses.

1.05 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

B. The Remediation Engineer will observe the Remediation Contractor's activities associated with the Work of this Section.

1.06 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Waste Delivery Summary: Provide a weekly summary of the waste sent off-site for the previous week. The summary should include at a minimum:

1. Delivery Date

2. Manifest Number

3. Net weight delivered per truck

4. Total tonnages and/or quantities for the week broken down by waste stream.

C. Weight Slips (Submittal Group 4): Copies of landfill certified weight slips will be required as documentation of quantities for payment of material transport and disposal costs.

D. Certificates of Treatment, Disposal or Destruction: Provide the Remediation Engineer a copy of signed received delivery manifests within 2 days of receipt by the Remediation Contractor and Certificates of Treatment/Disposal/Destruction prior to the Final Application for Payment.

E. The Remediation Contractor shall prepare and provide appropriate shipping paperwork (e.g., manifests) for the waste stream and selected TSDF. The Remediation Engineer shall review and sign the shipping paperwork as the Owner's designated Agent prior to shipping waste material off-site.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.01 MATERIAL TRANSPORT AND TREATMENT/DISPOSAL

A. The Remediation Contractor shall be responsible for the on-site storage, on-site transportation, and on-site handling of all materials, both contaminated and non-contaminated, in accordance with all applicable local, state, and federal regulations.

B. No materials, contaminated materials, or potentially contaminated materials shall be removed from the Site by the Remediation Contractor without prior notification to, and approval of, the Remediation Engineer and Owner.

C. Waste generated as a result of the Work shall be segregated into separate waste classifications and disposed of as described herein. The Remediation Contractor shall be responsible for off-site transportation and disposal of all waste classifications except for waste designated for thermal treatment at ESMI, asbestos wrapped pipe, and scrap metal. For these exceptions, the Owner will transport and dispose or treat off site.

1. Land Clearing Debris from above existing ground surface may be chipped and re-used on site with the approval of the Remediation Engineer. Excess material may be composted or recycled at an off-site facility, subject to prior approval of the Owner.

2. Grubbings, stumps, roots and vegetative debris from below existing ground surface shall be disposed at Seneca Meadows Landfill.

3. Sanitary Waste from on-site sanitary facilities shall be collected and disposed at a POTW by a licensed sewage/septage company.

4. General Refuse (Solid Waste) generated as a result of the Work or the on-site workers shall be disposed with solid waste at Seneca Meadows Landfill or other appropriate disposal location as identified by the Remediation Contractor.

5. Remediation-related Solid Waste including worker PPE, construction water treatment system residual carbon and resin, and sorbent booms associated with in water work shall be treated and disposed at ESMI or disposed as solid waste at Seneca Meadows Landfill.

6. Construction and Demolition Debris shall be disposed or recycled off-site as appropriate. Concrete and asphalt shall be sized to 4-ft by 4-ft blocks for acceptance at Seneca Meadows Landfill or other appropriate disposal location as identified by the Remediation Contractor. Bricks shall be disposed with solid waste at Seneca Meadows Landfill or other appropriate disposal location as identified by the Remediation Contractor.

7. MGP-Impacted Construction and Demolition Debris shall be disposed at Seneca Meadows Landfill.

8. MGP-Impacted Soil shall be treated and disposed at Environmental Soil Management Inc. (ESMI) or disposed at Seneca Meadows Landfill.

9. Asbestos Wrapped Pipe shall be set aside with minimal disturbance to the wrap, secured in a temporary storage area on a polyethylene lined surface, and covered with a polyethylene cover. The Owner will arrange necessary sizing for transport, and off-site transportation and disposal.

10. Pipe Contents removed from the site shall be evaluated at the time of generation for off-site disposal at a suitable TSDF, approved by the Owner.

11. Construction Water generated during the work shall be treated on-site and discharged to the Seneca River (Seneca-Cayuga Canal) under a temporary State Pollution Discharge Eliminate System (SPDES) permit. Construction water not able to be treated due to concentration of contaminants or limited treatment system capacity shall be disposed off site an POTW or recycling facility identified by the Remediation Contractor.

12. Scrap Metal shall be sized for recycling at an off-site facility selected by the Owner. The Owner will provide containers for metal debris storage and disposal.

13. ISS Spoils shall be treated and disposed at ESMI or disposed at Seneca Meadows Landfill.

D. Remediation Contractor is responsible for any and all trucking violations including but not limited to speeding, overweight, remediation of overturned truck and any other violations. Drivers or transportation firms incurring transport violations or complaints from neighbors may be removed from the project at the discretion of the Remediation Engineer or Owner.

E. Haul truck drivers must remain in their cabs with windows closed whenever truck is being loaded with waste, or is otherwise located in an exclusion zone or contamination reduction zone. Outside of these zones, if drivers leave their cabs, they must wear appropriate PPE and be escorted by a Remediation Contractor's representative.

F. Truck decontamination area and soil load out pads shall be constructed and maintained in accordance with Section 01 50 00 - Temporary Facilities and Control.

G. All haul truck and associated equipment shall be decontaminated before leaving the Site in accordance with Section 02 51 29 – Decontamination Procedures.

H. Trucks shall not queue or park on any public or private streets. Haul trucks shall not arrive before site operations begin at 7:00 a.m.

I. Cover all trucks leaving the site and prevent debris from spilling from trucks or being tracked off-site.

J. All trucks shall be in good condition with no holes or perforations in the body. Remediation Engineer reserves the right to reject haul trucks deemed to be in poor condition, or otherwise unsuitable for hauling contaminated soil/ materials.

K. Develop a contingency plan for trucking-related incidents and for response to material spills once material leaves the Site.

3.02 WASTE MANIFESTING

A. Coordinate manifest requirements with Remediation Engineer. Remediation Contractor shall provide manifests. Remediation Engineer will review and sign manifests as agent for the Owner.

B. Any trucks hauling ISS and MGP contaminated waste must possess a vail New York State Part 364/381 Waste Transporter Permit.

END OF SECTION

SECTION 02 61 13

PIPING REMOVAL AND MANAGEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This Section provides procedures and requirements for removal and management of abandoned gas utilities and MGP-related piping. These procedures include, but are not limited to, methods of excavation, cutting, handling, and stockpiling.

B. Piping to be removed shall include, but is not limited to, the piping indicated on Drawing C-303. Additional former MGP piping encountered during pipe removal or other construction activities (excavation/ISS) shall be removed in accordance with these Specifications.

C. Manage contaminated materials in a manner that ensures the protection of health, safety, public welfare, and the environment.

D. Work to be performed under this Section includes, but is not limited to, the following items including all labor, materials, equipment and services necessary and incidental to the proper execution of Work:

1. Prepare submittals.

2. Carefully dig to locate and expose former gas service and MGP-related piping, in accordance with Section 02 61 23 – Excavation and Management. If former gas service is not known to be abandoned, employ soft dig methods to locate and expose the gas pipe.

3. Containerization of pipe liquid contents. Containers (e.g., drums) to be provided by Remediation Contractor.

4. Removal and cutting of pipes into lengths suitable for transport and disposal requirements.

5. Stockpile and manage pipe segments in a manner that ensures the protection of health, safety, public welfare and the environment including all necessary dust, odor, and emissions controls.

6. Handle, store, load, and transport pipe sections in compliance with the provisions of all applicable federal, state and local laws, regulations and bylaws.

7. Provide transportation and disposal at an Owner-approved treatment and/or disposal facility. Owner to pay transportation and disposal directly for asbestos wrapped pipe, if encountered.

8. Characterization of containerized pipe liquids to be performed by the Remediation Engineer in consultation with the Owner.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety

B. SECTION 01 50 00 – Temporary Facilities and Controls

C. SECTION 01 57 26 – Dust Control

D. SECTION 02 00 00 – Existing Conditions

E. SECTION 02 41 16 – Structure Demolition and Management

F. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

G. SECTION 02 61 23 – Excavation and Management

H. SECTION 44 32 00 – Vapor and Odor Control

I. Drawings

J. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. HAZWOPER: OSHA Regulation 29 CFR 1910.120

1.04 EXISTING CONDITIONS

A. Refer to Section 02 00 00 – Existing Conditions for information regarding Site conditions.

B. Available groundwater, surface water, soil, sediment and other chemical test data proximate to the Work Area are provided in the documents listed in specification Section 02 00 00 – Existing Conditions.

C. Former MGP structures and previous utility location mark outs are shown on Drawing C-303.

1.05 QUALITY ASSURANCE

A. See Specification Section 01 40 00 – Quality Requirements for information regarding Quality Assurance.

B. The Remediation Engineer will observe the Remediation Contractor's activities associated with the Work of this Section.

1.06 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

B. Weight Slips: Copies of landfill certified weight slips will be required as documentation of quantities for payment of material transport and disposal costs.

PART 2 - PRODUCTS

Not applicable.

PART 3 - EXECUTION

3.01 ON-SITE MATERIALS MANAGEMENT

A. General: Soil excavated to expose and facilitate pipe removal shall be handled and stored in accordance with Section 02 61 23 – Excavation and Management. As pipe sections are removed from an excavation, they shall be cleaned of adhered soil through dry brushing or wet brushing with water spray (as necessary).

3.02 PIPE CONTENTS DEWATERING

A. Dewater all pipes prior to removal. Pipe liquid contents shall be containerized separate from other construction water if by visual or olfactory determinations the liquids are different than other construction water.

B. Dewater pipes in a manner that insures that pipe liquid contents are not discharged into the excavation.

C. Complete dewatering of pipes may not be required if hydraulic connectivity with groundwater is apparent and cessation of dewatering is approved by the Remediation Engineer.

3.03 MATERIALS STORAGE

A. Segregate pipe materials (i.e., clean piping for recycling, MGP-impacted piping for disposal, possible asbestos-wrapped piping, etc.) for disposal in consultation with the Remediation Engineer.

B. Store removed pipe segments on-site in designated lined storage areas approved by the Remediation Engineer. Do not remove regulated material from the Site for disposal or treatment without approval of the Remediation Engineer and Owner and appropriate Bills of Lading/Manifests for off-site disposal.

C. Inspect stockpiles and roll-offs daily during construction and record inspection observations in a daily logbook for submittal to the Remediation Engineer on a weekly basis.

3.04 MATERIAL TRANSPORT AND DISPOSAL

A. Loading, transport, treatment, and/or disposal of removed pipes, and liquid pipe contents shall be done in accordance with Specification Section 02 53 00 - Waste Transportation, Treatment, and Disposal.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 026113 Piping Removal-RevD.docx

SECTION 02 61 23

EXCAVATION AND MANAGEMENT

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work to be done under this Section includes, but is not limited to, providing all labor, materials, equipment, and incidentals as necessary to conduct and complete the Work specified herein and shown on the Drawings.

1. Excavate all materials, including soil, boulders, grubbings and all other materials as necessary at the locations and to the depths shown on the Drawings. At locations of restoration plantings, over-excavate as needed to accommodate

2. Preserve and protect existing and new site improvements during the Work including, but not limited to, the residential structure at 185 Fall Street.

3. Sequence Work to minimize excavation time, minimize stockpile size and residence time and schedule timely arrival and placement of clean backfill.

4. Control airborne dust to below visible levels, required regulatory levels, and as required by Section 01 57 26 – Dust Control.

5. Control vapor and odors emanating from soil during excavation as necessary in accordance with Section 44 32 00 – Vapor and Odor Control.

6. Manage excavated materials in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

7. Decontaminate excavation equipment in accordance with Section 02 51 29 – Decontamination Procedures.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 02 00 00 – Existing Conditions

D. SECTION 02 41 16 – Structure Demolition and Management

E. SECTION 02 61 13 – Piping Removal and Management

F. SECTION 31 10 00 – Clearing and Grubbing

G. SECTION 31 23 23.13 – Backfill

H. SECTION 31 25 00 – Erosion and Sedimentation Control

I. SECTION 33 29 00 – Well Abandonment

J. SECTION 44 32 00 – Vapor and Odor Control

K. Drawings

L. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits

B. New York State Department of Environmental Conservation, New York Standards and Specifications for Erosion and Sediment Controls, 2005.

C. New York State Department of Environmental Conservation "Technical Guidance for Site Investigation and Remediation"; DER-10 (NYSDEC DER-10); May 3, 2010.

D. Seneca County Soil & Water Conservation District.

E. American Society of Civil Engineers, Design and Construction of Urban Stormwater Management Systems, 1992.

1.04 SUBMITTALS

A. Requested information shall be submitted to the Remediation Engineer in accordance with the information outlined in Specification Section 01 33 00 – Submittal Procedures.

1. Confirmation notices from DigSafelyNY.

2. Monthly reconfirmation notices from DigSafelyNY.

3. Report from a private utility locating service identifying probable locations of underground utilities.

4. Moisture conditioning/bulking agent manufacturer's product information and safety data sheet for each product to be delivered to the site.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.01 GENERAL

A. Authorized excavation includes excavation of soil, to the vertical and horizontal limits shown on the Drawings, and as defined by the Design Engineer and other materials part of these Contract Documents. Supply sufficient excavation equipment to perform the Work.

B. Unauthorized excavation consists of excavation of on-site materials beyond the proposed limits of excavation, as defined by the Design Engineer, without specific direction of the Remediation Engineer. Unauthorized excavation also consists of excavation of other on-site soils and materials not specifically addressed in these Contract Documents, or any removal/disturbance/damage of soils on adjacent, off-site properties. Unauthorized excavation and resultant remedial Work shall be at the Remediation Contractor's expense. Unauthorized excavations shall be backfilled and compacted using the same procedures as specified for authorized excavations of same classification at the Remediation Contractor's Expense.

C. All work shall be performed to minimize the generation of air emissions in accordance with Sections 01 57 26 – Dust Control and 44 32 00 – Vapor and Odor Control.

D. The quantity of exposed soil shall be minimized by the coordination of work and construction sequencing. Inactive areas shall be temporarily stabilized within 14 days.

E. Backfill shall be performed in accordance with Section 31 23 23.13 – Backfill.

F. Restoration shall be performed in accordance with Section 32 30 00 – Site Restoration.

3.02 PREPARATION

A. Complete underground utility clearance before performing any invasive ground penetrating activities such as grubbing, grading, subsurface structure demolition or excavating.

1. Contact and coordinate with DigSafelyNY to mark out known subsurface utilities within the identified limit of work.

2. Procure the services of a private utility locating service to investigate, map, and mark out the locations of potential subsurface utilities within the limit of work.

B. Plan invasive ground activities (i.e., excavation) in consideration of the subsurface utility clearance work.

1. For marked locations of known active utilities, excavate using means and methods that ensure the health and safety of the workers and the protection of

the utility that is designated to remain active. Do not disrupt active utility services without prior coordination with the utility owner.

2. For marked locations of known inactive utilities as confirmed by the utility owner, excavate using means and methods that prevent uncontrolled breakage of the utility and release of any residual contents. Determine if any abandoned/inactive pipes are coated with hazardous materials such as asbestos or contain any residual liquids or solids. Handle residual liquids, solids, or pipes with asbestos wraps in accordance with Section 02 53 00 – Waste Transport, Treatment, and Disposal.

3. For marked locations of potential utilities, select excavation means and methods to ensure careful uncovering of the utility to facilitate additional investigation for determination of the type of utility and or status (abandoned/inactive or active).

3.03 EXCAVATION

A. All excavated material shall be classified, managed, and if required, stockpiled and disposed of off-site, in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

B. Prior to excavation, demolish surface structures as shown on the Drawings and specified in Section 02 41 16 – Structure Demolition and Management.

C. Remove former MGP structures and MGP-impacted soils in the Upland Area and 185 Fall Street to the approximate depths shown on the Drawings.

D. Remove abandoned pipes encountered in the excavation in accordance with Section 02 61 13 – Piping Removal.

3.04 STABILITY OF EXCAVATIONS

A. Slopes should not be cut greater than 1.5 horizontal to 1 vertical or as deemed suitable by an excavation competent person. Side slopes of excavations shall also comply with local codes and/or ordinances having jurisdiction, such as OSHA. Shore and brace in accordance with safe and acceptable engineering practice and local building codes and conditions where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

B. Upland ISS Areas: Along the Fall Street right-of-way, utilize an ISS support wall for support of excavations as detailed on Drawing C-400.

C. Residential property excavation (185 Fall Street):

1. Excavation adjacent to the residential building:

a. Excavate test pits to determine the geometry and depth of the existing building foundation at locations shown on Drawing C-400 prior to initiating full scale excavation.
b. Maintain a standoff distance of 5 feet from the outside face of the foundation wall for full depth excavation.
c. Utilize trench boxes as described and shown on Drawings C-400 and C-404 to maintain stability of excavations.
d. Within 5 feet of the building foundation excavate to 2 feet below existing ground surface.
e. Do not excavate within the excavation exclusion zone as determined by the foundation depth based on the test pit findings and the criteria shown on Drawing C-404.

2. Excavation adjacent to the residential east property line:

a. Utilize trench boxes as described and shown on Drawings C-400 and C-404 to maintain stability of excavations without encroaching on the property to the east

D. Canal Bank:

1. Excavate a stable cut back slope from the edge of water into the lowland area to support the depth of dredge (between 4 and 6 feet) required along the bank.

2. Stability of excavation shall consider the saturated condition of the soils and interface with flowing canal water.

3. Remediation Contractor shall determine safe setback distances for the size and type of equipment used to excavate the cut back slope in support of completing the dredge.

3.05 TESTING

1. Documentation testing will be performed by the Remediation Engineer within the 5-foot standoff zone of the residential building foundation.

2. Bottom of sidewall samples will be collected by the Remediation Engineer at a depth of 2 feet below the existing ground surface at a maximum 30-foot interval.

3. Sample testing will be performed by the Remediation Engineer.

4. The Remediation Contractor shall support the Remediation Engineer in the collection of the samples including providing safe access to the excavation and a preparing a suitable sampling surface.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 026123 Excavation and Management-RevD.docx

SECTION 02 70 00

CONSTRUCTION WATER TREATMENT SYSTEM

PART 1 – GENERAL

1.01 SUMMARY

A. The Design Engineer will obtain a temporary State Pollution Discharge Elimination System (SPDES) permit equivalent (herein referred to as the "SPDES permit") for the discharge of treated water to Seneca River. Treated water shall be discharged in accordance with the applicable permit.

B. Remediation Contractor work to be done under this Section includes, but is not limited to, providing all labor, materials, equipment, and incidentals as necessary to operate and maintain a temporary water treatment system at the subject site.

C. This section describes the requirements for the functional design, performance, construction features, operation, and testing of the equipment described in the following sections.

D. The Remediation Contractor may propose an alternate water treatment system design that, at a minimum, shall meet the performance standards of the site's SPDES permit discharge limits and design, construction, and operational intent established herein. Alternatively, the Remediation Contractor may propose offsite disposal of water at an applicable licensed disposal facility. It is noted that the Remediation Contractor is required to provide a base bid in accordance with the design specified in the Contract Documents. Alternates should be provided separately and will be considered during the Remediation Contractor selection process.

E. The Remediation Contractor is responsible for all costs and fees related to the operation, monitoring, and maintenance of the water treatment system (e.g., system sampling, analytical costs, media change-out, system repairs, discharge fees).

1.02 RELATED SECTIONS

A. SECTION 01 33 00 – Submittal Procedures

B. SECTION 01 35 29 – Health and Safety Requirements

C. SECTION 02 51 29 – Decontamination Procedures

D. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

E. SECTION 31 23 19 – Dewatering

F. Drawings

G. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits. An example SPDES Permit is included as Attachment 02 70 00-A to this section.

B. New York State Department of Environmental Conservation, New York Standards and Specifications for Erosion and Sediment Controls, 2005.

C. New York State Department of Environmental Conservation "Technical Guidance for Site Investigation and Remediation"; DER-10 (NYSDEC DER-10); May 3, 2010.

1.04 SUBMITTALS

A. Submit in accordance with Section 01 33 00

B. The Remediation Contractor shall submit a Construction Work Plan with their bid. The Technical Execution plan shall include:

1. Description of water treatment system, equipment (including size and capacity), processes, and monitoring.

2. Remediation Contractor shall submit an Operation & Maintenance plan with their design of the water treatment system to include regular maintenance, daily operating procedures and recording of performance parameters, logs, and record keeping.

3. Calculation and support documentation for treatment system design, component selection and sizing.

4. Description of the coordination with the construction dewatering system (including additional pumps and equipment required).

5. Any proposed alterations from the minimum required system shown in the Drawings

C. The Remediation Contractor shall prepare Pre-construction submittals prior to execution of work at the site including:

1. All applications submitted for permits and permits obtained.

2. Detailed equipment documentation including cut sheets.

3. Proposed secondary containment systems.

4. Proposed inspection checklist.

D. The Remediation Contractor shall submit construction submittals during the operation of the water treatment system including:

1. Daily discharge volume log.

2. Daily inspection logs.

1.05 DESCRIPTION OF WORK

A. Construction dewatering, described in Specifications Section 31 23 19 – Dewatering, will generate water impacted with MGP constituents.

B. Remediation Contractor shall provide and maintain a water treatment system that can treat and discharging water in accordance with the site's SPDES Permit and the Specifications. The Remediation Contractor shall ensure continuous operation of treatment system throughout the duration of the project as directed by the Remediation Engineer.

C. Remediation Contractor shall prepare and submit a Construction Work Plan in accordance with the procedures set forth in Specifications Section 01 33 00 – Submittal Procedures. Remediation Contractor shall follow the approved water treatment plan, and be responsible for meeting the requirements of the discharge permit volume and constituent concentration limitations.

D. Remediation Contractor shall maintain Daily Discharge Volume Logs obtained from a continuously totalizing water meter, hours of treatment system operation, peak flow rates, and other pertinent data for the Remediation Engineer's verification and approval, in accordance with the discharge permit. Remediation Contractor's Daily Report of water treatment activities shall be in a format acceptable to the Remediation Engineer and shall include the results of daily system inspections.

E. Remediation Contractor is responsible for all fines and penalties associated with nonconformance of the system in meeting the discharge permit.

F. The Remediation Contractor shall provide all manpower, equipment and materials to execute all activities necessary to provide, operate, and maintain a temporary water treatment system. The temporary water treatment system shall include the following major components as depicted in the Drawings:

1. Secondary containment;

2. Influent tanks (one fractionation tanks and one baffle/oil-water

3. Separator tank);

4. Effluent storage tank (one fractionation tank);

5. Transfer pumps;

6. Bag filters;

7. Granular activated carbon (GAC) vessels;

8. Anion resin;

9. Piping and appurtenances; and,

10. Meters and gauges.

G. The temporary water treatment system shall be capable of treating a flow rate of 50 gallons per minute (gpm).

H. Analytical results for groundwater samples collected within the project area are included as Attachment 02 70 00 B. The proposed temporary water treatment systems shall be capable of reducing these concentrations (i.e., influent characteristics) to the discharge treatment levels required by the temporary SPDES discharge limits. The Remediation Engineer will be responsible for collecting the system performance analytical samples or any other sampling required prior to discharge in accordance with the SPDES permit requirements.

PART 2 – PRODUCTS

2.01 GENERAL

A. This section specifies the minimum design and construction requirements for major treatment system components. Substitutions of system components other than those specified herein must be submitted for consideration and approval by the Design Engineer in accordance with the requirements of the Contract Documents. Remediation Contractor shall provide freeze protection for all water treatment system equipment, tanks, piping, and pipe connections to allow for operation through the winter months, including but not limited to: insulation, enclosures, heaters, heat tapes, and circulation pumps.

B. The Remediation Contractor shall prepare a level area suitable to stage water treatment equipment as shown on the drawings and in accordance with the equipment vendor's recommendations. Level area may consist of a 6-inch gravel road base coarse aggregate or approved equal.

C. The Remediation Contractor shall provide an erosion control pad for the outfall in accordance with the SPDES permit consisting of a filter fabric and small rip rap (4"-8"). The structure shall be removed and the area stabilized following construction dewatering activities.

2.02 SECONDARY CONTAINMENT

A. The temporary water treatment system, exclusive of influent and effluent tanks shall be constructed with a containment area complete with continuous 20-mil HDPE liner and berms to provide containment volume equal to 110% of the largest container within the containment area plus the volume of a 25-year 24-hour rain event (5 inches).

B. Influent and effluent tanks shall be contained within a 12” high HDPE spill guard or approved equal.

2.03 INFLUENT SETTLING TANKS

A. The influent baffle tank shall have a minimum of 18,000-gallon capacity with weirs and NAPL skimmer boom to facilitate removal of non-aqueous phase liquids.

B. The influent settling tanks shall be of steel construction and shall provide, at a minimum, enough storage capacity to store at least 30,000 gallons. The tanks shall allow the water level in the tank to be determined by visual inspection and the use of a stick level indicator.

C. Each tank shall be furnished with an inlet and outlet pipe connection. The tank shall be equipped with two, 4-inch valves at each end.

D. The influent tank shall be a minimum of one 21,000-gallon Steel Manifold Fractionation Tanks, and one 18,000-gallon baffle tank, manufactured by Rain For Rent, or approved equal.

E. The Remediation Contractor shall take such measures as are necessary to ensure that water does not freeze within the tanks and piping.

F. Additional tanks (if needed) shall be the responsibility of the Remediation Contractor.

G. Each tank shall be equipped with a high-high level alarm switch tied in to the supplying pump(s) to prevent tank overflows. Additionally, the alarm will provide a lighted signal indicating to the operator a high-high level condition.

2.04 EFFLUENT STORAGE TANKS

A. The treated water storage tank shall be of steel construction with a total minimum storage capacity of at least 20,000-gallons.

B. Each tank shall be furnished with an 8'' valve manifold with 4'' outlets.

C. The tank shall be 21,000-gallon Steel Manifold Fractionation Tank, manufactured by Rain For Rent, or approved equal.

D. The Remediation Contractor shall take such measures as are necessary to ensure that water does not freeze within the tanks and piping.

E. Additional tanks (if needed) shall be the responsibility of the Remediation Contractor.

F. Each tank shall be equipped with a high-high level alarm switch tied in to the supplying pump(s) to prevent tank overflows. Additionally, the alarm will provide a lighted signal indicating to the operator a high-level condition.

2.05 TRANSFER PUMPS

A. The transfer pumps shall be horizontal close-coupled, end suction centrifugal pumps of cast iron, stainless steel or bronze construction and rated for a combined pumping rate of 50 gpm (maximum allowable throughput to the temporary water treatment system) at a pumping head to be determined by the Remediation Contractor.

B. Impellers shall be designed to handle solids of up to ½ inch in diameter.

C. The pump motors shall be non-overloading of National Electrical Manufacturers Association (NEMA) standard design suitable for close coupled pump mounting.

D. Controls for transfer pumps shall consist of level switches in tank for low water level, high water level and high-high water levels.

E. The transfer pumps shall be diesel operated model DV-80, as manufactured by Power Prime Pumps, or approved equal. Storage for diesel fuel shall be double contained in accordance with SPCC regulations.

F. A transfer pump supplying water to the system from the dewatering area shall be provided by the Remediation Contractor to meet the requirements of the site. Operation may be diesel or air operated. Shop drawings must be submitted for approval prior to use and installation.

2.06 BAG FILTERS

A. The bag filters (four total – two parallel pairs) shall have a loaded hydraulic capacity exceeding 50 gpm. The bag filter housing shall be carbon steel, and shall be pressure rated to a maximum 125 pounds per square inch (psi).

B. The primary bag filters shall be housing model BF200, as provided by Rain for Rent, or approved equal. The primary filter bags shall have a rating of a maximum of 50-micron opening and be oil sorbent material.

C. The secondary bag filters shall be model BF200, as provided by Rain for Rent, or approved equal. The secondary filter bags shall have a rating of a maximum of 5-micron opening.

2.07 GRANULAR ACTIVATED CARBON VESSELS

A. The Granular Activated Carbon (GAC) vessels (two total) shall have a loaded hydraulic capacity of greater than 50 gpm. A minimum of 2,000 pounds of GAC shall be used per

vessel. The vessels shall be provided with lifting supports suitable for lifting by a fork lift truck.

B. The vessels shall be designed for a downflow application, a carbon dry fill opening in the top and a carbon discharge connection in the unit bottom. All vessel fittings shall be installed by the GAC vessel manufacturer at the time and place of manufacturer. The Remediation Contractor shall not modify the GAC vessel in the field without written approval from the Manufacturer.

C. All water shall be routed through the GAC vessels in series during normal treatment system operations. When the primary GAC vessel becomes spent (breakthrough of constituents above permitted limits), a carbon change-out of the primary vessel shall occur. The secondary vessel shall be moved to the primary position and a new GAC vessel shall be placed in the secondary position. GAC units shall be equipped with backwash capabilities.

D. The GAC units shall be model PV2000, as manufactured by Evoqua, or approved equal.

E. The GAC shall be Aquacarb 1230C carbon as supplied by Evoqua or approved equal.

2.08 ANION RESIN BEDS

A. The anion resin shall be capable of treating 50 gpm of water generated from dewatering activities containing up to 1000 ug/L of cyanide. During the remedial investigation, the concentration of cyanide in groundwater ranged from non-detect to 650 ug/L. The discharge criteria is anticipated to be 60 ug/L but must be verified by the discharge permit.

B. The anion resin vessel shall be capable of processing a minimum of 50 gpm at a pressure of 60 psi and have a capacity of sufficient resin to reduce concentrations to below discharge criteria. A minimum of 30 sq. ft. shall be supplied per vessel.

C. The anion resin vessel shall be Super 30 vessels, as manufactured by Evoqua, or approved equal.

D. The resin shall be A-284 anion resin, as supplied by Evoqua, or approved equal.

E. The anion resin beds may be bypassed if analytical results determine that cyanide treatment is not required for the applicable permit.

2.09 PIPING AND APPURTENANCES

A. The Remediation Contractor shall provide all necessary piping and appurtenances required for operation of the temporary treatment system.

B. Influent piping from the excavation upstream of the influent tanks and outside the containment berm shall be double walled to ensure containment in the event of a leak.

Effluent piping from the treatment system to the point of discharge may be single-wall pipe.

C. Sample ports shall consist of ½" diameter schedule 40 PVC, stainless steel or brass pipe extensions with ½" ball valves.

D. All piping and appurtenances shall conform to applicable American Society for Testing and Materials (ASTM) standards.

E. All exterior piping required for the treatment system shall be protected from vehicular traffic when placed on ground surface (e.g. influent pipe from construction areas, discharge pipe).

F. All exterior piping and equipment shall be freeze protected during freezing weather via insulation, enclosures, heaters, heat tapes, and circulation pumps or approved equal.

2.10 METERS AND GAUGES

A. The Remediation Contractor shall provide all necessary meters and gauges to ensure proper monitoring of the entire treatment system.

B. Remediation Contractor shall provide adequate system controls to permit unattended operation with occasional operator checks for monitoring and adjustments.

C. The Remediation Contractor shall provide a notification system, such as pressure gages and alarms, to alert an operator if the system experiences conditions that will potentially cause the treatment system to shut down.

D. Remediation Contractor shall provide high-level alarms on tanks to prevent overflow conditions. Alarms may cause automatic actions to relieve the condition or may warn the operator.

E. If an upset condition occurs, which may result in a release or nonconformance with the discharge permit, Remediation Contractor shall immediately suspend operation and notify the Remediation Engineer.

F. The water treatment system shall not be operated without onsite supervision.

G. Remediation Contractor shall provide and maintain at all times a flow meters to record water discharged from both the treatment system to the effluent storage tank(s) and any locations required by the discharge permit.

PART 3 – EXECUTION

3.01 GENERAL

A. The Remediation Contractor shall provide, operate and maintain a temporary on-site water treatment system as described in this specification that shall treat liquid waste

streams encountered during remedial work. The Remediation Contractor shall maintain lines of communication with the Owner, Remediation Engineer and the NYSDEC regarding all discharge issues. The Remediation Contractor shall ensure continuous operation of treatment system throughout the duration of the project.

3.02 DISCHARGE LIMITS

A. The Remediation Contractor shall at all times maintain the treatment system so as to not exceed the effluent limits as required for discharge to Seneca River. The Remediation Engineer will be responsible for the collection of performance and discharge analytical samples.

B. Treated water will need to be sampled prior to discharge in accordance with the SPDES permit. The Remediation Contractor will need to provide sufficient storage to handle the accumulated water while waiting for analytical results. Samples will be analyzed on an expedited 48-hour turnaround time basis. The Remediation Engineer shall provide a tabular summary, for the Owner and NYSDEC's use, of the sample results and a comparison to the appropriate criteria within 72-hours of sample collection.

C. The pH of the discharged effluent shall not be less than 6.5 or greater than 8.5.

D. Metals shall be monitored but will not require treatment unless otherwise specified by the SPDES permit.

3.03 TESTING AND STARTUP ACTIVITIES

A. After mobilization and setup of the water treatment system, the Remediation Contractor shall perform system startup and testing activities and troubleshooting prior to initiating full scale (normal) operations.

B. Startup and testing activities shall be in accordance with the manufacturer's recommendations and as indicated in the Remediation Contractor prepared O&M manual that has been reviewed by the Design Engineer. General startup and testing of the temporary water treatment system shall consist of treating a minimum of 20,000 gallons of water collected from the first proposed excavation/dredging area (i.e., water that has been in contact with soil/sediment to be removed). During the startup test, the water treatment system shall be operated at the 50 gpm peak flow rate until the entire 20,000-gallon batch is treated or at the maximum flow obtained from the dewatering. During this time, the Remediation Contractor shall continuously monitor and record readings (every 30-minute minimum) from all gauges and meters as necessary in order to demonstrate that the system is operating as designed to the satisfaction of the Remediation Engineer. In addition, the Remediation Contractor shall make adjustments to the system as necessary to maintain a continuous flow rate of approximately 50 gpm while meeting the operating requirements of each system component.

C. The Remediation Contractor shall assist the Remediation Engineer in the collection of start-up testing samples following treatment of approximately 10,000 gallons and

20,000 gallons of water. The entire 20,000 gallons of treated water shall be retained in the effluent storage tanks until analytical results obtained indicate that the Remediation Contractor may discharge the water to the Seneca River. Samples collected during start-up will be submitted by the Remediation Engineer for laboratory testing based on the following parameters:

Parameter	**Influent/Mid-Carbon/Effluent**
Volatile Organic Compounds	Yes
Semi Volatile Organic Compounds	Yes
Cyanide	Yes
pH	Yes
Total Suspended Solids	Yes
Metals	Yes
Phenols	Yes
Turbidity	Yes
Oil & Grease	Yes

D. As required by the temporary SPDES permit, the Remediation Engineer shall collect grab samples and have analyzed at the approved laboratory. The samples shall be analyzed for the parameters identified above and in the permit. All analytical results shall be submitted to the NYSDEC and the Owner.

3.04 WATER QUALITY TESTING

A. Remediation Contractor shall provide sampling ports for collecting samples in accordance with the discharge permit and upon direction from the Remediation Engineer. Remediation Contractor shall assist the Remediation Engineer in collection of samples as directed by the Engineer. During the system operation, testing will be conducted in accordance with the temporary SPDES permit equivalent. The Remediation Engineer will collect the water samples for analysis.

3.05 ROUTINE MONITORING

A. The temporary water treatment system will be manually operated and controlled through a series of valves, visual reading gauges, and pump controls as necessary to accommodate system operation. The Remediation Contractor shall provide for a water treatment system operator to be on-site at all times during system operation. The system will be manually controlled by the operator. The daily activities to be performed and logged by the system operator (at least once per shift) include at a minimum:

1. Visual inspection of influent and effluent piping to and from the treatment system;

2. Visual inspection of all pumps, tanks, fittings and equipment for leakage;

3. Visual inspection of the sludge storage tank to document storage capacity;

4. Obtaining readings from the system pressure gauges associated with all treatment systems within the treatment train. Pressure gauge readings may be used to determine when a backwash event or filter replacement is required or that a particular treatment unit is not functioning properly;

5. Obtaining readings from the flow meter to monitor the system flow rate;

6. Obtaining readings from the flow totalizer to record the total system flow to date and calculate the daily and weekly flow- totals; and

7. During the operation of the treatment system, the influent tanks shall be visually inspected each time they are emptied to determine the depth of the sediment in the bottom of the tank. If sediment is observed to be 4 inches deep (or if directed by the Remediation Engineer) the tank shall be cleaned. Liquids from the cleaning activities shall be treated using the temporary water treatment system, while solids shall be collected in a sediment bag and placed into the dewatering area for subsequent disposal by the Remediation Contractor. The Remediation Contractor shall solidify material to make it suitable for off-site disposal as a solid waste.

8. Influent and effluent valves for all tanks and vessels shall be closed while a system operator is not onsite to prevent unmonitored and unintentional discharge of liquids from the tank or vessel.

3.06 CORRECTIVE ACTIONS

A. At the direction of the Owner or the Remediation Engineer, the Remediation Contractor shall take corrective actions as necessary to maintain specified treatment system performance in the event of an upset condition and/or operating conditions that result in noncompliant effluent water quality. During Corrective Actions, the Remediation Contractor may be required to mobilize additional influent and/or effluent storage tanks and/or repeat start-up and testing procedures as specified herein.

3.07 DOCUMENTATION

A. The Remediation Contractor shall maintain a daily operations log (i.e., tabulated results) in which the process variables described above will be recorded at a minimum frequency of once per shift or more frequently if requested by the Remediation Engineer. In addition, all activities related to O&M of the treatment system will be documented in the daily log. The daily log will be kept on site and will be made available to the Remediation Engineer on demand. Electronic copies of each daily log sheet will be submitted to the Remediation Engineer on a daily basis.

3.08 DECOMMISSIONING

A. Following conclusion of the water treatment system operations, the Remediation Contractor shall:

1. Clean/decontaminate all equipment in accordance with the vendor/supplier requirements,

2. The outfall structure shall be removed and the area stabilized in accordance with the Owner's and SPDES permit,

3. Provide transportation and disposal of any decommissioning related waste. Waste resin and carbon can be commingled with Remediation-related Solid Waste and disposed off-site in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

4. Restore the treatment area to original conditions.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 027000 Water Treatment-RevD.docx

SECTION 31 10 00

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

The work to be performed under this Section includes, but is not limited to, the following items including all labor, materials, equipment and services incidental to Site clearing and grubbing activities. This work shall consist of removing trees, shrubs, vegetation, stumps and root masses in areas shown on the Drawings, and as described in these Specifications and as necessary to protect the environment and comply with applicable regulations.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements.

B. SECTION 01 57 26 – Dust Control.

C. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal.

D. Drawings.

E. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits

B. New York State Department of Environmental Conservation, New York Standards and Specifications for Erosion and Sediment Controls, 2005.

C. Seneca County Soil & Water Conservation District.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.01 TEMPORARY EROSION CONTROL MEASURES

A. All erosion and sediment control devices shall be in place prior to the start of any grubbing or earthwork. Equipment shall be installed per manufacturer recommendations.

3.02 CLEARING

A. Protect and preserve trees and other vegetation located outside of the limits of construction and as indicated on the Drawings.

B. Clear all trees, shrubs and bushes to ground level within the defined clearing limits shown on the Drawings.

C. Manage all clearing debris generated through clearing activities as specified in Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

3.03 GRUBBING

A. Minimize grubbed areas to the open active work area to reduce the disturbed area of the Site and mitigate the potential for erosion and sedimentation.

B. Remove vegetation, tree/shrub/bush stumps, and root masses within the clearing limits identified on the Drawings.

C. Manage grubbings generated through grubbing activities as specified in Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 311000 Clearing and Grubbing-RevD.docx

SECTION 31 23 19

DEWATERING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This section specifies performance of dewatering required to excavate and backfill below the groundwater table; to remove collected stormwater runoff from open excavations; to maintain contaminated material stockpile containment areas in a manner that prevents uncontrolled release of stormwater having contacted contaminated material; and to ensure acceptance of excavated sediment at the selected disposal facility. Acceptance criteria are provided in Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

B. Coordinate dredging production with sediment dewatering capacity, disposal facility acceptance, and all scheduling and coordination with subcontractors. The Owner and/or Remediation Engineer will not be responsible for delays in the Work due to subcontractor availability or other circumstances.

C. Control the collection of surface water runoff and groundwater in open excavations by limiting the total area of open excavation at a given time.

D. Coordination and control of equipment and vehicle wash/decontamination water shall be considered as part of the work under Section 02 70 00 – Construction Water Management.

E. Provide all materials, equipment, labor, and services necessary for dewatering.

1.02 RELATED SECTIONS

A. Section 01 35 29 – Health and Safety Requirements

B. Section 02 53 00 – Waste Transportation, Treatment, and Disposal

C. Section 02 61 23 – Excavation and Management

D. Section 02 70 00 – Construction Water Treatment System

E. Section 35 20 23 – Dredging

F. Drawings

G. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 SUBMITTALS

A. Submit in accordance with Section 01 33 00 – Submittal Procedures.

B. Daily inspection logs of stockpiles and frac tanks for weekly submittal to the Remediation Engineer.

C. Product data for drying/bulking agents.

PART 2 – PRODUCTS

2.01 DEWATERING PAD

A. The sediment dewatering pad/sediment containers shall be constructed in accordance with the Drawings.

2.02 DRYING/BULKING AGENTS

A. Drying/bulking agents may include materials such as sawdust, CKD, lime kiln dust, Portland cement, recycled/crushed gypsum board, or other suitable materials locally available, cost effective, and acceptable to the TSDF.

B. Drying agents used must be approved by the Remediation Engineer and Owner and only when on-site dry sediment is insufficient to adequately address potential NAPL and moisture content requirements of the TSDF.

C. In the event needed, drying agents shall be added at the minimum percentage needed and shall not exceed 7-8% by weight unless approved by Remediation Engineer.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Establish a sediment dewatering pad/sediment containers in accordance with the Drawings.

B. If the cleared area in the Lowland Area is not large enough to accommodate dredging activities, equipment, and the dewatering pad/sediment containers, the dewatering pad/sediment containers may be moved to the Upland Area, with approval from the Owner and Remediation Engineer.

C. Dredge sediment stockpiles shall not exceed 4 feet in height.

3.02 MATERIAL DEWATERING

A. Dredged sediment will be direct loaded onto the dewatering pad/sediment containers, to the extent practicable.

B. If the direct loading onto the dewatering pad/sediment containers is not feasible, dredged sediment will be loaded into watertight trucks and transported to the dewatering pad.

C. Dredged material shall be dewatered on/in the dewatering pad/sediment containers. The stockpile retention time on the pad shall be minimized.

D. Prevent water and sediment from spilling from trucks or the dewatering pad/sediment containers during transport from the dredge area to the dewatering area, and at all other times.

E. Once sediment has drained on the dewatering pad, it shall be blended as needed with other previously dredged sediment to homogenize the impacted soils to eliminate pockets of excessive moisture or coal tar.

F. MGP-impacted sediment stockpiles shall be kept to a minimum, and coordinated with the transport of dewatered sediments for off-site disposal. Maintenance of stockpiles, including over nights or weekends, shall be required as stated in Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

G. Dewatering shall be complete and thorough, and satisfy the requirements of the disposal facility and State and Federal transportation regulations. Dewatering shall be complete enough to preclude the formation of free water during transport to the disposal facility. All free water shall be removed from the sediment prior to off-site transportation.

H. Alternate methods to gravity dewatering shall be submitted to the Remediation Engineer in writing for approval 10 days prior to use. Alternate methods shall not create odors or the potential for releases of contaminated sediment or water.

1. As needed and with the approval of the Remediation Engineer, additional drying and/or absorption agent shall be blended with the sediment to further moisture condition the material by reducing the moisture content, absorbing residual coal tar, and/or reducing odor in the blended material.

I. All dewatering effluent shall be collected, treated, and stored on-site in accordance with Section 02 70 00 – Construction Water Management and transported and disposed in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

J. Inspect stockpiles daily during construction and record inspection observations in a daily logbook for submittal to the Remediation Engineer on a weekly basis.

3.03 WATER MANAGEMENT AND DISPOSAL

A. Dewatering effluent will be managed in accordance with Section 02 70 00 – Construction Water Management.

3.04 STANDBY EQUIPMENT

A. Provide complete standby equipment, installed and available for immediate operation, as may be required to adequately maintain de-watering on a continuous basis (when and where necessary) and in the event that all or any part of the system may become inadequate or fail.

3.05 CORRECTIVE ACTION

A. If dewatered sediment is rejected by the disposal facility, further dewatering of the material shall be required at no cost to the Owner or Remediation Engineer.

3.06 REMOVAL

A. Maintain compliance with all conditions of regulating permits and provide such information to the Remediation Engineer. Obtain written approval from the Remediation Engineer before discontinuing operation of dewatering system.

3.07 CONSTRUCTION WATER

A. All surface water runoff and groundwater in open excavation shall be collected and sent to sediment dewatering pad for treatment.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 312319 Dewatering_RevD.docx

SECTION 31 23 23.13

BACKFILL

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Work to be done under this Section includes, but is not limited to, providing all labor, materials, equipment, and incidentals as necessary to conduct and complete the Work specified herein and shown on the Drawings.

1. Stabilize all disturbed areas.

2. Prepare, grade, shape, compact and protect all subgrades, backfills, and ground surfaces as shown on the Drawings.

3. Furnish materials from off-site source(s) acceptable to Owner/Remediation Engineer and analytical testing by the Remediation Engineer as required to complete the Work. No soil shall leave or be imported to the site without the Owner/ Remediation Engineer's approval.

4. Install clean canal fill suitable for restoration of a benthic community within the dredged limits of the Seneca River and Canal to lines and grades shown on the Drawings.

5. Place and compact clean backfill in the 185 Fall Street excavations and above the ISS portion of the Upland Area, as shown on the Drawings.

6. Install 1-foot Lowland Soil Cap in the Lowland Area as shown on the Drawings.

7. Control airborne dust to below visible levels, required regulatory levels and as required by other Sections.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 02 61 23 – Excavation and Management

D. SECTION 31 25 00 – Erosion and Sedimentation Control

E. SECTION 32 30 00 – Site Restoration

F. SECTION 32 90 00 – Planting

G. SECTION 32 92 00 – Turf and Grasses

H. Drawings

I. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. 6 NYCRR Part 375

B. New York State Department of Environmental Conservation, New York Standards and Specifications for Erosion and Sediment Controls, November 2016.

C. New York State Department of Environmental Conservation "Technical Guidance for Site Investigation and Remediation"; DER-10 (NYSDEC DER-10); May 3, 2010.

D. Seneca County Soil & Water Conservation District.

1.04 SUBMITTALS

A. Material Sources: At a minimum, submit name and address of each imported material source for each material type within eight days of Notice to Proceed. Coordinate with the Remediation Engineer to schedule a visit to the proposed borrow source/supplier location to collect samples for chemical and geotechnical analysis.

B. Geotechnical Laboratory Test Data

C. Chemical Laboratory Test Data

PART 2 – PRODUCTS

2.01 SELECT GRANULAR FILL

A. To be used for site restoration; vegetated and gravel restoration, lowland cover, and canal bank restoration.

B. Select Granular Fill shall conform to the requirements of NYSDOT 733-11 with the following gradation:

Sieve Size Designation	Percent Passing by Weight
4-inch	100
No. 40	0-70
No. 200	0-15

2.02 CANAL FILL

A. Canal Fill shall meet the following requirements:

1. Gradation

Sieve Size Designation	Percent Passing by Weight
8-inch	100
3-inch	70
No. 4	40
No. 200	10

2. Classification

Classification	Mix Percentage
River run small cobble	30
River run course and fine gravel	30
Fine to course sand	30
Mix of inorganic and organic fines (0.075 mm and smaller	10

3. pH between 6.5 and 7.5

4. An organic carbon content of 5 to 10 percent (8 to 18 percent organic matter) on a dry weight basis.

5. A concentration of chemical contaminates less than ecological resource soil clean objectives (SCOs) in 6 NYCRR Part 375.

2.03 TOPSOIL

A. Topsoil shall be provided as the final surficial soil in all disturbed areas to be vegetated.

1. Topsoil shall be of good quality, friable, and free of objectionable weed roots or seeds, clay lumps, sticks, trash slag, cinders, stones larger than 1 inch in any dimension, or other extraneous material harmful to plant growth.

2. Topsoil shall be as defined in ASTM D 5268 and shall have a texture of sandy loam as defined by the USDA textural classification.

3. Topsoil shall have a minimum of 4 percent and a maximum of 20 percent organic material content.

4. Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs, or marshes.

5. Perform nutrient analysis as described in specification 32 92 00 – Turf and Grass.

2.04 CRUSHED STONE

A. To be used for the site construction entrance and the temporary crane pads.

B. Crushed Stone shall conform to the requirements of NYSDOT 733-20 with the following gradation:

Sieve Size Designation	Percent Passing by Weight
1-inch	100
½-inch	30-100
¼-inch	0-30
No. 10	0-10
No. 20	0-5

2.05 DENSE GRADED AGGREGATE

A. To be used for site restoration; gravel restoration.

B. Dense Graded Aggregate shall conform to the requirements of NYSDOT 703-0202, Course Aggregate, Type 2 with the following gradation:

Sieve Size Designation	Percent Passing by Weight
1½-inch	100
1-inch	90-100
½-inch	0-15
No. 200	0-1

2.06 STONE MIX

A. To be used for temporary working pads in Dredge area.

B. Stone Mix shall consist of NYSDOT #3 and #4.

2.07 SOIL SOURCE QUALITY CONTROL

A. Any source proposed for use as backfill will be shown to not exceed the allowable constituent levels for imported fill or soil per Section 5.4 of NYSDEC DER-10.

B. Imported material shall meet the chemical test requirements of 6 NYCRR Part 375-6.7(d) for Restricted Use-Residential and Restricted Use-Commercial Sites and use the lower of the protection of groundwater or the protection of public health soil cleanup objectives (SCOs), for the identified use of the parcel where soil is being placed as follows:

1. 185 Fall Street Backfill – Restricted Use-Residential SCOs

2. Upland Area Backfill – Restricted Use-Commercial or Restricted Use-Industrial SCOs

3. Lowland Area Cover System – Restricted Use-Commercial or Restricted Use-Industrial SCOs

4. Seneca River and Canal Fill – "If Ecological resources are Present" SCOs

C. Imported materials with a gradation of 10% or less by weight passing the number 80 sieve as determined by ASTM D 422 may be imported without chemical sampling and analysis consistent with NYSDEC DER-10 Paragraph 5.4(e)(5).

PART 3 – EXECUTION

3.01 GENERAL

A. Backfilling activities, including placement and compaction, shall not be performed when air temperatures are at or below 32 degrees F unless approved by Remediation Engineer.

B. Previously placed, and possibly accepted, backfill shall be excavated and replaced at no additional cost if the backfill does not conform to the Contract Documents.

C. Placement of fill and backfill shall be systematically conducted in the specified uniform layer thicknesses.

D. Measurement of backfill layer or lift thickness shall be conducted in all cases prior to compaction.

E. Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance by the Remediation Engineer of construction below finish grade.

2. Completion of quality control testing, acceptance by the Remediation Engineer and recording locations of underground utilities.

3. Removal of trash and debris.

F. In freezing weather, a layer of fill shall not be left in an uncompacted state at the close of a day's operations. Prior to terminating operations for the day, the final layer of fill, after compaction, shall be rolled with a smooth-wheeled roller to eliminate ridges of soil left by tractors, trucks and compaction equipment. The placement of frozen or saturated fill materials shall not be permitted. The placement of fill on frozen ground shall not be permitted.

G. Any excavations improperly backfilled or where settlement occurs shall be reopened, to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to the Owner.

3.02 PLACEMENT AND COMPACTION

A. The Remediation Engineer shall approve all excavated surfaces prior to placing any fill. Subgrade shall not contain any topsoil, organics, roots over 1 inch in diameter, standing water, ice or frozen soil.

B. When necessary, compact subgrade surfaces in excavations to density requirements for backfill material.

C. Compaction shall be performed with mechanical vibratory or tamping equipment suitable for the size of the excavation to create a firm and unyielding surface, as approved by the Remediation Engineer.

D. Compaction in confined areas shall be conducted with acceptable equipment such as hand-guided static compactors or mechanical tampers as approved by the Remediation Engineer.

E. During compaction operations, incidental compaction due to traffic by construction equipment other than that used specifically in compaction operations will not be credited toward the required minimum coverages specified.

F. Compaction by means of puddling, jetting or flooding water is prohibited.

G. Moisture Control:

1. The amount of moisture in any one layer of fill material shall be as uniform as practical throughout. Fill that is too wet for proper compaction shall be harrowed, or otherwise dried or treated to achieve a proper moisture content to allow compaction to the required density. Additional measures including, but not limited to, adding stabilizing agents such as lime to hydrate excess moisture in the material, or other methods, may be required in order to place and adequately compact fill soils.

2. Fill that is too dry for proper compaction shall have water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.

3. Fill that exhibits weaving shall be repaired or replaced, as directed by the Remediation Engineer.

H. Select Granular Fill:

1. Place common borrow in layers not exceeding 12 inches.

2. Compact Select Granular Fill using a static roller compactor with a minimum of 3 passes covering the entire area. Where compression with static roller compactor is not feasible, track and compress the select granular fill with moderate pressure of the bucket of a backhoe or excavator.

3. For gravel restoration areas, compaction shall be to a minimum 95% Modified Proctor, ASTM D1557. In all other areas, compaction shall be to a minimum of 90% Modified Proctor, ASTM D1557. Compaction testing shall be at a frequency of 1 test per 250 cubic yards of placed common borrow material.

I. Canal Fill:

1. Place, grade, and compact fill utilizing a long stick excavator in uniform lifts not to exceed 1 foot in depth.

2. Compact by compressing the canal fill with moderate pressure of the excavator bucket.

J. Topsoil:

1. Place topsoil materials in 6 to 8 inch layers.

2. Compress the topsoil using small tracked equipment with two perpendicular passes covering the entire area. Where compression with tracked equipment is not feasible, compress the topsoil with moderate pressure of the bucket of a backhoe or excavator or with handheld equipment.

K. Crushed Stone:

1. Place and compact material in uniform continuous layers, not exceeding 8 inches compacted depth.

L. Dense Graded Aggregate:

1. Place and compact material in uniform continuous layers, not exceeding 8 inches compacted depth.

2. Compact to a minimum 95% Modified Proctor, ASTM D1557. Compaction testing shall be at a frequency of 1 test per 250 cubic yards of placed dense aggregate.

M. Each layer shall contain no rock, stones or boulders larger than 4 inches in their greatest dimension or one half the size of the maximum lift thickness.

N. Any excavations improperly backfilled or where settlement occurs shall be reopened, to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and condition, at no additional expense to the Owner.

3.03 GRADING

A. Grading and Finishing: In areas designated for grading and finishing, rake or machine-grade the areas to remove stones over 2 inches and other unsatisfactory material; fill depressions and finish the surface within the indicated tolerances. Refer to the landscape drawings and specifications for preparations in landscaped areas.

B. Unless noted otherwise in the Drawings or specifications, grades at the perimeter of excavated areas shall match existing grades at excavation perimeter.

3.04 SITE RESTORATION

A. Restore site in accordance with the Drawings and Section 32 30 00 – Site Restoration, and Section 32 92 00 – Turf and Grasses.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 312323.13 Backfill-RevD.docx

SECTION 31 32 13

IN-SITU SOLIDIFICATION

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Perform in-situ solidification (ISS) of MGP-impacted soil by excavator mixing, trenching, rotary-blending, or auger method.

B. Conduct bench scale testing prior to commencing full-scale ISS activities**.**

C. Collect and analyze quality control data to verify compliance with required performance criteria.

D. Perform ISS verification borings to verify homogeneous mixing, column overlap, and ISS depth verification.

E. Collect quality control samples of freshly mixed soil and provide to the Remediation Engineer for preparation of test specimens and laboratory testing.

1.02 RELATED SECTIONS

A. SECTION 01 33 00 – Submittal Procedures

B. SECTION 01 71 23 – Field Engineering

C. SECTION 02 00 00 – Existing Condition

D. SECTION 02 51 29 –Decontamination Procedures

E. SECTION 02 61 23 – Excavation and Management

F. SECTION 31 23 23.13 – Backfill

G. SECTION 44 32 00 – Odor Control

H. Attachment 31 32 13 - 1 – 2015 Timely Bench Scale Test Results

I. Attachment 31 32 13 - 2 - Soil Boring Logs and Geotechnical Data

J. Drawings

K. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 SUMMARY

A. Furnish all necessary machinery, material, reagents, labor, equipment, and incidentals required to conduct ISS of soil with a solidification agent to solidify MGP-impacted soils to reduce future migration of MGP-impacts to groundwater.

B. The area to be solidified, as shown on the Drawings, is located within the identified limit of work and designated as in-situ solidification (ISS) Areas S1 through S9 at the Upland Area of the Seneca Falls Former MGP Site.

C. ISS will extend to the depths shown on the Drawings and range from 7 to 20 feet below ground surface, prior to the pre-excavation removal.

D. Work includes, but is not limited to, the following:

1. Complete bench scale testing to demonstrate that the types and quantities of proposed ISS admixtures will achieve the performance requirements. Preliminary material performance testing was conducted by Haley & Aldrich during the Pre-Design Investigation (PDI) and included in the enclosed PDI Report and criteria are included in the 2015 Timely Bench Scale Test Results (Attachment 31 32 13 – 1)

2. Coordinate with New York State licensed surveyor for layout of solidification area limits and establishment of a solidification control grid.

3. Provide survey control of mix cell dimensions and top and bottom elevation of ISS for each cell.

4. Provide specified solidification reagents/admixtures for incorporation with on-site soils necessary for ISS.

5. Excavate and dispose off-site MGP-Impacted Soil within ISS areas from ground surface to generally 4 feet below ground surface to remove structures, historic utilities, and other obstructions to the ISS work, and allow room for volume increase (e.g., soil swell and addition of solidification agent) resulting from ISS.

6. Incorporate solidification reagents/admixtures with the site soils to the required depth.

7. Manage excess soil swell, while complying with applicable federal, state and local laws and regulations.

8. Grade the top of the solidified soil to be a minimum of 48 inches below the final soil cover grade and slope from the center towards the edges a minimum of 0.5 percent to preclude the accumulation of surface water infiltration on top of the solidified soil.

9. Backfill solidified areas with common borrow and final restoration materials to final grade elevation.

10. Remove temporary shoring and bracing systems completely from excavation areas (i.e., no shoring elements, such as soldier piles or wood lagging shall be abandoned in-place.

11. Clean and restore the Site and facilities to meet project requirements, including removing excess spoils, hardened grout form equipment flushing, soils, rocks, debris and other materials encountered during soil mixing as required.

12. Provide quality control testing to demonstrate that the ISS material conforms to the project requirements.

E. Remediation Contractor shall be responsible for the alignment, continuity, width, depth and mix content of the completed ISS as necessary to meet the performance requirements.

F. An ISS system shall be used which provides a safe, reliable method to treat impacted soil to depths up to 20 feet below existing ground surface so that the treated material conforms to the performance requirements of this Section. A system or procedure, other than described in this specification, may be used if the approved submittals, submitted in accordance with Section 01 33 00 – Submittal Procedures, demonstrate equivalent capabilities and ability to meet performance requirements. Such approval does not relieve the Remediation Contractor of responsibility for meeting specified requirements for safety, reliability, performance, required environmental controls, and site-specific operational requirements or restrictions. The ISS system shall include a data acquisition and display/control module for monitoring and recording key in-situ mixing parameters, including, but not limited to: grout flow to the auger, depth, vertical penetration rate, rotation speed, grout application per foot of depth, and pressures.

1.04 REFERENCES

A. American Society of Testing and Materials (ASTM) C150-05 Standard Specification for Portland Cement.

B. ASTM D 806-00 (2006) Standard Test Method for Cement Content of Soil-Cement Mixtures.

C. ASTM D 1633-00 Compressive Strength of Molded Soil-Cement Cylinders.

D. ASTM 2901-99 Standard Test Method for Cement Content of Freshly Mixed Soil-Cement.

E. ASTM D 4832-02 Standard Test Method for Preparation and Testing of Controlled Low Strength Materials (CLSM) Test Cylinders.

F. ASTM D 4843 Standard Test Method for Wetting and Drying Test of Solid Wastes

G. ASTM D 5084 Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter.

H. ASTM C989 Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.

1.05 SUBMITTALS

A. The following pre-construction submittals shall be provided at least 21 days, or as otherwise specified, in advance of commencement of solidification activities.

1. Soil Solidification Layout Drawing – Prepare a Soil Solidification Layout Drawing showing the location, dimensions, solidification methods, and bottom elevation of each soil solidification cell. The ISS layout shall divide the ISS area into individual cells, identify the solidification depth of each Area, and indicate the solidification method to be utilized in each Area. The survey control grid shall also be shown on the drawing.

2. Mix Design – The Remediation Contractor shall perform bench scale testing prior to commencing solidification activities at the site to confirm an appropriate mix to achieve the prescribed performance criteria. The Remediation Contractor shall submit the proposed mix design for acceptance by the Design Engineer and the Remediation Engineer, the Remediation Contractor shall identify mix design components and provide material data sheets and test results as requested by Remediation Engineer.

3. Key Personnel - Resumes of key personnel committed to the project shall be provided with the proposal. Requests for changes to key personnel shall be submitted 30 days in advance of mobilization and will require written approval from the Remediation Contractor. Key Personnel include Site Superintendent, ISS operations foreman/supervisor, batch plant operator, quality control personnel, and mixing equipment operators.

4. Reagents - Reagent composition and certificate of analysis.

5. Qualifications of the laboratory performing the construction phase quality control testing and the Remediation Contractor's quality control field staff.

6. Submit an ISS Work Plan as a component of the Construction Work Plan meeting the requirements of Section 01 33 00 – Submittal Requirements. The ISS Work Plan shall outline the procedures, equipment, and details of the ISS work, including, but not limited to:

a. Mixing and batch plant equipment
b. Mixing procedures to ensure complete homogenization of soils and solidification reagents
c. Scale systems and calibration
d. Data acquisition and control system

e. Reagent types and sources
f. Reagent storage and metering
g. Grout preparation and control, metering and delivery equipment and methods
h. Field sampling tool(s) to sample freshly mixed grout/soil at specified discrete depths
i. Water source, storage and metering
j. Emissions controls for dust, odor and vapors
k. Field quality control and drilling progress documentation forms

B. Provide daily submittals during the work summarizing the following minimum information:

1. Total quantity of solidification reagent-soil mixed for the week in cubic yards and percent complete and daily batch reports for each mixed Area.

2. A tabular summary of the ISS Areas completed to date and date of completion.

3. A figure showing completed and not completed ISS cells.

4. Quantities of reagents used during the week.

5. Quantities of reagents delivered to the Site with backup in the form of weight slips, bills of lading, flow meter records, or equivalent.

6. Soil disposal/handling methods and quantities managed.

7. Daily batch proportions and mixing quality control data.

8. Results of quality control testing.

9. An updated summary of quality control samples collected and expected date when results will be available.

C. Submittals listed above shall be approved by the Remediation Engineer and be submitted in accordance with the provisions of Section 01 33 00 – Submittal Procedures.

D. All quality control records, tests, and inspections shall be documented by the Remediation Contractor and shall be made available to the Remediation Engineer for review.

1.06 WORK AREA CONDITIONS

A. The physical conditions indicated on the Drawings and in the Specifications are based on site investigations. A summary of prior site investigations is presented in Section 02 00 00 – Existing Conditions. While the site investigation data is representative of subsurface conditions at a specific location, variations in the impacted materials and soil moisture content are expected to exist and the Remediation Contractor shall plan

accordingly. Boring and test pit logs from investigation activities at the Site are contained in Attachment 31 32 13 – 2.

B. The seasonal high groundwater table is encountered at approximately 7-10 feet below ground surface though because of the fill on site, perched groundwater conditions may exist.

C. The areas of the site where ISS will be performed contain historical fill soils and debris. Debris and remnant foundations from former MGP operations encountered require removal, unless ISS can be performed around the obstruction to accomplish solidification of all surrounding soil and approved by Remediation Engineer/Owner and New York State Department of Environmental Conservation.

1.07 PERFORMANCE REQUIREMENTS

A. In-Situ Soil Solidification

1. The solidified soil shall meet the physical testing criteria and characteristics listed in Table 1. The Remediation Contractor shall conduct bench scale testing prior to ISS implementation to confirm the mix design required to achieve the prescribed criteria. The tests and observations criteria shall apply to samples that have been cured for 28 days. Samples achieving criteria listed below prior to 28 days curing shall be deemed acceptable; however, any alterations to the specified mix design shall require approval of the Remediation Engineer.

Table 1
POST-TREATMENT TEST CRITERIA

TEST	TEST VALUE
Environmental Performance	
Min. Unconfined Compressive Strength (UCS), ASTM D1633	50 psi
Max. Permeability, ASTM D5084 (at 10 psi confining pressure)	$1x10^{-6}$ cm/sec
Maximum Volumetric Swell	20%
Slump	2 to 6 inches
Free Liquids	No Free Liquids
Coring	Core samples will be collected at a frequency of 1 per 5,000 square feet to insure material thoroughly mixed vertically and horizontally within each column/cell
Mixing Depth	As shown on Drawings
Excavatability Performance	
Removability Modulus (RE, See Note)	≤2.0
Max. Unconfined Compressive Strength (UCS), ASTM D1633	300 psi

Note: The RE is based on work by the Ohio Department of Transportation and is described in the March 1996 Performance Specification for Controlled Low Strength

Material Controlled Density Fill (CLSM-CDF) prepared by Hamilton County, Ohio and the City of Cincinnati, Ohio. The RE is calculated as follows:

$$RE = \frac{w^{1.5} \times 104 \times C^{0.5}}{106}$$

Where:
w = dry density of cured material in pounds per cubic foot (pcf)
C = 28-day UCS

2. Provide an ISS system and layout capable of mixing to the approved mix design proportions over the full limits of the soil solidification area. The ISS layout shall divide the ISS area into individual cells, identify the solidification depth of each cell, and indicate the solidification method to be utilized in each cell.

3. The soil solidification layout shall provide for adequate and verifiable overlap (if required) between solidified Areas so that all soil within the limits of the soil solidification area will be solidified as specified.

4. The vertical limits of the soil solidification will be as shown on the Drawings.

5. Mix proportions- the actual weight of each reagent in each solidified cell shall be within five percent of the specified mix design (e.g., if the specified mix is 10% by dry weight of soil, then the tolerance shall be 9.5-10.5%), unless otherwise approved by the Remediation Engineer.

6. Emission Controls – The mixing system shall include control apparatus necessary to meet project, local, state and federal regulations for air emissions and dust. Remediation Contractor shall implement all controls necessary to meet these requirements.

7. Noise Control – The mixing system shall be compliant with state and local noise regulations. The Remediation Contractor shall install noise control devices onto equipment or use other mitigation controls as needed to comply with the applicable regulations to allow work to continue at hours necessary to meet project schedule requirements.

1.08 EQUIPMENT

A. Mixing Equipment

1. The soil mixing equipment shall have an adequate capacity to meet performance and schedule requirements.

2. Mixing equipment shall include suitable rotary blending equipment. Bucket mixing alone, without rotary blending, will not be allowed.

3. The ISS system shall include a data acquisition and display/control module for monitoring and recording key in-situ mixing parameters, including, but not

limited to: grout flow to the auger, depth, vertical penetration rate, rotation speed, grout application per foot of depth, and pressures.

4. The soil mixing equipment will operate using equipment capable of thoroughly mixing the soil in each soil solidification cell with specified reagents and water and shall create a homogeneous mixture vertically and horizontally across the soil cell.

5. The mixing equipment shall be equipped with positive means for controlling and recording the mix proportions.

B. Reagent Feed Units

1. Satisfactory means, utilizing weighing, metering or volumetric measurement, shall be provided to separately batch the required amount of each reagent.

2. Silos and feeders shall be equipped and operated so that no caking of material or variation in feed occurs. Provisions shall be made so that each reagent can be easily sampled. No open-air stockpiles of reagents will be allowed.

C. Accuracy of Measurement Equipment

1. Scales, meters and volumetric measuring devices used for measuring contaminated material, reagents and water for soil-cement mixing processes shall be accurate to plus or minus 1 percent of the quantity being measured.

2. A check of calibration of measuring equipment shall be performed every five working days.

1.09 MIX DESIGN

A. Perform bench scale testing to provide data to determine the design mix necessary to meet the project performance requirements. The bench scale testing shall, at a minimum, include unconfined compression, permeability testing, and wet/dry testing to demonstrate compliance with the performance requirements. Acceptance of the bench scale testing and mix design by the Remediation Engineer does not preclude the Remediation Contractor's obligation to meet the performance criteria. The bench scale results submittal shall include:

1. Sampling procedures, sample descriptions, and sample characterization

2. Source of all materials used in the bench scale testing and vendor certification of the materials.

3. Test procedures, observations, and results.

4. Recommended ISS mixtures including additive materials and soil content.

B. The Design Engineer has performed a preliminary bench-scale treatability study using site soils, with the general findings and results listed below. The complete 2015 Timely Bench Scale Test Results are included as Attachment 31 32 13 - 1.

1. Reagents: Type II/V Portland cement (PC) and Grade 120 ground granulated blast furnace slag (GGBFS).

2. An upper limit on swell of 20% will be used to evaluate Remediation Contractor-recommended final mix designs.

3. The Remediation Contractor's treatability testing shall provide mix refinement to reduce slump to between 2 and 6 inches (or as otherwise determined acceptable during field demonstration testing) to maintain consistency during mixing and to moderate potential reductions in UCS or increases in hydraulic conductivity due to excess moisture.

PART 2 – PRODUCTS

2.01 WATER

A. The same water source shall be used for the bench scale testing and ISS implementation, unless otherwise approved by the Remediation Engineer.

B. Water shall not contain concentrations of oil, acid, salt, alkali, organic matter, or other deleterious substances which will be detrimental to the successful execution of the solidification treatment process.

C. The general vicinity of the Site is serviced by municipal potable water. Arrange for temporary hook-up to the City water service and pay all fees associated with City water usage.

2.02 REAGENTS

A. The chemical composition of reagents used shall be provided to the Remediation Engineer. A certificate of analysis supplied by the vendor shall accompany each shipping unit of reagent. A minimum of one certificate per 1,000 tons shall be provided. Reagents shall be shipped in properly labeled containers with instructions for handling and storage. The instructions shall be strictly adhered to.

B. Cement used in the solidification process shall conform to ASTM Designation C-150 "Standard Specification for Portland Cement" Type I. The cement shall be adequately protected from moisture and contamination while in transit. Cement shall be stored in a silo or other appropriate bulk storage container. Storage of cement in bags is not acceptable. Reclaimed cement or cement containing lumps or deleterious matter shall not be used. Cement shall be from an approved source and the supplier shall provide a certification of compliance with applicable requirements of ASTM C150.

C. Ground granulated blast furnace slag shall conform to ASTM C989 and AASHTO M-302 Grade 120. The GGBFS shall be adequately protected from moisture and contamination while in transit. The GGBFS shall be stored in a silo or other appropriate bulk storage container, or be pre-blended at the cement supplier. Storage of GGBFS in bags is not acceptable. The GGBFS containing lumps or deleterious matter shall not be used.

D. Grout shall consist of a stable colloidal suspension of cement, GGBFS, and water. Other additives may be included as determined by the Remediation Contractor, subject to approval by the Remediation Engineer. The purpose of the grout is to assist in loosening the soils for mixing and to modify the soils for increased strength, reduced permeability, and reduced leaching. The grout shall be pumpable and workable with the ISS injection and mixing equipment.

E. Admixtures may be used to obtain characteristics of the final mixture to meet the performance criteria, only with prior approval of the Remediation Engineer. These additives may include bentonite, sodium silicate, or other materials.

PART 3 – EXECUTION

3.01 GENERAL

A. Following excavation and removal of overlying soil generally to a depth of 4 feet below ground surface, as well as removal of utilities, foundations, and other obstructions, proceed with soil solidification within the limits shown in the Drawings.

B. Solidification of Areas S1 through S9 shall overlap (if required) in a manner to provide 100% coverage within the area identified for ISS.

C. Soil mixing and reagent addition will be performed so that solidified soil will meet the performance requirements specified in this Section.

3.02 LAYOUT AND SURVEY CONTROL

A. Establish survey control grid/points which shall be utilized for cell location and designation in the field. Use the same coordinate system and vertical and horizontal controls as used by the Design Engineer in developing the Drawings.

B. Survey the dimensions and location of each mix Area, using GPS or transit survey from established horizontal control points. Survey shall be performed during each day of solidification to ensure accurate location of mix Areas, to document that adequate Area overlap is obtained (if required), and to provide for updates of the ISS progress CAD drawing to be prepared by Remediation Contractor. Alternatively, Remediation Contractor may use GPS-enabled equipment, calibrated to the site coordinate system, to locate and track ISS cell locations. Remediation Contractor shall demonstrate calibration through location of site survey control points established by the Design Engineer and provided in the Drawings.

C. For each mix area, survey the starting elevation of ISS (i.e., before mixing) and measure the total depth mixed to verify that the bottom of ISS elevation has been achieved.

3.03 OPERATIONAL CONDITIONS

A. Weather Conditions - Solidification shall not take place in an ambient temperature below 32 degrees F without approval by the Remediation Engineer. Provisions shall be made to maintain the temperature of the treated material above freezing while curing. Soil shall not be treated if it contains any frozen material. The temperature of the treated material immediately after treatment shall not exceed 90 degrees F without approval. ISS shall not be performed during periods of heavy rainfall if this will result in the addition of excess water to the mixture which will adversely impact the curing and the ability to meet performance criteria.

B. Oversize Material – In-situ material that exceeds the maximum allowable particle size of the ISS mixing equipment and that is amenable to treatment shall be reduced to a size that the mixing equipment can accommodate. Oversize material that cannot be reduced to an acceptable size shall be removed for off-site disposal.

C. Obstructions - If obstructions including boulders, unknown subsurface structures or abandoned utilities are encountered, the ISS operator shall stop mixing at that location until the nature of the obstruction is known. Obstructions which cannot be penetrated, may be remediated by removal, grouting, or other acceptable means.

3.04 ISS CONSTRUCTION

A. The solidification area shall be constructed using ISS to the lines, grades, and cross sections indicated on the Drawings. The ISS structure shall be essentially vertical with a pattern of overlapping columns or cells and shall extend to the elevations and Area limits shown on the Drawings. A description of the soil profile through which the ISS is to be constructed is provided on the Drawings and on the boring and test pit logs provided in Attachment 31 32 13 – 2.

B. Tolerances

1. The ISS cells shall be essentially vertical. The working platform and ISS equipment shall be level for mixing to a consistent depth within the cell.

2. The depth of ISS cells shall be measured or surveyed to within 6 inches of the desired elevation. The depth shall be measured from the surface to the lowest point on the mixing auger/tool.

3. The ISS pattern of overlaps shall be surveyed and staked to ensure that the overlap ratio is constructed as designed.

4. The grout injection ratio shall be calculated and documented for each ISS column or cell. The grout injection ratio may be corrected for previous overlaps in the same column. In all cases, the minimum injection ratio shall be obtained.

C. Soil Mixing and Penetration

1. Each ISS cell shall be penetrated while simultaneously injecting grout and then mixed by repeated passes of the mixing equipment. The number of mixing passes shall be monitored and optimized (and recorded) for each cell to achieve adequate mixing. The rate of penetration and grout addition shall be optimized to ensure complete mixing of grout with the soil.

D. Injection Rate

1. The grout injection rate shall be paced with the mixing rate within each cell to sequentially add grout as unmixed soil is penetrated and mixed. The volume of grout to be added to each cell shall be based on the volume of soil to be solidified and the mix design.

2. Reagent metering – The metering devices utilized for proper reagent blending must be approved by the Remediation Engineer prior to the start of full scale soil solidification. All metering devices shall be calibrated on-site prior to commencing on-site mixing operations, and calibration checks shall be performed at a minimum of once per 5 days (more frequent if required by device manufacturer). Calibration check reports must be submitted to the Remediation Engineer on a weekly basis.

3.05 FIELD DEMONSTRATION

Prior to full-scale operations, a field demonstration shall be performed. At least 300 cubic yards of contaminated soil shall be processed and the tests listed in Tables 2 and 3 below shall be performed. Field quality control tests shall be performed on 3 field demonstration samples and laboratory tests on solidified soil specimens. Post-field demonstration coring and visual observations shall be performed at 1 location within the Field Demonstration area following 7 days of curing. Locations for sampling and investigation will be selected randomly by the Remediation Engineer.

A. Full-Scale Processing Equipment

1. The full-scale processing equipment shall be used for the field demonstration. Reagents, mix ratios, and mixing procedures used during the field demonstration, or as adjusted as a result of the field demonstration shall be the same as those used for the remainder of the work. Should the equipment selected for ISS construction by the Remediation Contractor fail to achieve complete mixing within the soil column or cell, fail to achieve the required penetration depth, or fail to meet the performance requirements, the Remediation Contractor shall provide alternate ISS equipment and/or means of construction acceptable to the Remediation Engineer to meet the performance requirements at no additional cost to the Owner.

B. Field Demonstration Location

1. The field demonstration shall be conducted in an area where MGP-impacted soil is encountered, representative of average site conditions. The field demonstration area shall be selected by the Remediation Contractor, subject to the approval of the Remediation Engineer.

C. Field Demonstration Testing

1. For each mix cell within the field demonstration area, perform field quality control tests listed in Table 2 including grout density, slump, and mixing completeness observation. Adjust water content of grout or add supplemental water or reagent to mix cell if needed to modify the soil-reagent mix consistency to meet the slump criteria. Samples collection depths shall be randomly varied between surface, mid-depth, and bottom of mix cell to obtain adequate distribution and representativeness of sampling.

2. For each mix cell, collect a grab sample at a random depth as approved by the Remediation Engineer, perform a slump test, and provide a specimen to the Remediation Engineer. Remediation Contractor shall run the sample through a 3/8-inch wire mesh screen and prepare four (4) 3”x 6” specimen cylinders for UCS and three (3) 2”x4” specimen cylinders for permeability testing, which will accommodate laboratory testing at 3 curing durations and provide two (2) field archive specimens.

3. Perform laboratory testing on five of the mix cells to be selected by Remediation Contractor as follows:

   a. UCS (ASTM D1633) at 3, 7, 14, and 28 days
   b. Permeability (ASTM D5084) at 7, 14, and 28 days with 10 psi confining (effective) pressure

   Remaining samples shall be archived for possible later testing or for field observation.

4. Monitor VOC emissions during ISS mixing immediately adjacent to the active mixing area to determine what level of engineering controls (e.g., odor suppressant foam) will be necessary during ISS mixing to comply with work zone and perimeter air monitoring action levels.

Table 2. FIELD QUALITY CONTROL TESTS

TEST PROCEDURE	FREQUENCY	CRITERIA
Grout Density by Mud Balance (API 13B-1)	1 per 500 cubic yards of solidification, minimum 1 per day and if batch plant operator changes	11-11.5 lbs/gal[1]
Slump (ASTM C143)	1 per mix cell	2 – 6 inches
Mix Homogeneity/ Completeness of Mixing	1 per mix cell	Visual
Coring	1 per 5,000 square feet of ISS treatment area	No visual NAPL or non-mechanical breaks (See 3.06.C.1.d)

[1] Grout density may be adjusted if an approved change in the grout water content is made

D. Field Demonstration Test Results

1. Review of field demonstration test results by Remediation Engineer shall be required prior to commencing full-scale ISS on the remainder of the ISS area. Full-scale ISS shall commence once UCS and permeability test results achieving the performance criteria are obtained, unless otherwise approved by Remediation Engineer. Passing results on samples cured less than 28 days are acceptable.

2. Provide all field and lab quality control documentation and test data for Remediation Engineer's review.

3. If test results from the field demonstration do not achieve performance criteria, additional archived samples shall be tested to better assess specimen variability and determine acceptability of results. Should archive sample testing fail to demonstrate compliance with performance criteria, Remediation Contractor will modify the mix design and additional field demonstration mixing will be required, with approval by Remediation Engineer.

E. Retesting and reprocessing

1. Retesting and reprocessing shall be performed at no additional cost to the Owner for treated material that does not meet that requirements set forth in the performance criteria, or the soil mixing fails to achieve thorough homogenous mixing, mixing to the specified depths, or complete mixing overlap to the depths specified.

2. The Remediation Contractor may elect to alter the mix design for re-mixing of these areas as necessary to meet the project performance criteria.

3. Testing shall be performed on re-mixed samples from the initial mix sampling. Sampling frequency shall be a minimum of one sample per 500 CY or one sample per day.

3.06 QUALITY CONTROL PROCEDURES

A. Documentation

1. For each mix cell, record and submit detailed documentation of the following:

a. Area and cell identification number;
b. Cell dimensions, depth, and volume;
c. Elevation of ground surface before and after solidification and elevation of bottom of ISS mixing;
d. Date and duration of mixing, including start and end time;
e. Auger rotation speed, and penetration rate as applicable;
f. Rotary pressure at base of each column, as applicable;
g. Mix ratio;
h. Supplemental water or reagent added and reason;
i. Slump and grout density test results;
j. Reagent delivery information (density and flow rate);
k. Hydraulic pressure; and
l. Description of depths of obstructions or hard drilling or refusal encountered.

2. Field documentation shall be provided to the Remediation Engineer on a daily basis in electronic format.

B. Qualifications

1. Field personnel running the grout plant and performing quality control sampling and testing shall have a minimum of 2 years of ISS experience.

2. Laboratory quality control testing shall be performed by a laboratory with a minimum of 2 years of experience in performing the required tests. The laboratory shall demonstrate adequate capacity to meet the project demands. Test results shall be provided to Remediation Engineer no later than 5 business days following the designated cure time for samples.

C. Quality Control Testing

1. The following field quality control activities will be the responsibility of the Remediation Contractor.

a. Field Sampling and Testing

i. Grab samples for field testing will be collected as determined to be necessary based on observations of the ISS mixture and field

conditions and a minimum of one sample per cell.

ii. Grab samples will be collected from a depth near the bottom of the completed area as determined by the Remediation Engineer. Grab samples will be collected as outlined in the procedure for collection grab samples for laboratory testing.

iii. Field testing will be performed following sample collection (on uncured samples). Collect grab samples of wet uncured, mixed soil and cement from a completed cell with a weighted chamber attached to a mixing rig or supported by pole. The sampler shall be placed at the proper depth as determined by the Remediation Engineer and then opened and closed from the surface. Grab samples shall be collected immediately following cell installation.

iv. Visually inspect collected grab samples for a homogeneous mix throughout the length of the mix cell.

v. Perform slump test (see Table 2) on grab samples to ensure that the mixture is performing similar to the expectations based on the bench scale results for the design mix.

vi. Perform slump test following sample collection of freshly mixed soil and provide slump test result to Remediation Engineer for determination if consistency of the material meets the criteria identified in Table 2.

vii. Provide sufficient volume (generally a 5-gallon bucket is sufficient) of freshly mixed soil from the required depth interval to for the preparation of cylinder molds for curing and laboratory testing.

viii. Grout samples from each grout batch shall be tested for mud density (see Table 2).

b. Grab Samples for Laboratory Testing

i. Run the sample through a 3/8-inch wire mesh screen and prepare four (4) 3”x 6” specimen cylinders for UCS and three (3) 2”x4” specimen cylinders for permeability testing, which will accommodate laboratory testing of one sample, with two replicates for possible future testing, as well as a field archive sample.

ii. Laboratory testing will be performed at a frequency of one sample for 500 cubic yards and a minimum of one sample per day for the parameters in Table 3.

iii. The specimens for laboratory testing will be prepared as follows:

- Sieve sample through a 3/8-inch wire mesh screen.
- Place sample in plastic cylinder mold, rod to remove trapped air pockets, and then seal in accordance with ASTM D4832.

- Cap, and store and cure on-site in a cooler with at least 2 inches of water in the bottom (to maintain humid condition) at ambient temperature of 60 degrees Fahrenheit ± 10 degrees. Samples shall be maintained on site in a neat and orderly fashion in damp and unfrozen conditions.
- After at least 3 days of on-site curing, ship cured samples to the laboratory.

iv. Cure samples for 28 days and tested to assess compliance with the performance criteria. Passing test results obtained prior to 28 days of curing will be acceptable.

v. Maintain archive samples off-site until final "Review" for all QA/QC results by the Remediation Engineer.

c. Quality Assurance Testing

i. Duplicate samples shall be submitted to the Remediation Engineer for quality assurance laboratory testing at a frequency of one set of samples per 5 sets of quality control tests performed. Quality assurance samples will be tested for the parameters listed in Table 2. The Remediation Contractor may require additional quality assurance tests as a result of failed quality assurance or quality control tests. The Remediation Contractor may also require additional quality assurance tests due to changes in the mix design or physical appearance of the contaminated soil.

d. Visual Observation Borings

i. Perform continuously logged soil borings/cores through completed ISS areas at the frequency shown on Table 2. Remediation Engineer shall observe treated materials to verify uniformity of mixing, mix cell overlap, and completion to the target depth. The Remediation Contractor shall document observations with photographs and submit documentation to the Remediation Engineer.

ii. Collect one half of the sampling locations in the approximate center of the solidified soil cell.

iii. Collect one half of the sampling locations in the overlapping portions of four solidified soil cells.

iv. The soil cores shall be a minimum of 3 inches in diameter with continuous recovery using either sonic drilling methods or a core bit. Mud rotary of drive and wash drilling methods with water will not be accepted.

v. The soil cores shall be a visually inspected for the following criteria and the results recorded by the Remediation Engineer:
- Visible non-aqueous phase liquids
- Non-mechanical induced cracking within the core
- Percent core recovered
- NAPL coating on the drilling tools
- NAPL in drill wash tub

vi. ISS installation will be considered a potential failure when one or more of the following conditions occur:

- A continuous layer or seam of NAPL is noted on within the core
- An isolated ball of NAPL greater than 1 centimeter is identified within the core
- NAPL coating is visible on drilling tools
- Visible NAPL is noted in the drill wash tub

If one or more of the above conditions exists, the NYSDEC must be notified to discuss the severity of the problem, the degree of concern, and whether correction action will be necessary.

vii. Following completion of the core, the boring shall be filled with grout.

e. Summary of Quality Control Testing

Table 3. POST-TREATMENT QUALITY CONTROL TESTING FREQUENCY

TEST PROCEDURE	FREQUENCY
Unconfined Compressive Strength, ASTM D1633	1 per 500 cubic yards, minimum of 1 per day
Permeability, ASTM D5084 (with 10 psi confining [effective] stress)	1 per 500 cubic yards, minimum of 1 per day

D. Retesting and Reprocessing

1. For any failing quality control test results, the two archive samples shall be tested for the failing parameter to assess data variability.

2. UCS test data will be evaluated as follows:

a. No samples with 28-day UCS result of less than 40 psi will be accepted.
b. No more than 10 percent of the test samples can have 28-day UCS between 40 and 50 psi.
c. The average of all 28-day UCS test results must be ≥ 50 psi.

d. The Removability Modulus (RE) shall be less than 2.0 for 100% of the test specimens.
e. If 28-day test results are unacceptable, Remediation Engineer may consider results from longer curing samples (up to 56 days) in determining compliance.

3. Permeability test data will be evaluated as follows:

a. No samples with 28-day permeability of > $1x10^{-5}$ cm/sec will be accepted.
b. No more than 10 percent of the test samples can have 28-day permeability between $1x10^{-5}$ cm/sec and $1x10^{-6}$ cm/sec.
c. The average of all permeability test results must be ≤ $1x10^{-6}$ cm/sec.
d. If 28-day test results are unacceptable, Remediation Engineer may consider results from longer curing samples (up to 56 days) in determining compliance.

4. Additional testing of cylinders cured less than 28 days may be performed at the Remediation Contractor's option (and expense) for early indication of strength gain or permeability during full-scale solidification operations

5. Reprocessing of solidified areas may be required by the Remediation Engineer for areas that fail to meet performance criteria, subject to the data tolerance limits described above. Reprocessing of solidified areas shall be at no additional cost to the Remediation Engineer/Owner should failing results be due to inadequate mixing, or incorrect batch proportioning and reagent addition.

E. Adjustments to Mix Design

1. Subject to approval by the Remediation Engineer, the Remediation Contractor may propose mix design modifications based on the characteristics of the material being treated, if in the opinion of the Remediation Engineer, the reagent blend and proportions specified are not adequately addressing changing field conditions. However, the mix design modifications shall be subject to the limitations identified in Sub-Part 1.9(B) of this Section and satisfactory test results demonstrating the ability to achieve the performance criteria. An additional field demonstration may be required by the Remediation Engineer, prior to implementation of the new mix design, if in the opinion of the Remediation Engineer, there is a need to document similar material performance as the ISS bench scale testing.

END OF SECTION

SECTION 32 30 00

SITE RESTORATION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Complete the restoration as shown on the final grading plans and described herein.

B. Other areas disturbed, damaged or occupied by the Remediation Contractor shall be restored to conditions equivalent to or better than pre-construction conditions.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 31 23 23.13 – Backfill

D. SECTION 32 90 00 – Planting

E. SECTION 32 92 00 – Turf and Grasses

F. Drawings

G. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits

B. New York State Department of Environmental Conservation, New York Standards and Specifications for Erosion and Sediment Controls, 2005.

C. Seneca County Soil & Water Conservation District.

D. American Society of Civil Engineers, Design and Construction of Urban Stormwater Management Systems, 1992.

1.04 SUMMARY

Work to be performed under this Section includes, but is not limited to, the following items, including all labor, materials, equipment, and services necessary and incidental to the proper execution of the Work as shown on the Drawings and as specified in this Section, and related sections:

A. Remove temporary support of excavations.

B. Stabilize all disturbed areas.

C. Install a gravel parking lot at the Upland Area as shown on the Drawings.

D. Install clean Canal fill suitable for restoration of a benthic community within the dredged limits of the Seneca River and Canal, as shown on the Drawings.

E. Install soil caps in the Lowland Area and lowland portion of 193 Fall Street as shown on the Drawings and specified in Section 31 23 23.13 - Backfill.

F. Install permanent seed mixture and plantings on the Lowland Area caps and 183 Fall Street as shown on the Drawings and specified in Section 32 92 00 – Turf and Grasses.

G. Remove erosion and sediment controls at the completion of Work after vegetation has been established, or as directed.

H. Remove all materials, supplies, waste, equipment, trash, debris, and temporary facilities at the completion of work.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. Topsoil shall conform to the specifications outlined in Section 31 23 23.13 – Backfill.

2.02 GRAVEL

A. Gravel shall conform to the specifications outlined in Section 31 23 23.13 – Backfill.

2.03 SEED

A. Seed shall conform to the specifications outlined in Section 32 92 00 – Turf and Grasses.

2.04 PLANTINGS

A. Plantings shall conform to the requirements of the Drawings.

2.05 FERTILIZER

A. Fertilizer shall conform to the specifications outlined in Section 32 92 00 – Turf and Grasses.

2.06 STRAW MULCH

A. Straw mulch shall conform to the specifications outlined in Section 32 92 00 – Turf and Grasses.

2.07 FIBER ROLLS

A. Fiber rolls shall conform to the requirements of the Drawings.

2.08 EROSION CONTROL BLANKET

A. Erosion control blanket shall conform to the requirements of the Drawings.

2.09 CHAIN LINK FENCE AND GATE

A. Chain link fence and gate shall conform to the requirements of the Drawings.

PART 3 – EXECUTION

3.01 TOPSOIL

A. Place topsoil according to the Drawings and Section 31 23 23.13 – Backfill.

3.02 SEED

A. Seed in accordance with the Drawings and Section 32 92 00 – Turf and Grasses.

3.03 MULCH AND FERTILIZE

A. Mulch and fertilize in accordance with the Drawings and Section 32 90 00 – Planting and Section 32 92 00 – Turf and Grasses.

3.04 PLANTING

A. Install plantings (live stakes) in accordance with the Drawings.

3.05 FINAL EROSION AND SEDIMENTATION CONTROLS

A. Install fiber roll, as indicated on the Drawings.

B. Place erosion control blanket on the slope between the Upland and Lowland Areas, as indicated on the Drawings and on all 10 percent and steeper slopes.

3.06 SEED

A. Seed, fertilize, and mulch in accordance with the Drawings and Section 32 92 00 – Turf and Grasses.

3.07 STRUCTURAL SUPPORTS AND SUPPORT OF EXCAVATION

A. Remove structural supports at the 185 Fall Street residential structure, if required.

B. Remove top of ISS support wall to 4-ft below final grade surface.

C. At the request of the Owner/Remediation Engineer, replace any damaged items or features to pre-construction conditions or better.

3.08 CHAIN LINK FENCE AND GATE

A. Install as shown on the Drawings.

3.09 TEMPORARY EROSION AND SEDIMENTATION CONTROLS

A. When up gradient areas are stabilized, remove temporary erosion and sediment controls.

B. When backfilling is complete within the canal and turbidity has dissipated, remove the turbidity curtain and associated oil booms.

3.10 GENERAL SITE CLEAN UP AND DEMOBILIZATION

A. After completion of the Work, stabilization of all disturbed areas, and approval of the Remediation Engineer, remove the temporary construction facilities and controls.

B. After site restoration, removal of temporary facilities and controls, inspection by the Remediation Engineer/Owner, and final repairs associated with project closeout, completely demobilize from the Site.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 323000 Site Restoration-RevD.docx

SECTION 32 92 00

TURF AND GRASSES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Complete the restoration as shown on the final grading plans and described herein.

B. Other areas disturbed, damaged or occupied by the Remediation Contractor shall be restored to conditions equivalent to or better than pre-construction conditions.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 57 26 – Dust Control

C. SECTION 31 23 23.13 – Backfill

D. SECTION 32 30 00 – Restoration

E. SECTION 32 90 00 – Planting

F. Drawings

G. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

H. New York State Standards and Specifications for Erosion and Sediment Control, November 2016 (NYSDEC SS ESC).

1.03 DESCRIPTION OF WORK

Work to be performed under this Section includes, but is not limited to, the following items, including all labor, materials, equipment, and services necessary and incidental to the proper execution of the Work as shown on the Drawings and as specified in this Section, and related sections:

A. Stabilize all disturbed areas.

B. Install permanent seed mixture in top soiled areas.

C. Apply mulch and tackifier or erosion control blanket in all areas receiving final seed.

D. Install a dress coat of topsoil and over seed in areas of turf damage.

PART 2 – PRODUCTS

2.01 TOPSOIL

A. Topsoil shall conform to the specifications outlined in Section 31 23 23.13 – Backfill.

2.02 SEED

A. Lawn seed mixture shall be fresh, clean, new crop of high-quality commercially available lawn seed consisting primarily of bluegrass and fescue varieties or a grass blend to match the existing grass at the site; blend to be approved by Remediation Engineer. Grass seed shall be free of poa annua, bent grass, and noxious weed seed. The seed shall be furnished and delivered in new clean, sealed and labeled containers. All seed shall comply with State and Federal seed laws. Seed which has become wet, moldy otherwise damaged will not be acceptable.

B. The seed shall be furnished and delivered premixed in the proportions specified above. All seed shall comply with State and Federal seed laws. Clover shall be pre-inoculated.

C. Supply a manufacturer's Certificate of Compliance to the specifications shall be submitted by the manufacturers with each shipment of each type of seed mix. Certificates will be attached to the seed bags for inspection. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed, and also the net mass and date of shipment. No seed may be sown until the Remediation Contractor has submitted the certificates.

D. Temporary seed mixture shall consist of:

Temporary Seeding Species Selection:

Seeding Dates	Species	Lb./1,000 ft2	Lb/acre
March 1 to August 15	Oats	3	128 (4 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
August 16th to November	Rye	3	112 (2 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 Bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	

November 1 to Feb. 29	Use mulch only or dormant seeding

E. Permanent seed mixture shall consist of:

Permanent Seeding:

Seed Mix	Seeding Rate		Notes:
	Lbs./acre	Lbs./1,000 sq.ft.	
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20-40 10-20 20-40	½-1 ¼-½ ½-1	For close mowing & waterways with <2.0 ft/sec velocity
Tall Fescue	40-50	1-1 ¼	
Turf-type (dwarf) Fescue	90	2 ¼	

F. Permanent riparian seed mixture shall consist of:

1. Seed Mix:

- 22% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
- 17% Deertongue, 'Tioga' (Panicum clandestinum (Dichanthelium c.), 'Tioga')
- 10% Lurid (Shallow) Sedge, PA Ecotype (Carex lurida, PA Ecotype)
- 10% Fox Sedge, PA Ecotype (Carex vulpinoidea, PA Ecotype)
- 10% Big Bluestem, 'Niagara' (Andropogon gerardii, 'Niagara')
- 8% Switchgrass, 'Shawnee' (Panicum virgatum, 'Shawnee')
- 4% Blue Vervain, PA Ecotype (Verbena hastata, PA Ecotype)
- 4% Blunt Broom Sedge, PA Ecotype (Carex scoparia, PA Ecotype)
- 3% Soft Rush (Juncus effusus)
- 2% Showy Ticktrefoil, PA Ecotype (Desmodium canadense, PA Ecotype)
- 2% New England Aster, PA Ecotype (Aster novae-angliae (Symphyotrichum n.), PA Ecotype)
- 2% Swamp Milkweed, PA Ecotype (Asclepias incarnata, PA Ecotype)
- 2% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
- 1% Joe Pye Weed, PA Ecotype (Eupatorium fistulosum, PA Ecotype)
- 1% Boneset, PA Ecotype (Eupatorium perfoliatum, PA Ecotype)
- 0.7% Wild Bergamot, Fort Indiantown Gap-PA Ecotype (Monarda fistulosa, Fort Indiantown Gap-PA Ecotype)
- 0.5% Narrowleaf Blue Eyed Grass (Sisyrinchium angustifolium)
- 0.5% Great Blue Lobelia, PA Ecotype (Lobelia siphilitica, PA Ecotype)
- 0.2% Slender Mountainmint (Pycnanthemum tenuifolium)
- 0.1% Grassleaf Goldenrod, PA Ecotype (Euthamia graminifolia (Solidago g.), PA Ecotype)

2. Seeding Rate: 20 pound per acre with a cover crop of grain rye at 30 pound per acre.

2.03 FERTILIZER

A. Per recommendation of the topsoil nutrient analysis.

2.04 STRAW MULCH

A. Straw mulch shall conform to the specifications outlined in NYSDEC SS ESC.

PART 3 – EXECUTION

3.01 TOPSOIL

A. Place topsoil according to the Drawings and Section 31 23 23.13 – Backfill.

3.02 SEED

A. For all areas to be seeded:

1. Lime shall be applied at a rate determined by the recommendation of the laboratory completing the topsoil nutrient analysis to bring the topsoil pH to a range of 6.0 to 7.0.

2. Fertilizer shall be applied at a rate of 5 pounds per 1,000 square feet or per the recommendation of the laboratory completing the topsoil nutrient analysis.

3. Seed mix shall be applied at a rate specified for each mix type.

4. Straw mulch shall be applied at a rate of 90-100 pounds per 1,000 square feet. Wood fiber cellulose is not allowed as a substitution.

5. Tackifier shall be installed per manufacturer's instructions and reapplied as necessary until reasonable turf growth is established as determined by the Remediation Engineer.

B. After the topsoil is placed and before it is graded to the elevations on the Drawings and rolled, limestone shall be spread evenly over the surface and thoroughly incorporated by disking or heavy raking to mix thoroughly in the seed bed.

C. All seeding shall be performed hydraulically without mulch incorporated into the mix.

D. The application of the fertilizer may be performed mechanically or hydraulically in one operation with hydro seeding.

E. Straw mulch and tackifier shall be applied immediately following seeding operations (same day) but as a separate operation unless otherwise approved by the Remediation Engineer.

F. Provide adequate water as necessary to rapidly establish grass to stabilize the area from erosion.

G. Maintain seeded areas until a healthy stand of grass has been established as determined by the Remediation Engineer.

3.03 PLANTING

A. Install live stakes in accordance with the Drawings.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 329200 Turf and Grasses-RevD.docx

SECTION 33 29 00

WELL ABANDONMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Decommission or abandon groundwater monitoring wells.

B. The work shall consist of abandoning site groundwater monitoring wells by pulling casing and tremie grouting. The work generally includes:

1. Prepare submittals.

2. Conduct pre-decommissioning inspection to verify the construction and condition of each well.

3. Remove protective casing and existing surface seal.

4. Pull well casing material where possible.

5. Tremie pressure grout well borehole.

6. Install cement-bentonite surface seal.

7. Containerize debris from abandonment activities.

C. Coordinate disposal of debris.

1.02 RELATED SECTIONS

A. SECTION 02 00 00 – Existing Conditions

B. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

C. Drawings

D. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 DEFINITIONS AND REFERENCE STANDARDS

A. The term “monitoring well” or “well” in the specification is used to denote groundwater monitoring wells.

B. American Society for Testing and Materials, current edition, "Annual Book of ASTM Standards," Vol.04.08, D5299-99(2012)e1, “Standard Guide for Decommissioning of

Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities."

C. New York State Department of Environmental Conservation, CP-43: Groundwater Monitoring Well Decommissioning Policy, November 2009.

D. New York State Department of Environmental Conservation, Division of Environmental Remediation, Groundwater Monitoring Well Decommissioning Procedures, August 2009.

1.04 EXISTING CONDITIONS

A. See Specification Section 02 00 00 – Existing Conditions for information regarding site conditions.

B. See well construction logs (where available) included as Attachment 33 29 00 - 1.

1.05 SUBMITTALS

A. Well decommissioning shall be performed by a registered well driller in New York. Submit the name and experience of qualified well abandonment subcontractor or, if self-performed by the Remediation Engineer, the personnel, qualifications, and description of their prior well abandonment experience.

B. Documentation in the form of purchase records or similar for the materials, including but not limited to cement, bentonite, admixtures, used in well abandonment.

C. Submit complete and accurate written records of decommissioning, including type of grouting used, volume of material used, and method of placing grouting material into the well.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Standard Grout Mixture (smooth cement/bentonite/water mixture). Mixture must be free from lumps and uniform throughout. A thick viscous mix consisting of 7.8 gallons of water per 94-lb bag Type I Portland cement and 3.9 pounds powdered bentonite. The use of potentially hazardous materials to decrease or increase grout viscosity (e.g., kerosene) is prohibited.

B. Portland Cement (Type I).

C. Powdered Bentonite (Pulverized bentonite sized to 200-mesh screen).

D. Water, potable.

E. Concrete for surface seal.

2.02 EQUIPMENT

A. Grout tub, mixer, cement or grout, tremie wands etc.

B. Various hand tools, as needed

C. Ruler, engineer's 6 ft. folding

D. Graduated Tape, 100 ft. length, with weighted end

E. Water Level Indicator, Slope Indicator brand or equivalent

F. Logs and Forms

G. Site Plan Drawing(s), Maps, Boring and Well Installation Logs

PART 3 - EXECUTION

3.01 GENERAL

A. Scope consists of abandoning the groundwater monitoring wells as shown on Drawing C-101.

B. If construction activities are planned in the vicinity where well abandonment is necessary, either:

1. Protect the wells in place pending mobilization and execution of well abandonment (to prevent loss or damage of well prior to proper abandonment as described herein), or

2. Complete well abandonment in advance of other adjacent construction activities.

3.02 PROCEDURE

A. Locate Well. Locate the subject well in the field, using Drawings, sketches, fixed references or other available documentation. Verify well designation. If necessary, verify and document the location of the well to be decommissioned, referenced by taped distance to three fixed features, or acquire coordinates using global positioning system (GPS) methods or by instrument survey.

B. Evaluate Well Integrity and Construction

1. Evaluate and document condition of protective well casing and surface seal (padlock missing/broken, well cap missing, staining on well riser observed, concrete surface seal cracked, surface runoff entering well, etc.). Record well construction material (stainless steel, PVC, fiberglass, galvanized steel, black carbon steel, etc.). Measure well diameter, depth to water, and depth to

bottom of well using water level indicator and a weighted graduated tape (the water-level indicator should not be used to sound the depth of the well as the electric probe can be damaged over time if it is repeatedly submerged). Verify information on the respective well record (attached) and note any discrepancies. If well logs are not available, determine screen length and depth, if possible, to determine whether the well construction will provide useful data.

2. Evaluate obstructions present within the well, material accumulated in bottom of well, and presence of dense or light NAPL. The presence of an obstruction or a significant amount (0.5 ft. or greater) of accumulated materials (i.e., silt) in bottom of well shall be removed prior to sealing or over-drilling to remove the obstruction and well materials.

3. Remove and discard any dedicated groundwater sampling devices, including dedicated pump tubing and foot valves, if present.

4. Calculate Volume of Cement-Bentonite Grout Needed. To assure the well is properly plugged and sealed, calculate the estimated volume of cement-bentonite grout required to fill or exceed the volume of hole to be plugged.

C. Prepare Casing for Removal

1. Remove Protective Casing if it is loose or will interfere with well decommissioning. Properly dispose of protective casing.

   a. If the protective casing cannot be easily removed, proceed with grouting of the well and then remove the casing.

   b. If the well casing remains attached to the protective casing, cut the well casing at the base of the protective casing before removal.

2. Perforate the bottom of the well casing by puncturing the bottom or using a casing cutter to cut away the screen.

D. Tremie Pressure Grouting

1. Prepare smooth cement/bentonite/water mixture (Standard Grout Mixture).

2. Visually inspect grout tremie hose and ensure it is equipped with a side discharge end pipe (tremie “wand”). Overly flexible hoses that kink, are unable to reach the bottom of the well, or constrict grout flow are not acceptable.

3. Lower grout pipe or tremie hose into the well riser until the bottom is reached, and pump the grout mix down into the well.

4. While pumping, remove the well casing by pulling.

5. Continue to pump grout mix into the borehole until the water present in the well riser is evacuated and the grout mix is flowing out at the ground surface. In no circumstances is the grout to be placed by pouring or dumping down the well riser or open borehole (i.e., in cases where the well materials can be pulled from the borehole).

6. Additional grout batches may be required. Each additional batch shall be consistent with the original grout batch. Document total quantity of grout used in decommissioning.

7. Remove the grout pipe (or the tremie hose). Immediately top off the borehole or split well screen and riser with additional grout to approximately 2 ft below ground surface.

E. If the well screen and riser was not pulled, expose and remove the upper three (3) to (4) feet of well riser at the ground surface. Remove existing protective casings or guard pipes and concrete surface seal, if not previously removed.

F. Clean and flush all equipment used in the grouting/sealing procedure with clean water, including grout mixer, grout tub, pump, hoses, tremie wand, hollow stem augers or other drilling tools.

G. Check the grouted borehole during the subsequent 24-hour period for signs of settlement, and top off with additional cement to ground surface.

H. Top off decommissioned well borehole with a minimum of two (2) ft thick concrete plug installed and tamped at ground surface. Grade disturbed soils to promote rainwater runoff away from decommissioned well location.

I. Groundwater displaced from the borehole and wash liquid should be managed in accordance with Section 02 70 00 – Construction Water Management.

J. Complete documentation, including but not limited to well decommissioning records in accordance with NYSDEC requirements.

END OF SECTION

SECTION 35 11 00

SIGNALING AND CONTROL EQUIPMENT FOR WATERWAYS

[A SMALL PORTION OF THE WORK APPEARS TO BE WITHIN THE DESIGNATED NAVIGATIONAL CHANNEL. INCLUDE ANY ADDITIONAL REQUIREMENTS ASSOCIATED WITH THIS IMPACT]

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

Furnish all labor, materials, equipment and incidentals necessary to perform all installation, maintenance, removal, cleanup and disposal related to controlling oil sheens in surface water and controlling turbidity during construction as required to perform the Work. The Work shall include, but not necessarily be limited to: installation, maintenance, and removal of all temporary construction-phase sheen and turbidity control systems and features, collection and appropriate disposal of spent control system materials, installation and maintenance of all navigational aids including buoys, and final site cleanup.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 02 00 00 – Existing Conditions

C. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

D. SECTION 02 61 23 – Excavation and Management

E. SECTION 31 23 23.13 – Backfill

F. SECTION 31 25 00 – Erosion and Sedimentation Controls

G. SECTION 32 30 00 – Site Restoration

H. SECTION 35 20 23 – Dredging

I. Drawings

J. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. HAZWOPER: OSHA Regulation 29 CFR 1910.120.

B. EPA Regulation 40 CFR 262.34.

C. Federal Clean Water Act Regulations: 40 CFR Parts 110,116, 117, 122, 401, 403

D. 6 NYCRR Part 703.

E. 21 NYCRR Parts 150, 151, and 156.

F. New York State Navigation Law (NAV) Article 12

G. Rules and Regulations of the New York State Canal Corporation, February 2011.

H. New York State Canal Corporation General Design and Construction Requirements for Occupancies, July 2011.

I. New York State Canal Corporation Occupancy and Work Permit Accommodation Guidelines, July 2011.

J. U.S. Army Corp of Engineers (USACE), Engineer Manuals EM 1110-2-1003 and EM 1110-2-1002.

K. USACE and NYSDEC Joint Application for Water-Related Permits.

1.04 COORDINATION

Surface water quality protection equipment shall be located as close to the work as possible so as not to interfere with normal navigation of the Seneca River and Canal. Work within the waterway will be conducted in winter months when the water level is lower and boating traffic is minimal.

1.05 SUBMITTALS

A. Within 10 days after Notice of Award, Remediation Contractor shall submit to the Remediation Engineer, for approval, a construction-phase surface water quality control plan describing the measures the Remediation Contractor intends to employ to meet applicable permit and regulatory requirements during execution of the Work, including drawings of proposed control systems and technical product literature for all commercial products to be used. This plan may be submitted in conjunction with the Construction Work Plan required by these Specifications.

B. Within 10 days after Notice of Award, submit to the Remediation Engineer, for approval, a Shop Drawing of the silt/turbidity/sheen control devices.

C. Within 10 days after Notice of Award, submit to the Remediation Engineer, for approval and submittal to the Canal Corporation, a temporary traffic control plan for the Canal.

D. Submit daily surface water and control equipment inspection and monitoring logs to the Remediation Engineer on a weekly basis**.**

1.06 QUALITY ASSURANCE

A. Remediation Contractor is responsible for the timely installation and maintenance of control devices, as specified.

B. The surface water quality control devices shall be installed and maintained in a manner that will contain sheens if present between the shore line and the control devices, and prevent sheens in the Seneca River and Canal that either violate New York Surface Water Quality Regulations, federal Clean Water Act regulations, or result in degradation of water quality beyond conditions existing in the river prior to construction.

C. If visible impacts to surface water quality (i.e., sheens or turbidity) occur during construction, immediately inform the Remediation Engineer of such conditions and undertake measures to contain and remove or remediate the impacts. Measures, in addition to those shown on the Drawings, necessary to maintain water quality in the Canal at pre-construction levels shall be installed, maintained, removed, and cleaned up as required by the Remediation Engineer at the expense of the Remediation Contractor.

D. Inspections

1. Immediately following receipt of materials to the job site, inspect the materials and store them in a clean, dry area where they will not be subject to mechanical damage, exposure to moisture or direct sunlight.

2. During construction, inspect the water quality control devices and visually inspect surface water for evidence of sheens at a minimum frequency of three times per day, including inspections before, during, and after each day's work activities. Inspections shall be noted in a log that indicates the date and time of inspection, the name of inspector, and a summary of observations.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Turbidity Curtains shall consist of synthetic or laminated natural fabric floating barriers designed for use in current flow rates of up to 5 feet per second, such as Tough Guy Type III turbidity barrier manufactured by AER-FLO Canvas Products of Bradenton, Florida, or equivalent approved by the Remediation Engineer. All materials shall be new and undamaged.

B. 24" Standard Oil Containment boom shall be attached to the turbidity curtain. Product shall be 24" Unprotected Port Standard Oil Containment Boom, as provided by Guardian Environmental Technologies, Tel. 860-350-2200, Fax. 860-350-3776, or approved equal.

C. Navigations buoys – Remediation Contractor shall supply all navigational aids and buoys to facilitate watercraft navigation around Silt Curtains and Booms. Navigational aids shall comply with all State of New York, Canal Corporation, and Federal Government standards.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Temporary surface water quality protection measures include those planned and installed to mitigate the impacts of construction activities; required by applicable local, state, and federal regulations; and those specified herein to mitigate potential impacts to surface water quality.

1. Containment Boom: A floating sheen containment boom shall be installed to contain oil sheens within the Work area. The boom shall contain sheens during all phases of work at the Site. The Remediation Contractor shall install the boom in the canal in advance of construction in the shoreline area and the boom shall remain in place until all construction activities are completed.

2. The Remediation Contractor shall install the boom such that:

   a. The booms shall have sufficient buoyancy to remain floating at all times while deployed in the Seneca River and Canal, and must be effective (fully contain all sheens) during any water level variations. Buoys may be used as necessary to ensure buoyancy of the boom and keep them at the correct locations.
   b. Conduct field measurements in advance of boom installation to determine the required dimensions of the boom.
   c. The booms shall be securely anchored to remain in position at all times. Each end of the booms shall be anchored to shore, and intermediate anchors shall be installed along the river bottom.
   d. The booms shall be installed tight to the shore without gaps at any location during all water levels.

e. The booms shall be installed close to the work to limit the area of surface water contained to the minimum necessary to complete the work. The booms shall be maintained as work progresses.
f. If necessary to control sheens, multiple lines of booms shall be installed.

3. Silt Curtains: A full-height (river bottom to water surface) floating sheen containment boom/silt curtain (barrier) shall be installed to contain oil sheens, emulsions and sediments within the dredge area limit shown on the Drawings. The barrier shall contain sheens, emulsions and sediments within this area during all remedial construction at the site. Install the barrier in advance of construction and the barrier shall remain in place until all construction activities within the canal are completed.

4. Install the barrier such that:

a. The barriers shall have sufficient buoyancy to remain floating at all times while deployed in the Seneca River and Canal, and must be effective during high water conditions. Buoys may be used as necessary to ensure buoyancy of the barrier.
b. The barriers shall consist of a floating containment boom attached to a silt curtain extending from the high-water surface to the river bottom. The silt curtain depth will depend on the Canal depth as shown on the Drawings. Conduct field measurements in advance of barrier installation to determine the required dimensions of the barrier.
c. The barriers shall be weighted at the bottom (i.e., at the river bottom) to form a seal with the river bottom during the entire period of construction.
d. The barriers shall be securely anchored to remain in position at all times. Each end of the barriers shall be anchored to shore, and intermediate anchors shall be installed along the river bottom.
e. The barriers shall be installed tight to the shore without gaps at any location during all water levels.
f. The barriers shall be installed close to the work to limit the area of surface water contained to the minimum necessary to complete the work.

B. As necessary to accommodate current in the Seneca River and Canal, or to equalize hydraulic pressure between the containment area and the remaining river channel, incorporate sections of filter screen or flap gates into the design of the barriers.

C. Provide for on-site supervision of installation, inspection, maintenance and removal of the booms and curtains.

3.02 INSPECTIONS, MONITORING, AND MAINTENANCE

A. Perform inspections and maintenance of the silt curtains/ booms and also perform all other work necessary to keep the silt curtains/booms operating efficiently during all construction activities.

B. Make a visual inspection of surface water and the surface water quality control devices a minimum of three times per day and maintain a log documenting the observations. If such inspection reveals that additional measures are needed to contain sheens, promptly install additional devices as needed.

C. Monitoring

1. Measure surface water turbidity three times per day (prior to the start of work, at midday, and at the end of the day) during dredging activities. Collect measurements at two locations: upstream and downstream of the dredge area.

2. Collect additional turbidity measurements when a high-intensity storm occurs between the routine monitoring events.

3. Measure turbidity using a portable turbidimeter deployed from a small boat. Calibrate the turbidimeter daily per the manufacturer's instruction.

4. Maintain a daily log documenting the turbidity measurements to be submitted to the Remediation Engineer on a weekly basis.

5. If downstream turbidity levels exceed upstream turbidity levels by 100 Nephelometric Turbidity Units (NTUs) stop work, inform the Remediation Engineer, and inspect the surface water quality control devices. Repair and replace the devices, if necessary.

D. Maintenance

1. Keep all anchor lines secure and properly positioned to maintain efficient operation and positioning of the boom.

2. Collect sheens as necessary to avoid potential water quality impacts or potential failure of the containment booms. Sheens shall be collected by vacuum, absorbent materials or other methods approved by the Remediation Engineer.

3. Immediately contain, collect or otherwise mitigate the migration of sheens that are released from the containment area.

4. Immediately replace any portions of the containment boom that are damaged while the boom is deployed. Damaged sections must be replaced by new sections of containment booms. Use of patched sections is prohibited.

5. Relocate booms as necessary based on flow conditions in the canal or as required by the Remediation Engineer.

6. Immediately replace booms that area excessively impacted with sheens or become ineffective.

3.03 REMOVAL, MATERIALS MANAGEMENT, AND DISPOSAL

A. Removal: Prevent releases of sheens to the canal during removal of the containment boom.

B. Materials Management and Disposal: Manage materials collected during removal of the booms as solid waste. Sheens and surface water collected from the boom area will be managed with the construction water. Spent booms shall be placed in appropriate covered drums or roll off containers until their disposal at a permitted solid waste facility.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 351100 Signaling and Control Equipment for Waterways-RevD.docx

SECTION 35 20 23

DREDGING

[MAY REQUIRE ADDITIONAL INFO PER CANAL CORP]

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all labor, materials, equipment and incidentals necessary to dredge sediment from the locations and to the grades shown on the Drawings and as specified herein.

B. Dredging to occur from temporary working pads constructed within the canal to support a long-reach excavator.

C. The Work shall be conducted with a long-stick excavator fitted with an environmental bucket specifically designed to reduce sediment suspension, as describe herein.

D. Use alternate dredging bucket for situations where the environmental bucket is not suitable for performing the work as approved by the Remediation Engineer.

E. The Remediation Contractor is responsible for coordinating dredging production with sediment dewatering capacity, disposal facility acceptance, and all scheduling and coordination with subcontractors. The Remediation Engineer shall collect waste characterization samples (if needed in addition to the existing in-situ sample data), characterize the respective waste stream(s) and complete waste profiles for the Owner approved disposal facility. The Owner and/or Remediation Engineer shall not be responsible for delays in the Work due to characterization results, subcontractor availability or other circumstances.

F. Identify and buoy the locations of the dredge limits.

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 02 53 00 – Waste Transportation, Treatment, and Disposal

C. SECTION 02 61 23 – Excavation and Management

D. SECTION 31 23 23.13 – Backfill

E. SECTION 31 25 00 – Erosion and Sedimentation Controls

F. SECTION 32 30 00 – Site Restoration

G. SECTION 35 11 00 – Signaling and Control Equipment for Waterways

H. Drawings

I. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REFERENCE STANDARDS

A. HAZWOPER: OSHA Regulation 29 CFR 1910.120.

B. EPA Regulation 40 CFR 262.34.

C. Federal Clean Water Act Regulations: 40 CFR Parts 110,116, 117, 122, 401, 403

D. Rivers and Harbors Act of 1899: 33 USC 403 Section 10.

E. 21 NYCRR Parts 150, 151, and 156.

F. Rules and Regulations of the New York State Canal Corporation, February 2011.

G. New York State Canal Corporation General Design and Construction Requirements for Occupancies, July 2011.

H. New York State Canal Corporation Occupancy and Work Permit Accommodation Guidelines, July 2011.

I. U.S. Army Corp of Engineers (USACE), Engineer Manuals EM 1110-2-1003 and EM 1110-2-1002.

J. USACE and NYSDEC Joint Application for Water-Related Permits.

1.04 SUBMITTALS

A. Submit manufacturer's literature on the type of equipment proposed for use.

B. As part of the Construction Work Plan, submit detailed procedures to be used during dredging. The work plan should address survey control, progress of work, tracking dredged and un dredged areas, removal of debris and obstructions, control and verification of dredge depth, tracking loads and disposal of dredged sediment.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.01 PRE-DREDGE REQUIREMENTS

A. Work may not begin in the Seneca River and Canal until the applicable permits and permissions have been received from the New York State Canal Corporation, as

communicated to the Remediation Contractor by the Remediation Engineer. The Design Engineer will complete the applicable permits.

B. Contact Dig Safely New York (1-800-962-7962) at least 2 full work days but no more than 10 days prior to the start of work on Canal Corporation property.

3.02 DREDGE EQUIPMENT AND PROCEDURES

A. Prior to beginning dredging work, install required turbidity and waterway controls per Section 35 11 00 – Signaling and Control Equipment for Waterways and erosion and sedimentation controls per Section 31 25 00 – Erosion and Sedimentation Controls.

B. Dredging shall be by mechanical means using a long-stick excavator with an environmental clamshell bucket. The environmental bucket shall be a gasketed clamshell, with a proven field performance record, which shall preclude loss of material between point of excavation and placement in the dewatering pad/sediment storage container. The environmental bucket shall have welded top steel covers and rubber seals specifically designed and installed by the bucket manufacture. It shall have vertical side plates that overlap or some method to reduce sediment loss at closure; act as an enclosure to eliminate redeposits of soil from the bucket; vents that open during lowering; seal indicator switches; and depth penetration transducers. The bucket shall produce a near level cut.

C. To reduce turbidity, adhere to the following procedure:

1. Swing to the dredge location.
2. Slowly lower the fully opened bucket at the dredge location.
3. Stop at the required vertical depth cut line.
4. Close the bucket.
5. Confirm bucket closure via seal indicator lights.
6. Slowly lift the bucket.
7. Swing the closed bucket into position over the dewatering pad/sediment container.
8. Slowly open bucket to fully discharge spoils.
9. Wash the bucket in wash tank.
10. Repeat cycle.

D. The bucket shall not be overfilled to prohibit subsequent overflow.

E. Run-back of water will not be permitted.

F. The Remediation Contractor shall have available at all times an alternate dredge bucket for use at specific locations where the environmental bucket is not suitable for the materials encountered. Use of the alternate bucket will be limited to specific locations approved by the Remediation Engineer. Payment for use of the alternate bucket shall be included in the price for dredging.

G. Begin dredging in Dredge Area D1. Dredging in Area D1 shall progress from the outboard dredge limits as shown on the Drawings and progress inboard toward the near shore dredge limits as necessary based on visual observation and direction by the Remediation Engineer.

H. Following the completion of dredging operations in Dredge Area D1, restore Dredge Area D1 per Section 32 30 00 – Site Restoration, then progress to the next Dredge Area.

I. Begin dredging in Dredge Area D2 following the relocation of the double silt curtains and oil booms.

J. Repeat at subsequent Dredge Areas D3 through D9.

3.03 DREDGE MATERIAL MANAGEMENT

A. Place entire contents of dredge/sediment removal bucket into sediment dewatering area. Inspect sediment dewatering area on a daily basis to ensure the water tightness.

B. Material tracking, material handling, and disposal shall be in accordance with Section 02 53 00 – Waste Transportation, Treatment, and Disposal.

C. Segregate and store other debris, as required by the disposal facilities, in containers for off-site disposal.

D. Cover stockpiles if inactive.

E. Do not spill container contents while transporting to shore, dewatering, or loading for on-site or off-site transportation.

F. The Remediation Contractor shall be responsible to remediate any spills that result from the Remediation Contractor's work. The remediation shall be performed at no cost to the Owner.

3.04 MATERIAL DEWATERING

A. Sediment dewatering shall be in accordance with Section 31 23 19 – Dewatering.

3.05 DREDGE LOCATIONS

A. Conduct dredging at the locations and to the grades shown on the Drawings. Material will generally be dredged to bedrock.

B. Dredge locations shall be laid out by a licensed land surveyor or licensed hydrographer. Place temporary markers or other means, as required, to relocate dredge areas.

C. Conform with the allowable horizontal positioning accuracy requirements for dredging in EM 1110-2-1003. The positioning system used shall be capable of meeting or exceeding the accuracy requirements and shall not exceed the allowable ranges where indicated. The Remediation Contractor may be required to demonstrate to the Remediation Engineer that its positioning system is capable of meeting or exceeding the accuracy requirements in EM 1110-2-1003.

D. Depth measurements, including depth observation precision and resolution, shall meet the vertical accuracy requirements for dredging as prescribed in EM 1110-2-1003.

3.06 SIDE SLOPES

A. Side slopes shall generally be at 2 horizontal to 1 vertical, expect where steeper slopes are required due to existing topographic contours.

3.07 QUALITY CONTROL/QUALITY ASSURANCE

A. Verify the vertical and horizontal limits of dredging in accordance with Section 01 71 23 – Field Engineering prior to each phase of work and at the conclusion of the work.

B. If, based on visual observation by the Remediation Engineer, additional dredging is required to achieve sediment removal within the limits of dredging, the work shall be performed by the Remediation Contractor at no additional expense to the Owner. The Remediation Contractor shall be reimbursed for the dredged material at the unit price stated on the bid form.

C. Provide the Owner, Remediation Engineer and NYS Canal Corporation complete access to observe the all dredging activities data during the progress of the Work.

3.08 SURFACE WATER QUALITY PROTECTION

A. Protect surface water quality in accordance with Section 31 25 00 – Erosion and Sedimentation Control and Section 35 11 00 – Signaling and Control Equipment for Waterways. Install all turbidity and oil control equipment prior to the start of any work.

3.09 CREW BOAT

A. Provide and maintain a boat for installation and maintenance of the turbidity curtain and layout and measurement of dredge work. The boat shall be motorized, have a weight carrying capacity of at least 1000 pounds, and be supplied with all required

safety equipment. Supply fuel for the boat. The boat shall be available for the entire duration of the work.

END OF SECTION

Printed on: 30 November 2017
\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix B - Specs\Section 352023 Dredging-RevD.docx

SECTION 44 32 00

VAPOR AND ODOR CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Implement engineering controls and modify work procedures/equipment as necessary to reduce fugitive vapors and odors as described in this Section. Implement work zone air monitoring to ensure health and safety protection of site workers during performance of the Work, and to prevent nuisance conditions. Ambient air monitoring at the perimeter of the Site will be conducted by the Remediation Engineer to ensure protection of the public and the environment.

B. Emissions from the site remedial construction activities may include odors and vapors. Remediation Contractor shall implement adequate controls to minimize these emissions in accordance with the following plans:

1. Community Air Monitoring Plan

2. Site specific Health and Safety Plan prepared by the Remediation Contractor

3. Erosion and Sediment Control Drawings including C-300, C-301, C-401. C-700, C-701, C-702, C-703

1.02 RELATED SECTIONS

A. SECTION 01 35 29 – Health and Safety Requirements

B. SECTION 01 50 00 – Temporary Facilities and Controls

C. SECTION 01 57 26 – Dust Control

D. SECTION 01 60 00 – Product Requirements

E. SECTION 02 00 00 – Existing Conditions

F. SECTION 02 51 29 – Decontamination Procedures

G. SECTION 02 61 13 – Piping Removal and Management

H. SECTION 02 61 23 – Excavation and Management

I. Drawings

J. Other Sections of the Specifications, not referenced above, shall also apply to the extent required for the proper performance of the Work.

1.03 REGULATIONS

A. Seneca Falls Code Section 300-26 Performance Standards:

1. Part B: No use within any district shall emit an odor that is unreasonably offensive as measured at the property line of the use.

1.04 AIR MONITORING

A. Community Ambient Air Monitoring: The Remediation Engineer will perform perimeter air monitoring at the site during intrusive activities to assess potential off-site exposures and risk. Real-time screening data (using a photoionization detector (PID)) will be collected and available to the Remediation Contractor. However, this does not address the Remediation Contractor's responsibility to perform air monitoring for the Remediation Contractor's on-site workers as required in this Section and Section 01 35 29 – Health and Safety Requirements. If site specific action limits are exceeded, as determined by data collected by the Remediation Engineer and/or the Remediation Contractor, work will be stopped and the Remediation Contractor will apply engineering controls until effective in reducing fugitive emissions to concentrations below the action limits in the Community Air Monitoring Plan and/or Site specific HASPs. Adjustments in work procedures by the Remediation Contractor to achieve compliance with these emissions standards shall be made at no cost to the Remediation Engineer or Owner.

B. The Remediation Contractor is required to perform work zone air monitoring within the work area in accordance with their HASP.

PART 2 – PRODUCTS

2.01 ODOR AND VAPOR CONTROLS

The Remediation Contractor shall maintain an adequate supply of the products listed below on-site for daily use. Product submittals to Remediation Contractor are required prior to use and shall include manufacturers' recommended use/installation practices.

A. Odor suppressant, such as BioSolve or approved equivalent

B. Plastic sheeting or anchored tarps

C. Vapor Suppressant Foam, such as RUSMAR AC-645 Short Duration Foam or approved equivalent

D. Soil tackifiers

PART 3 – EXECUTION

3.01 CONTROL OF AIR EMISSIONS

A. The control of air emissions during all phases of work shall be the sole responsibility of the Remediation Contractor. Nuisance levels of air emissions shall not be exceeded in any of the perimeter air monitoring stations.

B. If any of the parameters in Section 1.03 Part A above or listed in the Community Air Monitoring Plan (CAMP) are exceeded, the Remediation Contractor shall immediately suspend work and implement air emission control measures. Prior to resuming work, the Remediation Contractor shall modify work procedures that will result in reduced air emissions.

C. The Remediation Contractor shall implement emission control measures to reduce nuisance levels of odors and emissions at all times and perform additional measures as requested by the Remediation Engineer.

D. The Remediation Contractor shall utilize plastic sheeting, odor control foam, or other similar means to control air emissions during the performance of this work.

1. Emission control supplies shall be ready for use during all material handling operations.

2. Emission control measures shall be implemented on portions of excavation areas that are inactive regardless of the potential for air emissions or odors.

3. At the conclusion of work each day, the entire area of excavation shall be completely covered with emission controls suitable for controlling odors for an extended time, i.e. tarps or soil cover.

E. Air emission control products used shall be compatible with the requirements of the disposal facilities, or segregated prior to off-site disposal.

END OF SECTION

APPENDIX C

Pre-Design Investigation Report

HALEY ALDRICH

HALEY ALDRICH

www.haleyaldrich.com

REPORT ON
PRE-DESIGN INVESTIGATION
SENECA FALLS FORMER MGP SITE, SITE NO. 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Department of Environmental Conservation
Albany, New York

File No. 34507-023
March 2016

HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

11 March 2016
File No. 34507-023

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7014

Attention: Mr. Douglas MacNeal, P.E.

Subject: Pre-Design Investigation Report
Seneca Falls Former MGP Site, Site No. 8-50-010
Seneca Falls, New York

Dear Mr. MacNeal:

On behalf of New York State Electric & Gas (NYSEG), Haley & Aldrich of New York (Haley & Aldrich) is pleased to present this Pre-Design Investigation (PDI) Report for the Seneca Falls Former Manufactured Gas Plant (MGP) Site located in Seneca Falls, New York. The work was completed in accordance with the PDI Work Plan dated 20 October 2015 (revised version) and conditionally approved by the New York State Department of Environmental Conservation on 15 October 2015.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Douglas C. Allen, P.G.
Senior Project Manager

Colin Sweeney
Vice President

Enclosures

c: RG&E; Attn: Jeremy Wolf

G:\34507_Seneca_Falls\023\PDI Report\2016-0311-HANY-Seneca Falls PDI Report-F.docx

Table of Contents

List of Tables

List of Figures

1. Introduction

New York State Electric & Gas (NYSEG) retained Haley & Aldrich of New York (Haley & Aldrich) to complete a Pre-Design Investigation (PDI) and prepare this PDI Report for the Seneca Falls Former MGP Site located in Seneca Falls, New York (Figure 1). The PDI was completed in accordance with the PDI Work Plan dated 20 October 2015. The PDI Work Plan was approved by the New York State Department of Environmental Conservation (NYSDEC) in an electronic message dated 15 October 2015. A final version of the PDI Work Plan, with modifications requested by NYSDEC in the 15 October 2015 approval, was submitted to NYSDEC on 20 October 2015.

1.1 PURPOSE

The PDI was completed to collect additional data necessary to prepare Remedial Design documents.

1.2 SITE DESCRIPTION

The Seneca Falls Former MGP Site is located at 187 Fall Street in Seneca Falls, New York. The Site is bordered to the east by residential properties (181-185 Fall Street), to the south by the Seneca River and Canal (a Class C surface water), to the west by a gasoline filling station (193 Fall Street), and to the north by Fall Street (Figure 2). The northern portion of the Site (the Upland Area) which includes a paved vehicle parking area and building slab is separated from the southern portion of the Site (the Lowland Area) by a steep slope. The residential property which abuts the Upland Area to the east, 185 Fall Street, is currently vacant and owned by NYSEG.

The Site is located in a mixed residential and commercial portion of Seneca Falls Village and is currently used to park used cars in accordance with a lease agreement between NYSEG and a neighboring used car dealer. The Site and adjacent properties are zoned as "Highway Commercial", which includes various commercial uses. Residential use within this zoning designation is allowed for properties where residential use pre-dated the current zoning ordinance.

1.3 BACKGROUND

Based on the outcome of Remedial Investigation (RI) activities completed in 2007, 2008, and 2009, Haley & Aldrich prepared a Feasibility Study (FS) report in 2015 to identify and evaluate remedial alternatives to address potential exposure pathways to MGP-related materials that were identified during the RI. The potential exposure pathways included the following:

- On-site (Upland and Lowland Areas): Complete exposure pathways to surface soil were identified for current and future scenarios: an on-site utility worker, trespasser, or Rochester Gas and Electric (RG&E)/NYSEG employee occasionally visiting the Site. A complete exposure pathway to surface soil was identified for a future construction worker under the scenario that a new building is constructed at the Site. Complete exposure pathways to subsurface soil were identified for current and future utility workers, and for a future construction worker under the scenario that a new building is constructed at the Site.

- Off-site Residence at 185 Fall Street: Complete exposure pathways to surface soil and subsurface soil were identified for a current and future resident or construction worker.

- For the Seneca River and Canal: Complete exposure pathways to sediment were identified for current and future trespassers and boaters.

To address the current and future exposure pathways, the NYSDEC-approved FS recommended In-Situ-Solidification/Stabilization (ISS) of impacted soil in the Upland Area, capping of impacted soils in the Lowland Area, excavation and off-site treatment/disposal of surface and subsurface soil at 185 Fall Street, dredging of impacted Seneca River and Canal sediments, institutional controls, and monitored natural attenuation (MNA) of impacted groundwater. This recommended remedial alternative was approved by NYSDEC in a Record of Decision (ROD) issued on 31 March 2015.

1.4 OBJECTIVES

The objectives of the PDI field activities completed at the Site included the following:

- Develop a comprehensive Site plan with ground surface topography, underground utilities, and the limits of federal and state wetlands (if present) to support the Remedial Design and future remediation construction;
- Collect Upland Area soil samples and Seneca River and Canal sediment samples for waste characterization purposes and disposal facility pre-approval; and,
- Collect Upland Area soil samples for ISS bench scale testing and geotechnical parameter testing to support the Remedial Design.

1.5 REPORT ORGANIZATION

Following this introductory section, the PDI Report is organized as follows:

- Section 2 describes the PDI field activities and laboratory analyses;
- Section 3 describes the PDI observations, field surveys, and analytical results;
- Section 4 presents the conclusions and recommendation for additional work; and,
- Section 5 describes the report limitations.

2. Pre-Design Investigation Scope of Work

The field and laboratory tasks completed to fulfill the PDI objectives are described below.

2.1 UPDATED SITE SURVEY

Haley & Aldrich contracted with a licensed land surveyor, Hoffman Land Surveying and Geomatics, Inc. (Hoffman Land Surveying) of Ontario, New York, to obtain an updated comprehensive survey of the Site and adjacent features necessary to support the Remedial Design. The survey included topography, property lines, ordinary high water along the Seneca River and Canal, a bathymetric survey of the proposed remediation area in the Seneca River and Canal, and the Fall Street right-of-way as well as underground and overhead electrical lines. Prior to the survey, underground utilities were located (as practicable) and marked in the field by Trec Environmental, Inc. (Trec) of Spencerport, New York.

Haley & Aldrich also completed a wetlands survey along the Seneca River and Canal to flag federal and state wetlands, if any, in the vicinity of the proposed remediation. The outcome of the wetlands delineation was documented in a wetland and stream delineation report (with supporting figures, photos and data forms) describing the delineation methodology, and the number, size, and characteristics of the wetlands and streams identified within the boundaries of the Site and 193 Fall Street Lowland Area where remediation construction is planned.

2.2 MONITORING WELL ABANDONMENT

Monitoring well MW-08-02, installed inside the below-grade former gas holder, was abandoned by Parratt-Wolff, Inc. prior to test pit activities due to the location of one test pit (TP-15-03) excavated adjacent to the well. MW-08-02 was abandoned in accordance with NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy. The 2-inch PVC well was perforated at the bottom then pulled from the ground while simultaneously applying a cement-bentonite grout to the inside of the well. The void left by the removed PVC well materials was backfilled with grout to ground surface.

2.3 SEDIMENT AND SOIL SAMPLING

Haley & Aldrich obtained soil and sediment samples to the support the Remedial Design and facilitate future remediation construction activities. The PDI sample locations are summarized in Table I and shown on Figure 2 and included the following:

- Waste Characterization Sediment Samples: Five sediment samples (SE-15-01 through SE-15-05) were collected from the Seneca River and Canal for waste characterization laboratory testing to establish acceptance by a disposal facility (Seneca Meadows, Inc. in Waterloo, New York). The sediment sample locations were accessed from the shoreline and collected with a hand auger by Haley & Aldrich staff. Samples were placed in laboratory-supplied glassware and submitted to TestAmerica Analytical Laboratory of Amherst, New York (TestAmerica) for chemical analysis of waste characterization parameters including Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), TCLP RCRA metals, polychlorinated biphenyls (PCBs), reactive cyanide, reactive sulfide, flashpoint, percent solids, paint filter (free liquids), and pH/corrosivity.

- Waste Characterization Soil Samples: Six samples of representative soil from the Upland Area of the Site and the vacant 185 Fall Street property were collected for waste characterization laboratory testing to establish acceptance by a disposal facility (Seneca Meadows). The samples were collected from five test pits (TP-15-01 through TP-15-05) completed in the Upland Area of the Site and 185 Fall Street backyard. The test pits were completed by Parratt-Wolff, Inc. of East Syracuse, New York (Parratt-Wolff) utilizing a Deere 135D track-mounted excavator. Test pits located on the former building concrete floor slab were saw-cut prior to excavation. Waste characterization soil samples were submitted to TestAmerica for chemical analysis including TCLP VOCs, TCLP SVOCs, TCLP RCRA metals, PCBs, reactive cyanide, reactive sulfide, flashpoint, percent solids, paint filter (free liquids) and pH/corrosivity.

- Bench Scale Samples: Approximately 15 gallons of homogenized soil were collected for ISS bench scale testing from the four test pits (TP-15-01 through TP-15-04) completed on the Upland Area of the Site. The soil was shipped to Timely Engineering Soil Test, LLC (Timely) in Tucker, Georgia for ISS bench scale testing.

- Geotechnical Samples: Unit weight and grain size distribution analyses were completed for the three bench scale samples submitted to Timely.

The five test pits were logged in the field to provide further information regarding subsurface conditions. The test pit methodology, field sample collection, worker health and safety, and community air monitoring was completed in accordance with the NYSDEC-approved Preliminary Site Assessment Work Plan dated September 2007 and Remedial Investigation Work Plan dated June 2009, which include the Field Sampling Plan, Quality Assurance Project Plan, Community Air Monitoring Plan, and site-specific Health & Safety Plan. Sediment samples were collected with manual coring methods in accordance with the methodology described in the Remedial Investigation Work Plan dated June 2009.

2.4 BENCH SCALE TESTING

Timely completed bench scale treatability testing using soil obtained from the Upland Area of the Site to determine an effective mix design (reagent type(s) and additive rate) for the ISS. The purpose of the design phase bench scale testing was to demonstrate feasibility and provide information to the remedial contractor bidders about reagent needs. The bench scale treatability testing program included:

- Measure the moisture content and density of the homogenized untreated soil;

- Prepare trial batches of 3:1 granulated ground blast furnace slag (GGBFS) to Portland Type I/II cement at additive rates of 6%, 9% and 12%. Note that the additive rates were revised from the PDI Work Plan due to the fine-grained nature of the soil observed during test pit operations, and to provide a better range of additive rates for the bench scale testing;

- Measure grout viscosity and slump for the three trial batches, which is useful to understand field mixing properties and field quality control;

- Unconfined compression strength of the three trial batches at 14 and 28 days curing, along with an additional test at 61 days; and,

- Permeability testing of the three trial batches at 28 days curing.

3. Field Observations and Results

3.1 TOPOGRAPHIC SURVEY

Subsurface utilities were located and marked in the field by Trec on 18 November 2015. Ground surface topography, subsurface utility locations, and other Site features were surveyed by Hoffman Land Surveying on 19 and 20 November 2015. The Seneca River and Canal bathymetric survey in the proposed work area was completed by Hoffman Land Surveying on 12 and 19 December 2015. The survey plan is provided as Appendix A.

3.2 WETLANDS DELINEATION

Wetlands and stream delineation was completed by Haley & Aldrich on 29 October 2015. The study area included the Upland Area of the Former MGP Site, and the lowland portions of the Former MGP Site and 193 Fall Street where remediation construction is planned. No wetlands were observed during the field study, and no state-regulated wetlands were mapped in close proximity to the study area. A wetlands delineation report is provided as Appendix B.

3.3 SEDIMENT AND SOIL SAMPLING

Field observations and laboratory results for soil and sediment are described below.

3.3.1 Sediment Observations

Sediment coring was completed by Haley & Aldrich staff on 18 November 2015. Sediment coring locations are shown on Figure 2 and sediment core observations are summarized on Table II. Key observations included the following:

- Soft sediment was encountered at each of the five sediment coring locations. Brick material was observed in sediment cores SE-15-01 and SE-15-02;
- Clinker-like material (CLM) was observed in sediment core SE-15-02; and,
- Tar-like material (TLM) was observed within the top 1 foot (relative to the mudline) of sediment at location SE-15-04.

3.3.2 Test Pit Observations

Test pits were completed by Parratt-Wolff on 19 and 20 November 2015. Completed test pit locations are shown on Figure 2 and test pit observations are summarized on Table III. Key observations included the following:

- For test pits completed on-site (TP-15-01 through TP-15-04), the depth to glacial till varied from 3.5 to 7 feet below ground surface (ft bgs). Fill material including apparent building demolition debris (brick, glass, etc.) was observed above the glacial till at all test pit locations;

- Wood fragments, which appeared to be broken lumber, with TLM were observed at approximately 5 ft bgs at test pit TP-15-01 completed in the northeast corner of the former building floor slab;

- A concrete structure was observed at test pit TP-15-02, located in the northern portion of the parking area adjacent to the building floor slab. The structure was circular with standing water to a depth of at least 15 ft bgs. No odor or sheen was noted in the standing water;

- CLM and ash-like material (ALM) was observed in the fill material at test pit location TP-15-04 completed on the eastern side of the former building floor slab;

- Black staining was observed within the fill material at on-site test pit locations TP-15-01, TP-15-02, and TP-15-04;

- Water was observed entering test pit TP-15-03 at a depth of approximately 8 ft bgs, completed within the apparent footprint of the former below-grade gas holder; and,

- A layer of white-colored material, potentially decomposed concrete or mortar, was observed from 1.5 to 2 ft bgs at test pit TP-15-05 completed in the backyard of 185 Fall Street. This layer was underlain by fill material with black staining, demolition debris, CLM, and ALM to the top of glacial till which was observed at 4 ft bgs.

Test pit logs are included as Appendix C.

3.3.3 Waste Characterization Sample Results

Waste characterization analytical results for soil and sediment are summarized on Table IV. Samples submitted for waste characterization purposes included the following:

- One composite sample was collected from each test pit from the fill material within 2 feet of ground surface (five samples total);

- One composite sample was collected from test pit TP-15-03, completed inside the apparent former below grade gas holder, from a depth of 6 to 8 ft bgs, to further characterize holder contents; and,

- One composite sample was collected from each sediment sampling location (five samples total).

Laboratory analytical reports are provided as Appendix D.

3.3.4 Treatability Testing and Geotechnical Sample Results

Treatability testing and geotechnical sample results are summarized on Table V. The laboratory results for the three batch samples submitted for testing indicated the following:

- The moisture content, wet density, and dry density of the homogenized untreated soil was 15.2%, 124.4 pounds per cubic foot (pcf), and 108.0 pcf, respectively;

- Three trial batches of 3:1 GGBFS to Portland cement were prepared with additive rates of 6%, 9% and 12%;

- The slump for the 6%, 9%, and 12% additive rate batches was 3.75 inches, 4.0 inches, and 4.25 inches, respectively;

- After a curing period of 28 days, the 6%, 9%, and 12% additive rate batches achieved unconfined compressive strengths of 9 pounds per square inch (psi), 35 psi, and 66 psi, respectively;

- To further evaluate test batch performance, the unconfined compressive strength was measured for the 9% and 12% additive rate batches after a curing period of 61 days. The unconfined compressive strengths were 44 psi and 80 psi, respectively; and,

- The permeability values of the 6%, 9%, and 12% additive rate batches after 28 days of curing were 9.0 X 10^{-7} centimeters per second (cm/sec), 5.2X10^{-7} cm/sec, and 3.0X10^{-7} cm/sec, respectively.

The laboratory treatability testing report is provided as Appendix E.

3.4 INVESTIGATION DERIVED WASTE MANAGEMENT

No investigation derived waste (IDW) was produced during the PDI field work.

4. Conclusions and Recommendations

The PDI provided adequate field and laboratory information to complete the Remedial Design (RD) in accordance with the NYSDEC-approved remedial alternative. No additional field investigations are recommended at this time.

5. Limitations

This report has been prepared for the exclusive use of NYSEG in connection with the Seneca Falls Former MGP Site located at 187 Fall Street in Seneca Falls, New York. The conclusions and recommendations provided by Haley & Aldrich are based solely on the scope of work conducted and the sources of information referenced in this report.

References

1. Haley & Aldrich of New York, 2007. Preliminary Site Assessment Work Plan, September 2007.

2. Haley & Aldrich of New York, 2009. Remedial Investigation Work Plan, June 2009.

3. NYSDEC, 2010. "DER-10 Technical Guidance – Site Investigation and Remediation", May 2010.

4. Haley & Aldrich of New York, 2013. Remedial Investigation Report, April 2013.

5. Haley & Aldrich of New York, 2015. Feasibility Study, January 2015.

6. New York State Department of Environmental Conservation, 2015. Record of Decision, March 2015.

7. Haley & Aldrich of New York, 2015. Pre-Design Investigation Work Plan, October 2015.

G:\34507_Seneca_Falls\023\PDI Report\2016-0311-HANY-Seneca Falls PDI Report-F.docx

TABLE I
INVESTIGATION LOCATIONS AND RATIONALE
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Exploration Identification	Exploration Type	Location Description	Rational	Target Exploration Depth	Actual Exploration Depth and Description	Laboratory Analyses/Methods [1.]	
						Waste Characterization	Treatability Testing[2]
TP-15-01	Test Pit	On-site, northeastern portion of the former building floor slab	Collect soil samples for waste characterization and treatability testing, observe subsurface conditions in the vicinity of the "Former Gas Fitter" building.	Top of glacial till	Terminated at 9 feet bgs in glacial till	1	Yes
TP-15-02	Test Pit	On-site, northern portion of the asphalt parking lot	Collect soil samples for waste characterization and treatability testing, observe subsurface conditions in the vicinity of the "Former Coal Shed" building.	Top of glacial till	Terminated at 7 feet bgs in glacial till	1	Yes
TP-15-03	Test Pit	On-site within former below-grade gas holder	Collect soil samples for waste characterization and treatability testing, observe subsurface conditions in the vicinity of the former below-grade gas holder.	Equipment maximum depth or test pit stability	Terminated at 10 feet bgs in apparent fill or reworked glacial till	2	Yes
TP-15-04	Test Pit	On-site, eastern portion of the former building floor slab	Collect soil samples for waste characterization and treatability testing, observe subsurface conditions in the vicinity of the "Former Coal Shed" building.	Top of glacial till	Terminated at 9 feet bgs in glacial till	1	Yes
TP-15-05	Test Pit	185 Fall Street backyard	Collect soil samples for waste characterization and treatability testing, observe subsurface conditions in 185 Fall Street backyard.	Top of glacial till	Terminated at 5 feet bgs in glacial till	1	No
SE-15-01	Sediment Core	Seneca River adjacent to 193 Fall Street shoreline	Collect representative sediment samples for waste characterization	Hand auger refusal	Terminated 1.9 feet below top of sediment	1	No
SE-15-02	Sediment Core	Seneca River adjacent to 193 Fall Street shoreline	Collect representative sediment samples for waste characterization	Hand auger refusal	Terminated 2.1 feet below top of sediment	1	No

TABLE I
INVESTIGATION LOCATIONS AND RATIONALE
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Exploration Identification	Exploration Type	Location Description	Rational	Target Exploration Depth	Actual Exploration Depth and Description	Laboratory Analyses/Methods [1.]	
						Waste Characterization	Treatability Testing[2]
SE-15-03	Sediment Core	Seneca River adjacent to 193 Fall Street shoreline	Collect representative sediment samples for waste characterization	Hand auger refusal	Terminated 2.0 feet below top of sediment	1	No
SE-15-04	Sediment Core	Seneca River adjacent to 193 Fall Street and Site property boundary	Collect representative sediment samples for waste characterization	Hand auger refusal	Terminated 2.5 feet below top of sediment	1	No
SE-15-05	Sediment Core	Seneca River adjacent to Site	Collect representative sediment samples for waste characterization	Hand auger refusal	Terminated 1.9 feet below top of sediment	1	No

Notes:
1. Laboratory analysis/methods:
   Waste Characterization included TCLP VOCs, TCLP SVOCs, TCLP RCRA metals, PCBs, reactive cyanide and sulfide, flashpoint, percent solids, paint filter and pH/corrosivity;
   Treatability Testing included moisture content, grain size, and bulk density; and grout viscosity, slump, compressive strength, and permeability testing of three trial batches.
2. Three treatability testing samples consisted of homogenized soils from four test pits.
3. "feet bgs" indicates feet below ground surface.

TABLE II
SEDIMENT FIELD OBSERVATIONS SUMMARY
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Exploration Identification	Exploration Location	Approximate Top of Sediment Elevation (feet msl)	Maximum Exploration Depth	Exploration Observations
SE-15-01	Seneca River adjacent to 193 Fall Street shoreline	427.1	Water depth - 1.5 feet Sediment depth - 1.9 feet	Silty/soft bottom conditions. Brick debris observed in sediment core.
SE-15-02	Seneca River adjacent to 193 Fall Street shoreline	426.8	Water depth - 1.6 feet Sediment depth - 2.1 feet	Silty/soft bottom conditions. Some brick debris observed in sediment core, along with CLM.
SE-15-03	Seneca River adjacent to 193 Fall Street shoreline	426.3	Water depth - 2.1 feet Sediment depth - 2.0 feet	Gravel/sandy bottom conditions.
SE-15-04	Seneca River adjacent to 193 Fall Street and Site property boundary	426.7	Water depth - 1.7 feet Sediment depth - 2.5 feet	Silty/soft bottom conditions. TLM observed within the top 1 foot of sediment core.
SE-15-05	Seneca River adjacent to Site shoreline	426.6	Water depth - 1.9 feet Sediment depth - 1.9 feet	Silty/soft bottom conditions.

Notes:
1. "Sediment Depth" refers to depth below mudline.
2. "TLM" indicates tar-like material.
3. "CLM" indicates clinker-like material.

TABLE III
TEST PIT FIELD OBSERVATIONS SUMMARY
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Exploration Identification	Exploration Location	Approximate Ground Surface Elevation (feet msl)	Maximum Exploration Depth (feet bgs)	Exploration Observations	Maximum PID Detection (ppmv)	Maximum PID Detection Interval (feet bgs)
TP-15-01	On-site, northeastern portion of the former building floor slab	456.5	9	Concrete floor slab and subbase material to 0.6 feet bgs. Fill observed from 0.6 to 6 feet bgs. Black stained gravelly silt with sand and petroleum-like odor at 3 feet bgs. Wood fragment with TLM observed on east side of test pit at 5 feet bgs. Building demolition debris and red brick from 2.5 to 6 feet bgs. Glacial till observed from 6 to 9 feet bgs.	12.3	5.5
TP-15-02	On-site, northern portion of the parking lot	456.5	7	Asphalt and subbase material to 0.6 feet bgs. Fill observed from 0.6 to 3.5 feet bgs. Black stained sand with building demolition debris, red brick, glass, and tile from 0.6 to 3.5 ft bgs. Circular concrete structure observed at 5 feet bgs on western side of excavation, approximately 4 feet diameter, filled with water to a depth of at least 15 feet bgs (no sheen or odor). Glacial till observed from 3.5 to 7 feet bgs.	ND	NA
TP-15-03	On-site within former below-grade gas holder	456.5	10	Concrete floor slab and subbase material to 0.6 feet bgs. Fill observed from 0.6 to 6 feet bgs. Apparent fill or reworked glacial till observed from 8 to 10 feet bgs. Water observed entering the test pit at 8 feet bgs.	ND	NA
TP-15-04	On-site, eastern portion of the former building floor slab	456.5	9	Concrete floor slab and subbase material to 0.6 feet bgs. Fill observed from 0.6 to 7 feet bgs. Black stained gravelly silt with CLM and ALM from 4 to 7 feet bgs. Glacial till observed from 7 to 9 feet bgs.	ND	NA
TP-15-05	185 Fall Street backyard	447.5	5	Topsoil observed to 1.5 feet bgs. Layer of white-colored material (possible crushed concrete) observed from 1.5 to 2 feet bgs. Fill observed from 2 to 4 feet bgs. Black stained sand with silt, brick and building demolition debris, broken clay pipe, and CLM and ALM observed from 2 to 4 feet bgs. Glacial till observed from 4 to 5 feet bgs.	ND	NA

Notes:
1. "feet bgs" indicates feet below ground surface.
2. "ALM" indicates ash-like material.
3. "CLM" indicates clinker-like material.
4. "TLM" indicates tar-like material.
5. "ND" indicates not detected.
6. "NA" indicates not applicable.

TABLE IV
SOIL AND SEDIMENT SAMPLE ANALYTICAL RESULTS
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Location	RCRA	SE-15-01	SE-15-02	SE-15-03	SE-15-04	SE-15-05	TP-15-01	TP-15-02	TP-15-03	TP-15-03	TP-15-04
Sample Date	Toxicity	11/18/2015	11/18/2015	11/18/2015	11/18/2015	11/18/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015	11/19/2015
Sample Type	Characteristic	N	N	N	N	N	N	N	N	N	N
Sample Depth (bgs)	Threshold	0 - 1.9 (ft)	0 - 2.1 (ft)	0 - 2 (ft)	0 - 2.5 (ft)	0 - 1.9 (ft)	0.6 - 2 (ft)	0.6 - 2 (ft)	0.6 - 2 (ft)	6 - 8 (ft)	0.6 - 2 (ft)
Sample Name		SE1501-111815-1100	SE1502-111815-1130	SE1503-111815-1300	SE1504-111815-1215	SE1505-111815-1330	TP1501-111915-1440	TP1502-111915-1320	TP1503-111915-1530	TP1503-111915-1545	TP1504-111915-1145
Inorganic Compounds (mg/kg)											
Reactive Cyanide	-	< 9.8	< 9.8	< 9.7	< 9.6	< 9.5	< 10	< 10	< 10	< 10	< 10
TCLP Inorganic Compounds (mg/L)											
Arsenic	5	**0.0092 J**	**0.012 J**	**0.0071 J**	**0.011 J**	**0.0069 J**	< 0.015	**0.012 J**	< 0.015	< 0.015	< 0.015
Barium	100	**0.47 J**	**0.65 J**	**0.94 J**	**0.86 J**	**0.54 J**	**0.41 J**	**0.8 J**	**0.43 J**	**0.39 J**	**0.29 J**
Cadmium	1	**0.0012 J**	**0.0026**	**0.0011 J**	**0.0071**	**0.0085**	**0.00071 J**	**0.0038**	**0.00093 J**	**0.0023**	**0.00063 J**
Chromium	5	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02 ^	< 0.02
Lead	5	**0.41**	**1.4**	**0.3**	**0.31**	**0.017 J**	**0.0051 J**	**0.059**	**0.0082 J**	< 0.02	**0.0034 J**
Mercury	0.2	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	**0.00044**	< 0.0002	< 0.0002	< 0.0002
Selenium	1	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Silver	5	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Other (Deg F)											
Flash Point Closed Cup	-	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176	> 176
Other (mg/kg)											
Reactive Sulfide	-	< 9.8	< 9.8	< 9.7	< 9.6	< 9.5	< 10	< 10	< 10	< 10	< 10
Other (ml/100g)											
Free Liquid	-	PASS	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	PASS	FAIL
Other (su)											
pH (lab)	-	**7.47 HF**	**8.01 HF**	**8.26 HF**	**7.69 HF**	**7.74 HF**	**8.28 HF**	**8.23 HF**	**7.7 HF**	**8.44 HF**	**7.63 HF**
PCBs (mg/kg)											
Aroclor-1016 (PCB-1016)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1221 (PCB-1221)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1232 (PCB-1232)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1242 (PCB-1242)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1248 (PCB-1248)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1254 (PCB-1254)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
Aroclor-1260 (PCB-1260)	-	< 0.41	< 0.34	< 0.31	< 0.39	< 0.33	< 0.22	< 0.26	< 0.24	< 0.27	< 0.21
TCLP Semi-Volatile Organic Compounds (mg/L)											
1,4-Dichlorobenzene	7.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	400	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4,6-Trichlorophenol	2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dinitrotoluene	0.13	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2-Methylphenol	200	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
3-Methylphenol	200	< 0.01	**0.00088 J**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Methylphenol	200	< 0.01	**0.00088 J**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.13	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachloroethane	3	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nitrobenzene	2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Pentachlorophenol	100	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyridine	5	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	**0.0013 JB**	**0.0011 JB**	**0.0017 JB**	**0.0012 JB**
TCLP Volatile Organic Compounds (mg/L)											
1,1-Dichloroethene	0.7	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dichloroethane	0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-Butanone (Methyl Ethyl Ketone)	200	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 *	< 0.05 *	< 0.05 *	< 0.05 *	< 0.05 *
Benzene	0.5	< 0.01	< 0.01	< 0.01	**0.033**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chlorobenzene	100	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform (Trichloromethane)	6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachloroethene	0.7	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Trichloroethene	0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Vinyl chloride	0.2	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

TABLE IV
SOIL AND SEDIMENT SAMPLE ANALYTICAL R
PRE-DESIGN INVESTIGATION SUMMARY REP(
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

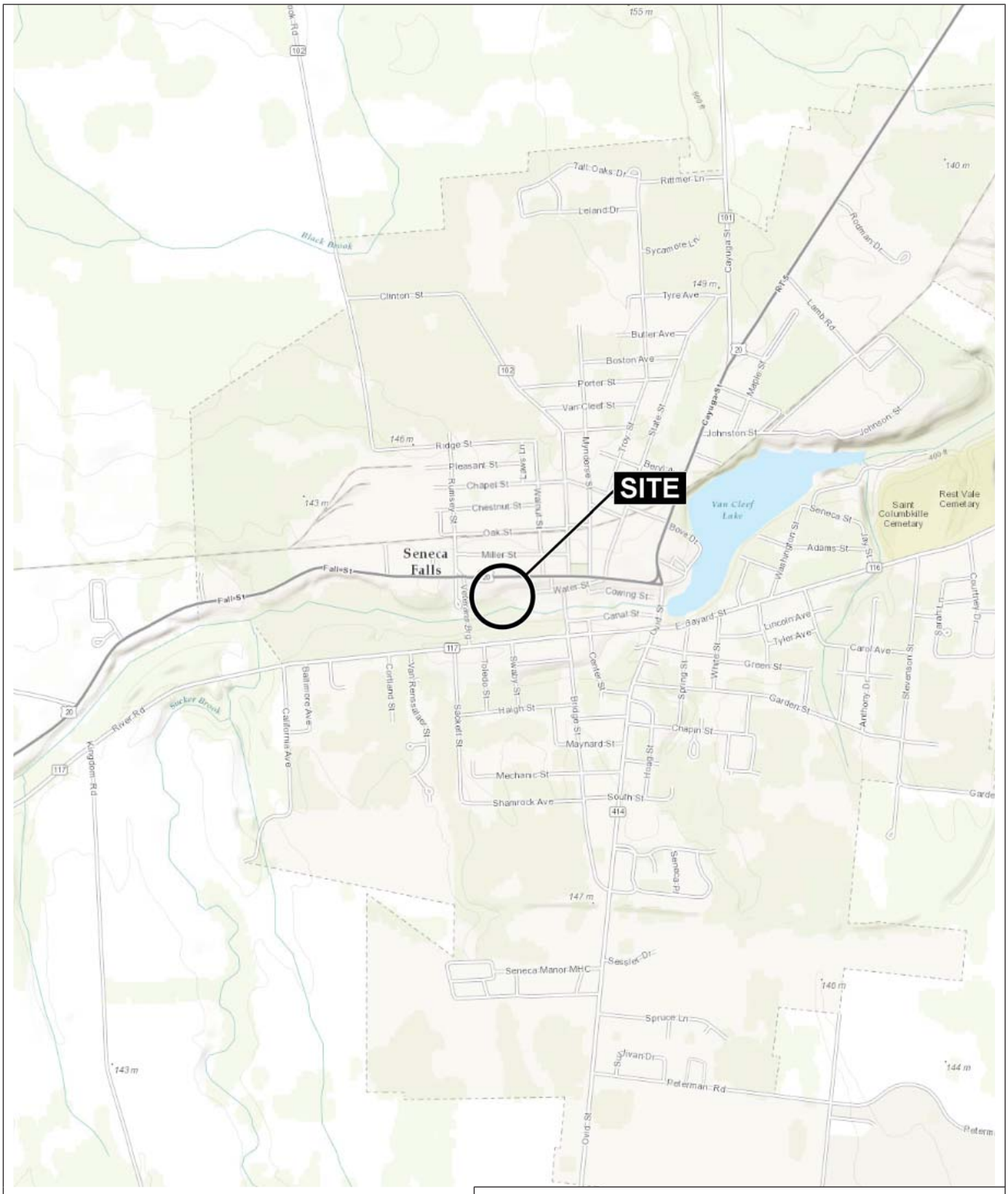
	Location	TP-15-05
	Sample Date	11/20/2015
	Sample Type	N
	Sample Depth (bgs)	0 - 2 (ft)
	Sample Name	TP1505-112015-0900
Inorganic Compounds (mg/kg)		
Reactive Cyanide		< 10
TCLP Inorganic Compounds (mg/L)		
Arsenic		**0.0095 J**
Barium		**0.91 J**
Cadmium		**0.0042**
Chromium		< 0.02 ^
Lead		**0.16**
Mercury		< 0.0002
Selenium		< 0.025
Silver		< 0.006
Other (Deg F)		
Flash Point Closed Cup		> 176
Other (mg/kg)		
Reactive Sulfide		< 10
Other (ml/100g)		
Free Liquid		PASS
Other (su)		
pH (lab)		**8.61 HF**
PCBs (mg/kg)		
Aroclor-1016 (PCB-1016)		< 0.27
Aroclor-1221 (PCB-1221)		< 0.27
Aroclor-1232 (PCB-1232)		< 0.27
Aroclor-1242 (PCB-1242)		< 0.27
Aroclor-1248 (PCB-1248)		< 0.27
Aroclor-1254 (PCB-1254)		< 0.27
Aroclor-1260 (PCB-1260)		< 0.27
TCLP Semi-Volatile Organic Compounds (mg/L		
1,4-Dichlorobenzene		< 0.01
2,4,5-Trichlorophenol		< 0.005
2,4,6-Trichlorophenol		< 0.005
2,4-Dinitrotoluene		< 0.005
2-Methylphenol		< 0.005
3-Methylphenol		< 0.01
4-Methylphenol		< 0.01
Hexachlorobenzene		< 0.005
Hexachlorobutadiene		< 0.005
Hexachloroethane		< 0.005
Nitrobenzene		< 0.005
Pentachlorophenol		< 0.01
Pyridine		**0.0014 JB**
TCLP Volatile Organic Compounds (mg/L)		
1,1-Dichloroethene		< 0.01
1,2-Dichloroethane		< 0.01
2-Butanone (Methyl Ethyl Ketone)		< 0.05 *
Benzene		< 0.01
Carbon tetrachloride		< 0.01
Chlorobenzene		< 0.01
Chloroform (Trichloromethane)		< 0.01
Tetrachloroethene		< 0.01
Trichloroethene		< 0.01
Vinyl chloride		< 0.01

Notes:
1. <: Result is not detected above the indicated reporting limit.
2. Results in **bold** are detected.
3. Lab qualifiers defined as follows:
   B: Compound was found in the blank and sample.
   HF: Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
   J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
   *: LCS or LCSD is outside acceptance limits.
   ^: ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4. TCLP: Toxicity characteristic leaching procedure.
5. Detected results were screened against the RCRA Toxicity Characteristic Threshold for Hazardous Waste.
Shaded cells indicate the detected value is above the RCRA Toxicity Characteristic Threshold.

TABLE V
TREATIBILITY TESTING RESULTS
PRE-DESIGN INVESTIGATION SUMMARY REPORT
SENECA FALLS FORMER MGP SITE
SENECA FALLS, NEW YORK

Batch Additive Rate	Curing Age (days)	Slump (inches)	Viscosity (seconds)	Swell (%)	Unconfined Compressive Strength (psi)	Moisture Content (%)	Wet Density (pcf)	Dry Density (pcf)	Hydraulic Conductivity (cm/sec)
Untreated	-	-	-	-	-	15.2	124.4	108.0	-
6%	0	3.75	33	15.7	-	-	-	-	-
	14	-	-	-	-	-	-	-	-
	28	-	-	-	9	25.2 / 25.6	122.1 / 122.6	97.2 / 97.9	$9.0X10^{-7}$
9%	0	4.00	34	18.5	-	-	-	-	-
	14	-	-	-	23	24.7 / 25.6	122.0 / 122.5	97.1 / 98.2	$6.4X10^{-7}$
	28	-	-		35	24.4 / 25.8	121.6 / 122.5	96.6 / 98.5	$5.2X10^{-7}$
	61	-	-	-	44	25.2	121.6	97.1	-
12%	0	4.25	36	21.2	-	-	-	-	-
	14	-	-	-	40	24.6 / 25.3	121.2 / 121.4	96.7 / 97.4	$3.7X10^{-7}$
	28	-	-	-	66	23.8 / 25.1	120.1 / 121.4	97.0 / 97.0	$3.0X10^{-7}$
	61	-	-	-	80	24.7	121.1	97.1	-

Notes:
1. "psi" = pounds per square inch.
2. "pcf" = pounds per cubic foot.
3. "cm/sec" = centimeters per second.
4. "-" = not tested.
5. Multiple results are due to duplicate tests run on different molds.
6. % swell of material was measured after mixing realtive to unit weight of received soil.



MAP SOURCE: ESRI

SITE COORDINATES: 42°54'35"N, 76°48'14"W

HALEY ALDRICH

SENECA FALLS FORMER MGP
187 FALL STREET
SENECA FALLS, NEW YORK

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MARCH 2016

FIGURE 1

34507-000_1_LOCUS.PDF

FALL STREET

RUMSEY STREET

PARKING

GAS STATION

GAS SHUTOFF

GAS MAIN

BM-1/HYDRANT

MGP-IMPACTED SOIL RESIDENTIAL

MGP-IMPACTED SOIL UPLAND

MGP-IMPACTED SOIL LOWLAND

193 FALL STREET MGP-IMPACTED SOIL LOWLAND

MGP-IMPACTED SEDIMENT

SENECA RIVER & CANAL

DECK

PROPERTY BOUNDARY

XXX

SG-1

SG-2

LEGEND

- PROPERTY LINE
- MONITORING WELL
- SOIL BORING
- SURFACE SOIL SAMPLE
- TEST PIT
- STREAM GAUGE
- HAND AUGER LOCATION
- SE-09-04 0.5 ft/4 ft — SEDIMENT LOCATION WITH THICKNESS OF SOFT SEDIMENT/DEPTH TO REFUSAL
- UPLAND PROPERTY - AREA OF MGP-IMPACTED SOILS
- NYSEG-OWNED RESIDENTIAL PROPERTY - AREA OF MGP-IMPACTED SOILS
- LOWLAND PROPERTY - AREA OF MGP-IMPACTED SOILS
- RIVER - AREA OF MGP-IMPACTED SEDIMENTS
- PDI TEST PIT LOCATION
- PDI SEDIMENT SAMPLE LOCATION

NOTES

1. SOIL DOT COLOR IS BASED ON COMPARISON WITH SOIL CLEANUP OBJECTIVES.
2. SEDIMENT DOT COLOR IS BASED ON MAXIMUM TOTAL PAHs PER SAMPLE LOCATION.
3. SEDIMENT EXPLORATION LOCATION SE-09-19 WAS NOT COMPLETED.
4. NA: NOT AVAILABLE
   NM: NOT MEASURED
   NP: NOT PENETRABLE
5. ALL LOCATIONS AND DIMENSIONS APPROXIMATE.
6. PDI: PRE-DESIGN INVESTIGATIONS

0 40 80 120 160

SCALE IN FEET

SOIL TOWER LEGEND

GROUND SURFACE
- 0 TO 1 FOOT BGS
- 1 TO 2 FEET BGS
- 2 TO 5 FEET BGS
- 5 TO 10 FEET BGS
- 10 TO 15 FEET BGS
- 15 TO 20 FEET BGS
- 20 TO 25 FEET BGS
- 25 TO 30 FEET BGS
- 30 TO 35 FEET BGS

SOIL TOWER COLOR LEGEND: COMPARED TO SOIL CLEANUP OBJECTIVES FOR COMMERCIAL OR RESIDENTIAL

- NO SAMPLE COLLECTED
- SAMPLE COLLECTED, NO EXCEEDANCE
- SAMPLE COLLECTED, ONE OR MORE EXCEEDANCES

SEDIMENT TOWER LEGEND

TOP OF SEDIMENT
- 0 TO 0.5FOOT BGS
- 0.5 TO 1 FEET BGS
- 1 TO 1.5 FEET BGS
- 1.5 TO 2 FEET BGS
- 2 TO 2.5 FEET BGS
- 2.5 TO 3 FEET BGS

SEDIMENT TOWER COLOR LEGEND - TOTAL PAHs

- NON-DETECT TO 0.1 MG/KG
- 0.1 TO 1 MG/KG
- 1 TO 10 MG/KG
- 10 TO 100 MG/KG
- 100 TO 1000 MG/KG
- >1000 MG/KG

VISUAL/OLFACTORY OBSERVATIONS

- NO OBSERVED IMPACTS
- ODOR OR STAINING
- MINOR TLM/OLM BLEBS
- TLM/OLM PRESENT
- REFUSAL - NO SEDIMENT PRESENT

HALEY ALDRICH

SENECA FALLS FORMER MGP
187 FALL STREET
SENECA FALLS, NEW YORK

SITE PLAN WITH PDI SAMPLE LOCATIONS

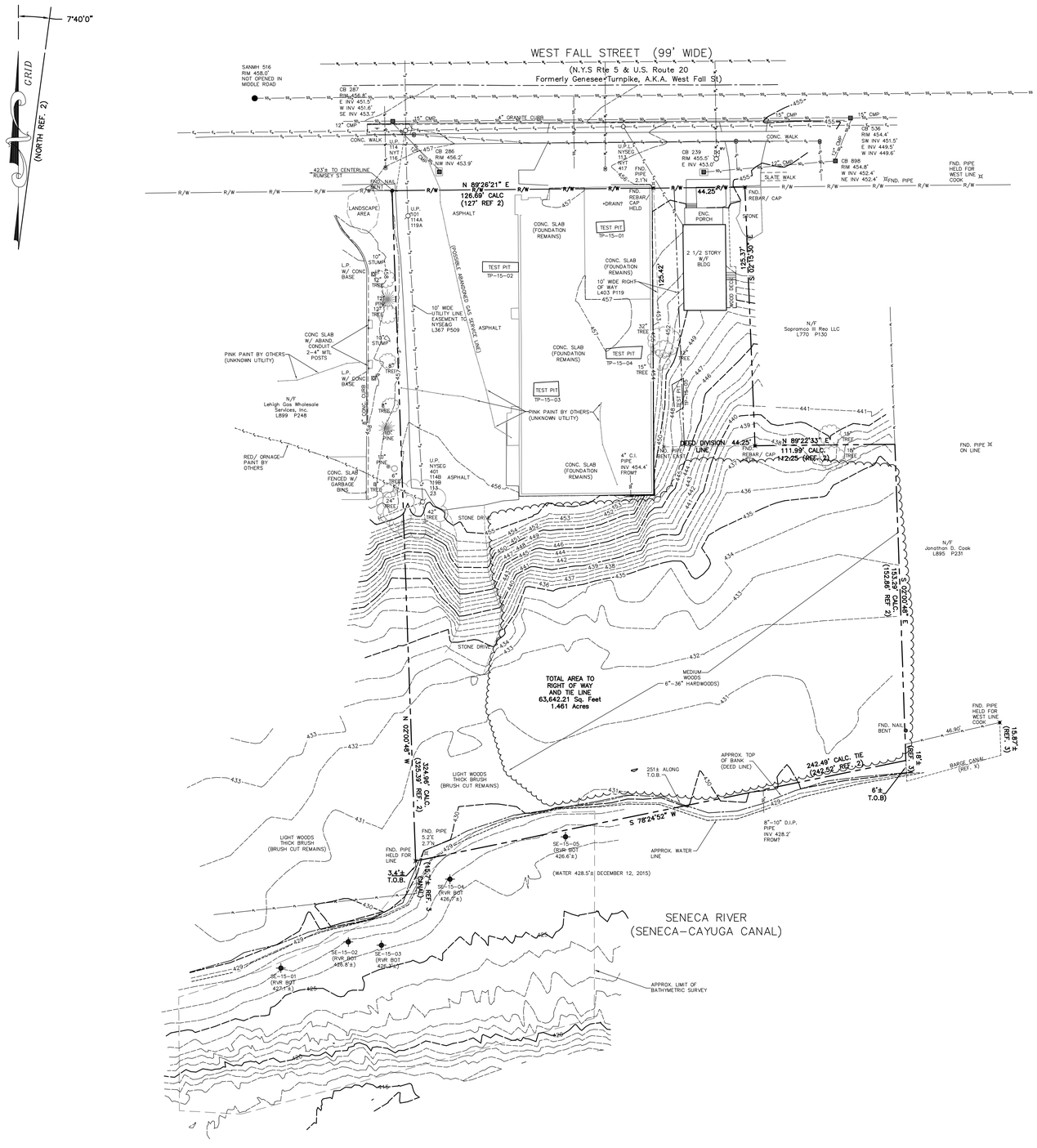
SCALE: AS SHOWN
MARCH 2016

FIGURE 2

LIBBY, PAT
Printed: 3/3/2016 8:23 AM
Layout: ASBLT_PDI_LOCS
G:\34507_SENECA_FALLS\GLOBAL\CAD\DRAWINGS\34507-023-SP+PDI-LOCS.DWG

APPENDIX A

Site Survey Plan



SITE NOTES:

1) Features shown hereon are based on a survey performed November 19 & 20 and December 12 & 19, 2015.

2) Communication, Electric, Water, Unidentified, Drainage and Sanitary are shown based on paint markings and/ or pins by others observed during the field survey and features observed during the field survey. These locations are considered approximate and require verification.

4) Coordinates shown reference NY State Plane Coordinates, NAD83, New York Central Zone, in US Survey feet through ties to exiting control provided by H&A.

5) Elevations shown reference existing control provided by H&A, established by others. It appears to be based on the North American Vertical Datum 1988 (NAVD88).

6) River Bottom contours were obtained though sonar methods utilizing RTK GPS and should be considered approximate and for general bottom grade. River bottom was irregular and bottom was silt and vegetated.

7) Bearings shown hereon based on grid coordinates per note 4 above.

8) Sanitary and water service lines shown running toward foundation remains within the public right of way are based on markings by others and considered approximate. Lines to foundation remains was not apparent or observable during the field survey.

REFERENCES:

1) Map entitled "SURVEY MAP of the premises of WALTER J. & CATHERINE M. SMITHOOVER" by Donald D. Shepherd, dated Febuary 1, 1990, being project No. SF9001-02 and filed in the SCCO Febuary 23, 1990 as MC 70-130.

2) Map entitled "SURVEY MAP of the premises of ROGER E. LEWIS REALTY, INC." by Donald D. Shepherd, dated July 11, 1996, being project No. SF9611-07 and filed in the SCCO September 6, 1996 as MC 96-261.

3) Map entitled "Lands of Federal Home Loan Mortgage Corporation" by Charles E. Carroll dated August 17, 2011, being project No. SF6.262 and filed in the SCCO August 29, 2011 as MC 11-206.

4) Map entitled "Boundary Survey" by by Eardman Anthony dated August 9, 2012, being project No. 19397.01.

8) Other deeds listed hereon.

TITLE:

This Survey was completed with the aid of an abstract by title search for easements by Monroe Abstract & Title Corporation, Abstract No. 22492, Acct. No. 54906 dated October 24, 1989. An updated abstract of title was not provided. Parcel is subject to any easements, restrictions and encumbrances that research beyond that completed may show.

RIGHT OF WAY:

The Right of Way of NY Route 5 & US Route 20 is 99' per referenceds noted. Right of Way Shown based on evidence recovered and references noted.

NOTES:

Survey completed without the benefit of an Abstract of Title and is therfore subject to any easement, restrictions, Covenents and right of way of record.

EASEMENTS:

Parcel is subject to any easement, restrictions, covenents and right of way of record.

LEGEND:

- MONITORING WELL
- DRAINAGE MANHOLE
- SANITARY MANHOLE
- UNKNOWN MAHHOLE
- SOIL BORING
- PAINT MARKINGS (UTILITY BY OTHERS)
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- WATER VALVE
- WATER SERVICE VALVE
- GAS LINE OR SERVICE VALVE
- SIGN
- CATCHBASIN

ABBREVIATIONS:

SV -	SOILD VAPOR
SB -	SOIL BORING
MW -	MONITORING WELL
ENVIR.	ENVIRONMENTAL
CL -	CENTER
MEAS. -	MEASURE
COMB. -	COMBINED
FF -	FINISHED FLOOR
ELE. -	ELECTRIC
N/F -	NOW OR FORMERLY
CONC. -	CONCRETE
UP -	UTILITY POLE
UPL-	UTILITY POLE WITH LIGHT
EP -	EDGE OF PAVEMENT
(TYP.) -	TYPICAL
APPRX.-	APPROXIMATE
FND.-	FOUND
T.O.B.-	TOP OF BANK

- WATER LINE
- OVERHEAD ELECTRIC/ COMMUNICATION LINE
- UNDERGROUND ELECTRIC/ COMMUNICATION LINE
- STORM/ DRAINAGE
- SANITARY
- GAS
- UNKNOWN (PINK PAINT MARKS)
- RIGHT OF WAY
- PROPERTY LINE

0' 30' 60' 90'

HOFFMAN
LAND SURVEYING AND GEOMATICS
540 Packetts Landing Ph: 585.943.5641
Fairport, New York 14450 Fx: 866.614.0136

REVISIONS:	DATE:	BY:

FEATURES SHOWN HEREON ARE BASED ON A FIELD SURVEY PERFORMED IN DECEMBER 2015.

THIS SURVEY WAS PREPARED FOR THE PARTIES AND PURPOSES INDICATED HERON. ANY EXTENSION OF THIS USE BEYOND THE PURPOSE AGREED TO BETWEEN THE CLIENT AND THE SURVEYOR EXCEEDS THE SCOPE OF THIS ENGAGEMENT.

CLIENT:
HALEY AND ALDRICH OF NEW YORK
200 TOWN CENTRE DRIVE
SUITE 2
ROCHESTER, N.Y. 14623

TOPOGRAPHIC AND GEOTECHNICAL SURVEY

DRAWN: LH	DATE: 02/05/16	FORMER NYSE&G COGEN FACILITY 187-189 & 185 FALLS STREET SENECA FALLS, NY
APPROVED:	DATE:	
SCALE: 1" = 30'	SHEET: SV-1	PROJECT NO. 15-029

APPENDIX B

Wetlands Delineation Report

Haley & Aldrich of New York
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

18 January 2016
File No. 34507-023

TO: Doug Allen, Haley & Aldrich
Jim Pippin, Haley & Aldrich

FROM: Jon Becker, Haley & Aldrich

SUBJECT: Wetland and Stream Delineation Letter Report
Seneca Falls Former MGP Site

1. INTRODUCTION

This Wetland and Stream Delineation Report summarizes the results of field work performed by Haley & Aldrich of New York (Haley & Aldrich) to locate and identify wetlands and waterbodies within and immediately adjacent to New York State Electric & Gas Corporation's (NYSEG) Seneca Falls Former Manufactured Gas Plant (MGP) site (the Study Area). The Study Area consists of approximately 1.2 acres and is located between the south side of Fall Street and north side of the Seneca River and Canal within the Village of Seneca Falls, Seneca County, New York as shown on Figure 1.

2. METHODOLOGY

Prior to field investigations, a desktop review of publicly available data sources was conducted. Data consulted included, U.S. Geological Survey topographic quadrangle maps, NYS Department of Environmental Conservation (NYSDEC) Freshwater Wetland Maps, National Wetland Inventory (NWI) maps, Natural Resources Conservation Service (NRCS) County Soil survey, Federal Emergency Management Agency (FEMA) Flood Insurance maps, and the National Hydrography dataset.

The field delineation was performed on 29 October 2015 within the Study Area to identify wetlands and streams. The delineation was performed in accordance with criteria set forth in the U.S. Army Corps of Engineers (USACE) 1987 Corps of Engineers Wetland Delineation Manual (1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0).

Hydrophytic vegetation was assessed by identifying plant species and their assigned wetland indicator rating of obligate, facultative wet, facultative, facultative upland, and upland. Hydric soil was determined by soil features such as color matrix, hue, evidence of redox features which may include indicators like saturation, gleyed matrix, mottling, hydrogen sulfide odor, and organic/peat layers present. Hydrology was determined based on a number of indicators based on the USACE manual.

Additional surface waters, including stream channels and drainage ways, were investigated and characterized. To the extent practicable, these waters were investigated to determine drainage patterns and potential connections to other Waters of the U.S.

3. SITE SETTING

The Study Area encompasses approximately 1.2 acres on two (2) parcels and comprises a former MGP site that borders the Seneca River and Canal within the Village of Seneca Falls, New York (see Figure 1). Topography at the site can be characterized as sloping from Fall Street to a remnant floodplain shelf. According to FEMA mapping the 100 year floodplain is defined by the boundaries of the Seneca River to the south of the Study Area. The formerly developed portion of the former MGP site is occupied by a building floor slab along with a paved parking lot immediately west of the floor slab. This portion of the Study Area is generally flat with an elevation of approximately 456 feet above sea level that steeply slopes south to the remnant floodplain shelf. The remnant shelf located in lower portion of the Study Area has a gentle slope to the south towards the Seneca River and Canal, ranging in elevation from approximately 430 to 433 feet above sea level. Surface drainage (at a macro scale) is believed to be to the south toward the Seneca River and Canal.

According to EPA Watershed mapping, the Study Area is located in the Finger Lakes watershed which is further broken down into the Seneca watershed. According to NYSDEC freshwater wetland mapping, there are no state regulated wetlands mapped within close proximity to the Study Area. According to NWI mapping, only Seneca River (R2UBH) is mapped within close proximity to the Study Area (see Figure 2). The Seneca River is mapped by NYSDEC as a Class C stream.

Mapped soil types within the Study Area (see Figure 2) include Schoharie silty clay loam (ShB). This soil type consists of very deep, moderately well drained soils that are formed in clayey lacustrine sediments.

4. WETLANDS AND STREAMS

The wetland and stream delineation within the Study Area was completed by a qualified Haley & Aldrich wetland scientist on 29 October 2015. Field data forms are provided as Attachment 1 and photographs are provided as Attachment 2. There were no wetlands nor any evidence of hydrology observed within the Study Area. Land cover within the Study Area was found to be predominantly a mixed mesophytic forest. Vegetation within the Study Area was dominated by upland canopy species such as black locust (*Robinia pseudoacacia*) and black walnut (*Juglans nigra*). The shrub layer was found to be dominated by red maple (*Acer rubrum*) saplings, staghorn sumac (*Rhus typhina*), and tartarian honeysuckle (*Lonicera tatarica*). Within the past year the site had been logged which has opened the Study Area up to allow for a large presence of raspberry (*Rubus spp*.) bushes. Also observed in the herbaceous layer was a large presence of garlic mustard (*Alliaria petiolate*), goldenrod spp. (*Solidago spp.*), wild grape (*Vitis vinifera*), and pockets of canary reed grass (*Phalaris arundinacea*).

Upland soils encountered within the Study Area consisted of a fine grained silt loam having a hue of 10YR 3/3. Minor amounts (approximately 5%) of gravel consisting primarily of sandstone were observed throughout the soil sample.

The Seneca River and Canal flows easterly and has an unconsolidated bottom that appears to be heavily silted. Along the Study Area the river is approximately 200 feet wide with no definable bank structure.

REFERENCES

1. Cowardin, L.M., et al. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. 131 pp.

2. Edinger, G.J., et al. 2002. *Ecological Communities of New York State, Second Edition*. New York Heritage Program, NYS Department of Environmental Conservation, Albany, NY, 134 pp.

3. Reschke, Carol. 1990. *Ecological Communities of New York State*. New York Heritage Program, NYS Department of Environmental Conservation, Latham, NY 96 pp. and maps.

4. U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*. Environmental Laboratory, Vicksburg, MS, 92 pp.

5. U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0). U.S. Army Engineer Research and Development Center, Vicksburg, MS, 162 pp.

6. National Wetlands Inventory Wetlands, Electronic Vector Quad Maps of New York, United States Geological Survey.

7. New York State Department of Environmental Conservation Hydrography Network and Water bodies, NYS Hydrologic Units.

8. New York State Department of Environmental Conservation (NYSDEC) website, (http://www.dec.state.ny.us/)

9. Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. (http://websoilsurvey.nrcs.usda.gov/)

LEGEND

STUDY AREA

N
W
E
S

0 600

SCALE IN FEET

BASE MAPPING SOURCE: ESRI (IMAGERY DATED 2013)

HALEY ALDRICH

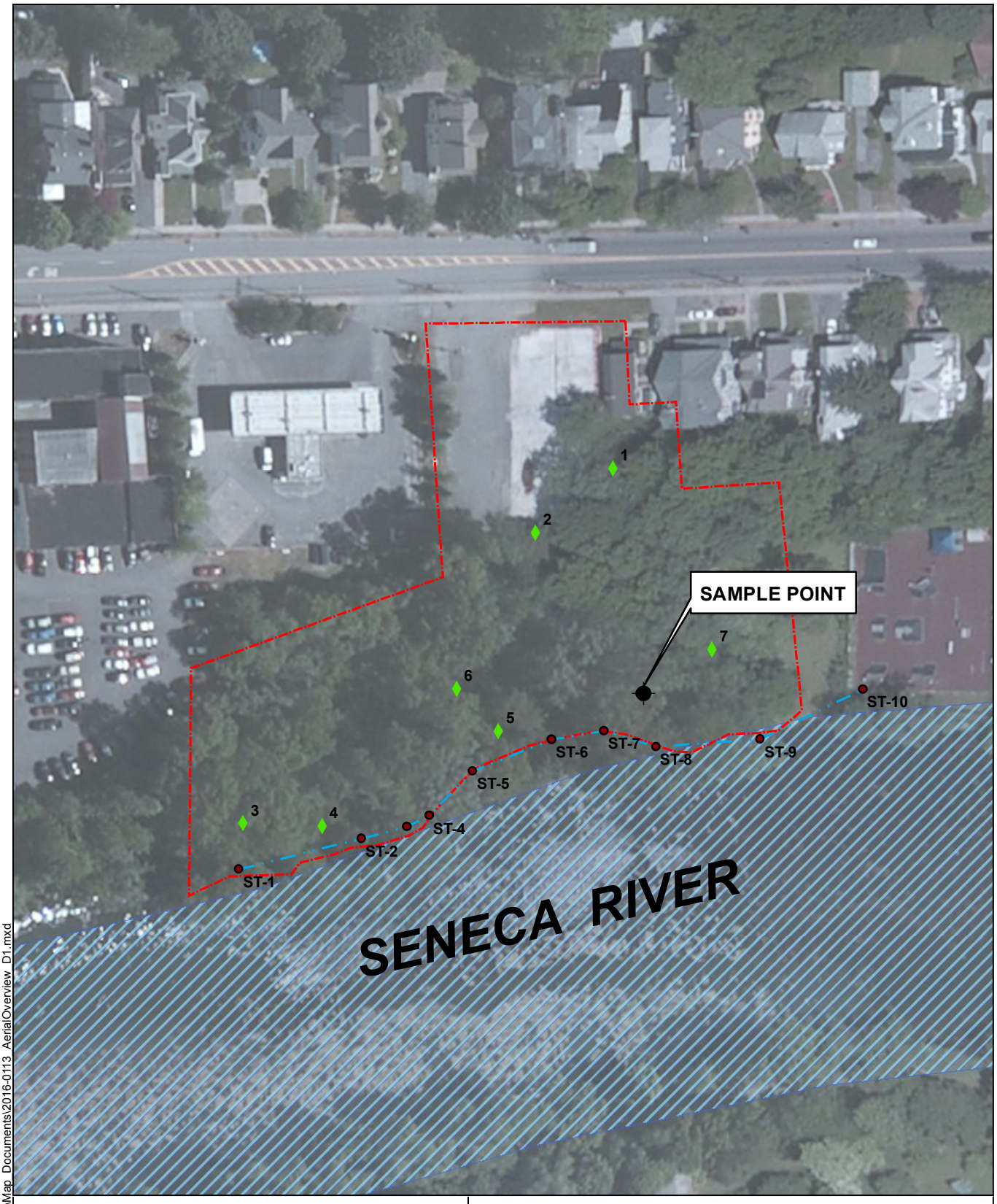
SENECA FALLS FORMER MGP SITE
NEW YORK STATE ELECTRIC & GAS CORPORATION
VILLAGE OF SENECA FALLS, SENECA COUNTY, NEW YORK

AERIAL OVERVIEW

SCALE: AS SHOWN
JANUARY 2016

FIGURE 1

G:\34507_Seneca_Falls\Global\GIS\Map_Documents\2016-0113_ProjectLocation_D1.mxd



LEGEND

- PHOTO LOCATION
- STUDY AREA
- DELINEATED STREAM EDGE
- NWI WETLAND
- DELINEATION FLAG POINT

N
W E
S

0 100

SCALE IN FEET

BASE MAPPING SOURCE: ESRI (IMAGERY DATED 2013)

HALEY ALDRICH

SENECA FALLS FORMER MGP SITE
NEW YORK STATE ELECTRIC & GAS CORPORATION
VILLAGE OF SENECA FALLS, SENECA COUNTY, NEW YORK

AERIAL OVERVIEW

SCALE: AS SHOWN
JANUARY 2016

FIGURE 2

G:\34507_Seneca_Falls\Global\GIS\Map_Documents\2016-0113_AerialOverview_D1.mxd

Attachment 1
Wetland Determination and Stream Inventory Data Forms

HALEY ALDRICH

Stream Inventory Data Form

Project Information

Project Name:	SENECA FALLS FORMER MGP SITE	Observer Name:	J. BELKER
Project Number:	34507-023	Date:	29 OCT 2015
Map Sheet Number:	—	State: NY County:	SENECA
GPS Point No(s).	—	Weather:	RAIN / SUN
Associated Data Sheet No(s).	N/A	Stream Location: (Address, nearest road, structure etc.)	187 FALL ST

Stream Information

Stream Name:	SENECA RIVER	Stream Width:	200 ft. +/-
Perceptible Flow:	Yes (X) No ( )	Water Width:	200 ft. +/-
Direction of Flow:	EAST	Bank to Bank:	ft.
Flow Type:	Perennial (X) Intermittent ( ) Ephemeral ( )	Bankfull Width:	ft.
		Channel Substrate:	SILTY MUCK
Probed Stream Depth:	inches	Observed Water Quality:	STAINED BUT CLEAR

Aquatic Habitat	Wildlife Observed (Species)	Observed Use:
[ ] Sand Bar	[X] Waterfowl	[ ] Drinking
[ ] Sand/Gravel Beach Bar	[X] Fish	[ ] Irrigation
[ ] Mud Bar	[ ] Turtles	[ ] Swimming
[X] Overhanging	[X] Frogs	[X] Fishing
[X] Trees/Shrubs	[ ] Invertebrates	[ ] Drainage
[ ] Cobble Riffles	[ ] Salamanders	[X] Boating
[ ] Deep Ponds/Holes	[ ] Other:	[ ] Other:
[X] Aquatic Vegetation		
[ ] Other		

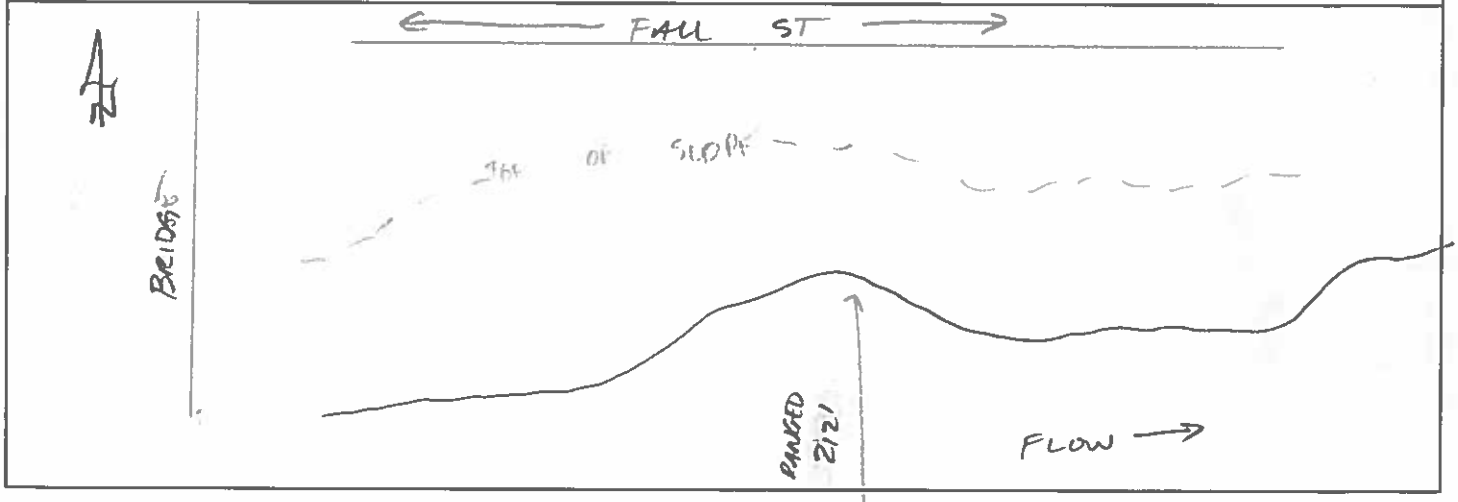
Left Bank Height:	0 – 1	Right Bank Height:	0 – 1
Left Bank Slope:	N/A	Right Bank Slope:	N/A
Bank Substrate:	SILT LOAM	Erosion Potential:	SLIGHT

Stream Inventory Data Form

Stream Information (continued)			Data Sheet No.
Meander:	N/A	Dominant Vegetative Species Type:	
Gradient:	GENTLE		
Adjacent Community Type:	INDUSTRIAL / RESIDENTIAL	Trees:	B. WALNUT B. LOCUST MAPLES (RED, SILVER)
Est. % of Canopy Closure Over Stream Channel:	0 - 5	Shrubs:	HONEYSUCKLE SUMAC
Threatened or Endangered Species Presence:	NONE OBSERVED		
Species Names If Present:		Herbaceous:	G. MUSTARD
Regulatory Status:	IMPAIRED CLASS C		

Notes

Sketch



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: SENECA FALLS MGP City/County: SENECA Sampling Date: 29 OCT 2015

Applicant/Owner: NYSEG State: NY Sampling Point: UPLAND

Investigator(s): J. BECKER Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: Long: Datum: WGS-84

Soil Map Unit Name: SCHOHARIE NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes Y No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ___	Depth (inches):
Water Table Present?	Yes ____	No ___	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ____	No ___	Depth (inches):

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: UPLAND

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. BLACK WALNUT JUGLANS NIGRA	15	Y	FACU
2. BLACK LOCUST ROBINIA PSEUDONIA	15	Y	FACU
3. RED MAPLE ACER RUBRUM	5	N	FAC
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size:)			
1. RED MAPLE ACER RUBRUM	15	Y	FAC
2. STAGHORN SUMAC RHUS TYPHINIA	10	N	UPL
3. HONEY SUCKLE LONICERA TATARICA	15	Y	FACU
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size:)			
1. RASPBERRY SPP. Rubus spp.	10	Y	FACU
2. GOLDENROD SPP. Solidago spp.	5	N	
3. GARLIC MUSTARD ALLIARIA PETIOLATE	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

Woody Vine Stratum (Plot size:)			
1. WILD GRAPE Vitis vinifera	5	N	UPL
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	—	x 1 =	
FACW species	—	x 2 =	
FAC species	2	x 3 =	6
FACU species	5	x 4 =	20
UPL species	2	x 5 =	10
Column Totals:	9 (A)		36 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UPLAND

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 3/3	100					SILT LOAM & SOME GRAVEL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L, M)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes _____ No X

Remarks:

Attachment 2
Delineation Photo Log

Photo 1
View looking southeast towards Seneca River from Fall Street.

Photo 2
View looking south towards Seneca River from southwestern corner of concrete parking lot.

Photo 3
View looking southwest from western corner of Study Area.

Photo 4.
View looking west along Seneca River from western edge of Study Area.

Photo 5
View looking south towards Seneca River from approximate center of Study Area.

Photo 6
View looking east from middle of Study Area.

Photo 7.
View looking east from the eastern portion of the Study Area.

APPENDIX C

Test Pit Logs

HALEY ALDRICH

TEST PIT LOG

Test Pit No. TP-15-01

Project	SENECA FALLS FORMER MGP SITE	**File No.**	34507-023
Location	SENECA FALLS, NEW YORK	**H&A Rep**	R. Lydell
Client	ROCHESTER GAS & ELECTRIC CORP.	**Date**	19 Nov 2015
Contractor	PARRATT-WOLFF	**Weather**	50°F, cloudy
Equipment Used	DEERE 135D EXCAVATOR		

Ground El.: 456.6 (est.) **El. Datum:** NAVD 88 | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** N/A

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		456.2		-CONCRETE-										
		0.4		PID=0.0 ppm										
		456.0		-SUBBASE-										
		0.6		PID=0.0 ppm										
	S1 0.5 - 2.0		SP	Orange brown poorly graded SAND (SP), mps <1 mm, no odor, moist/dry			5	85	5	5				
				-FILL-										
2				PID=0.0 ppm										
		454.1												
		2.5		PID=0.0 ppm										
			ML	Black stained gravelly SILT with sand (ML), mps 3 in., petroleum-like odor, moist/dry	5	10	5	10	5	65				
				PID=0.0 ppm										
4				Brick and debris throughout										
				PID=0.0 ppm										
				Wood fragments with TLM on east side of excavation										
				-FILL-										
				PID=12.3 ppm										
6		450.6												
		6.0	MH	PID=0.0 ppm		5	5	10	5	75				
				Red-brown SILT with sand (MH), mps <1/2 in., no odor, moist/dry										
				PID=0.0 ppm										
				-GLACIAL TILL-										
				PID=0.0 ppm										
8														
				PID=0.0 ppm										
		447.6												
		9.0		BOTTOM OF EXPLORATION 9.0 FT										

Obstructions:

Remarks:
Sample I.D.: TP1501-111915-1440 0.5-2.0 ft.
ISS Sample TP1501 2.0-6.0 ft.

Field Tests

Dilatancy R - Rapid S - Slow N - None
Toughness L - Low M - Medium H - High
Plasticity N - Nonplastic L - Low M - Medium H - High
Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit
at depth ft
measured after hours elapsed

Boulders
Diameter (in.) Number Approx. Vol. (cu.ft)
12 to 24 =
over 24 =

Test Pit Dimensions (ft)
Pit Length x Width (ft)
Pit Depth (ft) 9.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HA TESTPIT-07-1 HA-LIB09-BOS_MAN.GLB HA-TP07-1.GDT G:\34507_SENECA_FALLS\023\FIELD\GINT\2016-0115-HAI-TEST PITS TP15-01_TP15-05.GPJ Jan 26, 16

HALEY ALDRICH

TEST PIT LOG

Test Pit No. TP-15-02

Project	SENECA FALLS FORMER MGP SITE	**File No.**	34507-023
Location	SENECA FALLS, NEW YORK	**H&A Rep**	R. Lydell
Client	ROCHESTER GAS & ELECTRIC CORP.	**Date**	19 Nov 2015
Contractor	PARRATT-WOLFF	**Weather**	50°F, cloudy
Equipment Used	DEERE 135D EXCAVATOR		

Ground El.: 456.6 (est.) **El. Datum:** NAVD 88 | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** N/A

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		456.2		-ASPHALT- PID=0.0 ppm										
		0.4		-SUBBASE PID=0.0 ppm										
		456.0	SP	Black stained poorly graded SAND (SP), mps <1 mm, no odor, moist/dry, brick and debris throughout, occasional glass and tile PID=0.0 ppm			10	80	5	5				
1	S1 0.5 - 2.0	0.6												
2				-FILL- PID=0.0 ppm										
3														
		453.1												
		3.5	MH	Red-brown SILT with sand (MH), mps <1/2 in., no odor, moist/dry		5	5	10	5	75				
4				-GLACIAL TILL- PID=0.0 ppm										
5														
6				PID=0.0 ppm										
				PID=0.0 ppm										
7		449.6												
		7.0		BOTTOM OF EXPLORATION 7.0 FT										
				West side of excavation 5 ft bgs concrete structure with water. Concrete structure approximately 4.0 ft in diameter. Water at least 15.0 ft deep. Possible former MGP structure.										

Obstructions:

Remarks:
Sample I.D.: TP1502-111915-1320 0.5-2.0 ft.

Field Tests

Dilatancy	R - Rapid S - Slow N - None
Toughness	L - Low M - Medium H - High
Plasticity	N - Nonplastic L - Low M - Medium H - High
Dry Strength	N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit
at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)
Pit Length x Width (ft)
Pit Depth (ft) 7.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HA TESTPIT-07-1 HA-LIB09-BOS_MAN.GLB HA-TP07-1.GDT G:\34507_SENECA_FALLS\023\FIELD\GINT\2016-0115-HAI-TEST PITS TP15-01_TP15-05.GPJ Jan 26, 16

HALEY ALDRICH

TEST PIT LOG

Test Pit No. TP-15-03

Project	SENECA FALLS FORMER MGP SITE
Location	SENECA FALLS, NEW YORK
Client	ROCHESTER GAS & ELECTRIC CORP.
Contractor	PARRATT-WOLFF
Equipment Used	DEERE 135D EXCAVATOR
File No.	34507-023
H&A Rep	R. Lydell
Date	19 Nov 2015
Weather	50°F, cloudy

Ground El.: 456.6 (est.) **El. Datum:** NAVD 88 | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** Water entering excavation at 8.0 ft bgs

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		456.2		-CONCRETE- PID=0.0 ppm										
		0.4		-SUBBASE- PID=0.0 ppm										
	S1 0.5 - 2.0	456.0 0.6	SP	Orange-brown poorly graded SAND (SP), mps <1 mm, no odor, moist/dry PID=0.0 ppm			5	85	5	5				
2				-FILL- PID=0.0 ppm										
4				PID=0.0 ppm										
6				PID=0.0 ppm										
	S2 6.0 - 8.0			Wet at 8.0 ft, water flowing into excavation PID=0.0 ppm										
8		448.6 8.0	MH	Red-brown SILT with sand (MH), mps 1/2 in., no odor, moist/dry PID=0.0 ppm		5	5	10	5	75				
10		446.6 10.0		BOTTOM OF EXPLORATION 10.0 FT										

Obstructions:

Remarks:
Sample I.D.: TP1503-111915-1530 0.5 - 2.0 ft
TP1503-111915-1545 6.0 - 8.0 ft.
ISS Sample: TP1503 2.0 - 8.0 ft.

Field Tests

Dilatancy	R - Rapid S - Slow N - None
Toughness	L - Low M - Medium H - High
Plasticity	N - Nonplastic L - Low M - Medium H - High
Dry Strength	N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit
at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)
Pit Length x Width (ft)
Pit Depth (ft) 10.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HA TESTPIT-07-1 HA-LIB09-BOS_MAN.GLB HA-TP07-1.GDT G:\34507_SENECA_FALLS\023\FIELD\GINT\2016-0115-HAI-TEST PITS TP15-01_TP15-05.GPJ Jan 26, 16

HALEY ALDRICH

TEST PIT LOG

Test Pit No. TP-15-04

Project	SENECA FALLS FORMER MGP SITE	**File No.**	34507-023
Location	SENECA FALLS, NEW YORK	**H&A Rep**	R. Lydell
Client	ROCHESTER GAS & ELECTRIC CORP.	**Date**	19 Nov 2015
Contractor	PARRATT-WOLFF	**Weather**	50°F, cloudy
Equipment Used	DEERE 135D EXCAVATOR		

Ground El.: 456.6 (est.) **El. Datum:** NAVD 88 | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** N/A

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Field Tests Toughness	Field Tests Plasticity	Field Tests Strength
0		456.2		-CONCRETE- PID=0.0 ppm										
		0.4		-SUBBASE- PID=0.0 ppm										
	S1 0.0 - 1.5	456.0 0.6	SP	Orange-brown poorly graded SAND (SP), mps <1 mm, no odor, moist/dry PID=0.0 ppm			5	85	5	5				
2				-FILL- PID=0.0 ppm										
				PID=0.0 ppm										
		452.6												
4		4.0	ML	Black stained gravelly SILT with sand (ML), mps 3 in., no odor, moist/dry PID=0.0 ppm	5	10	5	10	5	65	S	L	N	L
				CLM and ALM throughout PID=0.0 ppm										
6				-FILL- PID=0.0 ppm										
		449.6												
		7.0	MH	Red-brown SILT with sand (MH), mps <1/2 in., no odor, moist/dry		5	5	10	5	75	N	M	L	M
8				-GLACIAL TILL- PID=0.0 ppm										
		447.6												
		9.0		BOTTOM OF EXPLORATION 9.0 FT										

Obstructions:

Remarks:
Sample I.D.: TP1504-111915-1145 0.5 - 2.0 ft.
ISS Sample: TP1504 2.0 - 7.0 ft.

Field Tests

Dilatancy	R - Rapid S - Slow N - None
Toughness	L - Low M - Medium H - High
Plasticity	N - Nonplastic L - Low M - Medium H - High
Dry Strength	N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit
at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)
Pit Length x Width (ft)
Pit Depth (ft) 9.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HA TESTPIT-07-1 HA-LIB09-BOS_MAN.GLB HA-TP07-1.GDT G:\34507_SENECA_FALLS\023\FIELD\GINT\2016-0115-HAI-TEST PITS TP15-01_TP15-05.GPJ Jan 26, 16

HALEY ALDRICH

TEST PIT LOG

Test Pit No. TP-15-05

Project	SENECA FALLS FORMER MGP SITE	**File No.**	34507-023
Location	SENECA FALLS, NEW YORK	**H&A Rep**	R. Lydell
Client	ROCHESTER GAS & ELECTRIC CORP.	**Date**	20 Nov 2015
Contractor	PARRATT-WOLFF	**Weather**	45°F, clear
Equipment Used	DEERE 135D EXCAVATOR		

Ground El.: 456.6 (est.) **El. Datum:** NAVD 88 | **Location:** See Plan | **Groundwater depths/entry rates (in./min.):** N/A

Depth (ft)	Sample ID	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0			SP- SM	Brown poorly graded SAND with silt (SP-SM), mps 2 in., no odor, moist/dry	5	5	10	60	10	10				
				-TOPSOIL-										
				PID=0.0 ppm										
1	S1 0.0 - 2.0													
		455.1 1.5		White layer, no odor										
				Possible crushed concrete/construction debris										
				PID=0.0 ppm										
2		454.6 2.0	SP- SM	Black stained poorly graded SAND with silt (SP-SM), mps <1/2 in., no odor, brick and construction material throughout		10	20	50	10	10				
				Occasional clay pipe, CLM and ALM										
				-FILL-										
3														
4		452.6 4.0	MH	Red-brown SILT with sand (MH), mps <1/2 in., no odor, moist/dry		5	5	10	5	75				
				-GLACIAL TILL-										
5		451.6 5.0		BOTTOM OF EXPLORATION 5.0 FT										

Obstructions:

Remarks:
Sample I.D.: TP1505-112015-0900 0 - 2.0 ft.

Field Tests

Dilatancy R - Rapid S - Slow N - None
Toughness L - Low M - Medium H - High
Plasticity N - Nonplastic L - Low M - Medium H - High
Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit

at depth ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft)
Pit Depth (ft) 5.0

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

APPENDIX D

Soil and Sediment Analytical Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-91340-1
Client Project/Site: RG&E Seneca Falls MGP Site

For:
Haley & Aldrich, Inc.
3 Bedford Farms Drive
Beford, New Hampshire 03110

Attn: Douglas C. Allen

Melissa Deyo

Authorized for release by:
12/3/2015 4:02:08 PM

Melissa Deyo, Project Manager I
(716)504-9874
melissa.deyo@testamericainc.com

Table of Contents

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-91340-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-91340-1

Receipt
The samples were received on 11/19/2015 2:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.6º C and 0.9º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted due to the nature of the TCLP matrix: SE1501-111815-1100 (480-91340-1), SE1502-111815-1130 (480-91340-2), SE1504-111815-1215 (480-91340-3), SE1503-111815-1300 (480-91340-4) and SE1505-111815-1330 (480-91340-5). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-277733 recovered above the upper control limit for Carbon Tetrachloride and 1,1-Dichloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SE1501-111815-1100 (480-91340-1), SE1502-111815-1130 (480-91340-2), SE1504-111815-1215 (480-91340-3), SE1503-111815-1300 (480-91340-4) and SE1505-111815-1330 (480-91340-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270D: The continuing calibration verification (CCV) analyzed in batch 480-276397 was outside the method criteria for the following analyte(s): Pentachlorophenol. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) 8082A: Decachlorobiphenyl surrogate recovery for the following sample was outside control limits: SE1504-111815-1215 (480-91340-3). Matrix interference is suspected and Tetrachloro-m-xylene was within control limits; therefore, re-extraction and re-analysis were not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method(s) 9045C, 9045D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: SE1501-111815-1100 (480-91340-1), SE1502-111815-1130 (480-91340-2), SE1504-111815-1215 (480-91340-3), SE1503-111815-1300 (480-91340-4) and SE1505-111815-1330 (480-91340-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 480-275832 and analytical batch 480-276163.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Client Sample ID: SE1501-111815-1100 — Lab Sample ID: 480-91340-1

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0092	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.47	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0012	J	0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.41		0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	7.47	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: SE1502-111815-1130 — Lab Sample ID: 480-91340-2

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	failed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
3-Methylphenol	0.00088	J	0.010	0.00040	mg/L	1		8270D	TCLP
4-Methylphenol	0.00088	J	0.010	0.00036	mg/L	1		8270D	TCLP
Arsenic	0.012	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.65	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0026		0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	1.4		0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.01	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: SE1504-111815-1215 — Lab Sample ID: 480-91340-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.033		0.010	0.0041	mg/L	10		8260C	TCLP
Arsenic	0.011	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.86	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0071		0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.31		0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	7.69	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: SE1503-111815-1300 — Lab Sample ID: 480-91340-4

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0071	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.94	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0011	J	0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.30		0.020	0.0030	mg/L	1		6010C	TCLP

This Detection Summary does not include radiochemical test results.

Client Sample ID: SE1503-111815-1300 (Continued) — Lab Sample ID: 480-91340-4

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.26	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: SE1505-111815-1330 — Lab Sample ID: 480-91340-5

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0069	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.54	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0085		0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.017	J	0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	7.74	HF	0.100	0.100	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SE1501-111815-1100
Date Collected: 11/18/15 11:00
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-1
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/02/15 13:53	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/02/15 13:53	10
Benzene	ND		0.010	0.0041	mg/L			12/02/15 13:53	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/02/15 13:53	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/02/15 13:53	10
Chloroform	ND		0.010	0.0034	mg/L			12/02/15 13:53	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/02/15 13:53	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/02/15 13:53	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/02/15 13:53	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/02/15 13:53	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*66 - 137*		*12/02/15 13:53*	*10*
4-Bromofluorobenzene (Surr)	*82*		*73 - 120*		*12/02/15 13:53*	*10*
Toluene-d8 (Surr)	*92*		*71 - 126*		*12/02/15 13:53*	*10*
Dibromofluoromethane (Surr)	*117*		*60 - 140*		*12/02/15 13:53*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 14:02	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 14:02	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 14:02	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 14:02	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 14:02	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 14:02	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 14:02	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 14:02	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 14:02	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 14:02	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 14:02	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 14:02	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*91*		*52 - 132*	*11/20/15 12:54*	*11/23/15 14:02*	*1*
2-Fluorobiphenyl	*91*		*48 - 120*	*11/20/15 12:54*	*11/23/15 14:02*	*1*
2-Fluorophenol (Surr)	*49*		*20 - 120*	*11/20/15 12:54*	*11/23/15 14:02*	*1*
Nitrobenzene-d5 (Surr)	*80*		*46 - 120*	*11/20/15 12:54*	*11/23/15 14:02*	*1*
p-Terphenyl-d14 (Surr)	*99*		*67 - 150*	*11/20/15 12:54*	*11/23/15 14:02*	*1*
Phenol-d5 (Surr)	*36*		*16 - 120*	*11/20/15 12:54*	*11/23/15 14:02*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0092**	**J**	0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 02:08	1
Barium	**0.47**	**J**	1.0	0.10	mg/L		11/20/15 11:10	11/21/15 02:08	1
Cadmium	**0.0012**	**J**	0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 02:08	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 02:08	1
Lead	**0.41**		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 02:08	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 02:08	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 02:08	1

Client Sample ID: SE1501-111815-1100

Lab Sample ID: 480-91340-1
Date Collected: 11/18/15 11:00
Matrix: Solid
Date Received: 11/19/15 02:15

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:49	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/21/15 17:47	1
Cyanide, Reactive	ND		9.8	9.8	mg/Kg		11/19/15 05:15	11/19/15 14:47	1
Sulfide, Reactive	ND		9.8	9.8	mg/Kg		11/19/15 05:15	11/19/15 14:36	1
pH	**7.47**	**HF**	0.100	0.100	SU			11/23/15 20:00	1

Client Sample ID: SE1501-111815-1100

Lab Sample ID: 480-91340-1
Date Collected: 11/18/15 11:00
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 54.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.41	0.081	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1221	ND		0.41	0.081	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1232	ND		0.41	0.081	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1242	ND		0.41	0.081	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1248	ND		0.41	0.081	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1254	ND		0.41	0.19	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1
PCB-1260	ND		0.41	0.19	mg/Kg	☼	11/20/15 08:12	11/21/15 02:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*89*		*60 - 154*	*11/20/15 08:12*	*11/21/15 02:15*	*1*
DCB Decachlorobiphenyl	*67*		*65 - 174*	*11/20/15 08:12*	*11/21/15 02:15*	*1*

Client Sample ID: SE1502-111815-1130

Lab Sample ID: 480-91340-2
Date Collected: 11/18/15 11:30
Matrix: Solid
Date Received: 11/19/15 02:15

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/02/15 14:21	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/02/15 14:21	10
Benzene	ND		0.010	0.0041	mg/L			12/02/15 14:21	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/02/15 14:21	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/02/15 14:21	10
Chloroform	ND		0.010	0.0034	mg/L			12/02/15 14:21	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/02/15 14:21	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/02/15 14:21	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/02/15 14:21	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/02/15 14:21	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*66 - 137*		*12/02/15 14:21*	*10*
4-Bromofluorobenzene (Surr)	*82*		*73 - 120*		*12/02/15 14:21*	*10*
Toluene-d8 (Surr)	*92*		*71 - 126*		*12/02/15 14:21*	*10*

Client Sample ID: SE1502-111815-1130
Date Collected: 11/18/15 11:30
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-2
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*117*		*60 - 140*		*12/02/15 14:21*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 14:29	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 14:29	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 14:29	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 14:29	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 14:29	1
3-Methylphenol	**0.00088**	**J**	0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 14:29	1
4-Methylphenol	**0.00088**	**J**	0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 14:29	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 14:29	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 14:29	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 14:29	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 14:29	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 14:29	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 14:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*105*		*52 - 132*	*11/20/15 12:54*	*11/23/15 14:29*	*1*
2-Fluorobiphenyl	*102*		*48 - 120*	*11/20/15 12:54*	*11/23/15 14:29*	*1*
2-Fluorophenol (Surr)	*58*		*20 - 120*	*11/20/15 12:54*	*11/23/15 14:29*	*1*
Nitrobenzene-d5 (Surr)	*92*		*46 - 120*	*11/20/15 12:54*	*11/23/15 14:29*	*1*
p-Terphenyl-d14 (Surr)	*107*		*67 - 150*	*11/20/15 12:54*	*11/23/15 14:29*	*1*
Phenol-d5 (Surr)	*40*		*16 - 120*	*11/20/15 12:54*	*11/23/15 14:29*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.012**	**J**	0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 02:11	1
Barium	**0.65**	**J**	1.0	0.10	mg/L		11/20/15 11:10	11/21/15 02:11	1
Cadmium	**0.0026**		0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 02:11	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 02:11	1
Lead	**1.4**		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 02:11	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 02:11	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 02:11	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:51	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**failed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/21/15 17:47	1
Cyanide, Reactive	ND		9.8	9.8	mg/Kg		11/19/15 05:15	11/19/15 14:51	1
Sulfide, Reactive	ND		9.8	9.8	mg/Kg		11/19/15 05:15	11/19/15 14:36	1
pH	**8.01**	**HF**	0.100	0.100	SU			11/23/15 20:00	1

Client Sample ID: SE1502-111815-1130

Lab Sample ID: 480-91340-2
Date Collected: 11/18/15 11:30
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 71.1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.34	0.066	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1221	ND		0.34	0.066	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1232	ND		0.34	0.066	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1242	ND		0.34	0.066	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1248	ND		0.34	0.066	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1254	ND		0.34	0.16	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1
PCB-1260	ND		0.34	0.16	mg/Kg	☼	11/20/15 08:12	11/21/15 02:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*79*		*60 - 154*	*11/20/15 08:12*	*11/21/15 02:31*	*1*
DCB Decachlorobiphenyl	*65*		*65 - 174*	*11/20/15 08:12*	*11/21/15 02:31*	*1*

Client Sample ID: SE1504-111815-1215

Lab Sample ID: 480-91340-3
Date Collected: 11/18/15 12:15
Matrix: Solid
Date Received: 11/19/15 02:15

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/02/15 14:48	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/02/15 14:48	10
Benzene	**0.033**		0.010	0.0041	mg/L			12/02/15 14:48	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/02/15 14:48	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/02/15 14:48	10
Chloroform	ND		0.010	0.0034	mg/L			12/02/15 14:48	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/02/15 14:48	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/02/15 14:48	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/02/15 14:48	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/02/15 14:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*66 - 137*		*12/02/15 14:48*	*10*
4-Bromofluorobenzene (Surr)	*83*		*73 - 120*		*12/02/15 14:48*	*10*
Toluene-d8 (Surr)	*90*		*71 - 126*		*12/02/15 14:48*	*10*
Dibromofluoromethane (Surr)	*114*		*60 - 140*		*12/02/15 14:48*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 14:55	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 14:55	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 14:55	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 14:55	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 14:55	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 14:55	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 14:55	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 14:55	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 14:55	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 14:55	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 14:55	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 14:55	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 14:55	1

Client Sample ID: SE1504-111815-1215

Lab Sample ID: 480-91340-3

Date Collected: 11/18/15 12:15

Matrix: Solid

Date Received: 11/19/15 02:15

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*99*		*52 - 132*	*11/20/15 12:54*	*11/23/15 14:55*	*1*
2-Fluorobiphenyl	*93*		*48 - 120*	*11/20/15 12:54*	*11/23/15 14:55*	*1*
2-Fluorophenol (Surr)	*54*		*20 - 120*	*11/20/15 12:54*	*11/23/15 14:55*	*1*
Nitrobenzene-d5 (Surr)	*85*		*46 - 120*	*11/20/15 12:54*	*11/23/15 14:55*	*1*
p-Terphenyl-d14 (Surr)	*107*		*67 - 150*	*11/20/15 12:54*	*11/23/15 14:55*	*1*
Phenol-d5 (Surr)	*37*		*16 - 120*	*11/20/15 12:54*	*11/23/15 14:55*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.011**	**J**	0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 02:24	1
Barium	**0.86**	**J**	1.0	0.10	mg/L		11/20/15 11:10	11/21/15 02:24	1
Cadmium	**0.0071**		0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 02:24	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 02:24	1
Lead	**0.31**		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 02:24	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 02:24	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 02:24	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:53	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/21/15 17:47	1
Cyanide, Reactive	ND		9.6	9.6	mg/Kg		11/19/15 05:15	11/19/15 14:53	1
Sulfide, Reactive	ND		9.6	9.6	mg/Kg		11/19/15 05:15	11/19/15 14:36	1
pH	**7.69**	**HF**	0.100	0.100	SU			11/23/15 20:00	1

Client Sample ID: SE1504-111815-1215

Lab Sample ID: 480-91340-3

Date Collected: 11/18/15 12:15

Matrix: Solid

Date Received: 11/19/15 02:15

Percent Solids: 59.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.39	0.075	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1221	ND		0.39	0.075	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1232	ND		0.39	0.075	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1242	ND		0.39	0.075	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1248	ND		0.39	0.075	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1254	ND		0.39	0.18	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1
PCB-1260	ND		0.39	0.18	mg/Kg	☼	11/20/15 08:12	11/21/15 02:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*60 - 154*	*11/20/15 08:12*	*11/21/15 02:47*	*1*
DCB Decachlorobiphenyl	*53*	*X*	*65 - 174*	*11/20/15 08:12*	*11/21/15 02:47*	*1*

Client Sample ID: SE1503-111815-1300
Date Collected: 11/18/15 13:00
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-4
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/02/15 15:16	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/02/15 15:16	10
Benzene	ND		0.010	0.0041	mg/L			12/02/15 15:16	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/02/15 15:16	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/02/15 15:16	10
Chloroform	ND		0.010	0.0034	mg/L			12/02/15 15:16	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/02/15 15:16	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/02/15 15:16	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/02/15 15:16	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/02/15 15:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*66 - 137*		*12/02/15 15:16*	*10*
4-Bromofluorobenzene (Surr)	*84*		*73 - 120*		*12/02/15 15:16*	*10*
Toluene-d8 (Surr)	*92*		*71 - 126*		*12/02/15 15:16*	*10*
Dibromofluoromethane (Surr)	*117*		*60 - 140*		*12/02/15 15:16*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 15:21	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 15:21	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 15:21	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 15:21	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 15:21	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 15:21	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 15:21	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 15:21	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 15:21	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 15:21	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 15:21	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 15:21	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*104*		*52 - 132*	*11/20/15 12:54*	*11/23/15 15:21*	*1*
2-Fluorobiphenyl	*101*		*48 - 120*	*11/20/15 12:54*	*11/23/15 15:21*	*1*
2-Fluorophenol (Surr)	*54*		*20 - 120*	*11/20/15 12:54*	*11/23/15 15:21*	*1*
Nitrobenzene-d5 (Surr)	*87*		*46 - 120*	*11/20/15 12:54*	*11/23/15 15:21*	*1*
p-Terphenyl-d14 (Surr)	*103*		*67 - 150*	*11/20/15 12:54*	*11/23/15 15:21*	*1*
Phenol-d5 (Surr)	*38*		*16 - 120*	*11/20/15 12:54*	*11/23/15 15:21*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0071**	**J**	0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 02:28	1
Barium	**0.94**	**J**	1.0	0.10	mg/L		11/20/15 11:10	11/21/15 02:28	1
Cadmium	**0.0011**	**J**	0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 02:28	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 02:28	1
Lead	**0.30**		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 02:28	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 02:28	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 02:28	1

Client Sample ID: SE1503-111815-1300

Lab Sample ID: 480-91340-4
Date Collected: 11/18/15 13:00
Matrix: Solid
Date Received: 11/19/15 02:15

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:55	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/21/15 17:47	1
Cyanide, Reactive	ND		9.7	9.7	mg/Kg		11/19/15 05:15	11/19/15 14:54	1
Sulfide, Reactive	ND		9.7	9.7	mg/Kg		11/19/15 05:15	11/19/15 14:36	1
pH	**8.26**	**HF**	0.100	0.100	SU			11/23/15 20:00	1

Client Sample ID: SE1503-111815-1300

Lab Sample ID: 480-91340-4
Date Collected: 11/18/15 13:00
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 67.1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.31	0.061	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1221	ND		0.31	0.061	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1232	ND		0.31	0.061	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1242	ND		0.31	0.061	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1248	ND		0.31	0.061	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1254	ND		0.31	0.15	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1
PCB-1260	ND		0.31	0.15	mg/Kg	☼	11/20/15 08:12	11/21/15 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*60 - 154*	*11/20/15 08:12*	*11/21/15 03:03*	*1*
DCB Decachlorobiphenyl	*81*		*65 - 174*	*11/20/15 08:12*	*11/21/15 03:03*	*1*

Client Sample ID: SE1505-111815-1330

Lab Sample ID: 480-91340-5
Date Collected: 11/18/15 13:30
Matrix: Solid
Date Received: 11/19/15 02:15

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/02/15 15:43	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/02/15 15:43	10
Benzene	ND		0.010	0.0041	mg/L			12/02/15 15:43	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/02/15 15:43	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/02/15 15:43	10
Chloroform	ND		0.010	0.0034	mg/L			12/02/15 15:43	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/02/15 15:43	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/02/15 15:43	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/02/15 15:43	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/02/15 15:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*66 - 137*		*12/02/15 15:43*	*10*
4-Bromofluorobenzene (Surr)	*82*		*73 - 120*		*12/02/15 15:43*	*10*
Toluene-d8 (Surr)	*92*		*71 - 126*		*12/02/15 15:43*	*10*

Client Sample ID: SE1505-111815-1330
Date Collected: 11/18/15 13:30
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-5
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*118*		*60 - 140*		*12/02/15 15:43*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 15:48	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 15:48	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 15:48	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 15:48	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 15:48	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 15:48	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 15:48	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 15:48	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 15:48	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 15:48	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 15:48	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 15:48	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*96*		*52 - 132*	*11/20/15 12:54*	*11/23/15 15:48*	*1*
2-Fluorobiphenyl	*96*		*48 - 120*	*11/20/15 12:54*	*11/23/15 15:48*	*1*
2-Fluorophenol (Surr)	*53*		*20 - 120*	*11/20/15 12:54*	*11/23/15 15:48*	*1*
Nitrobenzene-d5 (Surr)	*85*		*46 - 120*	*11/20/15 12:54*	*11/23/15 15:48*	*1*
p-Terphenyl-d14 (Surr)	*98*		*67 - 150*	*11/20/15 12:54*	*11/23/15 15:48*	*1*
Phenol-d5 (Surr)	*36*		*16 - 120*	*11/20/15 12:54*	*11/23/15 15:48*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0069**	**J**	0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 02:31	1
Barium	**0.54**	**J**	1.0	0.10	mg/L		11/20/15 11:10	11/21/15 02:31	1
Cadmium	**0.0085**		0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 02:31	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 02:31	1
Lead	**0.017**	**J**	0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 02:31	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 02:31	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 02:31	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:57	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/21/15 17:47	1
Cyanide, Reactive	ND		9.5	9.5	mg/Kg		11/19/15 05:15	11/19/15 14:56	1
Sulfide, Reactive	ND		9.5	9.5	mg/Kg		11/19/15 05:15	11/19/15 14:36	1
pH	**7.74**	**HF**	0.100	0.100	SU			11/23/15 20:00	1

Client Sample ID: SE1505-111815-1330
Date Collected: 11/18/15 13:30
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-5
Matrix: Solid
Percent Solids: 71.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.33	0.065	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1221	ND		0.33	0.065	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1232	ND		0.33	0.065	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1242	ND		0.33	0.065	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1248	ND		0.33	0.065	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1254	ND		0.33	0.16	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1
PCB-1260	ND		0.33	0.16	mg/Kg	☼	11/20/15 08:12	11/21/15 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*90*		*60 - 154*	*11/20/15 08:12*	*11/21/15 03:18*	*1*
DCB Decachlorobiphenyl	*71*		*65 - 174*	*11/20/15 08:12*	*11/21/15 03:18*	*1*

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
LCS 480-276789/4	Lab Control Sample	93	107	95	104
LCS 480-277733/4	Lab Control Sample	104	92	97	106
MB 480-276789/6	Method Blank	97	98	90	111
MB 480-277733/6	Method Blank	113	85	94	117

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
480-91340-1	SE1501-111815-1100	117	82	92	117
480-91340-2	SE1502-111815-1130	113	82	92	117
480-91340-3	SE1504-111815-1215	113	83	90	114
480-91340-4	SE1503-111815-1300	114	84	92	117
480-91340-5	SE1505-111815-1330	117	82	92	118
LB 480-275834/1-A	Method Blank	100	96	93	110

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
LCS 480-276163/2-A	Lab Control Sample	104	97	54	88	106	38
LCSD 480-276163/3-A	Lab Control Sample Dup	103	94	53	83	104	38
MB 480-276163/1-A	Method Blank	81	82	42	69	101	30

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
480-91340-1	SE1501-111815-1100	91	91	49	80	99	36
480-91340-2	SE1502-111815-1130	105	102	58	92	107	40
480-91340-3	SE1504-111815-1215	99	93	54	85	107	37
480-91340-4	SE1503-111815-1300	104	101	54	87	103	38
480-91340-5	SE1505-111815-1330	96	96	53	85	98	36
LB 480-275832/1-D	Method Blank	111	107	58	93	115	41

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCB2
Lab Sample ID	Client Sample ID	(60-154)	(65-174)
480-91340-1	SE1501-111815-1100	89	67
480-91340-2	SE1502-111815-1130	79	65
480-91340-3	SE1504-111815-1215	70	53 X
480-91340-4	SE1503-111815-1300	69	81
480-91340-5	SE1505-111815-1330	90	71
LCS 480-276052/2-A	Lab Control Sample	108	117
MB 480-276052/1-A	Method Blank	99	103

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-276789/6
Matrix: Solid
Analysis Batch: 276789

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			11/25/15 00:22	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			11/25/15 00:22	1
Benzene	ND		0.0010	0.00041	mg/L			11/25/15 00:22	1
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			11/25/15 00:22	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			11/25/15 00:22	1
Chloroform	ND		0.0010	0.00034	mg/L			11/25/15 00:22	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			11/25/15 00:22	1
Trichloroethene	ND		0.0010	0.00046	mg/L			11/25/15 00:22	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			11/25/15 00:22	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			11/25/15 00:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*66 - 137*		*11/25/15 00:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*11/25/15 00:22*	*1*
Toluene-d8 (Surr)	*90*		*71 - 126*		*11/25/15 00:22*	*1*
Dibromofluoromethane (Surr)	*111*		*60 - 140*		*11/25/15 00:22*	*1*

Lab Sample ID: LCS 480-276789/4
Matrix: Solid
Analysis Batch: 276789

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.0250	0.0233		mg/L		93	75 - 127
2-Butanone (MEK)	0.125	0.131		mg/L		105	57 - 140
Benzene	0.0250	0.0244		mg/L		97	71 - 124
Carbon tetrachloride	0.0250	0.0263		mg/L		105	72 - 134
Chlorobenzene	0.0250	0.0248		mg/L		99	72 - 120
Chloroform	0.0250	0.0248		mg/L		99	73 - 127
Tetrachloroethene	0.0250	0.0280		mg/L		112	74 - 122
Trichloroethene	0.0250	0.0258		mg/L		103	74 - 123
Vinyl chloride	0.0250	0.0217		mg/L		87	65 - 133
1,1-Dichloroethene	0.0250	0.0252		mg/L		101	58 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*66 - 137*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*
Toluene-d8 (Surr)	*95*		*71 - 126*
Dibromofluoromethane (Surr)	*104*		*60 - 140*

Lab Sample ID: MB 480-277733/6
Matrix: Solid
Analysis Batch: 277733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			12/02/15 11:27	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			12/02/15 11:27	1
Benzene	ND		0.0010	0.00041	mg/L			12/02/15 11:27	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-277733/6
Matrix: Solid
Analysis Batch: 277733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			12/02/15 11:27	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			12/02/15 11:27	1
Chloroform	ND		0.0010	0.00034	mg/L			12/02/15 11:27	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			12/02/15 11:27	1
Trichloroethene	ND		0.0010	0.00046	mg/L			12/02/15 11:27	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			12/02/15 11:27	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			12/02/15 11:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*66 - 137*		*12/02/15 11:27*	*1*
4-Bromofluorobenzene (Surr)	*85*		*73 - 120*		*12/02/15 11:27*	*1*
Toluene-d8 (Surr)	*94*		*71 - 126*		*12/02/15 11:27*	*1*
Dibromofluoromethane (Surr)	*117*		*60 - 140*		*12/02/15 11:27*	*1*

Lab Sample ID: LCS 480-277733/4
Matrix: Solid
Analysis Batch: 277733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.0250	0.0259		mg/L		104	75 - 127
2-Butanone (MEK)	0.125	0.130		mg/L		104	57 - 140
Benzene	0.0250	0.0262		mg/L		105	71 - 124
Carbon tetrachloride	0.0250	0.0309		mg/L		124	72 - 134
Chlorobenzene	0.0250	0.0251		mg/L		100	72 - 120
Chloroform	0.0250	0.0257		mg/L		103	73 - 127
Tetrachloroethene	0.0250	0.0259		mg/L		104	74 - 122
Trichloroethene	0.0250	0.0262		mg/L		105	74 - 123
Vinyl chloride	0.0250	0.0271		mg/L		108	65 - 133
1,1-Dichloroethene	0.0250	0.0286		mg/L		115	58 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*66 - 137*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*
Toluene-d8 (Surr)	*97*		*71 - 126*
Dibromofluoromethane (Surr)	*106*		*60 - 140*

Lab Sample ID: LB 480-275834/1-A
Matrix: Solid
Analysis Batch: 276789

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			11/25/15 00:49	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			11/25/15 00:49	10
Benzene	ND		0.010	0.0041	mg/L			11/25/15 00:49	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			11/25/15 00:49	10
Chlorobenzene	ND		0.010	0.0075	mg/L			11/25/15 00:49	10
Chloroform	ND		0.010	0.0034	mg/L			11/25/15 00:49	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			11/25/15 00:49	10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 480-275834/1-A
Matrix: Solid
Analysis Batch: 276789

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		0.010	0.0046	mg/L			11/25/15 00:49	10
Vinyl chloride	ND		0.010	0.0090	mg/L			11/25/15 00:49	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			11/25/15 00:49	10

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*11/25/15 00:49*	*10*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*11/25/15 00:49*	*10*
Toluene-d8 (Surr)	*93*		*71 - 126*		*11/25/15 00:49*	*10*
Dibromofluoromethane (Surr)	*110*		*60 - 140*		*11/25/15 00:49*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-276163/1-A
Matrix: Solid
Analysis Batch: 276397

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276163

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0025	0.00012	mg/L		11/20/15 12:54	11/23/15 10:32	1
2,4-Dinitrotoluene	ND		0.0013	0.00011	mg/L		11/20/15 12:54	11/23/15 10:32	1
2,4,5-Trichlorophenol	ND		0.0013	0.00012	mg/L		11/20/15 12:54	11/23/15 10:32	1
2,4,6-Trichlorophenol	ND		0.0013	0.00015	mg/L		11/20/15 12:54	11/23/15 10:32	1
2-Methylphenol	ND		0.0013	0.00010	mg/L		11/20/15 12:54	11/23/15 10:32	1
3-Methylphenol	ND		0.0025	0.00010	mg/L		11/20/15 12:54	11/23/15 10:32	1
4-Methylphenol	ND		0.0025	0.000090	mg/L		11/20/15 12:54	11/23/15 10:32	1
Hexachlorobenzene	ND		0.0013	0.00013	mg/L		11/20/15 12:54	11/23/15 10:32	1
Hexachlorobutadiene	ND		0.0013	0.00017	mg/L		11/20/15 12:54	11/23/15 10:32	1
Hexachloroethane	ND		0.0013	0.00015	mg/L		11/20/15 12:54	11/23/15 10:32	1
Nitrobenzene	ND		0.0013	0.000073	mg/L		11/20/15 12:54	11/23/15 10:32	1
Pentachlorophenol	ND		0.0025	0.00055	mg/L		11/20/15 12:54	11/23/15 10:32	1
Pyridine	ND		0.0063	0.00010	mg/L		11/20/15 12:54	11/23/15 10:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*81*		*52 - 132*	*11/20/15 12:54*	*11/23/15 10:32*	*1*
2-Fluorobiphenyl	*82*		*48 - 120*	*11/20/15 12:54*	*11/23/15 10:32*	*1*
2-Fluorophenol (Surr)	*42*		*20 - 120*	*11/20/15 12:54*	*11/23/15 10:32*	*1*
Nitrobenzene-d5 (Surr)	*69*		*46 - 120*	*11/20/15 12:54*	*11/23/15 10:32*	*1*
p-Terphenyl-d14 (Surr)	*101*		*67 - 150*	*11/20/15 12:54*	*11/23/15 10:32*	*1*
Phenol-d5 (Surr)	*30*		*16 - 120*	*11/20/15 12:54*	*11/23/15 10:32*	*1*

Lab Sample ID: LCS 480-276163/2-A
Matrix: Solid
Analysis Batch: 276397

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	0.0500	0.0286		mg/L		57	32 - 120
2,4-Dinitrotoluene	0.0500	0.0519		mg/L		104	65 - 154
2,4,5-Trichlorophenol	0.0500	0.0496		mg/L		99	65 - 126

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-276163/2-A
Matrix: Solid
Analysis Batch: 276397

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,6-Trichlorophenol	0.0500	0.0500		mg/L		100	64 - 120
2-Methylphenol	0.0500	0.0383		mg/L		77	39 - 120
3-Methylphenol	0.0500	0.0360		mg/L		72	39 - 120
4-Methylphenol	0.0500	0.0360		mg/L		72	39 - 120
Hexachlorobenzene	0.0500	0.0493		mg/L		99	14 - 130
Hexachlorobutadiene	0.0500	0.0298		mg/L		60	14 - 130
Hexachloroethane	0.0500	0.0235		mg/L		47	14 - 130
Nitrobenzene	0.0500	0.0429		mg/L		86	45 - 123
Pentachlorophenol	0.100	0.0866		mg/L		87	39 - 136
Pyridine	0.0500	0.0204		mg/L		41	10 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*104*		*52 - 132*
2-Fluorobiphenyl	*97*		*48 - 120*
2-Fluorophenol (Surr)	*54*		*20 - 120*
Nitrobenzene-d5 (Surr)	*88*		*46 - 120*
p-Terphenyl-d14 (Surr)	*106*		*67 - 150*
Phenol-d5 (Surr)	*38*		*16 - 120*

Lab Sample ID: LCSD 480-276163/3-A
Matrix: Solid
Analysis Batch: 276397

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276163

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.0500	0.0275		mg/L		55	32 - 120	4	36
2,4-Dinitrotoluene	0.0500	0.0516		mg/L		103	65 - 154	1	20
2,4,5-Trichlorophenol	0.0500	0.0492		mg/L		98	65 - 126	1	18
2,4,6-Trichlorophenol	0.0500	0.0485		mg/L		97	64 - 120	3	19
2-Methylphenol	0.0500	0.0389		mg/L		78	39 - 120	2	27
3-Methylphenol	0.0500	0.0366		mg/L		73	39 - 120	2	30
4-Methylphenol	0.0500	0.0366		mg/L		73	39 - 120	2	24
Hexachlorobenzene	0.0500	0.0483		mg/L		97	14 - 130	2	15
Hexachlorobutadiene	0.0500	0.0278		mg/L		56	14 - 130	7	44
Hexachloroethane	0.0500	0.0220		mg/L		44	14 - 130	7	46
Nitrobenzene	0.0500	0.0409		mg/L		82	45 - 123	5	24
Pentachlorophenol	0.100	0.0826		mg/L		83	39 - 136	5	37
Pyridine	0.0500	0.0230		mg/L		46	10 - 120	12	49

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*103*		*52 - 132*
2-Fluorobiphenyl	*94*		*48 - 120*
2-Fluorophenol (Surr)	*53*		*20 - 120*
Nitrobenzene-d5 (Surr)	*83*		*46 - 120*
p-Terphenyl-d14 (Surr)	*104*		*67 - 150*
Phenol-d5 (Surr)	*38*		*16 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 480-275832/1-D
Matrix: Solid
Analysis Batch: 276397

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276163

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/20/15 12:54	11/23/15 12:17	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/20/15 12:54	11/23/15 12:17	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/20/15 12:54	11/23/15 12:17	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/20/15 12:54	11/23/15 12:17	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/20/15 12:54	11/23/15 12:17	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/20/15 12:54	11/23/15 12:17	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/20/15 12:54	11/23/15 12:17	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/20/15 12:54	11/23/15 12:17	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/20/15 12:54	11/23/15 12:17	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/20/15 12:54	11/23/15 12:17	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/20/15 12:54	11/23/15 12:17	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/20/15 12:54	11/23/15 12:17	1
Pyridine	ND		0.025	0.00041	mg/L		11/20/15 12:54	11/23/15 12:17	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*111*		*52 - 132*	*11/20/15 12:54*	*11/23/15 12:17*	*1*
2-Fluorobiphenyl	*107*		*48 - 120*	*11/20/15 12:54*	*11/23/15 12:17*	*1*
2-Fluorophenol (Surr)	*58*		*20 - 120*	*11/20/15 12:54*	*11/23/15 12:17*	*1*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*11/20/15 12:54*	*11/23/15 12:17*	*1*
p-Terphenyl-d14 (Surr)	*115*		*67 - 150*	*11/20/15 12:54*	*11/23/15 12:17*	*1*
Phenol-d5 (Surr)	*41*		*16 - 120*	*11/20/15 12:54*	*11/23/15 12:17*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-276052/1-A
Matrix: Solid
Analysis Batch: 276208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276052

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.19	0.038	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1221	ND		0.19	0.038	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1232	ND		0.19	0.038	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1242	ND		0.19	0.038	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1248	ND		0.19	0.038	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1254	ND		0.19	0.091	mg/Kg		11/20/15 08:12	11/20/15 22:48	1
PCB-1260	ND		0.19	0.091	mg/Kg		11/20/15 08:12	11/20/15 22:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*99*		*60 - 154*	*11/20/15 08:12*	*11/20/15 22:48*	*1*
DCB Decachlorobiphenyl	*103*		*65 - 174*	*11/20/15 08:12*	*11/20/15 22:48*	*1*

Lab Sample ID: LCS 480-276052/2-A
Matrix: Solid
Analysis Batch: 276208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276052

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	2.35	2.50		mg/Kg		106	51 - 185

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 480-276052/2-A
Matrix: Solid
Analysis Batch: 276208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276052

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1260			2.35	2.68		mg/Kg		114	61 - 184		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*108*		*60 - 154*
DCB Decachlorobiphenyl	*117*		*65 - 174*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-276110/2-A
Matrix: Solid
Analysis Batch: 276291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 01:47	1
Barium	ND		1.0	0.10	mg/L		11/20/15 11:10	11/21/15 01:47	1
Cadmium	ND		0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 01:47	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 01:47	1
Lead	ND		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 01:47	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 01:47	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 01:47	1

Lab Sample ID: LCS 480-276110/3-A
Matrix: Solid
Analysis Batch: 276291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276110

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			1.00	1.08		mg/L		108	80 - 120		
Barium			1.00	1.05		mg/L		105	80 - 120		
Cadmium			1.00	1.03		mg/L		103	80 - 120		
Chromium			1.00	1.02		mg/L		102	80 - 120		
Lead			1.00	1.02		mg/L		102	80 - 120		
Selenium			1.00	1.07		mg/L		107	80 - 120		
Silver			1.00	1.08		mg/L		108	80 - 120		

Lab Sample ID: LCSD 480-276110/16-A
Matrix: Solid
Analysis Batch: 276291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276110

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic			1.00	1.10		mg/L		110	80 - 120	2	20
Barium			1.00	1.08		mg/L		108	80 - 120	3	20
Cadmium			1.00	1.05		mg/L		105	80 - 120	1	20
Chromium			1.00	1.04		mg/L		104	80 - 120	1	20
Lead			1.00	1.02		mg/L		102	80 - 120	1	20
Selenium			1.00	1.09		mg/L		109	80 - 120	2	20
Silver			1.00	1.09		mg/L		109	80 - 120	1	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LB 480-275832/1-B
Matrix: Solid
Analysis Batch: 276291

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276110

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/20/15 11:10	11/21/15 01:44	1
Barium	ND		1.0	0.10	mg/L		11/20/15 11:10	11/21/15 01:44	1
Cadmium	ND		0.0020	0.00050	mg/L		11/20/15 11:10	11/21/15 01:44	1
Chromium	ND		0.020	0.010	mg/L		11/20/15 11:10	11/21/15 01:44	1
Lead	ND		0.020	0.0030	mg/L		11/20/15 11:10	11/21/15 01:44	1
Selenium	ND		0.025	0.0087	mg/L		11/20/15 11:10	11/21/15 01:44	1
Silver	ND		0.0060	0.0017	mg/L		11/20/15 11:10	11/21/15 01:44	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-276128/2-A
Matrix: Solid
Analysis Batch: 276275

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276128

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:35	1

Lab Sample ID: LCS 480-276128/3-A
Matrix: Solid
Analysis Batch: 276275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276128

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00668	0.00745		mg/L		112	80 - 120

Lab Sample ID: LB 480-275832/1-C
Matrix: Solid
Analysis Batch: 276275

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276128

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/20/15 11:30	11/20/15 15:33	1

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 480-276347/1
Matrix: Solid
Analysis Batch: 276347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	82.00		Degrees F		101	97.5 - 102.5

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 480-275920/1-A
Matrix: Solid
Analysis Batch: 275965

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275920

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	10.0	mg/Kg		11/19/15 05:15	11/19/15 14:34	1

Lab Sample ID: LCS 480-275920/2-A
Matrix: Solid
Analysis Batch: 275965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 275920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Reactive	1000	385.0		mg/Kg		39	10 - 100

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 480-275922/1-A
Matrix: Solid
Analysis Batch: 275957

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275922

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		10.0	10.0	mg/Kg		11/19/15 05:15	11/19/15 14:36	1

Lab Sample ID: LCS 480-275922/2-A
Matrix: Solid
Analysis Batch: 275957

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 275922

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide, Reactive	1000	340.6		mg/Kg		34	10 - 100

Method: 9045D - pH

Lab Sample ID: LCS 480-276578/1
Matrix: Solid
Analysis Batch: 276578

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.030		SU		100	99 - 101

Lab Sample ID: 480-91340-4 DU
Matrix: Solid
Analysis Batch: 276578

Client Sample ID: SE1503-111815-1300
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	8.26	HF	8.260		SU		0	5

Method: 9095B - Paint Filter

Lab Sample ID: 480-91340-3 DU
Matrix: Solid
Analysis Batch: 276547

Client Sample ID: SE1504-111815-1215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Free Liquid	passed			passed		mL/100g				NC	

GC/MS VOA

Leach Batch: 275834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	1311	
480-91340-2	SE1502-111815-1130	TCLP	Solid	1311	
480-91340-3	SE1504-111815-1215	TCLP	Solid	1311	
480-91340-4	SE1503-111815-1300	TCLP	Solid	1311	
480-91340-5	SE1505-111815-1330	TCLP	Solid	1311	
LB 480-275834/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 276789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 480-275834/1-A	Method Blank	TCLP	Solid	8260C	275834
LCS 480-276789/4	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-276789/6	Method Blank	Total/NA	Solid	8260C	

Analysis Batch: 277733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	8260C	275834
480-91340-2	SE1502-111815-1130	TCLP	Solid	8260C	275834
480-91340-3	SE1504-111815-1215	TCLP	Solid	8260C	275834
480-91340-4	SE1503-111815-1300	TCLP	Solid	8260C	275834
480-91340-5	SE1505-111815-1330	TCLP	Solid	8260C	275834
LCS 480-277733/4	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-277733/6	Method Blank	Total/NA	Solid	8260C	

GC/MS Semi VOA

Leach Batch: 275832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	1311	
480-91340-2	SE1502-111815-1130	TCLP	Solid	1311	
480-91340-3	SE1504-111815-1215	TCLP	Solid	1311	
480-91340-4	SE1503-111815-1300	TCLP	Solid	1311	
480-91340-5	SE1505-111815-1330	TCLP	Solid	1311	
LB 480-275832/1-D	Method Blank	TCLP	Solid	1311	

Prep Batch: 276163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	3510C	275832
480-91340-2	SE1502-111815-1130	TCLP	Solid	3510C	275832
480-91340-3	SE1504-111815-1215	TCLP	Solid	3510C	275832
480-91340-4	SE1503-111815-1300	TCLP	Solid	3510C	275832
480-91340-5	SE1505-111815-1330	TCLP	Solid	3510C	275832
LB 480-275832/1-D	Method Blank	TCLP	Solid	3510C	275832
LCS 480-276163/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 480-276163/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	
MB 480-276163/1-A	Method Blank	Total/NA	Solid	3510C	

Analysis Batch: 276397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	8270D	276163
480-91340-2	SE1502-111815-1130	TCLP	Solid	8270D	276163

GC/MS Semi VOA (Continued)

Analysis Batch: 276397 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-3	SE1504-111815-1215	TCLP	Solid	8270D	276163
480-91340-4	SE1503-111815-1300	TCLP	Solid	8270D	276163
480-91340-5	SE1505-111815-1330	TCLP	Solid	8270D	276163
LB 480-275832/1-D	Method Blank	TCLP	Solid	8270D	276163
LCS 480-276163/2-A	Lab Control Sample	Total/NA	Solid	8270D	276163
LCSD 480-276163/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	276163
MB 480-276163/1-A	Method Blank	Total/NA	Solid	8270D	276163

GC Semi VOA

Prep Batch: 276052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	3550C	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	3550C	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	3550C	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	3550C	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	3550C	
LCS 480-276052/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 480-276052/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 276208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	8082A	276052
480-91340-2	SE1502-111815-1130	Total/NA	Solid	8082A	276052
480-91340-3	SE1504-111815-1215	Total/NA	Solid	8082A	276052
480-91340-4	SE1503-111815-1300	Total/NA	Solid	8082A	276052
480-91340-5	SE1505-111815-1330	Total/NA	Solid	8082A	276052
LCS 480-276052/2-A	Lab Control Sample	Total/NA	Solid	8082A	276052
MB 480-276052/1-A	Method Blank	Total/NA	Solid	8082A	276052

Metals

Leach Batch: 275832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	1311	
480-91340-2	SE1502-111815-1130	TCLP	Solid	1311	
480-91340-3	SE1504-111815-1215	TCLP	Solid	1311	
480-91340-4	SE1503-111815-1300	TCLP	Solid	1311	
480-91340-5	SE1505-111815-1330	TCLP	Solid	1311	
LB 480-275832/1-B	Method Blank	TCLP	Solid	1311	
LB 480-275832/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 276110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	3010A	275832
480-91340-2	SE1502-111815-1130	TCLP	Solid	3010A	275832
480-91340-3	SE1504-111815-1215	TCLP	Solid	3010A	275832
480-91340-4	SE1503-111815-1300	TCLP	Solid	3010A	275832
480-91340-5	SE1505-111815-1330	TCLP	Solid	3010A	275832
LB 480-275832/1-B	Method Blank	TCLP	Solid	3010A	275832

Metals (Continued)

Prep Batch: 276110 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-276110/3-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 480-276110/16-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
MB 480-276110/2-A	Method Blank	Total/NA	Solid	3010A	

Prep Batch: 276128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	7470A	275832
480-91340-2	SE1502-111815-1130	TCLP	Solid	7470A	275832
480-91340-3	SE1504-111815-1215	TCLP	Solid	7470A	275832
480-91340-4	SE1503-111815-1300	TCLP	Solid	7470A	275832
480-91340-5	SE1505-111815-1330	TCLP	Solid	7470A	275832
LB 480-275832/1-C	Method Blank	TCLP	Solid	7470A	275832
LCS 480-276128/3-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 480-276128/2-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 276275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	7470A	276128
480-91340-2	SE1502-111815-1130	TCLP	Solid	7470A	276128
480-91340-3	SE1504-111815-1215	TCLP	Solid	7470A	276128
480-91340-4	SE1503-111815-1300	TCLP	Solid	7470A	276128
480-91340-5	SE1505-111815-1330	TCLP	Solid	7470A	276128
LB 480-275832/1-C	Method Blank	TCLP	Solid	7470A	276128
LCS 480-276128/3-A	Lab Control Sample	Total/NA	Solid	7470A	276128
MB 480-276128/2-A	Method Blank	Total/NA	Solid	7470A	276128

Analysis Batch: 276291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	TCLP	Solid	6010C	276110
480-91340-2	SE1502-111815-1130	TCLP	Solid	6010C	276110
480-91340-3	SE1504-111815-1215	TCLP	Solid	6010C	276110
480-91340-4	SE1503-111815-1300	TCLP	Solid	6010C	276110
480-91340-5	SE1505-111815-1330	TCLP	Solid	6010C	276110
LB 480-275832/1-B	Method Blank	TCLP	Solid	6010C	276110
LCS 480-276110/3-A	Lab Control Sample	Total/NA	Solid	6010C	276110
LCSD 480-276110/16-A	Lab Control Sample Dup	Total/NA	Solid	6010C	276110
MB 480-276110/2-A	Method Blank	Total/NA	Solid	6010C	276110

General Chemistry

Prep Batch: 275920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	7.3.3	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	7.3.3	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	7.3.3	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	7.3.3	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	7.3.3	
LCS 480-275920/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
MB 480-275920/1-A	Method Blank	Total/NA	Solid	7.3.3	

General Chemistry (Continued)

Prep Batch: 275922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	7.3.4	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	7.3.4	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	7.3.4	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	7.3.4	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	7.3.4	
LCS 480-275922/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
MB 480-275922/1-A	Method Blank	Total/NA	Solid	7.3.4	

Analysis Batch: 275957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	9034	275922
480-91340-2	SE1502-111815-1130	Total/NA	Solid	9034	275922
480-91340-3	SE1504-111815-1215	Total/NA	Solid	9034	275922
480-91340-4	SE1503-111815-1300	Total/NA	Solid	9034	275922
480-91340-5	SE1505-111815-1330	Total/NA	Solid	9034	275922
LCS 480-275922/2-A	Lab Control Sample	Total/NA	Solid	9034	275922
MB 480-275922/1-A	Method Blank	Total/NA	Solid	9034	275922

Analysis Batch: 275965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	9012	275920
480-91340-2	SE1502-111815-1130	Total/NA	Solid	9012	275920
480-91340-3	SE1504-111815-1215	Total/NA	Solid	9012	275920
480-91340-4	SE1503-111815-1300	Total/NA	Solid	9012	275920
480-91340-5	SE1505-111815-1330	Total/NA	Solid	9012	275920
LCS 480-275920/2-A	Lab Control Sample	Total/NA	Solid	9012	275920
MB 480-275920/1-A	Method Blank	Total/NA	Solid	9012	275920

Analysis Batch: 276017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	Moisture	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	Moisture	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	Moisture	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	Moisture	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	Moisture	

Analysis Batch: 276347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	1010A	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	1010A	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	1010A	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	1010A	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	1010A	
LCS 480-276347/1	Lab Control Sample	Total/NA	Solid	1010A	

Analysis Batch: 276547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	9095B	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	9095B	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	9095B	
480-91340-3 DU	SE1504-111815-1215	Total/NA	Solid	9095B	

General Chemistry (Continued)

Analysis Batch: 276547 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-4	SE1503-111815-1300	Total/NA	Solid	9095B	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	9095B	

Analysis Batch: 276578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91340-1	SE1501-111815-1100	Total/NA	Solid	9045D	
480-91340-2	SE1502-111815-1130	Total/NA	Solid	9045D	
480-91340-3	SE1504-111815-1215	Total/NA	Solid	9045D	
480-91340-4	SE1503-111815-1300	Total/NA	Solid	9045D	
480-91340-4 DU	SE1503-111815-1300	Total/NA	Solid	9045D	
480-91340-5	SE1505-111815-1330	Total/NA	Solid	9045D	
LCS 480-276578/1	Lab Control Sample	Total/NA	Solid	9045D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Client Sample ID: SE1501-111815-1100
Lab Sample ID: 480-91340-1
Date Collected: 11/18/15 11:00
Matrix: Solid
Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275834	11/19/15 08:51	JLS	TAL BUF
TCLP	Analysis	8260C		10	277733	12/02/15 13:53	GVF	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3510C			276163	11/20/15 12:54	CPH	TAL BUF
TCLP	Analysis	8270D		1	276397	11/23/15 14:02	CAS	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3010A			276110	11/20/15 11:10	KJ1	TAL BUF
TCLP	Analysis	6010C		1	276291	11/21/15 02:08	AMH	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	7470A			276128	11/20/15 11:30	JRK	TAL BUF
TCLP	Analysis	7470A		1	276275	11/20/15 15:49	JRK	TAL BUF
Total/NA	Analysis	1010A		1	276347	11/21/15 17:47	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			275920	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9012		1	275965	11/19/15 14:47	KMF	TAL BUF
Total/NA	Prep	7.3.4			275922	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9034		1	275957	11/19/15 14:36	KMF	TAL BUF
Total/NA	Analysis	9045D		1	276578	11/23/15 20:00	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276017	11/19/15 20:54	CMK	TAL BUF

Client Sample ID: SE1501-111815-1100
Lab Sample ID: 480-91340-1
Date Collected: 11/18/15 11:00
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 54.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276052	11/20/15 08:12	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276208	11/21/15 02:15	KS	TAL BUF

Client Sample ID: SE1502-111815-1130
Lab Sample ID: 480-91340-2
Date Collected: 11/18/15 11:30
Matrix: Solid
Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275834	11/19/15 08:51	JLS	TAL BUF
TCLP	Analysis	8260C		10	277733	12/02/15 14:21	GVF	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3510C			276163	11/20/15 12:54	CPH	TAL BUF
TCLP	Analysis	8270D		1	276397	11/23/15 14:29	CAS	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3010A			276110	11/20/15 11:10	KJ1	TAL BUF
TCLP	Analysis	6010C		1	276291	11/21/15 02:11	AMH	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	7470A			276128	11/20/15 11:30	JRK	TAL BUF

Client Sample ID: SE1502-111815-1130

Lab Sample ID: 480-91340-2

Date Collected: 11/18/15 11:30

Matrix: Solid

Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Analysis	7470A		1	276275	11/20/15 15:51	JRK	TAL BUF
Total/NA	Analysis	1010A		1	276347	11/21/15 17:47	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			275920	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9012		1	275965	11/19/15 14:51	KMF	TAL BUF
Total/NA	Prep	7.3.4			275922	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9034		1	275957	11/19/15 14:36	KMF	TAL BUF
Total/NA	Analysis	9045D		1	276578	11/23/15 20:00	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276017	11/19/15 20:54	CMK	TAL BUF

Client Sample ID: SE1502-111815-1130

Lab Sample ID: 480-91340-2

Date Collected: 11/18/15 11:30

Matrix: Solid

Date Received: 11/19/15 02:15

Percent Solids: 71.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276052	11/20/15 08:12	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276208	11/21/15 02:31	KS	TAL BUF

Client Sample ID: SE1504-111815-1215

Lab Sample ID: 480-91340-3

Date Collected: 11/18/15 12:15

Matrix: Solid

Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275834	11/19/15 08:51	JLS	TAL BUF
TCLP	Analysis	8260C		10	277733	12/02/15 14:48	GVF	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3510C			276163	11/20/15 12:54	CPH	TAL BUF
TCLP	Analysis	8270D		1	276397	11/23/15 14:55	CAS	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3010A			276110	11/20/15 11:10	KJ1	TAL BUF
TCLP	Analysis	6010C		1	276291	11/21/15 02:24	AMH	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	7470A			276128	11/20/15 11:30	JRK	TAL BUF
TCLP	Analysis	7470A		1	276275	11/20/15 15:53	JRK	TAL BUF
Total/NA	Analysis	1010A		1	276347	11/21/15 17:47	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			275920	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9012		1	275965	11/19/15 14:53	KMF	TAL BUF
Total/NA	Prep	7.3.4			275922	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9034		1	275957	11/19/15 14:36	KMF	TAL BUF
Total/NA	Analysis	9045D		1	276578	11/23/15 20:00	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276017	11/19/15 20:54	CMK	TAL BUF

Client Sample ID: SE1504-111815-1215

Lab Sample ID: 480-91340-3
Date Collected: 11/18/15 12:15
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 59.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276052	11/20/15 08:12	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276208	11/21/15 02:47	KS	TAL BUF

Client Sample ID: SE1503-111815-1300

Lab Sample ID: 480-91340-4
Date Collected: 11/18/15 13:00
Matrix: Solid
Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275834	11/19/15 08:51	JLS	TAL BUF
TCLP	Analysis	8260C		10	277733	12/02/15 15:16	GVF	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3510C			276163	11/20/15 12:54	CPH	TAL BUF
TCLP	Analysis	8270D		1	276397	11/23/15 15:21	CAS	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3010A			276110	11/20/15 11:10	KJ1	TAL BUF
TCLP	Analysis	6010C		1	276291	11/21/15 02:28	AMH	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	7470A			276128	11/20/15 11:30	JRK	TAL BUF
TCLP	Analysis	7470A		1	276275	11/20/15 15:55	JRK	TAL BUF
Total/NA	Analysis	1010A		1	276347	11/21/15 17:47	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			275920	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9012		1	275965	11/19/15 14:54	KMF	TAL BUF
Total/NA	Prep	7.3.4			275922	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9034		1	275957	11/19/15 14:36	KMF	TAL BUF
Total/NA	Analysis	9045D		1	276578	11/23/15 20:00	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276017	11/19/15 20:54	CMK	TAL BUF

Client Sample ID: SE1503-111815-1300

Lab Sample ID: 480-91340-4
Date Collected: 11/18/15 13:00
Matrix: Solid
Date Received: 11/19/15 02:15
Percent Solids: 67.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276052	11/20/15 08:12	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276208	11/21/15 03:03	KS	TAL BUF

Client Sample ID: SE1505-111815-1330

Lab Sample ID: 480-91340-5
Date Collected: 11/18/15 13:30
Matrix: Solid
Date Received: 11/19/15 02:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275834	11/19/15 08:51	JLS	TAL BUF
TCLP	Analysis	8260C		10	277733	12/02/15 15:43	GVF	TAL BUF

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Client Sample ID: SE1505-111815-1330
Date Collected: 11/18/15 13:30
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3510C			276163	11/20/15 12:54	CPH	TAL BUF
TCLP	Analysis	8270D		1	276397	11/23/15 15:48	CAS	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	3010A			276110	11/20/15 11:10	KJ1	TAL BUF
TCLP	Analysis	6010C		1	276291	11/21/15 02:31	AMH	TAL BUF
TCLP	Leach	1311			275832	11/19/15 08:48	JLS	TAL BUF
TCLP	Prep	7470A			276128	11/20/15 11:30	JRK	TAL BUF
TCLP	Analysis	7470A		1	276275	11/20/15 15:57	JRK	TAL BUF
Total/NA	Analysis	1010A		1	276347	11/21/15 17:47	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			275920	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9012		1	275965	11/19/15 14:56	KMF	TAL BUF
Total/NA	Prep	7.3.4			275922	11/19/15 05:15	KMF	TAL BUF
Total/NA	Analysis	9034		1	275957	11/19/15 14:36	KMF	TAL BUF
Total/NA	Analysis	9045D		1	276578	11/23/15 20:00	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276017	11/19/15 20:54	CMK	TAL BUF

Client Sample ID: SE1505-111815-1330
Date Collected: 11/18/15 13:30
Date Received: 11/19/15 02:15

Lab Sample ID: 480-91340-5
Matrix: Solid
Percent Solids: 71.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276052	11/20/15 08:12	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276208	11/21/15 03:18	KS	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury
9012	7.3.3	Solid	Cyanide, Reactive
9034	7.3.4	Solid	Sulfide, Reactive
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL BUF
9012	Cyanide, Reactive	SW846	TAL BUF
9034	Sulfide, Reactive	SW846	TAL BUF
9045D	pH	SW846	TAL BUF
9095B	Paint Filter	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91340-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-91340-1	SE1501-111815-1100	Solid	11/18/15 11:00	11/19/15 02:15
480-91340-2	SE1502-111815-1130	Solid	11/18/15 11:30	11/19/15 02:15
480-91340-3	SE1504-111815-1215	Solid	11/18/15 12:15	11/19/15 02:15
480-91340-4	SE1503-111815-1300	Solid	11/18/15 13:00	11/19/15 02:15
480-91340-5	SE1505-111815-1330	Solid	11/18/15 13:30	11/19/15 02:15

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
Haley & Aldrich	Dang Allen	11/18/15	292377
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3 Bedford Farms Drive	603-391-3320		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Bedford / NH / 03110		M. Deyo	
Project Name and Location (State)	**Carrier/Waybill Number**		
Seneca Falls MGP site			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: TCLP volatiles	TCLP semivolatiles	TCLP RCRA metals	PCBs	reactive cyanide	reactive sulfide	flashpoint	percent solids	paint filter (free liquids)	pH/Corrosivity	Special Instructions/ Conditions of Receipt
SE1501-111815-1100	11/18/15	1100			X		6						X	X	X	X	X	X	X	X	X	X	Normal
SE1502-111815-1130	↓	1130			↓		6						↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
SE1504-111815-1215		1215					6																
SE1503-111815-1300		1300					6																
SE1505-111815-1330	↓	1330			↓		6						↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
								AP															
								11/18/15															

480-91340 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Standard

QC Requirements (Specify)

1. Relinquished By	Date	Time	1. Received By	Date	Time
	11/18/15	1420		11/18/15	1420
2. Relinquished By	**Date**	**Time**	**2. Received By**	**Date**	**Time**
R. Reilly III, Syr	11-18-15	19:00	TAS 11-19-15	0215	
3. Relinquished By	**Date**	**Time**	**3. Received By**	**Date**	**Time**

Comments

0.6, 0.9 #1

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 480-91340-1

Login Number: 91340
List Number: 1
Creator: Williams, Christopher S

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	H AND A
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-91551-1
Client Project/Site: RG&E Seneca Falls MGP Site

For:
Haley & Aldrich, Inc.
3 Bedford Farms Drive
Beford, New Hampshire 03110

Attn: Douglas C. Allen

Authorized for release by:
12/7/2015 10:35:39 AM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I
(716)504-9874
melissa.deyo@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-91551-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-91551-1

Receipt
The samples were received on 11/21/2015 1:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.1º C and 0.2º C.

GC/MS VOA
Method(s) 8260C: Due to the co-elution of Ethyl Acetate with 2-Butanone in the full spike solution, these analytes exceeded control limits in the laboratory control sample (LCS) associated with batch 277923: TP1504-111915-1145 (480-91551-1), TP1502-111915-1320 (480-91551-2), TP1501-111915-1440 (480-91551-3), TP1503-111915-1530 (480-91551-4), TP1503-111915-1545 (480-91551-5) and TP1505-112015-0900 (480-91551-6).

Method(s) 8260C: The following samples were diluted due to the nature of the TCLP sample matrix: LB 480-276443/1-A, TP1504-111915-1145 (480-91551-1), TP1502-111915-1320 (480-91551-2), TP1501-111915-1440 (480-91551-3), TP1503-111915-1530 (480-91551-4), TP1503-111915-1545 (480-91551-5) and TP1505-112015-0900 (480-91551-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270D: The continuing calibration verification (CCV) analyzed in batch 480-277509 was outside the method criteria for the following analyte: pentachlorophenol. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method(s) 6010C: The low level continuing calibration verification (CCVL 480-276979/41) for analytical batch 480-276979 contained TCLP Chromium above the upper quality control limit. All reported samples associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples TP1503-111915-1545 (480-91551-5) and TP1505-112015-0900 (480-91551-6) was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) 9045D: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following samples has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: TP1504-111915-1145 (480-91551-1), TP1502-111915-1320 (480-91551-2), TP1501-111915-1440 (480-91551-3), TP1503-111915-1530 (480-91551-4), TP1503-111915-1545 (480-91551-5) and TP1505-112015-0900 (480-91551-6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with 276687.

Method(s) 3550C: The following sample: TP1501-111915-1440 (480-91551-3) was decanted prior to preparation.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Client Sample ID: TP1504-111915-1145 — Lab Sample ID: 480-91551-1

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	failed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pyridine	0.0012	J B	0.025	0.00041	mg/L	1		8270D	TCLP
Barium	0.29	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.00063	J	0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.0034	J	0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	7.63	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: TP1502-111915-1320 — Lab Sample ID: 480-91551-2

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pyridine	0.0013	J B	0.025	0.00041	mg/L	1		8270D	TCLP
Arsenic	0.012	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.80	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0038		0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.059		0.020	0.0030	mg/L	1		6010C	TCLP
Mercury	0.00044		0.00020	0.00012	mg/L	1		7470A	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.23	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: TP1501-111915-1440 — Lab Sample ID: 480-91551-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.41	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.00071	J	0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.0051	J	0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.28	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: TP1503-111915-1530 — Lab Sample ID: 480-91551-4

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pyridine	0.0011	J B	0.025	0.00041	mg/L	1		8270D	TCLP
Barium	0.43	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.00093	J	0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.0082	J	0.020	0.0030	mg/L	1		6010C	TCLP

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Client Sample ID: TP1503-111915-1530 (Continued) — Lab Sample ID: 480-91551-4

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
pH	7.70	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: TP1503-111915-1545 — Lab Sample ID: 480-91551-5

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Pyridine	0.0017	J B	0.025	0.00041	mg/L	1		8270D	TCLP
Barium	0.39	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0023		0.0020	0.00050	mg/L	1		6010C	TCLP
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.44	HF	0.100	0.100	SU	1		9045D	Total/NA

Client Sample ID: TP1505-112015-0900 — Lab Sample ID: 480-91551-6

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Free Liquid	passed				mL/100g	1		9095B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Pyridine	0.0014	J B	0.025	0.00041	mg/L	1		8270D	TCLP
Arsenic	0.0095	J	0.015	0.0056	mg/L	1		6010C	TCLP
Barium	0.91	J	1.0	0.10	mg/L	1		6010C	TCLP
Cadmium	0.0042		0.0020	0.00050	mg/L	1		6010C	TCLP
Lead	0.16		0.020	0.0030	mg/L	1		6010C	TCLP
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Flashpoint	>176.0		50.0	50.0	Degrees F	1		1010A	Total/NA
pH	8.61	HF	0.100	0.100	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TP1504-111915-1145

Date Collected: 11/19/15 11:45
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-1

Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 12:27	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 12:27	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 12:27	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 12:27	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 12:27	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 12:27	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 12:27	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 12:27	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 12:27	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 12:27	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*12/03/15 12:27*	*10*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*12/03/15 12:27*	*10*
Toluene-d8 (Surr)	*97*		*71 - 126*		*12/03/15 12:27*	*10*
Dibromofluoromethane (Surr)	*94*		*60 - 140*		*12/03/15 12:27*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 19:02	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 19:02	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 19:02	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 19:02	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 19:02	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 19:02	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 19:02	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 19:02	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 19:02	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 19:02	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 19:02	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 19:02	1
Pyridine	**0.0012**	**J B**	0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*101*		*52 - 132*	*11/24/15 11:06*	*12/01/15 19:02*	*1*
2-Fluorobiphenyl	*101*		*48 - 120*	*11/24/15 11:06*	*12/01/15 19:02*	*1*
2-Fluorophenol (Surr)	*55*		*20 - 120*	*11/24/15 11:06*	*12/01/15 19:02*	*1*
Nitrobenzene-d5 (Surr)	*89*		*46 - 120*	*11/24/15 11:06*	*12/01/15 19:02*	*1*
p-Terphenyl-d14 (Surr)	*105*		*67 - 150*	*11/24/15 11:06*	*12/01/15 19:02*	*1*
Phenol-d5 (Surr)	*37*		*16 - 120*	*11/24/15 11:06*	*12/01/15 19:02*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 12:55	1
Barium	**0.29**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 12:55	1
Cadmium	**0.00063**	**J**	0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 12:55	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 12:55	1
Lead	**0.0034**	**J**	0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 12:55	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 12:55	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 12:55	1

Client Sample ID: TP1504-111915-1145

Lab Sample ID: 480-91551-1
Date Collected: 11/19/15 11:45
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:32	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**failed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**7.63**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1504-111915-1145

Lab Sample ID: 480-91551-1
Date Collected: 11/19/15 11:45
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 90.8

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.21	0.041	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1221	ND		0.21	0.041	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1232	ND		0.21	0.041	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1242	ND		0.21	0.041	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1248	ND		0.21	0.041	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1254	ND		0.21	0.097	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1
PCB-1260	ND		0.21	0.097	mg/Kg	☼	11/23/15 12:01	11/23/15 18:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*60 - 154*	*11/23/15 12:01*	*11/23/15 18:03*	*1*
DCB Decachlorobiphenyl	*99*		*65 - 174*	*11/23/15 12:01*	*11/23/15 18:03*	*1*

Client Sample ID: TP1502-111915-1320

Lab Sample ID: 480-91551-2
Date Collected: 11/19/15 13:20
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 12:51	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 12:51	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 12:51	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 12:51	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 12:51	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 12:51	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 12:51	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 12:51	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 12:51	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 12:51	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*12/03/15 12:51*	*10*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*12/03/15 12:51*	*10*
Toluene-d8 (Surr)	*97*		*71 - 126*		*12/03/15 12:51*	*10*

Client Sample ID: TP1502-111915-1320
Date Collected: 11/19/15 13:20
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-2
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*90*		*60 - 140*		*12/03/15 12:51*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 19:28	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 19:28	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 19:28	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 19:28	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 19:28	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 19:28	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 19:28	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 19:28	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 19:28	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 19:28	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 19:28	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 19:28	1
Pyridine	**0.0013**	**J B**	0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*91*		*52 - 132*	*11/24/15 11:06*	*12/01/15 19:28*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*11/24/15 11:06*	*12/01/15 19:28*	*1*
2-Fluorophenol (Surr)	*55*		*20 - 120*	*11/24/15 11:06*	*12/01/15 19:28*	*1*
Nitrobenzene-d5 (Surr)	*84*		*46 - 120*	*11/24/15 11:06*	*12/01/15 19:28*	*1*
p-Terphenyl-d14 (Surr)	*93*		*67 - 150*	*11/24/15 11:06*	*12/01/15 19:28*	*1*
Phenol-d5 (Surr)	*36*		*16 - 120*	*11/24/15 11:06*	*12/01/15 19:28*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.012**	**J**	0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 12:58	1
Barium	**0.80**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 12:58	1
Cadmium	**0.0038**		0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 12:58	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 12:58	1
Lead	**0.059**		0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 12:58	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 12:58	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 12:58	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.00044**		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:33	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**8.23**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1502-111915-1320

Lab Sample ID: 480-91551-2
Date Collected: 11/19/15 13:20
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 90.7

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.26	0.050	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1221	ND		0.26	0.050	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1232	ND		0.26	0.050	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1242	ND		0.26	0.050	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1248	ND		0.26	0.050	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1254	ND		0.26	0.12	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1
PCB-1260	ND		0.26	0.12	mg/Kg	☼	11/23/15 12:01	11/23/15 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*97*		*60 - 154*	*11/23/15 12:01*	*11/23/15 18:17*	*1*
DCB Decachlorobiphenyl	*108*		*65 - 174*	*11/23/15 12:01*	*11/23/15 18:17*	*1*

Client Sample ID: TP1501-111915-1440

Lab Sample ID: 480-91551-3
Date Collected: 11/19/15 14:40
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 13:15	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 13:15	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 13:15	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 13:15	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 13:15	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 13:15	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 13:15	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 13:15	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 13:15	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 13:15	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*12/03/15 13:15*	*10*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*12/03/15 13:15*	*10*
Toluene-d8 (Surr)	*96*		*71 - 126*		*12/03/15 13:15*	*10*
Dibromofluoromethane (Surr)	*92*		*60 - 140*		*12/03/15 13:15*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 19:54	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 19:54	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 19:54	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 19:54	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 19:54	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 19:54	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 19:54	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 19:54	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 19:54	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 19:54	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 19:54	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 19:54	1
Pyridine	ND		0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 19:54	1

Client Sample ID: TP1501-111915-1440

Lab Sample ID: 480-91551-3

Date Collected: 11/19/15 14:40

Matrix: Solid

Date Received: 11/21/15 01:50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*52 - 132*	*11/24/15 11:06*	*12/01/15 19:54*	*1*
2-Fluorobiphenyl	*89*		*48 - 120*	*11/24/15 11:06*	*12/01/15 19:54*	*1*
2-Fluorophenol (Surr)	*50*		*20 - 120*	*11/24/15 11:06*	*12/01/15 19:54*	*1*
Nitrobenzene-d5 (Surr)	*79*		*46 - 120*	*11/24/15 11:06*	*12/01/15 19:54*	*1*
p-Terphenyl-d14 (Surr)	*86*		*67 - 150*	*11/24/15 11:06*	*12/01/15 19:54*	*1*
Phenol-d5 (Surr)	*33*		*16 - 120*	*11/24/15 11:06*	*12/01/15 19:54*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 13:02	1
Barium	**0.41**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 13:02	1
Cadmium	**0.00071**	**J**	0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 13:02	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 13:02	1
Lead	**0.0051**	**J**	0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 13:02	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 13:02	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 13:02	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:35	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**8.28**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1501-111915-1440

Lab Sample ID: 480-91551-3

Date Collected: 11/19/15 14:40

Matrix: Solid

Date Received: 11/21/15 01:50

Percent Solids: 79.2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.22	0.043	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1221	ND		0.22	0.043	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1232	ND		0.22	0.043	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1242	ND		0.22	0.043	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1248	ND		0.22	0.043	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1254	ND		0.22	0.10	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1
PCB-1260	ND		0.22	0.10	mg/Kg	☼	11/23/15 12:01	11/23/15 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*100*		*60 - 154*	*11/23/15 12:01*	*11/23/15 18:32*	*1*
DCB Decachlorobiphenyl	*98*		*65 - 174*	*11/23/15 12:01*	*11/23/15 18:32*	*1*

Client Sample ID: TP1503-111915-1530
Date Collected: 11/19/15 15:30
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-4
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 13:38	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 13:38	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 13:38	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 13:38	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 13:38	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 13:38	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 13:38	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 13:38	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 13:38	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 13:38	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 137*		*12/03/15 13:38*	*10*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*12/03/15 13:38*	*10*
Toluene-d8 (Surr)	*96*		*71 - 126*		*12/03/15 13:38*	*10*
Dibromofluoromethane (Surr)	*93*		*60 - 140*		*12/03/15 13:38*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 20:20	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 20:20	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 20:20	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 20:20	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 20:20	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 20:20	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 20:20	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 20:20	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 20:20	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 20:20	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 20:20	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 20:20	1
Pyridine	**0.0011**	**J B**	0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 20:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*93*		*52 - 132*	*11/24/15 11:06*	*12/01/15 20:20*	*1*
2-Fluorobiphenyl	*97*		*48 - 120*	*11/24/15 11:06*	*12/01/15 20:20*	*1*
2-Fluorophenol (Surr)	*52*		*20 - 120*	*11/24/15 11:06*	*12/01/15 20:20*	*1*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*11/24/15 11:06*	*12/01/15 20:20*	*1*
p-Terphenyl-d14 (Surr)	*94*		*67 - 150*	*11/24/15 11:06*	*12/01/15 20:20*	*1*
Phenol-d5 (Surr)	*35*		*16 - 120*	*11/24/15 11:06*	*12/01/15 20:20*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 13:05	1
Barium	**0.43**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 13:05	1
Cadmium	**0.00093**	**J**	0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 13:05	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 13:05	1
Lead	**0.0082**	**J**	0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 13:05	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 13:05	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 13:05	1

Client Sample ID: TP1503-111915-1530

Lab Sample ID: 480-91551-4
Date Collected: 11/19/15 15:30
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:36	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**7.70**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1503-111915-1530

Lab Sample ID: 480-91551-4
Date Collected: 11/19/15 15:30
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 88.0

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.24	0.048	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1221	ND		0.24	0.048	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1232	ND		0.24	0.048	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1242	ND		0.24	0.048	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1248	ND		0.24	0.048	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1254	ND		0.24	0.11	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1
PCB-1260	ND		0.24	0.11	mg/Kg	☼	11/23/15 12:01	11/23/15 18:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*93*		*60 - 154*	*11/23/15 12:01*	*11/23/15 18:47*	*1*
DCB Decachlorobiphenyl	*95*		*65 - 174*	*11/23/15 12:01*	*11/23/15 18:47*	*1*

Client Sample ID: TP1503-111915-1545

Lab Sample ID: 480-91551-5
Date Collected: 11/19/15 15:45
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 14:02	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 14:02	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 14:02	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 14:02	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 14:02	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 14:02	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 14:02	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 14:02	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 14:02	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 14:02	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*66 - 137*		*12/03/15 14:02*	*10*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*12/03/15 14:02*	*10*
Toluene-d8 (Surr)	*96*		*71 - 126*		*12/03/15 14:02*	*10*

Client Sample ID: TP1503-111915-1545
Date Collected: 11/19/15 15:45
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-5
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*93*		*60 - 140*		*12/03/15 14:02*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 20:46	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 20:46	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 20:46	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 20:46	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 20:46	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 20:46	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 20:46	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 20:46	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 20:46	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 20:46	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 20:46	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 20:46	1
Pyridine	**0.0017**	**J B**	0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*97*		*52 - 132*	*11/24/15 11:06*	*12/01/15 20:46*	*1*
2-Fluorobiphenyl	*95*		*48 - 120*	*11/24/15 11:06*	*12/01/15 20:46*	*1*
2-Fluorophenol (Surr)	*51*		*20 - 120*	*11/24/15 11:06*	*12/01/15 20:46*	*1*
Nitrobenzene-d5 (Surr)	*86*		*46 - 120*	*11/24/15 11:06*	*12/01/15 20:46*	*1*
p-Terphenyl-d14 (Surr)	*97*		*67 - 150*	*11/24/15 11:06*	*12/01/15 20:46*	*1*
Phenol-d5 (Surr)	*35*		*16 - 120*	*11/24/15 11:06*	*12/01/15 20:46*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 13:18	1
Barium	**0.39**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 13:18	1
Cadmium	**0.0023**		0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 13:18	1
Chromium	ND	^	0.020	0.010	mg/L		11/24/15 10:50	11/25/15 13:18	1
Lead	ND		0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 13:18	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 13:18	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 13:18	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:38	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**8.44**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1503-111915-1545

Lab Sample ID: 480-91551-5
Date Collected: 11/19/15 15:45
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 75.2

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.27	0.054	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1221	ND		0.27	0.054	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1232	ND		0.27	0.054	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1242	ND		0.27	0.054	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1248	ND		0.27	0.054	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1254	ND		0.27	0.13	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1
PCB-1260	ND		0.27	0.13	mg/Kg	☼	11/23/15 12:01	11/23/15 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*101*		*60 - 154*	*11/23/15 12:01*	*11/23/15 19:02*	*1*
DCB Decachlorobiphenyl	*100*		*65 - 174*	*11/23/15 12:01*	*11/23/15 19:02*	*1*

Client Sample ID: TP1505-112015-0900

Lab Sample ID: 480-91551-6
Date Collected: 11/20/15 09:00
Matrix: Solid
Date Received: 11/21/15 01:50

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 14:26	10
2-Butanone (MEK)	ND	*	0.050	0.013	mg/L			12/03/15 14:26	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 14:26	10
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 14:26	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 14:26	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 14:26	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 14:26	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 14:26	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 14:26	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 14:26	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 137*		*12/03/15 14:26*	*10*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*12/03/15 14:26*	*10*
Toluene-d8 (Surr)	*95*		*71 - 126*		*12/03/15 14:26*	*10*
Dibromofluoromethane (Surr)	*93*		*60 - 140*		*12/03/15 14:26*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/02/15 13:49	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/02/15 13:49	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/02/15 13:49	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/02/15 13:49	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/02/15 13:49	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/02/15 13:49	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/02/15 13:49	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/02/15 13:49	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/02/15 13:49	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/02/15 13:49	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/02/15 13:49	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/02/15 13:49	1
Pyridine	**0.0014**	**J B**	0.025	0.00041	mg/L		11/24/15 11:06	12/02/15 13:49	1

Client Sample ID: TP1505-112015-0900

Date Collected: 11/20/15 09:00
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-6

Matrix: Solid

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*52 - 132*	*11/24/15 11:06*	*12/02/15 13:49*	*1*
2-Fluorobiphenyl	*86*		*48 - 120*	*11/24/15 11:06*	*12/02/15 13:49*	*1*
2-Fluorophenol (Surr)	*48*		*20 - 120*	*11/24/15 11:06*	*12/02/15 13:49*	*1*
Nitrobenzene-d5 (Surr)	*77*		*46 - 120*	*11/24/15 11:06*	*12/02/15 13:49*	*1*
p-Terphenyl-d14 (Surr)	*98*		*67 - 150*	*11/24/15 11:06*	*12/02/15 13:49*	*1*
Phenol-d5 (Surr)	*34*		*16 - 120*	*11/24/15 11:06*	*12/02/15 13:49*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0095**	**J**	0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 13:21	1
Barium	**0.91**	**J**	1.0	0.10	mg/L		11/24/15 10:50	11/25/15 13:21	1
Cadmium	**0.0042**		0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 13:21	1
Chromium	ND	^	0.020	0.010	mg/L		11/24/15 10:50	11/25/15 13:21	1
Lead	**0.16**		0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 13:21	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 13:21	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 13:21	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:40	1

General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Free Liquid	**passed**				mL/100g			11/23/15 10:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>176.0**		50.0	50.0	Degrees F			11/25/15 16:49	1
Cyanide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/24/15 16:18	1
Sulfide, Reactive	ND		10	10	mg/Kg		11/24/15 04:15	11/25/15 07:55	1
pH	**8.61**	**HF**	0.100	0.100	SU			11/25/15 19:15	1

Client Sample ID: TP1505-112015-0900

Date Collected: 11/20/15 09:00
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-6

Matrix: Solid
Percent Solids: 78.9

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.27	0.053	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1221	ND		0.27	0.053	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1232	ND		0.27	0.053	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1242	ND		0.27	0.053	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1248	ND		0.27	0.053	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1254	ND		0.27	0.13	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1
PCB-1260	ND		0.27	0.13	mg/Kg	☼	11/23/15 12:01	11/23/15 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*99*		*60 - 154*	*11/23/15 12:01*	*11/23/15 19:17*	*1*
DCB Decachlorobiphenyl	*122*		*65 - 174*	*11/23/15 12:01*	*11/23/15 19:17*	*1*

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
LCS 480-277923/5	Lab Control Sample	98	96	95	91
MB 480-277923/7	Method Blank	101	97	96	93

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(66-137)	(73-120)	(71-126)	(60-140)
480-91551-1	TP1504-111915-1145	102	95	97	94
480-91551-2	TP1502-111915-1320	100	96	97	90
480-91551-3	TP1501-111915-1440	102	99	96	92
480-91551-4	TP1503-111915-1530	101	95	96	93
480-91551-5	TP1503-111915-1545	102	98	96	93
480-91551-6	TP1505-112015-0900	101	96	95	93
LB 480-276443/1-A	Method Blank	100	99	97	94

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
LCS 480-276687/2-A	Lab Control Sample	105	98	54	87	101	39
LCSD 480-276687/3-A	Lab Control Sample Dup	101	101	59	97	94	39
MB 480-276687/1-A	Method Blank	83	88	46	78	94	34

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	TPH	PHL
Lab Sample ID	Client Sample ID	(52-132)	(48-120)	(20-120)	(46-120)	(67-150)	(16-120)
480-91551-1	TP1504-111915-1145	101	101	55	89	105	37
480-91551-2	TP1502-111915-1320	91	95	55	84	93	36
480-91551-3	TP1501-111915-1440	86	89	50	79	86	33
480-91551-4	TP1503-111915-1530	93	97	52	93	94	35
480-91551-5	TP1503-111915-1545	97	95	51	86	97	35
480-91551-6	TP1505-112015-0900	89	86	48	77	98	34
LB 480-276440/1-D	Method Blank	93	91	53	90	98	35

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = p-Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCB2
Lab Sample ID	Client Sample ID	(60-154)	(65-174)
480-91551-1	TP1504-111915-1145	100	99
480-91551-1 MS	TP1504-111915-1145	114	119
480-91551-1 MSD	TP1504-111915-1145	109	113
480-91551-2	TP1502-111915-1320	97	108
480-91551-3	TP1501-111915-1440	100	98
480-91551-4	TP1503-111915-1530	93	95
480-91551-5	TP1503-111915-1545	101	100
480-91551-6	TP1505-112015-0900	99	122
LCS 480-276503/2-A	Lab Control Sample	115	117
MB 480-276503/1-A	Method Blank	99	103

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-277923/7
Matrix: Solid
Analysis Batch: 277923

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			12/03/15 10:59	1
2-Butanone (MEK)	ND		0.0050	0.0013	mg/L			12/03/15 10:59	1
Benzene	ND		0.0010	0.00041	mg/L			12/03/15 10:59	1
Carbon tetrachloride	ND		0.0010	0.00027	mg/L			12/03/15 10:59	1
Chlorobenzene	ND		0.0010	0.00075	mg/L			12/03/15 10:59	1
Chloroform	ND		0.0010	0.00034	mg/L			12/03/15 10:59	1
Tetrachloroethene	ND		0.0010	0.00036	mg/L			12/03/15 10:59	1
Trichloroethene	ND		0.0010	0.00046	mg/L			12/03/15 10:59	1
Vinyl chloride	ND		0.0010	0.00090	mg/L			12/03/15 10:59	1
1,1-Dichloroethene	ND		0.0010	0.00029	mg/L			12/03/15 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*66 - 137*		*12/03/15 10:59*	*1*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*12/03/15 10:59*	*1*
Toluene-d8 (Surr)	*96*		*71 - 126*		*12/03/15 10:59*	*1*
Dibromofluoromethane (Surr)	*93*		*60 - 140*		*12/03/15 10:59*	*1*

Lab Sample ID: LCS 480-277923/5
Matrix: Solid
Analysis Batch: 277923

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	0.0250	0.0242		mg/L		97	75 - 127
2-Butanone (MEK)	0.125	0.235	*	mg/L		188	57 - 140
Benzene	0.0250	0.0235		mg/L		94	71 - 124
Carbon tetrachloride	0.0250	0.0220		mg/L		88	72 - 134
Chlorobenzene	0.0250	0.0238		mg/L		95	72 - 120
Chloroform	0.0250	0.0238		mg/L		95	73 - 127
Tetrachloroethene	0.0250	0.0239		mg/L		96	74 - 122
Trichloroethene	0.0250	0.0226		mg/L		90	74 - 123
Vinyl chloride	0.0250	0.0210		mg/L		84	65 - 133
1,1-Dichloroethene	0.0250	0.0223		mg/L		89	58 - 121

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*66 - 137*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*
Toluene-d8 (Surr)	*95*		*71 - 126*
Dibromofluoromethane (Surr)	*91*		*60 - 140*

Lab Sample ID: LB 480-276443/1-A
Matrix: Solid
Analysis Batch: 277923

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		0.010	0.0021	mg/L			12/03/15 11:40	10
2-Butanone (MEK)	ND		0.050	0.013	mg/L			12/03/15 11:40	10
Benzene	ND		0.010	0.0041	mg/L			12/03/15 11:40	10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 480-276443/1-A
Matrix: Solid
Analysis Batch: 277923

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		0.010	0.0027	mg/L			12/03/15 11:40	10
Chlorobenzene	ND		0.010	0.0075	mg/L			12/03/15 11:40	10
Chloroform	ND		0.010	0.0034	mg/L			12/03/15 11:40	10
Tetrachloroethene	ND		0.010	0.0036	mg/L			12/03/15 11:40	10
Trichloroethene	ND		0.010	0.0046	mg/L			12/03/15 11:40	10
Vinyl chloride	ND		0.010	0.0090	mg/L			12/03/15 11:40	10
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			12/03/15 11:40	10

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*66 - 137*		*12/03/15 11:40*	*10*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*12/03/15 11:40*	*10*
Toluene-d8 (Surr)	*97*		*71 - 126*		*12/03/15 11:40*	*10*
Dibromofluoromethane (Surr)	*94*		*60 - 140*		*12/03/15 11:40*	*10*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-276687/1-A
Matrix: Solid
Analysis Batch: 277509

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276687

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0025	0.00012	mg/L		11/24/15 11:06	12/01/15 16:25	1
2,4-Dinitrotoluene	ND		0.0013	0.00011	mg/L		11/24/15 11:06	12/01/15 16:25	1
2,4,5-Trichlorophenol	ND		0.0013	0.00012	mg/L		11/24/15 11:06	12/01/15 16:25	1
2,4,6-Trichlorophenol	ND		0.0013	0.00015	mg/L		11/24/15 11:06	12/01/15 16:25	1
2-Methylphenol	ND		0.0013	0.00010	mg/L		11/24/15 11:06	12/01/15 16:25	1
3-Methylphenol	ND		0.0025	0.00010	mg/L		11/24/15 11:06	12/01/15 16:25	1
4-Methylphenol	ND		0.0025	0.000090	mg/L		11/24/15 11:06	12/01/15 16:25	1
Hexachlorobenzene	ND		0.0013	0.00013	mg/L		11/24/15 11:06	12/01/15 16:25	1
Hexachlorobutadiene	ND		0.0013	0.00017	mg/L		11/24/15 11:06	12/01/15 16:25	1
Hexachloroethane	ND		0.0013	0.00015	mg/L		11/24/15 11:06	12/01/15 16:25	1
Nitrobenzene	ND		0.0013	0.000073	mg/L		11/24/15 11:06	12/01/15 16:25	1
Pentachlorophenol	ND		0.0025	0.00055	mg/L		11/24/15 11:06	12/01/15 16:25	1
Pyridine	0.000312	J	0.0063	0.00010	mg/L		11/24/15 11:06	12/01/15 16:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*52 - 132*	*11/24/15 11:06*	*12/01/15 16:25*	*1*
2-Fluorobiphenyl	*88*		*48 - 120*	*11/24/15 11:06*	*12/01/15 16:25*	*1*
2-Fluorophenol (Surr)	*46*		*20 - 120*	*11/24/15 11:06*	*12/01/15 16:25*	*1*
Nitrobenzene-d5 (Surr)	*78*		*46 - 120*	*11/24/15 11:06*	*12/01/15 16:25*	*1*
p-Terphenyl-d14 (Surr)	*94*		*67 - 150*	*11/24/15 11:06*	*12/01/15 16:25*	*1*
Phenol-d5 (Surr)	*34*		*16 - 120*	*11/24/15 11:06*	*12/01/15 16:25*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-276687/2-A
Matrix: Solid
Analysis Batch: 277509

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276687

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dichlorobenzene			0.0500	0.0346		mg/L		69	32 - 120		
2,4-Dinitrotoluene			0.0500	0.0532		mg/L		106	65 - 154		
2,4,5-Trichlorophenol			0.0500	0.0520		mg/L		104	65 - 126		
2,4,6-Trichlorophenol			0.0500	0.0497		mg/L		99	64 - 120		
2-Methylphenol			0.0500	0.0386		mg/L		77	39 - 120		
3-Methylphenol			0.0500	0.0352		mg/L		70	39 - 120		
4-Methylphenol			0.0500	0.0352		mg/L		70	39 - 120		
Hexachlorobenzene			0.0500	0.0524		mg/L		105	14 - 130		
Hexachlorobutadiene			0.0500	0.0380		mg/L		76	14 - 130		
Hexachloroethane			0.0500	0.0333		mg/L		67	14 - 130		
Nitrobenzene			0.0500	0.0424		mg/L		85	45 - 123		
Pentachlorophenol			0.100	0.0990		mg/L		99	39 - 136		
Pyridine			0.0500	0.0202		mg/L		40	10 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*105*		*52 - 132*
2-Fluorobiphenyl	*98*		*48 - 120*
2-Fluorophenol (Surr)	*54*		*20 - 120*
Nitrobenzene-d5 (Surr)	*87*		*46 - 120*
p-Terphenyl-d14 (Surr)	*101*		*67 - 150*
Phenol-d5 (Surr)	*39*		*16 - 120*

Lab Sample ID: LCSD 480-276687/3-A
Matrix: Solid
Analysis Batch: 277509

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276687

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene			0.0500	0.0383		mg/L		77	32 - 120	10	36
2,4-Dinitrotoluene			0.0500	0.0504		mg/L		101	65 - 154	5	20
2,4,5-Trichlorophenol			0.0500	0.0520		mg/L		104	65 - 126	0	18
2,4,6-Trichlorophenol			0.0500	0.0512		mg/L		102	64 - 120	3	19
2-Methylphenol			0.0500	0.0390		mg/L		78	39 - 120	1	27
3-Methylphenol			0.0500	0.0370		mg/L		74	39 - 120	5	30
4-Methylphenol			0.0500	0.0370		mg/L		74	39 - 120	5	24
Hexachlorobenzene			0.0500	0.0508		mg/L		102	14 - 130	3	15
Hexachlorobutadiene			0.0500	0.0427		mg/L		85	14 - 130	11	44
Hexachloroethane			0.0500	0.0387		mg/L		77	14 - 130	15	46
Nitrobenzene			0.0500	0.0486		mg/L		97	45 - 123	13	24
Pentachlorophenol			0.100	0.0957		mg/L		96	39 - 136	3	37
Pyridine			0.0500	0.0139		mg/L		28	10 - 120	37	49

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*101*		*52 - 132*
2-Fluorobiphenyl	*101*		*48 - 120*
2-Fluorophenol (Surr)	*59*		*20 - 120*
Nitrobenzene-d5 (Surr)	*97*		*46 - 120*
p-Terphenyl-d14 (Surr)	*94*		*67 - 150*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-276687/3-A
Matrix: Solid
Analysis Batch: 277509

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276687

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Phenol-d5 (Surr)	39		16 - 120

Lab Sample ID: LB 480-276440/1-D
Matrix: Solid
Analysis Batch: 277509

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276687

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00046	mg/L		11/24/15 11:06	12/01/15 17:43	1
2,4-Dinitrotoluene	ND		0.0050	0.00045	mg/L		11/24/15 11:06	12/01/15 17:43	1
2,4,5-Trichlorophenol	ND		0.0050	0.00048	mg/L		11/24/15 11:06	12/01/15 17:43	1
2,4,6-Trichlorophenol	ND		0.0050	0.00061	mg/L		11/24/15 11:06	12/01/15 17:43	1
2-Methylphenol	ND		0.0050	0.00040	mg/L		11/24/15 11:06	12/01/15 17:43	1
3-Methylphenol	ND		0.010	0.00040	mg/L		11/24/15 11:06	12/01/15 17:43	1
4-Methylphenol	ND		0.010	0.00036	mg/L		11/24/15 11:06	12/01/15 17:43	1
Hexachlorobenzene	ND		0.0050	0.00051	mg/L		11/24/15 11:06	12/01/15 17:43	1
Hexachlorobutadiene	ND		0.0050	0.00068	mg/L		11/24/15 11:06	12/01/15 17:43	1
Hexachloroethane	ND		0.0050	0.00059	mg/L		11/24/15 11:06	12/01/15 17:43	1
Nitrobenzene	ND		0.0050	0.00029	mg/L		11/24/15 11:06	12/01/15 17:43	1
Pentachlorophenol	ND		0.010	0.0022	mg/L		11/24/15 11:06	12/01/15 17:43	1
Pyridine	0.00148	J	0.025	0.00041	mg/L		11/24/15 11:06	12/01/15 17:43	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	93		52 - 132	11/24/15 11:06	12/01/15 17:43	1
2-Fluorobiphenyl	91		48 - 120	11/24/15 11:06	12/01/15 17:43	1
2-Fluorophenol (Surr)	53		20 - 120	11/24/15 11:06	12/01/15 17:43	1
Nitrobenzene-d5 (Surr)	90		46 - 120	11/24/15 11:06	12/01/15 17:43	1
p-Terphenyl-d14 (Surr)	98		67 - 150	11/24/15 11:06	12/01/15 17:43	1
Phenol-d5 (Surr)	35		16 - 120	11/24/15 11:06	12/01/15 17:43	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-276503/1-A
Matrix: Solid
Analysis Batch: 276545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276503

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.20	0.039	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1221	ND		0.20	0.039	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1232	ND		0.20	0.039	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1242	ND		0.20	0.039	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1248	ND		0.20	0.039	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1254	ND		0.20	0.094	mg/Kg		11/23/15 12:01	11/23/15 17:03	1
PCB-1260	ND		0.20	0.094	mg/Kg		11/23/15 12:01	11/23/15 17:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	99		60 - 154	11/23/15 12:01	11/23/15 17:03	1
DCB Decachlorobiphenyl	103		65 - 174	11/23/15 12:01	11/23/15 17:03	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 480-276503/2-A
Matrix: Solid
Analysis Batch: 276545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	2.00	2.44		mg/Kg		122	51 - 185
PCB-1260	2.00	2.47		mg/Kg		123	61 - 184

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*115*		*60 - 154*
DCB Decachlorobiphenyl	*117*		*65 - 174*

Lab Sample ID: 480-91551-1 MS
Matrix: Solid
Analysis Batch: 276545

Client Sample ID: TP1504-111915-1145
Prep Type: Total/NA
Prep Batch: 276503

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	ND		2.57	3.14		mg/Kg	☼	122	50 - 177
PCB-1260	ND		2.57	3.22		mg/Kg	☼	125	33 - 200

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*114*		*60 - 154*
DCB Decachlorobiphenyl	*119*		*65 - 174*

Lab Sample ID: 480-91551-1 MSD
Matrix: Solid
Analysis Batch: 276545

Client Sample ID: TP1504-111915-1145
Prep Type: Total/NA
Prep Batch: 276503

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND		2.65	2.98		mg/Kg	☼	113	50 - 177	5	50
PCB-1260	ND		2.65	3.06		mg/Kg	☼	116	33 - 200	5	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*109*		*60 - 154*
DCB Decachlorobiphenyl	*113*		*65 - 174*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-276668/2-A
Matrix: Solid
Analysis Batch: 276979

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276668

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 12:39	1
Barium	ND		1.0	0.10	mg/L		11/24/15 10:50	11/25/15 12:39	1
Cadmium	ND		0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 12:39	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 12:39	1
Lead	ND		0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 12:39	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 12:39	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 12:39	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-276668/3-A
Matrix: Solid
Analysis Batch: 276979

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276668

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.06		mg/L		106	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Cadmium	1.00	1.06		mg/L		106	80 - 120
Chromium	1.00	1.12		mg/L		112	80 - 120
Lead	1.00	1.02		mg/L		102	80 - 120
Selenium	1.00	1.18		mg/L		118	80 - 120
Silver	1.00	1.19		mg/L		119	80 - 120

Lab Sample ID: LCSD 480-276668/4-A
Matrix: Solid
Analysis Batch: 276979

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276668

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	1.00	1.03		mg/L		103	80 - 120	4	20
Barium	1.00	0.974	J	mg/L		97	80 - 120	3	20
Cadmium	1.00	1.03		mg/L		103	80 - 120	3	20
Chromium	1.00	1.08		mg/L		108	80 - 120	3	20
Lead	1.00	0.992		mg/L		99	80 - 120	3	20
Selenium	1.00	1.13		mg/L		113	80 - 120	4	20
Silver	1.00	1.14		mg/L		114	80 - 120	4	20

Lab Sample ID: LB 480-276440/1-B
Matrix: Solid
Analysis Batch: 276979

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276668

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.015	0.0056	mg/L		11/24/15 10:50	11/25/15 12:26	1
Barium	ND		1.0	0.10	mg/L		11/24/15 10:50	11/25/15 12:26	1
Cadmium	ND		0.0020	0.00050	mg/L		11/24/15 10:50	11/25/15 12:26	1
Chromium	ND		0.020	0.010	mg/L		11/24/15 10:50	11/25/15 12:26	1
Lead	ND		0.020	0.0030	mg/L		11/24/15 10:50	11/25/15 12:26	1
Selenium	ND		0.025	0.0087	mg/L		11/24/15 10:50	11/25/15 12:26	1
Silver	ND		0.0060	0.0017	mg/L		11/24/15 10:50	11/25/15 12:26	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-276686/2-A
Matrix: Solid
Analysis Batch: 276827

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276686

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:20	1

Lab Sample ID: LCS 480-276686/3-A
Matrix: Solid
Analysis Batch: 276827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00668	0.00653		mg/L		98	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 480-276686/15-A
Matrix: Solid
Analysis Batch: 276827

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 276686

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury			0.00668	0.00620		mg/L		93	80 - 120	5	20

Lab Sample ID: LB 480-276440/1-C
Matrix: Solid
Analysis Batch: 276827

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 276686

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00012	mg/L		11/24/15 12:15	11/24/15 16:19	1

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 480-277009/1
Matrix: Solid
Analysis Batch: 277009

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Flashpoint			81.0	83.00		Degrees F		102	97.5 - 102.5		

Lab Sample ID: 480-91551-6 DU
Matrix: Solid
Analysis Batch: 277009

Client Sample ID: TP1505-112015-0900
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Flashpoint	>176.0			>176.0		Degrees F				NC	10

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 480-276723/1-A
Matrix: Solid
Analysis Batch: 276842

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276723

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		10.0	10.0	mg/Kg		11/24/15 04:15	11/24/15 16:18	1

Lab Sample ID: LCS 480-276723/2-A
Matrix: Solid
Analysis Batch: 276842

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276723

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Reactive			1000	ND		mg/Kg		23	10 - 100		

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 480-276729/1-A
Matrix: Solid
Analysis Batch: 276884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 276729

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		10.0	10.0	mg/Kg		11/24/15 04:15	11/25/15 07:55	1

Lab Sample ID: LCS 480-276729/2-A
Matrix: Solid
Analysis Batch: 276884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 276729

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide, Reactive			1000	761.4		mg/Kg		76	10 - 100		

Method: 9045D - pH

Lab Sample ID: LCS 480-277058/1
Matrix: Solid
Analysis Batch: 277058

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			7.00	7.020		SU		100	99 - 101		

Lab Sample ID: 480-91551-6 DU
Matrix: Solid
Analysis Batch: 277058

Client Sample ID: TP1505-112015-0900
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	8.61	HF		8.610		SU				0	5

GC/MS VOA

Leach Batch: 276443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	1311	
480-91551-2	TP1502-111915-1320	TCLP	Solid	1311	
480-91551-3	TP1501-111915-1440	TCLP	Solid	1311	
480-91551-4	TP1503-111915-1530	TCLP	Solid	1311	
480-91551-5	TP1503-111915-1545	TCLP	Solid	1311	
480-91551-6	TP1505-112015-0900	TCLP	Solid	1311	
LB 480-276443/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 277923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	8260C	276443
480-91551-2	TP1502-111915-1320	TCLP	Solid	8260C	276443
480-91551-3	TP1501-111915-1440	TCLP	Solid	8260C	276443
480-91551-4	TP1503-111915-1530	TCLP	Solid	8260C	276443
480-91551-5	TP1503-111915-1545	TCLP	Solid	8260C	276443
480-91551-6	TP1505-112015-0900	TCLP	Solid	8260C	276443
LB 480-276443/1-A	Method Blank	TCLP	Solid	8260C	276443
LCS 480-277923/5	Lab Control Sample	Total/NA	Solid	8260C	
MB 480-277923/7	Method Blank	Total/NA	Solid	8260C	

GC/MS Semi VOA

Leach Batch: 276440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	1311	
480-91551-2	TP1502-111915-1320	TCLP	Solid	1311	
480-91551-3	TP1501-111915-1440	TCLP	Solid	1311	
480-91551-4	TP1503-111915-1530	TCLP	Solid	1311	
480-91551-5	TP1503-111915-1545	TCLP	Solid	1311	
480-91551-6	TP1505-112015-0900	TCLP	Solid	1311	
LB 480-276440/1-D	Method Blank	TCLP	Solid	1311	

Prep Batch: 276687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	3510C	276440
480-91551-2	TP1502-111915-1320	TCLP	Solid	3510C	276440
480-91551-3	TP1501-111915-1440	TCLP	Solid	3510C	276440
480-91551-4	TP1503-111915-1530	TCLP	Solid	3510C	276440
480-91551-5	TP1503-111915-1545	TCLP	Solid	3510C	276440
480-91551-6	TP1505-112015-0900	TCLP	Solid	3510C	276440
LB 480-276440/1-D	Method Blank	TCLP	Solid	3510C	276440
LCS 480-276687/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 480-276687/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	
MB 480-276687/1-A	Method Blank	Total/NA	Solid	3510C	

Analysis Batch: 277509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	8270D	276687
480-91551-2	TP1502-111915-1320	TCLP	Solid	8270D	276687
480-91551-3	TP1501-111915-1440	TCLP	Solid	8270D	276687

GC/MS Semi VOA (Continued)

Analysis Batch: 277509 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-4	TP1503-111915-1530	TCLP	Solid	8270D	276687
480-91551-5	TP1503-111915-1545	TCLP	Solid	8270D	276687
LB 480-276440/1-D	Method Blank	TCLP	Solid	8270D	276687
LCS 480-276687/2-A	Lab Control Sample	Total/NA	Solid	8270D	276687
LCSD 480-276687/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	276687
MB 480-276687/1-A	Method Blank	Total/NA	Solid	8270D	276687

Analysis Batch: 277687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-6	TP1505-112015-0900	TCLP	Solid	8270D	276687

GC Semi VOA

Prep Batch: 276503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	3550C	
480-91551-1 MS	TP1504-111915-1145	Total/NA	Solid	3550C	
480-91551-1 MSD	TP1504-111915-1145	Total/NA	Solid	3550C	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	3550C	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	3550C	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	3550C	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	3550C	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	3550C	
LCS 480-276503/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 480-276503/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 276545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	8082A	276503
480-91551-1 MS	TP1504-111915-1145	Total/NA	Solid	8082A	276503
480-91551-1 MSD	TP1504-111915-1145	Total/NA	Solid	8082A	276503
480-91551-2	TP1502-111915-1320	Total/NA	Solid	8082A	276503
480-91551-3	TP1501-111915-1440	Total/NA	Solid	8082A	276503
480-91551-4	TP1503-111915-1530	Total/NA	Solid	8082A	276503
480-91551-5	TP1503-111915-1545	Total/NA	Solid	8082A	276503
480-91551-6	TP1505-112015-0900	Total/NA	Solid	8082A	276503
LCS 480-276503/2-A	Lab Control Sample	Total/NA	Solid	8082A	276503
MB 480-276503/1-A	Method Blank	Total/NA	Solid	8082A	276503

Metals

Leach Batch: 276440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	1311	
480-91551-2	TP1502-111915-1320	TCLP	Solid	1311	
480-91551-3	TP1501-111915-1440	TCLP	Solid	1311	
480-91551-4	TP1503-111915-1530	TCLP	Solid	1311	
480-91551-5	TP1503-111915-1545	TCLP	Solid	1311	
480-91551-6	TP1505-112015-0900	TCLP	Solid	1311	
LB 480-276440/1-B	Method Blank	TCLP	Solid	1311	

Metals (Continued)

Leach Batch: 276440 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 480-276440/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 276668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	3010A	276440
480-91551-2	TP1502-111915-1320	TCLP	Solid	3010A	276440
480-91551-3	TP1501-111915-1440	TCLP	Solid	3010A	276440
480-91551-4	TP1503-111915-1530	TCLP	Solid	3010A	276440
480-91551-5	TP1503-111915-1545	TCLP	Solid	3010A	276440
480-91551-6	TP1505-112015-0900	TCLP	Solid	3010A	276440
LB 480-276440/1-B	Method Blank	TCLP	Solid	3010A	276440
LCS 480-276668/3-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 480-276668/4-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
MB 480-276668/2-A	Method Blank	Total/NA	Solid	3010A	

Prep Batch: 276686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	7470A	276440
480-91551-2	TP1502-111915-1320	TCLP	Solid	7470A	276440
480-91551-3	TP1501-111915-1440	TCLP	Solid	7470A	276440
480-91551-4	TP1503-111915-1530	TCLP	Solid	7470A	276440
480-91551-5	TP1503-111915-1545	TCLP	Solid	7470A	276440
480-91551-6	TP1505-112015-0900	TCLP	Solid	7470A	276440
LB 480-276440/1-C	Method Blank	TCLP	Solid	7470A	276440
LCS 480-276686/3-A	Lab Control Sample	Total/NA	Solid	7470A	
LCSD 480-276686/15-A	Lab Control Sample Dup	Total/NA	Solid	7470A	
MB 480-276686/2-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 276827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	7470A	276686
480-91551-2	TP1502-111915-1320	TCLP	Solid	7470A	276686
480-91551-3	TP1501-111915-1440	TCLP	Solid	7470A	276686
480-91551-4	TP1503-111915-1530	TCLP	Solid	7470A	276686
480-91551-5	TP1503-111915-1545	TCLP	Solid	7470A	276686
480-91551-6	TP1505-112015-0900	TCLP	Solid	7470A	276686
LB 480-276440/1-C	Method Blank	TCLP	Solid	7470A	276686
LCS 480-276686/3-A	Lab Control Sample	Total/NA	Solid	7470A	276686
LCSD 480-276686/15-A	Lab Control Sample Dup	Total/NA	Solid	7470A	276686
MB 480-276686/2-A	Method Blank	Total/NA	Solid	7470A	276686

Analysis Batch: 276979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	TCLP	Solid	6010C	276668
480-91551-2	TP1502-111915-1320	TCLP	Solid	6010C	276668
480-91551-3	TP1501-111915-1440	TCLP	Solid	6010C	276668
480-91551-4	TP1503-111915-1530	TCLP	Solid	6010C	276668
480-91551-5	TP1503-111915-1545	TCLP	Solid	6010C	276668
480-91551-6	TP1505-112015-0900	TCLP	Solid	6010C	276668
LB 480-276440/1-B	Method Blank	TCLP	Solid	6010C	276668
LCS 480-276668/3-A	Lab Control Sample	Total/NA	Solid	6010C	276668

Metals (Continued)

Analysis Batch: 276979 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-276668/4-A	Lab Control Sample Dup	Total/NA	Solid	6010C	276668
MB 480-276668/2-A	Method Blank	Total/NA	Solid	6010C	276668

General Chemistry

Analysis Batch: 276276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	Moisture	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	Moisture	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	Moisture	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	Moisture	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	Moisture	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	Moisture	

Analysis Batch: 276547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	9095B	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	9095B	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	9095B	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	9095B	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	9095B	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	9095B	

Prep Batch: 276723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	7.3.3	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	7.3.3	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	7.3.3	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	7.3.3	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	7.3.3	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	7.3.3	
LCS 480-276723/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
MB 480-276723/1-A	Method Blank	Total/NA	Solid	7.3.3	

Prep Batch: 276729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	7.3.4	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	7.3.4	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	7.3.4	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	7.3.4	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	7.3.4	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	7.3.4	
LCS 480-276729/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
MB 480-276729/1-A	Method Blank	Total/NA	Solid	7.3.4	

Analysis Batch: 276842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	9012	276723
480-91551-2	TP1502-111915-1320	Total/NA	Solid	9012	276723
480-91551-3	TP1501-111915-1440	Total/NA	Solid	9012	276723

General Chemistry (Continued)

Analysis Batch: 276842 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-4	TP1503-111915-1530	Total/NA	Solid	9012	276723
480-91551-5	TP1503-111915-1545	Total/NA	Solid	9012	276723
480-91551-6	TP1505-112015-0900	Total/NA	Solid	9012	276723
LCS 480-276723/2-A	Lab Control Sample	Total/NA	Solid	9012	276723
MB 480-276723/1-A	Method Blank	Total/NA	Solid	9012	276723

Analysis Batch: 276884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	9034	276729
480-91551-2	TP1502-111915-1320	Total/NA	Solid	9034	276729
480-91551-3	TP1501-111915-1440	Total/NA	Solid	9034	276729
480-91551-4	TP1503-111915-1530	Total/NA	Solid	9034	276729
480-91551-5	TP1503-111915-1545	Total/NA	Solid	9034	276729
480-91551-6	TP1505-112015-0900	Total/NA	Solid	9034	276729
LCS 480-276729/2-A	Lab Control Sample	Total/NA	Solid	9034	276729
MB 480-276729/1-A	Method Blank	Total/NA	Solid	9034	276729

Analysis Batch: 277009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	1010A	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	1010A	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	1010A	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	1010A	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	1010A	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	1010A	
480-91551-6 DU	TP1505-112015-0900	Total/NA	Solid	1010A	
LCS 480-277009/1	Lab Control Sample	Total/NA	Solid	1010A	

Analysis Batch: 277058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-91551-1	TP1504-111915-1145	Total/NA	Solid	9045D	
480-91551-2	TP1502-111915-1320	Total/NA	Solid	9045D	
480-91551-3	TP1501-111915-1440	Total/NA	Solid	9045D	
480-91551-4	TP1503-111915-1530	Total/NA	Solid	9045D	
480-91551-5	TP1503-111915-1545	Total/NA	Solid	9045D	
480-91551-6	TP1505-112015-0900	Total/NA	Solid	9045D	
480-91551-6 DU	TP1505-112015-0900	Total/NA	Solid	9045D	
LCS 480-277058/1	Lab Control Sample	Total/NA	Solid	9045D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Client Sample ID: TP1504-111915-1145
Date Collected: 11/19/15 11:45
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 12:27	JWG	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277509	12/01/15 19:02	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 12:55	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF
TCLP	Analysis	7470A		1	276827	11/24/15 16:32	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1504-111915-1145
Date Collected: 11/19/15 11:45
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-1
Matrix: Solid
Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 18:03	JMO	TAL BUF

Client Sample ID: TP1502-111915-1320
Date Collected: 11/19/15 13:20
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 12:51	JWG	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277509	12/01/15 19:28	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 12:58	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Client Sample ID: TP1502-111915-1320
Date Collected: 11/19/15 13:20
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Analysis	7470A		1	276827	11/24/15 16:33	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1502-111915-1320
Date Collected: 11/19/15 13:20
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-2
Matrix: Solid
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 18:17	JMO	TAL BUF

Client Sample ID: TP1501-111915-1440
Date Collected: 11/19/15 14:40
Date Received: 11/21/15 01:50

Lab Sample ID: 480-91551-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 13:15	JWG	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277509	12/01/15 19:54	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 13:02	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF
TCLP	Analysis	7470A		1	276827	11/24/15 16:35	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1501-111915-1440

Lab Sample ID: 480-91551-3
Date Collected: 11/19/15 14:40
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 18:32	JMO	TAL BUF

Client Sample ID: TP1503-111915-1530

Lab Sample ID: 480-91551-4
Date Collected: 11/19/15 15:30
Matrix: Solid
Date Received: 11/21/15 01:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 13:38	JWG	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277509	12/01/15 20:20	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 13:05	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF
TCLP	Analysis	7470A		1	276827	11/24/15 16:36	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1503-111915-1530

Lab Sample ID: 480-91551-4
Date Collected: 11/19/15 15:30
Matrix: Solid
Date Received: 11/21/15 01:50
Percent Solids: 88.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 18:47	JMO	TAL BUF

Client Sample ID: TP1503-111915-1545

Lab Sample ID: 480-91551-5
Date Collected: 11/19/15 15:45
Matrix: Solid
Date Received: 11/21/15 01:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 14:02	JWG	TAL BUF

Client Sample ID: TP1503-111915-1545

Lab Sample ID: 480-91551-5

Date Collected: 11/19/15 15:45

Matrix: Solid

Date Received: 11/21/15 01:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277509	12/01/15 20:46	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 13:18	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF
TCLP	Analysis	7470A		1	276827	11/24/15 16:38	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1503-111915-1545

Lab Sample ID: 480-91551-5

Date Collected: 11/19/15 15:45

Matrix: Solid

Date Received: 11/21/15 01:50

Percent Solids: 75.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 19:02	JMO	TAL BUF

Client Sample ID: TP1505-112015-0900

Lab Sample ID: 480-91551-6

Date Collected: 11/20/15 09:00

Matrix: Solid

Date Received: 11/21/15 01:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			276443	11/23/15 08:40	JLS	TAL BUF
TCLP	Analysis	8260C		10	277923	12/03/15 14:26	JWG	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3510C			276687	11/24/15 11:06	RMZ	TAL BUF
TCLP	Analysis	8270D		1	277687	12/02/15 13:49	CAS	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	3010A			276668	11/24/15 10:50	CMM	TAL BUF
TCLP	Analysis	6010C		1	276979	11/25/15 13:21	AMH	TAL BUF
TCLP	Leach	1311			276440	11/23/15 08:37	JLS	TAL BUF
TCLP	Prep	7470A			276686	11/24/15 12:15	TAS	TAL BUF
TCLP	Analysis	7470A		1	276827	11/24/15 16:40	TAS	TAL BUF
Total/NA	Analysis	1010A		1	277009	11/25/15 16:49	ZRJ	TAL BUF

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Client Sample ID: TP1505-112015-0900

Lab Sample ID: 480-91551-6

Date Collected: 11/20/15 09:00

Matrix: Solid

Date Received: 11/21/15 01:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7.3.3			276723	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9012		1	276842	11/24/15 16:18	LAW	TAL BUF
Total/NA	Prep	7.3.4			276729	11/24/15 04:15	LAW	TAL BUF
Total/NA	Analysis	9034		1	276884	11/25/15 07:55	LAW	TAL BUF
Total/NA	Analysis	9045D		1	277058	11/25/15 19:15	MGH	TAL BUF
Total/NA	Analysis	9095B		1	276547	11/23/15 10:40	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	276276	11/21/15 07:38	CSW	TAL BUF

Client Sample ID: TP1505-112015-0900

Lab Sample ID: 480-91551-6

Date Collected: 11/20/15 09:00

Matrix: Solid

Date Received: 11/21/15 01:50

Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			276503	11/23/15 12:01	CAM	TAL BUF
Total/NA	Analysis	8082A		1	276545	11/23/15 19:17	JMO	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury
9012	7.3.3	Solid	Cyanide, Reactive
9034	7.3.4	Solid	Sulfide, Reactive
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL BUF
9012	Cyanide, Reactive	SW846	TAL BUF
9034	Sulfide, Reactive	SW846	TAL BUF
9045D	pH	SW846	TAL BUF
9095B	Paint Filter	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: RG&E Seneca Falls MGP Site

TestAmerica Job ID: 480-91551-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-91551-1	TP1504-111915-1145	Solid	11/19/15 11:45	11/21/15 01:50
480-91551-2	TP1502-111915-1320	Solid	11/19/15 13:20	11/21/15 01:50
480-91551-3	TP1501-111915-1440	Solid	11/19/15 14:40	11/21/15 01:50
480-91551-4	TP1503-111915-1530	Solid	11/19/15 15:30	11/21/15 01:50
480-91551-5	TP1503-111915-1545	Solid	11/19/15 15:45	11/21/15 01:50
480-91551-6	TP1505-112015-0900	Solid	11/20/15 09:00	11/21/15 01:50

Chain of Custody Record

Temperature on Receipt _____

Drinking Water? Yes☐ No☐

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124 (1007)

Client	Project Manager	Date	Chain of Custody Number
Haley & Aldrich	Doug Allen	11/20/15	292378
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page** 1 of 1
3 Bedford Farms Drive	603-391-3320		
City / **State** / **Zip Code**	**Site Contact**	**Lab Contact**	
Bedford / NH / 03110		M. Deyo	
Project Name and Location (State)	**Carrier/Waybill Number**		
Seneca Falls MGP site			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH
TP1504-111915-1145	11/19/15	1145				X	6					
TP1502-111915-1320		1320				X	6					
TP1501-111915-1440		1440				X	6					
TP1503-111915-1530		1530				X	6					
TP1503-111915-1545		1545				X	6					
TP1505-112015-0900	11/20/15	0900				X	6					
						R.S.L.						

Analysis (Attach list if more space is needed): TCLP Volatiles; TCLP Semi Volatiles; TCLP RCRA metals; PCBs; Reactive cyanide; Reactive sulfide; Flashpoint; Percent solids; Paint Filter (Free liquids); pH (Corrosivity)

Special Instructions/ Conditions of Receipt

Normal

480-91551 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other Std

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Robert Archibald	11/20/15	1240	1. Received By: S/R	11/20/15	1240
2. Relinquished By: Reliquish, Syr	11-20-15	1910	2. Received By: TAO	11-21-15	0150
3. Relinquished By:			3. Received By:		

Comments

0.2, 0.1 #1

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 480-91551-1

Login Number: 91551
List Number: 1
Creator: Williams, Christopher S

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	H AND A
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

APPENDIX E

Treatability Testing Results

Timely
Engineering
Soil
Tests, LLC

1874 Forge Street
Tucker, GA 30084
Office: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Standard Test Method for

SOIL-GROUT MIXING MOLDING PROCEDURE

1.0 SCOPE

1.1 This test method covers the laboratory preparation of grout and grout-soil mixtures to be used for physical property test measurements. This method applies to laboratory mixed and cast specimens and has partial application for samples mixed and/or cast in the field

2.0 REFERENCED DOCUMENTS

2.1 ASTM Standards:

C 143 Standard Test Method for Slump of Hydraulic-Cement Concrete
C 192 Practice for Making and Curing Concrete Test Specimens in the Laboratory
D 6910 Standard Test Method for Marsh Funnel Viscosity of Clay Construction Slurries
D1632 Standard Practice for Making and Curing Soil-Cement Test Specimens in the Laboratory
C 511 Specification for Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
D 1633 Test Method for Compressive Strength of Molded Soil-Cement Cylinders
D 4832 Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

3.0 SUMMARY OF PROCEDURE

3.1 Ingredients of a predetermined composition are mixed in the laboratory and cast in plastic molds. Following an initial cure period, test specimens are either trimmed or capped to appropriate ASTM end conditions relative to smoothness, perpendicularity and surface texture.

4.0 SAFETY

4.1 Wear latex gloves whenever handling samples.

4.2 Wear safety glasses in active laboratory areas.

4.3 Use caution when handling any contaminated materials. Wear protective clothing and use hoods.

4.4 Use caution when using the mixer. Keep mixing utensils and loose clothing away from mobile mixer attachments.

4.5 Use caution when handling knife. Be careful not to cut yourself.

5.0 APPARATUS AND MATERIALS

5.1 Stainless Steel Bowl

5.2 Mixer: an electric hand-held mixer capable of mixing batches at a fixed speed.

5.3 Mixer Attachments

5.4 Spatulas

5.5 5/8” (Diameter) Tamping Rod (L=16-24”): used for compaction and removing voids in sample. Slump Mold (metal or plastic), see Fig. 1 of ASTM C143/143M, or modified mold with proportional dimensions, if there are not sufficient amount of material (soil-grout) to use standard size slump mold.

5.6 Balance: of 0.01 gram readability (class GP1).

5.7 Balance: of 0.1 gram readability (class GP2).

5.8 Graduated Cylinder, Marsh Funnel per ASTM D6910

5.9 2” x 4” Plastic Molds, or 3”x6”.

5.10 3” x 3” Plastic Molds

5.11 Knife, straightedge

5.12 Spoons and Scoops

5.13 Humidity Meter and Thermometer

5.14 Humidity Chamber

6.0 SAMPLE PREPARATION

6.1 Remove oversize gravel. Thoroughly mix soil in order to achieve uniform distribution of soil particles and moisture content and keep composite in a plastic bag inside of a plastic drum with cover.

6.2 Take moisture content of soil composite and record.

6.3 Using mixture recipe, determine the necessary mass of each constituent. Weigh each item.

7.0 PROCEDURE

7.1 Thoroughly mix dry ingredients except for soil in the stainless steel bowl (grout mixture)

7.2 Measure tap water or liquid requested by client in graduated cylinder (based on requested water/cement ratio) and add to ingredients in bowl. Mix thoroughly using hand-held mixer and spatula.

7.3 Add soil weighed in separate tare to mixed ingredients in stainless steel bowl and mix by electric mixer.

7.3A Place soil-cement mix into slump mold by scoop in 3 layers (approximately 1/3 volume of mold each layer). Rod each layer 25 times over the cross section with the rounded end of the rod. After completion of Top Layer strike off the surface of material with rod and by straightedge make surface horizontal. Remove material around mold. Raise Mold vertically by steady upward lift in 5+/-2 seconds without disturbance of sample. Place mold next to sample cone and measure slump by determining the difference between the top of mold and the displaced original center of the top surface of the specimen. Report slump to the nearest ¼".

7.3B If slump of material is less than requested by client (for example 4-5") collect all material back to the mixing bowl and add some additional water (based on consistency of material, original slump and experience for various soil types). Record additional amount of water and mix again with electric mixer. After mixing repeat step 7.3A of this procedure.

7.3C If slump in previous step is at target, follow to next step. If target slump is not achieve, repeat step 7.3B. Record TOTAL amount of additional water needed to achieve target slump.

7.4 Place the mixture into the appropriate plastic molds. Label mold with sample mixture number and mix date.

7.5 Use a tamping rod, as well as vigorous tapping of the mold against a hard surface, to densify the sample and drive out air bubbles (in 3 layers). Other methods may be acceptable, based on properties of material.

7.6 Check the smoothness and level of the top of the sample with a straightedge.

7.7 Place molds into a humidity chamber. A couple of mold containers full of water were placed in the humidity chamber as well in order to maintain a humid environment for the duration of curing time. Keep molds in humidity chamber to cure until further testing.

7.8 Based on original amount of water (from w/c ratio) and additional amount of water from step 7.3C perform new mix of grout and observe time in seconds needed to empty 1Qt (946mL) Marsh funnel.

8.0 CALCULATIONS

8.1 Not Applicable.

9.0 QUALITY CONTROL

9.1 Ensure that all equipment is thoroughly clean.

9.2 Balance should be calibrated yearly.

9.3 Suggested mixing time is 8 minutes but may vary between projects.

10.0 REPORT

10.1 Record mix design and each prepared sample ID on batch worksheet.

10.1.1 Batch Number (TEST unique control number). Weight of each mix constituent

10.1.2 Moisture content of base soil

10.1.3 Date of mix preparation, number and size of each sample cast from the batch.

10.1.4 Additional amount of water (if needed) to achieve target slump and Final Slump value.

10.1.5 Report viscosity in seconds from step 7.8 (if requested).

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	EB
Date	12/01/15
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Bulk
Sample ID	20967/Composite (TP-15-02/03/04)	Depth/Elev.	-
Location	-	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1363.0
Mass of Dry Sample & Tare, g	1214.8
Mass of Tare, g	158.2
Moisture Content, %	14.0

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	1193.1	1054.40
Mass of Dry Sample & Tare, g	1075.5	955.30
Mass of Tare, g	304.0	298.30
Moisture Content, %	15.2	15.1

Mass of Total Sample before separation on 3/8" sieve & Tare, g	72455
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	63542

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1200.0	101.20
Mass of Tare	0.0	0.0
Dry Mass, g	1041.3	87.94
% of Total Sample passing Split Sieve	90.1	84.0

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE	0.0	0	100
2"	GRAVEL	93.0	0	100
1.5"		694.1	1	99
1"		1981.3	3	97
.75"		3521.4	6	94
.5"	FINE GRAVEL	5418.3	9	91
.375"		6291.4	10	90
#4	COARSE SAND	70.9	7	84

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.92	81
#20	SAND	6.55	78
#40		9.84	75
#60	FINE SAND	17.32	67
#100		39.03	47
#200	FINES	63.85	23

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	10:42

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	7
% COARSE GRAVEL	6	% FINE SAND	52
% FINE GRAVEL	10	% FINES	23
% COARSE SAND	3	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	8	% CLAY(<0.002mm)	5

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
12/02/15	10:44	2	23.0	17.6	0.01399	8.0	15.0	13.9	1.00	0.0369	14.3
12/02/15	10:47	5	21.0	17.6	0.01399	8.0	13.0	14.2	1.00	0.0236	12.4
12/02/15	10:57	15	19.0	17.6	0.01399	8.0	11.0	14.6	1.00	0.0138	10.5
12/02/15	11:12	30	18.0	17.6	0.01399	8.0	10.0	14.7	1.00	0.0098	9.5
12/02/15	11:42	60	17.0	17.6	0.01399	8.0	9.0	14.9	1.00	0.0070	8.6
12/02/15	14:52	250	15.0	17.6	0.01399	8.0	7.0	15.2	1.00	0.0035	6.7
12/03/15	10:42	1440	13.0	17.6	0.01399	8.0	5.0	15.6	1.00	0.0015	4.8

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY ENGINEERING SOIL TESTS, LLC

1874 Forge Street Tucker, GA 30084

Phone: 770-938-8233

Fax: 770-923-8973

Web: www.test-llc.com

Tested By	EB
Date	12/01/15
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Bulk
Sample ID	20967/Composite (TP-15-02/03/04)	Depth/Elev.	-
Location	-	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis

Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: NA

USCS (ASTM D2487; D2488): NA

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	EB
Date	12/01/15
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Bulk
Sample ID	20967/Composite (TP-15-02/03/04)	Depth/Elev.	-
Location	-	Add. Info	-

ASTM D 2216; MOISTURE CONTENT DETERMINATION

Sample ID	Sample Depth, ft	Mass of Wet Sample & Tare, g	Mass of Dry Sample & Tare, g	Mass of Tare, g	Moisture Content, %	Comments
20967/Composite TP-15	-	1193.10	1075.50	304.00	15.2	<3/8" Sieve

REMARKS

Balance ID Number	556/139/566
Oven ID Number	496/610

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	RI
Date	12/01/15
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Bulk
Sample ID	20967/Composite (TP-15-02/03/04)	Depth/Elev.	-
Location	-	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	72455.0	63542.5
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	6291.4	6291.4
Mass of Mat. Retained on 3/4" sieve, g		

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1363.0	6291.4
Mass of Dry Sample & Tare, g	1214.8	6291.4
Mass of Tare, g	158.2	0.0
Moisture Content, %	14.0	0.0

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	9.9
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	9.9

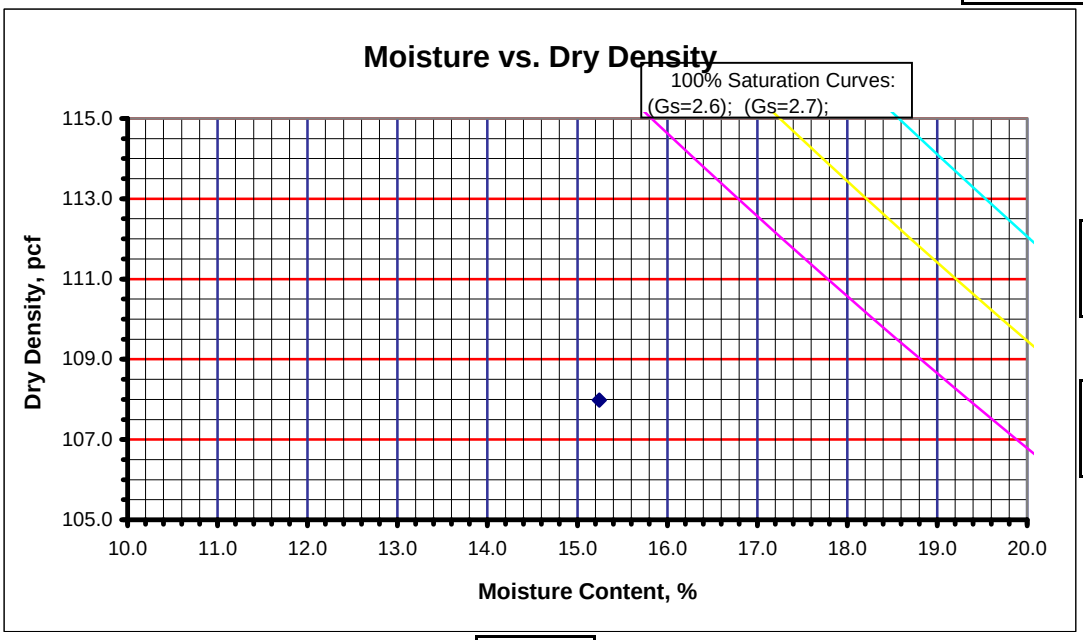
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6091.0				
Mass of Wet Sample & Tare, g	1193.1				
Mass of Dry Sample & Tare, g	1075.5				
Mass of Tare, g	304.0				
Moisture Content, %	15.2				
Wet Density, pcf	124.4				
Dry Density, pcf	108.0				

Mold ID Number	314
Mass of Mold, g	4211.3
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 25%



REMARKS
One Point Proctor was performed on material passing 3/8" sieve @ as-received moisture content.

DESCRIPTION
NA

USCS (ASTM D2487; D2488): NA

AASHTO M145: NA

Maximum Dry Density, pcf		**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %		**Corrected Optimum Moisture Content, %**	**NA**

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Batch Worksheet

	BATCH-SAMPLE ID	20967/(TP-15) - 1			BATCH #	1
Project #	34507-023	1511-01-1	Location	-	MIXING TECH	AV/RI
Project Name	Seneca Falls PDI		Sample Type	Mold	BATCH DATE	12/9/2015
Sample Depth	-		Additional INFO	-	CHECKED BY	

Soil Moisture Mass, g	**1824.0**
Soil Moisture Content, %	**15.2**
Type of Cement Used	I/II
Grout Water/Cem. Mat (Solids) Ratio*	**0.75**
Mass of Dry Soil, g	**12000.0**
Total Water/Cem. Mat. Ratio	**4.742**

Mix Constituents:

Component ID	Component Name	Amount, % (based on soil dry mass)	Amount, g
20967/(TP-15)	**Soil (wet)**	100.0	**13824.0**
15321	GGBFS, Grade 120	4.500	**540.0**
20567	Portland Cement	1.500	**180.0**
	Water, mL	540	

Remarks	
1050	**mL of water was added to achieve target slump**
Slump = 3.75"	
* Cementous Materials (solids) is total mass of GGBFS and cement	

Sample ID				Nominal Mold Size		Required Test	NOTES
Original Soil ID #	Mix Design #	Batch #	Mold #	Diam., in.	Height, in.		
20967/(TP-15)	1	1	1	3	6		Extra/% Swell
20967/(TP-15)	1	1	2	3	6	UCS	28 Days Curing
20967/(TP-15)	1	1	3	3	3		Extra/% Swell
20967/(TP-15)	1	1	4	3	3	Perm	28 Days Curing
20967/(TP-15)	1	1	5	3	3		Extra/% Swell
20967/(TP-15)	1	1	6	3	6		Extra/% Swell
20967/(TP-15)	1	1	7	6	12		Extra/% Swell (partiall)

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Batch Worksheet

	BATCH-SAMPLE ID	20967/(TP-15) - 2			BATCH #	1
Project #	34507-023	1511-01-1	Location	-	MIXING TECH	AV/RI
Project Name	Seneca Falls PDI		Sample Type	Mold	BATCH DATE	12/9/2015
Sample Depth	-		Additional INFO	-	CHECKED BY	

Soil Moisture Mass, g	**1824.0**
Soil Moisture Content, %	**15.2**
Type of Cement Used	I/II
Grout Water/Cem. Mat (Solids) Ratio*	**0.75**
Mass of Dry Soil, g	**12000.0**
Total Water/Cem. Mat. Ratio	**3.281**

Mix Constituents:

Component ID	Component Name	Amount, % (based on soil dry mass)	Amount, g
20967/(TP-15)	**Soil (wet)**	100.0	**13824.0**
15321	GGBFS, Grade 120	6.750	**810.0**
20567	Portland Cement	2.250	**270.0**
	Water, mL	810	

Remarks	
910	**mL of water was added to achieve target slump**

Slump = 4.0"

* Cementous Materials (solids) is total mass of GGBFS and cement

Sample ID				Nominal Mold Size		Required Test	NOTES
Original Soil ID #	Mix Design #	Batch #	Mold #	Diam., in.	Height, in.		
20967/(TP-15)	2	1	1	3	6	UCS	14 Days Curing
20967/(TP-15)	2	1	2	3	6	UCS	28 Days Curing
20967/(TP-15)	2	1	3	3	3	Perm	14 Days Curing
20967/(TP-15)	2	1	4	3	3	Perm	28 Days Curing
20967/(TP-15)	2	1	5	3	3		Extra/% Swell
20967/(TP-15)	2	1	6	3	6		Extra/% Swell
20967/(TP-15)	2	1	7	6	12		Extra/% Swell (partiall)

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Batch Worksheet

	BATCH-SAMPLE ID	20967/(TP-15) - 3			BATCH #	1
Project #	34507-023	1511-01-1	Location	-	MIXING TECH	AV/RI
Project Name	Seneca Falls PDI		Sample Type	Mold	BATCH DATE	12/9/2015
Sample Depth	-		Additional INFO	-	CHECKED BY	

Soil Moisture Mass, g	**1824.0**
Soil Moisture Content, %	**15.2**
Type of Cement Used	I/II
Grout Water/Cem. Mat (Solids) Ratio*	**0.75**
Mass of Dry Soil, g	**12000.0**
Total Water/Cem. Mat. Ratio	**2.468**

Mix Constituents:

Component ID	Component Name	Amount, % (based on soil dry mass)	Amount, g
20967/(TP-15)	**Soil (wet)**	100.0	**13824.0**
15321	GGBFS, Grade 120	9.000	**1080.0**
20567	Portland Cement	3.000	**360.0**
	Water, mL	1080	

Remarks	
650	**mL of water was added to achieve target slump**

Slump = 4.25"

* Cementous Materials (solids) is total mass of GGBFS and cement

Sample ID				Nominal Mold Size		Required Test	NOTES
Original Soil ID #	Mix Design #	Batch #	Mold #	Diam., in.	Height, in.		
20967/(TP-15)	3	1	1	3	6	UCS	14 Days Curing
20967/(TP-15)	3	1	2	3	6	UCS	28 Days Curing
20967/(TP-15)	3	1	3	3	3	Perm	14 Days Curing
20967/(TP-15)	3	1	4	3	3	Perm	28 Days Curing
20967/(TP-15)	3	1	5	3	3		Extra/% Swell
20967/(TP-15)	3	1	6	3	6		Extra/% Swell
20967/(TP-15)	3	1	7	6	12		Extra/% Swell (partiall)

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/EB
Date	01/07/16
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-1-1	Depth/Elev.	-
Subsample	4	Add. Info	Curing Age: 28 Days

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)

Height	2.995	in	7.61	cm
Diameter	2.980	in	7.57	cm
Area	6.97	in^2	45.00	cm^2
Volume	342.31	cm^3	0.0121	ft^3
Mass	672.40	g	1.48	lb
Specific Gravity	2.700	(Assumed)		
Dry Density	97.9	pcf		

Moisture Content

Mass of wet sample & tare	672.40	g
Mass of dry sample & tare	537.00	g
Mass of tare	0.00	g
% Moisture	25.2	

Test Data

Speed	9	
Board Number	19	
Cell Number	15	
Flow Pump Number	2B	
Flow Pump Rate	4.48E-04	cm^3/sec
B - Value	0.95	
Cell Pressure	97.0	psi
Back Pressure	90.0	psi
Confining (Effective) Pressure	7.0	psi
Max Head	92.15	cm
Min Head	91.44	cm
Maximum Gradient	12.17	
Minimum Gradient	12.07	

Final Data (After Test)

Average Height of Sample			2.982	in	7.57 cm
Average Diameter of Sample			2.970	in	7.54 cm
Area	6.93	in^2	44.70	cm^2	
Volume	338.54	cm^3	0.0120	ft^3	
Mass	672.30	g	1.48	lb	

Dry Density	99.0	pcf
Vol. of Voids	139.59	cm^3
Vol. of Solids	198.95	cm^3
Void Ratio	0.70	
Saturation	96.8	%

Moisture Content

Mass of wet sample & tare	753.40	g
Mass of dry sample & tare	618.30	g
Mass of tare	81.30	g
% Moisture	25.2	

TIME FUNCTION			Δ t	READING	Head	Gradient	Temp.	PERMEABILITY (cm/sec)			
DATE	HOUR	MIN	(sec)	(psi)	(cm)		T_x(°C)	@ T_x	R_T	@ 20 °C	
01/07/16	10	40	-	1.31	92.15	12.17	16.8	-	-	-	
01/07/16	10	50	600	1.30	91.44	12.07	16.8	8.27E-07	1.084	8.97E-07	
01/07/16	11	0	600	1.31	92.15	12.17	16.8	8.27E-07	1.084	8.97E-07	
01/07/16	11	10	600	1.30	91.44	12.07	16.8	8.27E-07	1.084	8.97E-07	*
01/07/16	11	20	600	1.31	92.15	12.17	16.8	8.27E-07	1.084	8.97E-07	*
01/07/16	11	30	600	1.31	92.15	12.17	16.8	8.24E-07	1.084	8.93E-07	*
01/07/16	11	40	600	1.31	92.15	12.17	16.8	8.24E-07	1.084	8.93E-07	*

Reported Average Hydraulic Conductivity* 9.0E-07 cm/sec

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487;2488): NA

REMARKS:

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	263
Thermometer ID #	377	Oven ID #	14/15	Board Pressure Transducer ID #	216
Syringe ID #	246			Pore Pressure Transducer ID #	28

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	01/06/16
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-1-1	Depth/Elev.	-
Subsample	2	Add. Info	Curing Age: 28 Days

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.709
Initial Diameter, in	2.989
Height-to-Diameter Ratio	1.91
Area, in^2	7.02
Volume, in^3	40.06
Mass of Sample, g	1284.10
Wet Density, pcf	122.1
Dry Density, pcf	97.2
Machine Speed, in/min	0.050
Strain rate, % / min	0.88

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1577.80
Mass of Dry Sample and Tare, g	1316.50
Mass of Tare, g	295.30
Moisture, %	25.6

Note 1: Water content was obtained after shear from partial sample.

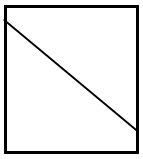
TEST DATA

Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	63
Specimen Cross-sectional Area, in^2	7.02
Compressive Strength at Failure, psi	9
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**9**

Failure Code: 4

Failure Sketch



Failure Type: Shear

*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

DESCRIPTION

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	EB/AV
Date	12/24/15
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-2-1	Depth/Elev.	-
Subsample	3	Add. Info	Curing Age: 14 Days

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)

Height	2.969	in	7.54	cm
Diameter	2.999	in	7.62	cm
Area	7.06	in^2	45.57	cm^2
Volume	343.68	cm^3	0.0121	ft^3
Mass	674.30	g	1.49	lb
Specific Gravity	2.700	(Assumed)		
Dry Density	98.2	pcf		

Moisture Content

Mass of wet sample & tare	674.30	g
Mass of dry sample & tare	540.80	g
Mass of tare	0.00	g
% Moisture	24.7	

Test Data

Speed	10	
Board Number	5	
Cell Number	4	
Flow Pump Number	2A	
Flow Pump Rate	2.24E-04	cm^3/sec
B - Value	0.95	
Cell Pressure	97.0	psi
Back Pressure	90.0	psi
Confining (Effective) Pressure	7.0	psi
Max Head	57.68	cm
Min Head	56.98	cm
Maximum Gradient	7.63	
Minimum Gradient	7.54	

Final Data (After Test)

Average Height of Sample		2.975	in	7.56	cm
Average Diameter of Sample		3.001	in	7.62	cm
Area	7.07 in^2	45.63	cm^2		
Volume	344.83 cm^3	0.0122	ft^3		
Mass	680.40 g	1.50	lb		

Dry Density	97.9	pcf
Vol. of Voids	144.39	cm^3
Vol. of Solids	200.44	cm^3
Void Ratio	0.72	
Saturation	96.4	%

Moisture Content

Mass of wet sample & tare	754.10	g
Mass of dry sample & tare	615.00	g
Mass of tare	74.20	g
% Moisture	25.7	

TIME FUNCTION			Δ t	READING	Head	Gradient	Temp.	PERMEABILITY (cm/sec)			
DATE	HOUR	MIN	(sec)	(psi)	(cm)		T_x(°C)	@ T_x	R_T	@ 20 °C	
12/24/15	7	0	-	0.82	57.68	7.63	20.1	-	-	-	
12/24/15	7	10	600	0.81	56.98	7.54	20.1	6.47E-07	0.998	6.46E-07	
12/24/15	7	20	600	0.82	57.68	7.63	20.1	6.47E-07	0.998	6.46E-07	
12/24/15	7	30	600	0.81	56.98	7.54	20.1	6.47E-07	0.998	6.46E-07	*
12/24/15	7	40	600	0.82	57.68	7.63	20.1	6.47E-07	0.998	6.46E-07	*
12/24/15	7	50	600	0.82	57.68	7.63	20.1	6.43E-07	0.998	6.42E-07	*
12/24/15	8	0	600	0.82	57.68	7.63	20.1	6.43E-07	0.998	6.42E-07	*

Reported Average Hydraulic Conductivity* 6.4E-07 cm/sec

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487;2488): NA

REMARKS:

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	262
Thermometer ID #	377	Oven ID #	14/15	Board Pressure Transducer ID #	216
Syringe ID #	245			Pore Pressure Transducer ID #	28

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/EB
Date	01/07/16
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-2-1	Depth/Elev.	-
Subsample	4	Add. Info	Curing Age: 28 Days

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)

Height	2.899	in	7.36	cm
Diameter	2.994	in	7.60	cm
Area	7.04	in^2	45.42	cm^2
Volume	334.46	cm^3	0.0118	ft^3
Mass	656.50	g	1.45	lb
Specific Gravity	2.700	(Assumed)		
Dry Density	98.5	pcf		

Moisture Content

Mass of wet sample & tare	656.50	g
Mass of dry sample & tare	527.70	g
Mass of tare	0.00	g
% Moisture	24.4	

Test Data

Speed	10	
Board Number	7	
Cell Number	3	
Flow Pump Number	2B	
Flow Pump Rate	2.24E-04	cm^3/sec
B - Value	0.95	
Cell Pressure	97.0	psi
Back Pressure	90.0	psi
Confining (Effective) Pressure	7.0	psi
Max Head	75.26	cm
Min Head	74.56	cm
Maximum Gradient	10.22	
Minimum Gradient	10.13	

Final Data (After Test)

Average Height of Sample		2.899	in	7.36	cm
Average Diameter of Sample		2.993	in	7.60	cm
Area	7.04 in^2	45.39	cm^2		
Volume	334.24 cm^3	0.0118	ft^3		
Mass	665.00 g	1.47	lb		

Dry Density	98.6	pcf
Vol. of Voids	138.61	cm^3
Vol. of Solids	195.62	cm^3
Void Ratio	0.71	
Saturation	98.7	%

Moisture Content

Mass of wet sample & tare	745.70	g
Mass of dry sample & tare	609.00	g
Mass of tare	81.30	g
% Moisture	25.9	

TIME FUNCTION			Δ t	READING	Head	Gradient	Temp.	PERMEABILITY (cm/sec)			
DATE	HOUR	MIN	(sec)	(psi)	(cm)		T_x(°C)	@ T_x	R_T	@ 20 °C	
01/07/16	9	30	-	1.07	75.26	10.22	16.8	-	-	-	
01/07/16	9	40	600	1.06	74.56	10.13	16.8	4.85E-07	1.084	5.26E-07	
01/07/16	9	50	600	1.07	75.26	10.22	16.8	4.85E-07	1.084	5.26E-07	
01/07/16	10	0	600	1.06	74.56	10.13	16.8	4.85E-07	1.084	5.26E-07	*
01/07/16	10	10	600	1.07	75.26	10.22	16.8	4.85E-07	1.084	5.26E-07	*
01/07/16	10	20	600	1.07	75.26	10.22	16.8	4.83E-07	1.084	5.23E-07	*
01/07/16	10	30	600	1.07	75.26	10.22	16.8	4.83E-07	1.084	5.23E-07	*

Reported Average Hydraulic Conductivity* 5.2E-07 cm/sec

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487;2488): NA

REMARKS:

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	263
Thermometer ID #	377	Oven ID #	14/15	Board Pressure Transducer ID #	215
Syringe ID #	246			Pore Pressure Transducer ID #	28

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	12/23/15
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-2-1	Depth/Elev.	-
Subsample	1	Add. Info	Curing Age: 14 Days

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.751
Initial Diameter, in	3.009
Height-to-Diameter Ratio	1.91
Area, in^2	7.11
Volume, in^3	40.90
Mass of Sample, g	1309.20
Wet Density, pcf	122.0
Dry Density, pcf	97.1
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1516.00
Mass of Dry Sample and Tare, g	1249.50
Mass of Tare, g	208.10
Moisture, %	25.6

Note 1: Water content was obtained after shear from partial sample.

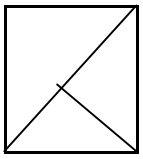
TEST DATA

Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	160
Specimen Cross-sectional Area, in^2	7.11
Compressive Strength at Failure, psi	23
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**23**

Failure Code: 3

Failure Sketch



Failure Type: Cone and Shear

*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

DESCRIPTION

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	01/06/16
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-2-1	Depth/Elev.	-
Subsample	2	Add. Info	Curing Age: 28 Days

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD **B**

SAMPLE DATA

Initial Height, in	5.721
Initial Diameter, in	3.007
Height-to-Diameter Ratio	1.90
Area, in^2	7.10
Volume, in^3	40.63
Mass of Sample, g	1297.30
Wet Density, pcf	121.6
Dry Density, pcf	96.6
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1592.50
Mass of Dry Sample and Tare, g	1326.60
Mass of Tare, g	297.10
Moisture, %	25.8

Note 1: Water content was obtained after shear from partial sample.

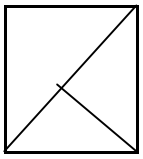
TEST DATA

Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	249
Specimen Cross-sectional Area, in^2	7.10
Compressive Strength at Failure, psi	35
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**35**

Failure Code: 3

Failure Sketch



*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

DESCRIPTION

Failure Type: Cone and Shear

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	EB/AV
Date	12/24/15
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-3-1	Depth/Elev.	-
Subsample	3	Add. Info	Curing Age: 14 Days

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)

Height	2.926	in	7.43	cm
Diameter	3.002	in	7.63	cm
Area	7.08	in^2	45.66	cm^2
Volume	339.38	cm^3	0.0120	ft^3
Mass	659.60	g	1.45	lb
Specific Gravity	2.700	(Assumed)		
Dry Density	97.4	pcf		

Moisture Content

Mass of wet sample & tare	659.60	g
Mass of dry sample & tare	529.50	g
Mass of tare	0.00	g
% Moisture	24.6	

Test Data

Speed	10	
Board Number	6	
Cell Number	6	
Flow Pump Number	2B	
Flow Pump Rate	2.24E-04	cm^3/sec
B - Value	0.95	
Cell Pressure	97.0	psi
Back Pressure	90.0	psi
Confining (Effective) Pressure	7.0	psi
Max Head	97.77	cm
Min Head	97.07	cm
Maximum Gradient	13.14	
Minimum Gradient	13.04	

Final Data (After Test)

Average Height of Sample			2.930	in	7.44 cm
Average Diameter of Sample			2.998	in	7.61 cm
Area	7.06	in^2	45.54	cm^2	
Volume	338.94	cm^3	0.0120	ft^3	
Mass	670.30	g	1.48	lb	

Dry Density	97.6	pcf
Vol. of Voids	142.68	cm^3
Vol. of Solids	196.26	cm^3
Void Ratio	0.73	
Saturation	98.4	%

Moisture Content

Mass of wet sample & tare	753.80	g
Mass of dry sample & tare	613.50	g
Mass of tare	84.00	g
% Moisture	26.5	

TIME FUNCTION			Δ t	READING	Head	Gradient	Temp.	PERMEABILITY (cm/sec)			
DATE	HOUR	MIN	(sec)	(psi)	(cm)		T_x(°C)	@ T_x	R_T	@ 20 °C	
12/24/15	7	0	-	1.39	97.77	13.14	20.1	-	-	-	
12/24/15	7	10	600	1.38	97.07	13.04	20.1	3.76E-07	0.998	3.75E-07	
12/24/15	7	20	600	1.39	97.77	13.14	20.1	3.76E-07	0.998	3.75E-07	
12/24/15	7	30	600	1.38	97.07	13.04	20.1	3.76E-07	0.998	3.75E-07	*
12/24/15	7	40	600	1.39	97.77	13.14	20.1	3.76E-07	0.998	3.75E-07	*
12/24/15	7	50	600	1.38	97.07	13.04	20.1	3.76E-07	0.998	3.75E-07	*
12/24/15	8	0	600	1.39	97.77	13.14	20.1	3.76E-07	0.998	3.75E-07	*

Reported Average Hydraulic Conductivity* 3.7E-07 cm/sec

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487;2488): NA

REMARKS:

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	263
Thermometer ID #	377	Oven ID #	14/15	Board Pressure Transducer ID #	216
Syringe ID #	246			Pore Pressure Transducer ID #	28

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/EB
Date	01/07/16
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-3-1	Depth/Elev.	-
Subsample	4	Add. Info	Curing Age: 28 Days

ASTM D 5084; Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Method D, Constant Rate of Flow)

Initial Sample Data (Before Test)

Height	2.899	in	7.36	cm
Diameter	3.013	in	7.65	cm
Area	7.13	in^2	46.00	cm^2
Volume	338.72	cm^3	0.0120	ft^3
Mass	652.20	g	1.44	lb
Specific Gravity	2.700	(Assumed)		
Dry Density	97.0	pcf		

Moisture Content

Mass of wet sample & tare	652.20	g
Mass of dry sample & tare	526.80	g
Mass of tare	0.00	g
% Moisture	23.8	

Test Data

Speed	10	
Board Number	8	
Cell Number	4	
Flow Pump Number	2A	
Flow Pump Rate	2.24E-04	cm^3/sec
B - Value	0.95	
Cell Pressure	97.0	psi
Back Pressure	90.0	psi
Confining (Effective) Pressure	7.0	psi
Max Head	129.43	cm
Min Head	128.72	cm
Maximum Gradient	17.58	
Minimum Gradient	17.49	

Final Data (After Test)

Average Height of Sample		2.898	in	7.36	cm
Average Diameter of Sample		3.014	in	7.66	cm
Area	7.13 in^2	46.03	cm^2		
Volume	338.83 cm^3	0.0120	ft^3		
Mass	665.70 g	1.47	lb		

Dry Density	97.1	pcf
Vol. of Voids	143.54	cm^3
Vol. of Solids	195.29	cm^3
Void Ratio	0.74	
Saturation	96.4	%

Moisture Content

Mass of wet sample & tare	749.40	g
Mass of dry sample & tare	611.10	g
Mass of tare	84.30	g
% Moisture	26.3	

TIME FUNCTION			Δ t	READING	Head	Gradient	Temp.	PERMEABILITY (cm/sec)			
DATE	HOUR	MIN	(sec)	(psi)	(cm)		T_x(^oC)	@ T_x	R_T	@ 20 ^oC	
01/07/16	9	30	-	1.84	129.43	17.58	16.8	-	-	-	
01/07/16	9	40	600	1.83	128.72	17.49	16.8	2.78E-07	1.084	3.01E-07	
01/07/16	9	50	600	1.84	129.43	17.58	16.8	2.78E-07	1.084	3.01E-07	
01/07/16	10	0	600	1.83	128.72	17.49	16.8	2.78E-07	1.084	3.01E-07	*
01/07/16	10	10	600	1.84	129.43	17.58	16.8	2.78E-07	1.084	3.01E-07	*
01/07/16	10	20	600	1.84	129.43	17.58	16.8	2.77E-07	1.084	3.00E-07	*
01/07/16	10	30	600	1.84	129.43	17.58	16.8	2.77E-07	1.084	3.00E-07	*

Reported Average Hydraulic Conductivity* 3.0E-07 cm/sec

Note: Deaired Water Used for Permeability Test.

DESCRIPTION: NA

USCS (ASTM D2487;2488): NA

REMARKS:

Flow pump ID #	244	Balance ID #	1/6/7	Differential Pressure Transducer ID #	262
Thermometer ID #	377	Oven ID #	14/15	Board Pressure Transducer ID #	215
Syringe ID #	245			Pore Pressure Transducer ID #	28

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	12/23/15
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-3-1	Depth/Elev.	-
Subsample	1	Add. Info	Curing Age: 14 Days

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.728
Initial Diameter, in	3.006
Height-to-Diameter Ratio	1.91
Area, in^2	7.10
Volume, in^3	40.65
Mass of Sample, g	1293.50
Wet Density, pcf	121.2
Dry Density, pcf	96.7
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1498.20
Mass of Dry Sample and Tare, g	1236.90
Mass of Tare, g	205.80
Moisture, %	25.3

Note 1: Water content was obtained after shear from partial sample.

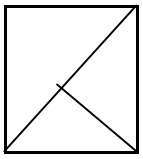
TEST DATA

Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	282
Specimen Cross-sectional Area, in^2	7.10
Compressive Strength at Failure, psi	40
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**40**

Failure Code: 3

Failure Sketch



Failure Type: Cone and Shear

*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

DESCRIPTION

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	01/06/16
Checked By	

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-3-1	Depth/Elev.	-
Subsample	2	Add. Info	Curing Age: 28 Days

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.719
Initial Diameter, in	3.007
Height-to-Diameter Ratio	1.90
Area, in^2	7.10
Volume, in^3	40.61
Mass of Sample, g	1294.30
Wet Density, pcf	121.4
Dry Density, pcf	97.0
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1588.50
Mass of Dry Sample and Tare, g	1329.10
Mass of Tare, g	296.40
Moisture, %	25.1

Note 1: Water content was obtained after shear from partial sample.

TEST DATA

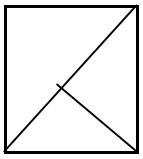
Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	472
Specimen Cross-sectional Area, in^2	7.10
Compressive Strength at Failure, psi	66
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**66**

Failure Code: 3

*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

Failure Sketch



DESCRIPTION

Failure Type: Cone and Shear

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	02/08/16
Checked By	VB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-2-1	Depth/Elev.	-
Subsample	6	Add. Info	Curing Age: 61 Day

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.729
Initial Diameter, in	3.007
Height-to-Diameter Ratio	1.91
Area, in^2	7.10
Volume, in^3	40.69
Mass of Sample, g	1299.10
Wet Density, pcf	121.6
Dry Density, pcf	97.1
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1603.80
Mass of Dry Sample and Tare, g	1343.10
Mass of Tare, g	307.00
Moisture, %	25.2

Note 1: Water content was obtained after shear from partial sample.

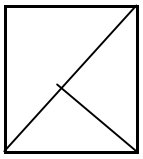
TEST DATA

Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	309
Specimen Cross-sectional Area, in^2	7.10
Compressive Strength at Failure, psi	44
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**44**

Failure Code: 3

Failure Sketch



*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

DESCRIPTION

Failure Type: Cone and Shear

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	AV/RI
Date	02/08/16
Checked By	LB

Client Pr. #	34507-023	Lab. PR. #	1511-01-1
Pr. Name	Seneca Falls PDI	S. Type	Mold
Sample ID	20967/Composite (TP-15-02/03/04)-3-1	Depth/Elev.	-
Subsample	6	Add. Info	Curing Age: 61 Day

ASTM D 1633: Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders

METHOD B

SAMPLE DATA

Initial Height, in	5.775
Initial Diameter, in	3.003
Height-to-Diameter Ratio	1.92
Area, in^2	7.08
Volume, in^3	40.90
Mass of Sample, g	1300.70
Wet Density, pcf	121.1
Dry Density, pcf	97.1
Machine Speed, in/min	0.050
Strain rate, % / min	0.87

WATER CONTENT DETERMINATION

Mass of Wet Sample and Tare, g	1594.30
Mass of Dry Sample and Tare, g	1337.50
Mass of Tare, g	297.20
Moisture, %	24.7

Note 1: Water content was obtained after shear from partial sample.

TEST DATA

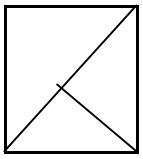
Load Cell ID #	11	Digital Caliper ID #	16
Compression Device ID #	10	Readout Device ID #	10
Balance ID #	1/7	Oven ID #	12/13/14

Maximum Load at Failure, lbf	567
Specimen Cross-sectional Area, in^2	7.08
Compressive Strength at Failure, psi	80
Conversion Factor for Height to Diameter Ratio	1.00
Reported Compressive Strength at Failure, psi	**80**

Failure Code: 3

*Note 2: * - A conversion factor based on H/D=1.15 (C.F.-.908 as 100% and add. correction per ASTM C42)*

Failure Sketch



DESCRIPTION

Failure Type: Cone and Shear

USCS (ASTM D2487: D2488)

REMARKS

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

SUMMARY of TESTING

T.E.S.T. Project Number: 1511-01
Project Name: Seneca Falls PDI

Sample Identification										Grain Size Distribution			Additional Tests			Unit Weight*		
T.E.S.T. Sample No.	Client Base Material ID	Mix Design No.	Batch No.	Spec. No.	Slump inch	Admix Cement I/II %	Curing Age, days	UCS, psi	Moisture Content*, %	% Finer 3/8" Sieve	% Finer #200 Sieve	% Finer 0.005mm	Grout Visc.s	Swell %		Wet Density, pcf	Dry Density, pcf	Hydraul. Conduct. cm/sec
1511-01-1																		
* = Parameter for Material Passing 3/8" Sieve																		
** = Parameter for One Point Standard Proctor (Material Passing 3/8" Sieve @ as-received Moisture Content)																		
20967	TP-15	-	-	-	-	-	-	-	15.2*	90	23	8	-	-	-	124.4**	108**	-
20967	TP-15	1	1	1	3.75	6	-	-	-	-	-	-	33	-	-	-	-	-
20967	TP-15	1	1	2	-	6	28	9	25.6	-	-	-	-	-	-	122.1	97.2	-
20967	TP-15	1	1	3	-	6	-	-	-	-	-	-	-	-	-	-	-	-
20967	TP-15	1	1	4	-	6	28	-	25.2	-	-	-	-	-	-	122.6	97.9	9.0E-07
20967	TP-15	1	1	5	-	6	-	-	-	-	-	-	-	-	-	-	-	-
20967	TP-15	1	1	6	-	6	-	-	-	-	-	-	-	15.7	-	-	-	-
20967	TP-15	2	1	1	4	9	14	23	25.6	-	-	-	34	-	-	122.0	97.1	-
20967	TP-15	2	1	2	-	9	28	35	25.8	-	-	-	-	-	-	121.6	96.6	-
20967	TP-15	2	1	3	-	9	14	-	24.7	-	-	-	-	-	-	122.5	98.2	6.4E-07
20967	TP-15	2	1	4	-	9	28	-	24.4	-	-	-	-	-	-	122.5	98.5	5.2E-07
20967	TP-15	2	1	5	-	9	-	-	-	-	-	-	-	18.5	-	-	-	-
20967	TP-15	2	1	6	-	9	61	44	25.2	-	-	-	-	-	-	121.6	97.1	-
20967	TP-15	3	1	1	4.25	12	14	40	25.3	-	-	-	36	-	-	121.2	96.7	-
20967	TP-15	3	1	2	-	12	28	66	25.1	-	-	-	-	-	-	121.4	97.0	-
20967	TP-15	3	1	3	-	12	14	-	24.6	-	-	-	-	-	-	121.4	97.4	3.7E-07
20967	TP-15	3	1	4	-	12	28	-	23.8	-	-	-	-	-	-	120.1	97.0	3.0E-07
20967	TP-15	3	1	5	-	12	28	-	-	-	-	-	-	21.2	-	-	-	-
20967	TP-15	3	1	6	-	12	61	80	24.7	-	-	-	-	-	-	121.1	97.1	-

APPENDIX D

Citizen Participation Plan

HALEY ALDRICH

HALEY ALDRICH

www.haleyaldrich.com

CITIZEN PARTICIPATION PLAN

SENECA FALLS FORMER MGP SITE, NYSDEC SITE # 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Electric and Gas Corporation (NYSEG)
Binghamton, New York

File No. 34507-026
December 2017

Table of Contents

1. Introduction

New York State Electric & Gas Corporation (NYSEG) is preparing to implement a Remedial Action involving the excavation and in-situ solidification (ISS) of coal tar impacted soils and sediment associated with the Seneca Falls Former Manufactured Gas Plant (MGP) Site (the Site) located in Seneca Falls, Seneca County, New York. This Citizen Participation Plan (CPP) will detail citizen participation activities that will be implemented for this remedial action.

The proposed Remedial Action will involve excavation, ISS, and capping of coal tar impacted soil, sediment, and debris. The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected the remedy for the Site, as established in the Record of Decision (ROD) (NYSDEC, 2015). The Remedial Action will be conducted per the ROD, the Administrative Order on Consent (Index No. D0-0002-9309 [NYSDEC, 1994]) between NYSDEC and NYSEG, and in accordance with DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) and 6 NYCRR Part 375 Environmental Remediation Programs. The Order on Consent requires that work conducted by NYSEG at the Site be performed under the oversight of NYSDEC and NYSDOH.

2. Remedial Action Objectives

The primary objectives of the remedial action, as required by the ROD, include:

2.1 GROUNDWATER

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.
- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

2.2 SOIL

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminants in soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.3 SEDIMENT

- Prevent direct contact with contaminated sediments.
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

2.4 SOIL VAPOR

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

3. Interested/Affected Public

NYSDEC maintains a database to facilitate distribution of information to help keep the community informed about and involved in the remedial program for the Site. The database includes adjacent property owners; local, regional, and state officials; local media; civic, environmental, and other organizations. Names can be added to the database by contacting the individuals listed in Section 5.0 (Additional Information), or by completing an "interested party mailer" that is included with NYSEG mailings for this Site. Fact sheets and meeting notices that update the public on the progress of the remedial program will be distributed to the public via mail and public notices.

4. Description of Citizen Participation Activities

To facilitate the Remedial Action Design process, NYSEG in cooperation with NYSDEC and NYSDOH, will inform the public and local officials of planned remedial activities. Public participation will include at least the following:

- A fact sheet prepared by the NYSDEC describing the planned remedial activities will be distribution to the parties identified in Section 3.0.
- A public availability session will be held by NYSDEC, in conjunction with NYSDOH and NYSEG, prior to the Remedial Action to describe the planned activities at the Site.
- A phone number for the public to call with questions or concerns that may arise during the project will be posted at the Site.

Notice of the public availability session will be provided by either NYSDEC or NYSEG via mailing list and notices through the local media.

5. Additional Information

For additional information about this project you may contact the following individuals:

NYSEG: Mr. Jeremy Wolf, Manager Programs/Projects
1300 Scottsville Road
Rochester, New York 14624
Phone: (585) 724-8548
Cellular Phone: (585) 500-8392
E-mail: Jeremy_Wolf@rge.com

NYSDEC: Mr. Douglas MacNeal: Project Manager
NYSDEC
625 Broadway
Albany, New York 12233-7014
Phone: (518) 402-9662
E-mail: douglas.macneal@dec.ny.gov

NYSDOH: Steven Karpinski: Public Health Specialist
NYSDOH
547 River Street
Troy, New York 12180-2216
Phone: (518) 402-7880
E-mail: beei@health.state.ny.us

6. Document Repositories

Document repositories have been established to provide the public with convenient access to important project-related documents and information. The repositories listed below include reports, data, and other relevant information developed during the course of the remedial program at the Seneca Falls Former MGP Site.

Seneca Falls Library
47 Cayuga Street
Seneca Falls, New York 13148
www.senecafallslibrary.org
(315) 568-8265
Hours: M-F 10-8; Sat 10-5; Sun 2-5 (Closed June thru August)

New York State Department of Environmental Conservation
Central Office, 625 Broadway 11th Floor
Albany, New York 12233-7014
Attn: Mr. Douglas MacNeal
(518) 402-9662
(By appointment only)

References

1. New York State Department of Environmental Conservation, 1994. Administrative Order on Consent Index No. D0-0002-9309.

2. New York State Department of Environmental Conservation, 2006. "6 NYCRR Part 375 Environmental Remediation Programs," dated December 2006.

3. New York State Department of Environmental Conservation, 2010. "DER-10 Technical Guidance for Site Investigation and Remediation," dated May 2010.

4. New York State Department of Environmental Conservation, 2015. "Record of Decision, Seneca Falls Former MGP Site, Site No. 8-50-010, Seneca Falls, New York," dated March 2015.

APPENDIX E

Community Air Monitoring Plan

HALEY ALDRICH

HALEY ALDRICH

www.haleyaldrich.com

COMMUNITY AIR MONITORING PLAN

SENECA FALLS FORMER MGP SITE, NYSDEC SITE # 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Electric and Gas Corporation (NYSEG)
Binghamton, New York

File No. 34507-026
December 2017

Table of Contents

1. Introduction

This Community Air Monitoring Plan (CAMP) was prepared for work associated with the Seneca Falls Former Manufactured Gas Plant (MGP) Site (the Site) and supplements the Remedial Design (RD) (Haley & Aldrich, Inc., 2017). Per Appendix 1A of the DER-10 Technical Guidance for Site Investigation and Remediation (New York State Department of Environmental Conservation [NYSDEC], 2010), "a Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of the site when certain activities are in progress at contaminated sites".

The purpose of this CAMP is to describe the monitoring activities that will be conducted by the Remediation Engineer to monitor for potential airborne releases of constituents of concern during the implementation of remedial activities. This CAMP specifies the air emission action levels, air monitoring procedures, monitoring schedule, and data collection and reporting to be performed during the implementation of remedial activities. While the Remediation Engineer is responsible for providing labor, materials, and equipment necessary to implement the CAMP, the Remediation Contractor is responsible for ensuring corrective measures associated with the community air monitoring program (including the control of dust, vapors, and odors) are successfully implemented.

1.1 SITE LOCATION AND DESCRIPTION

The footprint of the Site is located at 187 Fall Street, Seneca Falls, Seneca County, New York. The Site is located adjacent to the Seneca River and Canal, which flows east towards Cayuga Lake. The Seneca River and Canal is classified as Class C surface water in the vicinity of the Site. The Site consists of an approximately 1.2-acre parcel currently owned by New York State Electric & Gas Corporation (NYSEG) and located in a mixed residential/commercial area. The Site is bordered by Fall Street to the north, residential properties (181-183 and 185 Fall Street) to the east, a Sunoco gasoline filling station (193 Fall Street) to the west, and the Seneca River and Canal to the south. NYSEG currently owns 185 Fall Street, which abuts the Site to the east.

The parcel located at 187 Fall Street is physically defined by Upland and Lowland Areas separated by a steep slope running east-west, located in the approximate center of the parcel. The Upland Area of the parcel consists of a building floor slab and a paved vehicle parking lot located immediately west of the floor slab. The Upland Area is generally flat with an elevation of approximately 456 feet (ft) above mean sea level, bordered to the south by the steep slope and the Lowland Area of the Site. The steep slope and Lowland Area are heavily vegetated. The Lowland Area of the Site gently slopes south to the Seneca River and Canal, with elevations from approximately 430 ft to 433 ft above sea level. Surface drainage (at a macro scale) appears to be to the south toward the Seneca River and Canal. There is a catch basin present on the Upland Area of the Site that drains northerly to a storm sewer line beneath Fall Street.

1.2 SUMMARY OF REMEDIAL ACTIVITIES

The remedial activities to be performed at the Site include:

- Excavation of on-site subsurface structures such as building foundations, the upper portion of the buried former gas holder, and buried piping, which would otherwise interfere with in-situ solidification (ISS) of impacted soils.

- ISS of the on-site impacted materials covering an area of approximately half an acre to depths from six feet to 23 feet below grade.
- A demarcation layer, clean soil cover, and gravel parking lot constructed following ISS.
- Excavation and off-site disposal of off-site soil which exceeds Residential Use soil cleanup objectives (SCOs). The excavation will be backfilled with soils meeting the clean fill requirements.
- Vegetated clean soil caps in two portions of the Lowland Area.
- Dredging of sediment with MGP impacts in the Seneca River and Canal adjacent to the Site. The sediments will be replaced with backfill which meets NYSDEC's chemical and gradation requirements and will restore the benthic habitat.
- Monitored natural attenuation of groundwater.
- Imposition of institutional controls in the form of environmental easements.
- Development of a Site Management Plan (SMP) to identify, maintain, and monitor the institutional and engineering controls at the Site.

1.3 POTENTIAL AIR EMISSIONS RELATED TO REMEDIAL ACTIVITIES

As defined in the New York State Department of Health (NYSDOH) Generic CAMP (included as Appendix E1), intrusive remedial activities to be performed at the Site have the potential to generate localized impacts to air quality. Remedial components that have the potential to generate air emissions include, but may not be limited to, the following:

- Installation of excavation support systems;
- Excavation of Upland Area soils;
- ISS of Upland Area soils;
- Preparation for dredging sediment (e.g., installation of access road, platforms, silt curtains);
- Dredging of impacted sediment;
- Material handling; and
- Other ancillary activities (e.g., clearing/grubbing, site grading).

1.4 EMISSIONS AND CONTROL MEASURES

Air emissions control and fugitive dust suppression measures will be implemented by the Remediation Contractor concurrently with the activities identified above (as needed) to limit the potential for organic vapor and dust emissions from the Site. Air emissions associated with intrusive activities (e.g., excavation, ISS) and certain non-intrusive activities (e.g., loading of trucks, restoration), will be controlled as described below. The following vapor and dust control measures may be used during these activities, depending upon specific circumstances, visual observations, and air monitoring results:

- Vapor suppression foam;
- Use of a water spray;
- Polyethylene sheeting (e.g., for covering stockpiles);
- Temporary clean soil cover of open excavations;
- Reducing exposed excavation surface areas; and
- Reducing vehicle speeds on haul roads.

The Remediation Contractor is required to mobilize vapor-suppressant foam (including application equipment) and polyethylene sheeting to the Site prior to initiating intrusive activities. The Remediation Contractor shall maintain an adequate supply of such materials for the duration of intrusive activities.

2. Community Air Monitoring

As indicated above, the Remediation Engineer will be responsible for conducting community air monitoring at the Site. The Remediation Engineer and the Remedial Contractor will be responsible for work zone air monitoring in the breathing zone of the on-Site work area, if required, for purposes of worker protection. Details of work zone air monitoring will be provided in the respective Health and Safety Plans (HASPs) of the Remediation Engineer and Remediation Contractor.

The constituents of concern at the Site are volatile organic compounds (VOCs) and particulates. VOCs will be monitored using a photo-ionization detector (PID) with a 10.2 eV lamp. Particulates will be monitored using a particulate air monitor equipped with a micro-processor to record real-time measurements of airborne particulate concentrations in micrograms per cubic meter (ug/m^3).

The daily data will be submitted weekly in an electronic format to the following:

- NYSDEC Project Manager;
- NYSDOH; and
- NYSEG Project Manager.

2.1 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

VOCs will be monitored at the upwind and downwind perimeter of the Site on a continuous basis or as otherwise specified. Upwind concentrations will be measured to establish Site-specific background concentrations. In the event of minimal wind or frequent changes in wind direction, multiple locations will be monitored (i.e., three monitoring locations surrounding the work area).

Monitoring instrumentation will include a real-time PID monitor for VOCs equipped with a 10.2-eV lamp, which will be calibrated daily with a 100-parts-per-million (ppm) isobutylene air standard. The Vapor Emission Response Plan (Appendix E2) describes the action levels for perimeter VOC air monitoring and the associated responses to each level.

2.2 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations will be monitored at the upwind and downwind perimeter of the Site on a continuous basis or as otherwise specified. Upwind concentrations will be measured to establish Site-specific background concentrations. In the event of minimal wind or frequent changes in wind direction, multiple locations will be monitored (i.e., three monitoring locations surrounding the work area).

Particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. Each particulate monitor will be calibrated daily with a filtered air sample.

The table below describes the action levels for perimeter particulate air monitoring and the associated responses to each level.

Action Level	Response
Downwind particulate concentrations 100 ug/m^3 greater than upwind particulate monitor sustained over 15-minute average.	Dust suppression techniques are employed.
Downwind particulate concentrations 150 ug/m^3 greater than upwind particulate monitor sustained over 15-minute average.	Work halted and dust suppression techniques evaluated. Work continues once dust suppression techniques are proven successful.

If corrective measures do not decrease dust concentrations below the 150 ug/m^3 action level, the NYSDEC Project Manager will be notified and work may not resume.

2.3 METEOROLOGICAL MONITORING

Meteorological monitoring will be conducted continuously at the Site using a portable meteorological monitoring system. The meteorological monitoring system will be installed at a location near the Site project trailer that allows the system to be secure and easily accessible. At a minimum, the meteorological monitoring system will monitor wind speed, wind direction, relative humidity, and ambient temperature. The meteorological monitoring system will be equipped with electronic data-logging capabilities. A digital meteorological monitoring system will be used to collect the meteorological data.

2.4 DATA MANAGEMENT

The air monitoring equipment shall have the ability to record real-time air monitoring data, which will be continuously logged by each of the instruments during the course of daily operations. Each instrument will have a visible light and telemetry/pager system to indicate when an action level has been exceeded. Data from the air monitoring instruments will be downloaded daily and saved electronically to a dedicated computer located on-site. Fifteen-minute average readings will be recorded during working hours along with the date, time, sampling location, wind direction, and weather conditions. The data will be maintained to allow for future interpretation of the logged data.

The equipment shall be checked by the Remediation Engineer periodically throughout the work day for appropriate function. Site conditions, weather conditions, work activities, implemented engineering controls and/or corrective actions will be recorded on field logs. Copies of field logs will be maintained on-Site and available for review daily.

References

1. New York State Department of Environmental Conservation, 2010. "DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 1A Generic Community Air Monitoring Plan" dated May 2010.

\\haleyaldrich.com\share\man_common\34507_Seneca_Falls\974 Design\Remedial Design\Draft 100% Submission to NYSDEC\Appendix E - CAMP\2017-1201-NYSEG_Seneca Falls_CAMP_FD.docx

APPENDIX E1

NYSDOH Generic CAMP

HALEY ALDRICH

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the

work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see Paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

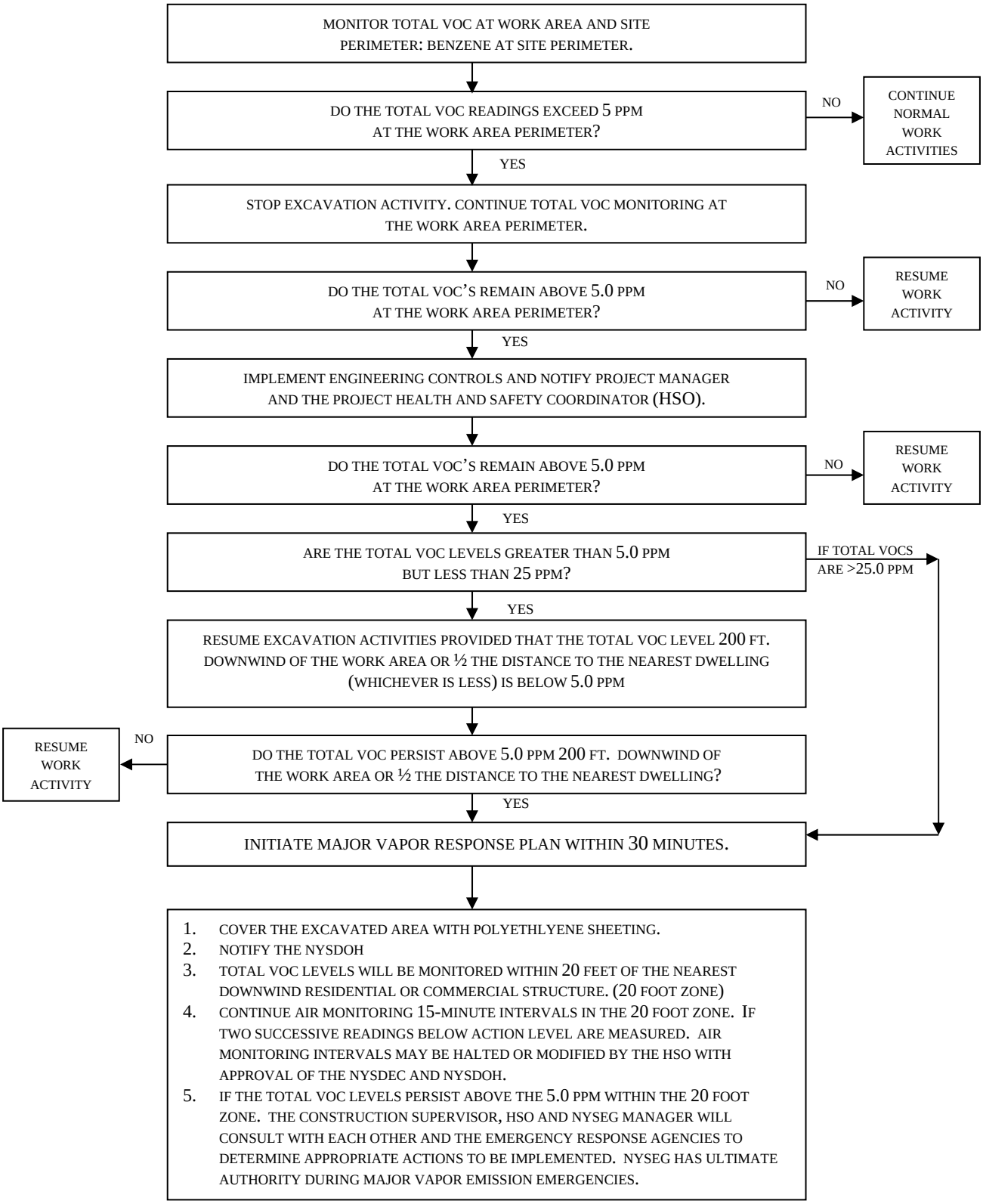
APPENDIX E2

Vapor Emission Response Plan

HALEY ALDRICH

ATTACHMENT II

VAPOR EMISSION RESPONSE PLAN



APPENDIX F

Remedial Action Monitoring Plan

HALEY ALDRICH

HALEY ALDRICH

www.haleyaldrich.com

REPORT ON

REMEDIAL ACTION MONITORING PLAN
SENECA FALLS FORMER MGP SITE, NYSDEC SITE # 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Electric and Gas Corporation (NYSEG)
Binghamton, New York

File No. 34507-026
December 2017

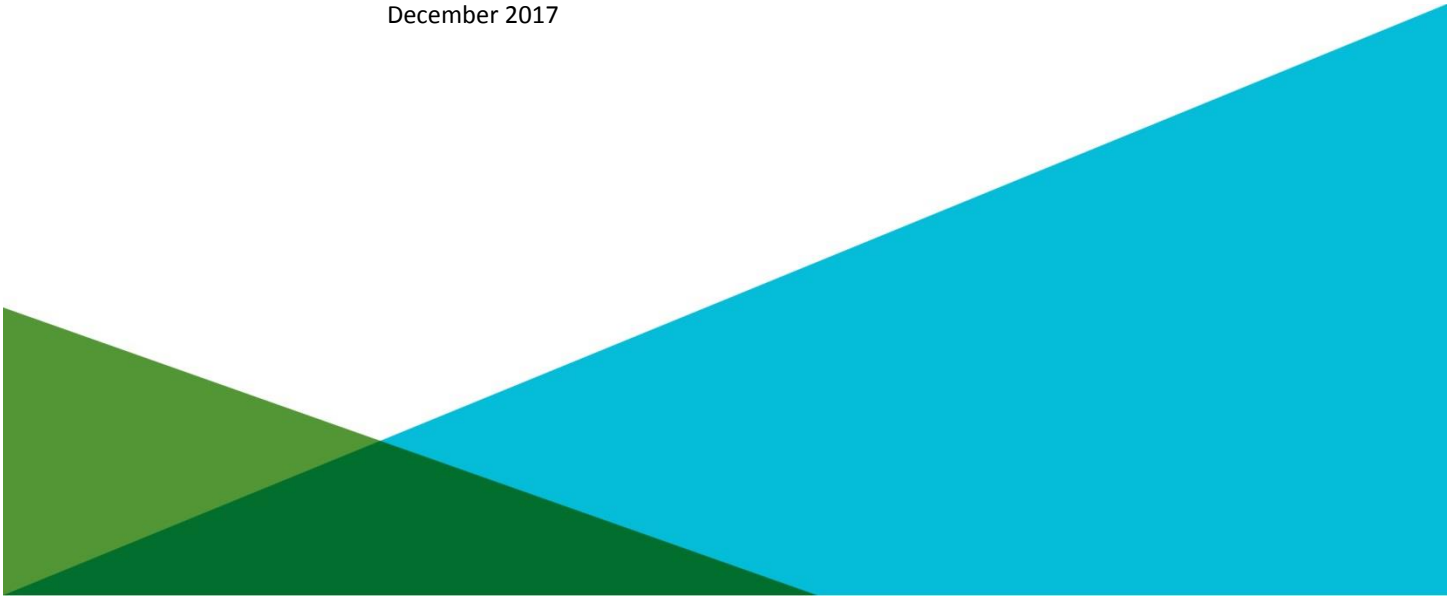


Table of Contents

1. Introduction

This Remedial Action Monitoring Plan (RAMP) was prepared for work associated with the Seneca Falls Former Manufactured Gas Plant (MGP) Site (the Site) and supplements the Remedial Design (RD; Haley & Aldrich, Inc., 2017).

The purpose of this RAMP is to describe the monitoring activities that will be conducted by the Remediation Engineer during the remedial action. Imported backfill, remedial waste, and soil remaining at the Site may be sampled under this RAMP. Surface water, noise, and vibrations will be monitored under this RAMP. Perimeter air monitoring is covered in the Community Air Monitoring Plan (CAMP, Appendix D to the RD). This RAMP specifies the procedures, monitoring frequency, data collection and reporting, action levels, and corrective actions to be implemented during construction.

1.1 SITE LOCATION AND DESCRIPTION

The footprint of the Site is located at 187 Fall Street, Seneca Falls, Seneca County, New York. The Site is located adjacent to the Seneca River and Canal, which flows east towards Cayuga Lake. The Seneca River and Canal is classified as Class C surface water in the vicinity of the Site. The Site consists of an approximately 1.2-acre parcel currently owned by New York State Electric & Gas Corporation (NYSEG) and located in a mixed residential/commercial area. The Site is bordered by Fall Street to the north, residential properties (181-183 and 185 Fall Street) to the east, a Sunoco gasoline filling station (193 Fall Street) to the west, and the Seneca River and Canal to the south. NYSEG currently owns 185 Fall Street, which abuts the Site to the east.

The parcel located at 187 Fall Street is physically defined by Upland and Lowland Areas separated by a steep slope running east-west, located in the approximate center of the parcel. The Upland Area of the parcel consists of a building floor slab and a paved vehicle parking lot located immediately west of the floor slab. The Upland Area is generally flat with an elevation of approximately 456 feet (ft) above mean sea level, bordered to the south by the steep slope and the Lowland Area of the Site. The steep slope and Lowland Area are heavily vegetated. The Lowland Area of the Site gently slopes south to the Seneca River and Canal, with elevations from approximately 430 ft to 433 ft above sea level. Surface drainage (at a macro scale) appears to be to the south toward the Seneca River and Canal. There is a catch basin present on the Upland Area of the Site that drains northerly to a storm sewer line beneath Fall Street.

1.2 SUMMARY OF REMEDIAL ACTIVITIES

The remedial activities to be performed at the Site include:

- Excavation of on-site subsurface structures such as building foundations, the upper portion of the buried former gas holder, and buried piping, which would otherwise interfere with in-situ solidification (ISS) of impacted soils.
- ISS of the on-site impacted materials covering an area of approximately half an acre to depths from six feet to 23 feet below grade.
- A demarcation layer, clean soil cover, and gravel parking lot constructed following ISS.
- Excavation and off-site disposal of off-site soil which exceed Residential Use soil cleanup objectives (SCOs). The excavation will be backfilled with soils meeting the clean fill requirements.

- Vegetated soil cover in two portions of the Lowland Area.
- Dredging of sediment with MGP impacts in the Seneca River and Canal adjacent to the Site. The sediments will be replaced with backfill which meets NYSDEC's chemical and gradation requirements and will restore the benthic habitat.
- Monitored natural attenuation of groundwater.
- Imposition of institutional controls in the form of environmental easements.
- Development of a Site Management Plan (SMP) to identify, maintain, and monitor the institutional and engineering controls at the Site.

2. Remedial Action Sampling

This section provides the sampling requirements for characterizing imported fill for use on-site, documenting conditions of soil left in place, ISS performance assessment, and characterizing waste for off-site disposal. Quality assurance/quality control requirements are provided in the Quality Assurance Project Plan (QAPP; Appendix H to the RD).

The horizontal and vertical limits of MGP-related impacts were previously identified during the pre-design investigation, and the limits of remediation were defined in the ROD (NYSDEC, 2015). Therefore, confirmatory sampling following excavation is not anticipated during the remedial implementation. However, documentation soil samples will be collected at the 185 Fall Street excavation. Confirmatory sediment sampling will not be necessary as dredging will remove sediment to bedrock.

Field sampling procedures, sample identification nomenclature, and chain-of-custody procedures are provided in the QAPP.

2.1 IMPORTED FILL

Imported fill material will be sampled to confirm compliance with DER-10 requirements prior to being imported to the Site.

Fill must meet commercial site use requirements for the Lowland Area soil cover and the ISS cover. Fill must meet restricted residential site use requirements for backfill of the 185 Fall Street off-site residential excavation. Seneca River and Canal sediments will be replaced with backfill which meets NYSDEC chemical and gradation backfill requirements and will restore the benthic habitat. NYSDEC chemical requirements from DER-10 are provided in Technical Specification 31 23 23.13 – Backfill. Sample collection frequency and analytical methods are provided in the QAPP.

2.2 DOCUMENTATION SAMPLES

Soil samples will be collected at the 185 Fall Street excavation to document concentrations of Site constituents remaining at the off-site residential property. Sidewall samples will be collected every 30 linear feet. Bottom samples will be collected at a frequency of one per 900 square feet. Soil samples will be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), and cyanide. Analytical methods, sample handling procedures, and quality assurance sampling requirements are detailed in the QAPP.

2.3 ISS PERFORMANCE SAMPLES

ISS samples will be collected by the Remediation Contractor at locations and depths selected by the Remediation Engineer. Core samples of freshly mixed grout/soil will be collected at a frequency of one per 500 cubic yards (cy) or a minimum of one per day. The Remediation Contractor will conduct field and laboratory testing, including sample preparation, as described in Technical Specification 31 32 13 – In-Situ Stabilization. Sample preparation and analyses are also provided in the QAPP.

One set of duplicate samples per five sets of quality control tests performed will be provided to the Remediation Engineer for quality assurance testing. Quality assurance testing conducted by the Remediation Engineer shall be as follows:

Test Procedure	Frequency	Criteria
Grout Density by Mud Balance (API 13B-1)	1 per 500 cubic yards of solidification, minimum 1 per day and if batch plant operator changes	11-11.5 lbs/gal[1]
Slump (ASTM C143)	1 per mix cell	2 – 6 inches
Mix Homogeneity/ Completeness of Mixing	1 per mix cell	Visual
Coring	1 per 5,000 square feet of ISS treatment area	No visual NAPL or non-mechanical breaks (See 3.06.C.1.d)

2.4 WASTE FOR OFF-SITE DISPOSAL

2.4.1 Solid Waste

Solid waste characterization was conducted by the Design Engineer during the Pre-Design Investigation (Haley & Aldrich, 2015). If additional waste characterization is required, the Remediation Engineer will collect samples as needed. Note that additional data may be needed to satisfy the requirements of the off-site waste disposal facility, which has not yet been selected. Preliminary analytical methods are provided in the QAPP.

2.4.2 Waste Water

Waste water treatment and disposal requirements are provided in Technical Specification 02 70 00 – Construction Water Treatment System. A preliminary list of analytical methods, based on State Pollutant Discharge Elimination System (SPDES) Construction Permit effluent requirements, is provided in the QAPP.

The first “batch” of treated water will be containerized and sampled to assess treatment efficacy and to confirm compliance with the applicable discharge/disposal requirements. Subsequent samples will be collected approximately once per week from the treatment system effluent. Discharge flow will be monitored daily using a flow meter to ensure quantity limits are not exceeded.

3. Remedial Action Monitoring

3.1 SURFACE WATER

Turbidity monitoring will be conducted to protect surface water quality in the Seneca River and Canal downstream from the work area during dredge activities. Control equipment will be installed in the Seneca River and Canal, per Technical Specification 35 11 00 – Signaling and Control Equipment for Waterways. Regular inspection and maintenance of control equipment and turbidity monitoring will be the responsibility of the Remediation Contractor.

Turbidity will be monitored at upstream and downstream locations from the work area three times daily during active sediment removal. Monitoring will be conducted prior to the start of work, at midday, and at the end of the day. Turbidity will also be measured as needed when a high-intensity storm occurs between the routine monitoring events.

The turbidity standard will be the background level (as measured upstream of the dredge area) plus 100 Nephelometric Turbidity Units (NTUs). This will allow for high background turbidity in the event of a storm or increased Canal traffic. If turbidity levels exceed 100 NTUs over background, active construction will stop so that controls can be inspected and repaired and replaced, if necessary.

3.2 NOISE

Per the Town of Seneca Falls Code 300-26 A(3), "noises emanating from temporary construction and maintenance activities between 7:00 a.m. and 6:00 p.m." are exempt from noise level regulations. As such, noise monitoring is not expected to be required during the work. For reference, the noise performance standard at an industrial zone property adjacent to a residentially zoned property is 75 decibels, as measured at the property line. Note that residential properties are located immediately east and north of the Site, across Fall Street.

3.3 VIBRATION

Vibrations due to construction will be monitored for compliance with Town of Seneca Falls Code 300-26 Part E. Vibration monitoring will be conducted by the Remediation Contractor per Technical Specification 01 40 00 – Quality Requirements.

Maximum permitted impact and steady-state vibration displacement is listed in Table I (see next page). These performance standards apply when measured at or beyond the property line. A seismograph will be used to measure vibrations at the 185 Fall Street residential structure. A pre-construction baseline survey will be conducted to assess background vibrations.

Table I – Maximum Vibration Displacement, Town of Seneca Falls Code 300-26 E(2)

	Vibration Displacement (in)	
Frequency[1] (cycles/second)	**Impact[2]**	**Steady-State[3]**
Under 10	0.0010	0.0005
10-19	0.0008	0.0004
20-29	0.0006	0.0003
30-39	0.0004	0.0002
Over 39	0.0002	0.0001

1. Frequency = The number of oscillations per second of a vibration.
2. Impact Vibrations = Earthborne oscillations occurring in discrete pulses at or less than 100 per minute.
3. Steady-state Vibrations = Continuous earthborne oscillations; discrete pulses that occur more than 100 times per minute.

The 185 Fall Street residential structure will also be monitored for settlement. Settlement monitoring requirements are provided in Technical Specification 01 40 00 – Quality Requirements. Settlement monitoring during the work will include surveying of six marked points on the building exterior.

The Remediation Contractor is responsible for installation, maintenance, and monitoring of the vibration and settlement monitoring equipment. Monitoring frequency and reporting requirements are provided in Technical Specification 01 40 00 – Quality Requirements.

3.4 STORM WATER

Storm water will be diverted from open excavations and bulked with construction waste water for off-site disposal or discharge. Refer to Section 2.3 for disposal requirements. Erosion and sedimentation control requirements are provided on the Design Drawings. The Remediation Contractor will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) per the contract requirements. SWPPP inspections and monitoring will be conducted by the Remediation Contractor in concert with the Remediation Engineer.

References

1. New York State Department of Environmental Conservation, 2010. "DER-10 Technical Guidance for Site Investigation and Remediation," dated May 2010.

2. Town of Seneca Falls, New York Code, Chapter 300: Zoning, Article V: Supplementary Regulations, 300-26 Performance Standards, Part E, adopted 1 October 2013.

APPENDIX G

Contingency Plan

HALEY ALDRICH

www.haleyaldrich.com

CONTINGENCY PLAN

SENECA FALLS FORMER MGP SITE, NYSDEC SITE # 8-50-010
SENECA FALLS, NEW YORK

by Haley & Aldrich of New York
Rochester, New York

for New York State Electric and Gas Corporation (NYSEG)
Binghamton, New York

File No. 34507-026
December 2017

Table of Contents

1. Introduction

This construction Contingency Plan has been developed for personnel to follow during the performance of the remedial action at the New York State Electric & Gas Corporation (NYSEG) Seneca Falls Former Manufactured Gas Plant (MGP) site (the Site), in Seneca Falls, Seneca County, New York. The focus of the work is to mitigate the impacts of MGP by-products associated with the Site. The remedial action will consist of mobilization, removal of buried structures, in-situ stabilization (ISS) of contaminated Site soils, excavation of contaminated off-site soils, capping of Site soils, dredging of contaminated sediment, material handling, staging, loading, restoration, equipment decontamination, and demobilization. Soils contain contaminants that may be considered Resource Conservation and Recovery Act (RCRA) non-hazardous waste. This Contingency Plan provides procedures and guidelines that will be implemented in the event of a spill, release, fire, explosion, or other emergency. The Contingency Plan includes information necessary to prevent or minimize hazards to human health and the environment.

This Contingency Plan was prepared in accordance with United States Environmental Protection Agency (USEPA) and Occupational Health and Safety Administration (OSHA) guidance documents. This Contingency Plan supplements the Health and Safety Plan (HASP), which will be prepared separately for the stated field activities. Reasonable precautions will be taken by the Remediation Contractor and its subcontractors to prevent an emergency. However, if an emergency occurs, this Contingency Plan will be carried out immediately and will govern the procedures to be followed. Subcontractors will be provided with copies of this Contingency Plan and will be required to follow the Plan.

1.1 PRE-PLANNING

Planning is essential to handle emergencies effectively. Decisive action is imperative when an emergency arises. Procedures shall be in place to immediately respond to an emergency. Site personnel shall be knowledgeable of their roles and responsibilities. Supplies and equipment shall be on hand and in good working order to address the emergency. Delays can create life-threatening situations.

Prior to the start of the work, the emergency coordinator (EC) will meet with outside response agencies (fire, police, and medical) to coordinate response efforts. During the initial meeting, response personnel will be briefed on the scope of work at the Site, various response situations, Site access control measures, and types of incidents for which response may be required. Each response agency will be kept informed as Site activities and conditions change during field activities.

2. Known Contaminants of Concern

Based on previous Site activities and Site history, the contaminants of concern are MGP related chemicals and are anticipated to be encountered. These include volatile organic compounds (VOCs), specifically BTEX (benzene, toluene, ethylbenzene and xylenes), and polycyclic aromatic hydrocarbons (PAHs).

3. Planned Field Activities

The planned field activities for the Site include the following:

- Site preparation (installation of support facilities);
- Construction of decontamination pad;
- Construction of staging areas;
- Dredging of sediment;
- Capping of select Site soils;
- Installation of shoring/stabilization system;
- Removal of below grade structures (e.g., foundations and piping);
- ISS of Site soils;
- Excavation of off-site soils;
- Material handling and dewatering activities;
- Water disposal;
- Loading and off-site disposal of soils;
- Site restoration;
- Equipment decontamination; and
- Demobilization.

4. Responsibilities and Designation of Emergency Coordinator

The EC or an alternate is responsible for implementing this Contingency Plan during an emergency. The EC will also act as the site Health and Safety Officer (HSO) to maintain continuity in the lines of authority during an emergency. The Site HSO/EC will report to the project Field Construction Manager (FCM), who will report to the NYSEG project manager daily. An alternative EC, who will act in the absence of the project HSO/EC, will be designated in case of the primary EC's absence. Site employees must be familiar with the procedures in this plan and are responsible for implementing the plan should the EC or the alternate be unavailable.

A list of off-site emergency personnel is provided at the back of this plan. The EC/HSO will either notify off-site personnel or designate someone to do so. The first responders consist of police, fire, medical, and possibly the New York State Department of Environmental Conservation (NYSDEC) personnel. They will be alerted as to the type of emergencies that may arise and the types of hazards at the Site.

5. Emergency Telephone Numbers

Emergency telephone numbers are provided below and will be kept by field personnel while on-site. These telephone numbers should be posted next to the closest telephone. Emergency response departments will be contacted by a single call to 911.

Agency	Emergency Telephone Number	Non-emergency Telephone Number
Seneca Falls Volunteer Fire Department	911	(315) 568-2796
Emergency Medical Services	911	Not Applicable
Seneca Falls Police Department	911	(315)568-4850
Seneca County Sheriff	911	(315) 220-3250
Seneca County Emergency Management	Not Applicable	(315) 539-1756
Geneva General Hospital	Not Applicable	(315) 787-4000
National Response Center	Not Applicable	(800) 424-8802
NYSDEC Spill Hotline	(800) 457-7362	(800) 457-7362
INFOTRAC (Emergency Technical Information)	(800) 468-1263	(800) 535-5053
Canal Corp., Maintenance and Operations	Not Applicable	518-449-6055
Canal Corp., Lyons Section	Not Applicable	315-946-6195
NYSEG Project Manager (Jeremy Wolf)	(585) 500-8392	(585) 500-8392
Remediation Engineer Field Construction Manager	TBD	TBD
Remedial Contractor Project Manager	TBD	TBD

6. Communications

Communications will be by voice when possible. As a backup, visual signals will be used. Hand signals will be as follows:

Hand gripping throat:	**Can't breathe.**
Grip partner's wrist or place hands around waist:	**Leave work area immediately.**
Hand on top of head:	**Need assistance.**
Thumbs up:	**OK. I'm all right.**
Thumbs down:	**No. Negative.**

Alternatively, hand-held radios may be used, if they are available and are intrinsically safe. In an emergency, and if necessary, a compressed air horn will be used to notify workers that an emergency exists. The signals shall be as follows:

One long blast:	**Evacuate the area by nearest exit.**
Two short blasts:	**Evacuate by normal exit procedures.**

The EC/HSO will notify emergency personnel or designate an alternate to do so. A portable telephone will be used for this purpose. The portable telephone will be in the clean zone. Emergency telephone numbers are included in Section 5.

7. Evacuation

If the air horn is sounded, employees will evacuate the area. Emergency evacuation routes and assembly areas will be designated at the Site prior to initiating field activities. As field activities progress, it will be necessary to modify the evacuation routes and assembly areas, in accordance with Site conditions and layout. Evacuation routes must be clear of obstructions. Evacuation maps will be drawn on Site layout maps to outline evacuation routes. Evacuation routes, assembly areas, and modifications will be clearly communicated to construction personnel during daily safety tailgate meetings.

The EC will be responsible for directing evacuees to the assembly areas. Personnel will be accounted for at this time and missing persons will be reported to the project superintendent.

7.1 SAFE DISTANCES AND REFUGE

The following minimum safe distances have been established. Depending upon the nature of the incident, the EC may increase these distances. Arrangements will be made with the local police and fire departments to evacuate nearby neighbors. **Decisions regarding the need for and distances of evacuation will be made in conjunction with the fire and police departments and NYSDEC**:

Minor Spills:	Not established.
Major Spills:	Evacuate non-essential personnel to clean zone or 1,000 feet, whichever is greater.
Minor Fire:	Evacuate non-essential personnel to clean zone.
Fire involving a container:	Evacuate personnel 1/2 mile in all directions.
Explosion:	Evacuate personnel 1/2 mile in all directions.

7.2 DRILLS

The EC will coordinate and oversee an evacuation drill/exercise during the early phases of the work. The EC will also coordinate a lessons-learned session following the drill to evaluate and ensure preparedness of persons and organizations involved.

8. Emergency Response Procedures

In the event of a release, the Contingency Plan shall be immediately activated. The equipment to respond to an emergency will be on Site and readily accessible. This equipment is described in the sections that follow. In addition to this Contingency Plan, responses to releases are subject to controls designated in the Site HASP.

8.1 MINOR SPILLS

For purposes of the Contingency Plan, minor spills are those that consist of five gallons or less. Minor spills will be remediated by removing spill debris and underlying or surrounding contaminated soil. Minor spills that occur in other areas will need to be collected using absorbent material such as absorbent pads and/or speedi-dri. If a container is leaking, the container will be placed in an overpack drum. Additional emergency measures will not be implemented unless needed. The Remediation Contractor will have empty drums, speedi-dri, miscellaneous hand tools, fire extinguishers, absorbent pads, and booms to deal with minor spills that occur on Site.

8.2 MAJOR SPILLS

For purposes of this Contingency Plan, major spills are defined as those that involve greater than 5 gallons of material. In the event of a major spill, communication and notification procedures will be implemented. The response will depend on the nature of the release. Attempts will be made to control the release by diking and draining the area. An absorbent pad, speedi-dri, or soil will be used to absorb the release. The removed material will be placed into appropriate drums and sealed to prevent hazards. Employees should note that absorbents solidify the liquid, but do not remove the fire or exposure hazards. Solvents will volatilize from the absorbent and can ignite. Therefore, a fire extinguisher will be brought to the area of the release by the emergency response team until the material is secured inside a drum. If the release is of sufficient magnitude and cannot be controlled by diking, damming, absorbing, or other method, the fire department, NYSDEC, and the National Response Center shall be notified.

The Seneca Falls Fire Department is capable of Hazardous Materials responses.

8.3 SPILLS TO A WATERWAY

The Seneca River and Canal borders the Site to the South. In the event of a spill to the Seneca River and Canal, communication and notification procedures will be implemented. Response actions will be detailed in the Stormwater Pollution Prevention Plan (SWPPP), to be prepared by the selected Remediation Contractor. Response actions may include containing a spill with booms, skimming, or pumping spilled material. The response will depend on the nature of the release. The fire department, NYSDEC, the National Response Center, and the Canal Corporation shall be notified, if appropriate.

Surface water control equipment, including containment booms and silt curtains, will be installed prior to construction to mitigate construction impacts to the Seneca River and Canal. Control equipment and maintenance requirements are provided in Technical Specification 35 11 00 – Signaling and Control Equipment for Waterways. Regular inspection and maintenance of control equipment will be the responsibility of the Remediation Contractor.

8.4 FIRE

A fire extinguisher will be used to control minor fires where a container is not involved. Extinguishing methods may include CO2 or dry chemical. A water spray can also be used (not a direct hose stream). Foam, water spray, or fog can be used on larger spills. If the fire cannot be extinguished immediately or a container is involved, the area must be evacuated immediately, and the fire department notified from a safe location.

8.5 EXPLOSION

In the event of an explosion, the area shall immediately be evacuated, and the fire department notified. Re-entry will not be permitted without an "all clear" from the fire department. The cause of the explosion should be assessed and corrected prior to reentry.

8.6 MEDICAL

Medical emergencies are addressed in the HASP. Appropriate first aid will be administered, and if necessary, the injured individual will be sent to the designated medical facility. An ambulance will be summoned, if needed. The cause of the accident will be determined and corrected, prior to continuing operations. A first aid kit will be maintained in the office trailer.

When possible, injured personnel will be decontaminated or partially decontaminated in accordance with the HASP. Based upon the anticipated toxicity of the contaminants, personnel decontamination procedures may be eliminated in a life-threatening situation. Emergency medical personnel will be notified as to the lack of decontamination. Emergency medical personnel will wash with soap and potable water after handling the victim. Appropriate documentation should be completed in accordance with the HASP.

9. Severe Weather Conditions

When a hurricane, flood, freeze-up, or other severe weather-related threat is detected, Site personnel will immediately be notified. Each Severe Weather Alert will require last-minute preventative measures to minimize potential damage to facilities and equipment as well as the potential migration and transport of Site-related contaminants off-Site. For example, steps such as checking drains, removing electrical material from open yards, protecting soil piles and excavations, and managing sheet flow of water must be evaluated depending on weather conditions.

APPENDIX H

Quality Assurance Project Plan

HALEY ALDRICH